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DISCUSSION PAPER SERIES

IZA DP No. 16172

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ABSTRACT

Does a Flexible Parental Leave System Stimulate Maternal Employment?

This study examines the effect of two recent parental leave reforms in Austria that allow parents to choose leave schemes with varying duration. Using a regression discontinuity design, we find that the introduction of more flexible scheme choices led mothers to take, on average, 1-2 months less of leave. This decrease in leave duration, however, was not accompanied by an employment increase of similar magnitude. To understand the absence of labor supply effects, we examine data on work preferences from the Austrian Microcensus. Child care duties are cited as the primary reason for not seeking work but few mothers indicate that they would start working if better access to formal childcare were available. Switching to the more flexible leave system had a minimal effect on the labor market choices of mothers, as the majority continue to prioritize child care responsibilities and do not consider nurseries as a desirable alternative.

JEL Classification: J12, J13, J18, J22, I38

Keywords: parental leave, gender differences, child care, financial incentives, labor supply, return to work

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1 Introduction

A vast literature studies the determinants of gender pay gaps in the labor market, showing that a large share of the raw gap can be explained by differences in labor market participation and working hours. Recent papers demonstrate that strong earnings differences first appear after the birth of the first child and persist in subsequent years (Kleven et al., 2019a,b, 2020). Child-related gender gaps are particularly large in German-speaking countries like Austria, where long periods of parental leave are frequent and few children below the age of three are in formal childcare. But also in other countries it is common that mothers, but not fathers, leave the labor market or reduce working hours to fulfill family duties. Even if women plan to return to the labor market later on, parental leave can negatively affect their career prospects because they may unlearn skills, cannot keep up with new developments, and lose connection with their professional contacts.

In this paper, we study how parental leave schemes that incentivize shorter leave-taking affect the labor market choices and preferences of mothers with young children. Combining administrative and survey data, our research design exploits recent changes to parental leave policies in Austria. Two reforms in 2008 and 2010 introduced additional parental leave benefit options, which allowed parents to receive the same benefits in a shorter period of 1-2 years instead of three years. In addition to the existing flat-rate scheme, an income-dependent option was introduced, offering higher benefits if parents choose the shortest leave duration.

To study the effects of these changes on labor market outcomes, our analysis relies on data from the Austrian social security database, which covers the universe of private-sector employment and parental leave spells. Because eligibility for the new leave schemes depends on the child's birthdate, we estimate a regression discontinuity design, exploiting the discrete change around each reform's introduction date. Our results show that, due to the introduction of new schemes, mothers take on average 1-2 months shorter paid leave, which amounts to a relative decrease of 7-8 percent compared to pre-reform means. Despite this clear reduction in leave duration, we only estimate marginal increases in labor force participation. The absence of effects can, to some extent, be explained by the requirements of the newly introduced income-dependent scheme. Due to a lower additional-income limit, mothers are less likely to work part-time while they are on parental leave in the first year after birth. Still, even in later periods, when mothers have exhausted the maximum leave duration, labor supply effects remain modest.[1]

[1] In our companion paper (Ziegler and Bamieh, 2023), we examine changes in paternity leave and

To understand the discrepancy between changes in leave-taking and working, we examine survey data from the Austrian Microcensus, which includes the mothers' self-reported labor market states and inquires about the reason for specific labor market choices. Survey responses show that mothers of young children transition only slowly back to the labor market. Even when children are two years old, merely 55 percent of mothers work, seek work, or are in formal education. A comparison to the administrative data on parental leave spells reveals that many mothers still report to be on leave although they do not receive leave benefits anymore. Being asked why they do not seek work, a large majority refer to child care duties, and very few mothers say they would seek work if better access to formal childcare were available. When mothers return to the labor market, only one fifth hold full-time jobs. This is primarily due to childcare responsibilities. Again, only a small share of respondents connects this choice to the lack of suitable childcare options. Analyzing changes over time, we find that the two parental leave reforms had little impact on the labor market choices of mothers.

A large number of previous studies examine the labor market effects of various parental leave policies and evaluate to what extent they help to achieve greater gender equality. Most of these papers exploit extensions of existing parental leave schemes as natural experiments. In a meta-analysis covering micro evidence from several countries, Olivetti and Petrongolo (2017) conclude that there is no consensus on how parental leave eligibility affects labor market participation of women. While some evaluations find that leave programs delay the return to work (Lalive and Zweimüller, 2009; Lalive et al., 2014; Dahl et al., 2016), other studies find negligible or very heterogeneous effects on labor supply of mothers (Kluve and Tamm, 2013; Schönberg and Ludsteck, 2014).

Closely related to our work is a recent study by Kleven et al. (2020), who consider several reforms that introduced, expanded, and scaled back eligibility for parental leave in Austria. Focusing on earnings differences between mothers and fathers, they conclude that the policy changes did not have a significant impact on gender equality. Compared to this study, our paper considers two more recent reforms, which introduced more flexibility in combination with more generous benefits. For the first time, parents could choose much shorter leave spells at the same or an even higher level of financial compensation. Moreover, we supplement our analysis with insights from the Microcensus, which help to explain the mechanisms behind observed labor market effects.

Our findings indicate that financial incentives for shorter parental leave spells have limited effects. While offering higher flexibility reduces parental-leave benefit duration, it

show that the two reforms increased take-up but decreased average leave duration among fathers.

fails to generate the desired labor supply response. As a result, the introduction of more flexible benefit schemes has primarily redistributive effects towards parents, especially benefiting high earners.

2 Setting and data

2.1 Parental leave schemes in Austria

During the years considered in our analysis (2002-2015), Austria provided universal parental leave benefits (*Kinderbetreuungsgeld*) for up to three years following childbirth.[2] Parents have the flexibility to use these benefits in multiple intervals, with breaks in between, and there is no requirement for current or prior employment for eligibility. The minimum duration of parental leave is two months per parent, but their leave periods can overlap for at most of one month. While receiving leave benefits, parents may also work but earnings above the additional-income allowance threshold will be deducted from their benefits. Under Austrian dismissal protection law, employees are entitled to return to their original job up to the child's second birthday. Each parent is entitled to a minimum of two months paid leave.

In 2008 and 2010, Austria introduced additional parental-leave benefit schemes. These schemes offer shorter leave options at different benefit rates, complementing the uniform benefit scheme described above. We summarize the conditions of all available parental leave options in Table 1. Prior to 2008, parents were eligible for daily benefits of 14.53 euros (around 440 euros monthly) for a total of 36 months (Scheme 30+6). To fully utilize this duration, both parents had to take a minimum of six months of leave. For instance, the mother could take 30 months, while the father took six months, or vice versa. Parents were allowed to work part-time during their leave, provided their income did not exceed 60 percent of their previous annual earnings or 16,200 euros per year; benefits exceeding this amount were deducted.

Starting in January 2008, two shorter leave options were introduced (Schemes 20+4 and 15+3), offering benefits for up to 24 or 18 months with daily rates of 20.8 and 26.6 euros, respectively. A share of leave was again exclusively reserved for each parent: four months in the 24-month scheme and three months in the 18-month scheme. In January 2010, an even shorter option was launched, providing up to 14 months of benefits, with two months reserved exclusively for each parent (Scheme 12+2). For this briefest option,

[2]All parental-leave benefit schemes are funded through the budget of the Austrian Federal Ministry for Family Affairs.

parents could opt for a fixed daily rate of 33 euros or an income-dependent plan that paid 80 percent of the applicant's average net monthly income in the last three working months before childbirth, with a lower and upper limit of 33 and 66 euros per day (approximately 1,000 and 2,000 euros monthly). If parents selected the income-dependent plan, any extra income exceeding 5,800 euros annually would be deducted. The scheme choice had to be specified in the initial benefit application and could not be changed later on.[3]

While shorter leave plans have increased daily rates, the total benefits are comparable for all flat-rate options, ranging from approximately 14,000 to 16,000 euros, if parents utilize the entire leave period. These schemes aim to provide extra flexibility for parents without affecting their overall benefit payments. Conversely, the income-based plan offers greater financial incentives for parents to take shorter leave.

Table 1: Parental leave schemes

	Flat rate				**Income dependent**
Duration (in months)	30+6	20+4	15+3	12+2	12+2
Available since	2002	2008	2008	2010	2010
Day rate (in euros)	14.53	20.8	26.6	33	80% of prev. net monthly income (capped at 66)
Additional-income allowance (in euros per year)	60% of last annual income (at least 16,200)				5,800
Share for cohort 2005	1.00	0.00	0.00	0.00	0.00
Share for cohort 2009	0.53	0.26	0.21	0.00	0.00
Share for cohort 2013	0.37	0.27	0.05	0.09	0.21

Note: The minimum leave duration is 2 months for each parent. Shares of duration choices inferred from realized leave duration.

The public discussion and legal implementation of both parental leave reforms occurred just a few months before they took effect, preventing parents from anticipating these changes. As a result, fertility rates around the introduction date could not have been affected. Upon the introduction of the new scheme in 2008, all parents with children under three years old were eligible, including those already participating in existing schemes. However, parents could only switch for the remaining months, and no refunds were given for benefit differences in previous months. For instance, a child born in June 2007 would have only had access to the 30+6 scheme before the reform. From January 2008, the family could choose to switch to shorter options for the remaining months, but this

[3]An in-depth discussion of the income-dependent scheme and its implications for household-income replacement rates is provided in our companion paper on paternity leave (Ziegler and Bamieh, 2023).

would decrease the overall benefit payments. Switching schemes was primarily appealing to families with a strong preference for shorter leave periods who did not plan to use all the leave months offered by longer schemes. The older the child at the time of the reform, the less attractive it was for families to switch to the new shorter schemes. Parents with children born before 2006 were unable to switch to shorter schemes, as they had already been eligible for at least two years of leave. The 2010 reform had a much shorter transition period, and only parents with children born between October and December 2009 could switch to the new income-dependent scheme for the remaining months. In section 3.1, we will discuss how to address these transition periods econometrically.

The lower part of Table 1 reports take-up rates of the different leave schemes among mothers of children born in selected years before, in between, and after the two reforms.[4] The changes over time show that many parents use the newly introduced schemes. For children born in 2009, almost half of all mothers chose one of the shorter flat-rate schemes (20+4 or 15+3). For children born in 2013, 20 percent of mothers chose the income-dependent option, while only around a third continued to use the 30+6 scheme.

2.2 Administrative records

The first part of our empirical analysis is based on person-level records from the Austrian social security administration.[5] The database covers the universe of private-sector employment relations, which constitute the vast majority of the Austrian labor market. The data include all work spells and also record the associated daily earnings.[6]

Next to employment relations, the database also records childbirths and parental-leave benefit spells. While the chosen scheme duration is not documented, we can proxy these choices based on the observed duration of the benefit spells. Since 2013, the database also indicates whether parents choose the income-dependent benefit scheme. In theory, parents may take official leave from their employer without receiving benefits, but these leave spells are not recorded by the social security administration.

We use the administrative records to examine how the additional leave schemes affected mothers' leave duration and to what extent their employment and earnings responded to

[4]Because the data do not track which scheme duration parents choose, we infer these choices from the realized duration of leave spells, assuming that parents utilize (almost) all leave months offered by the respective scheme.

[5]This dataset, also known as the Austrian Social Security Database (ASSD), has been widely employed in prior research, including assessments of previous parental leave policies. Zweimüller et al. (2009) provides a comprehensive description of the ASSD.

[6]The database does not cover work spells of civil servants, self-employed workers, and minor employment relations, which are exempt from social security contributions. Earnings are capped at the maximum social security contribution threshold.

these changes. Our estimation sample includes all paid parental leave spells of mothers whose children were born between 2002 and 2015, spanning several years before and after the parental leave reforms. This sample covers approximately one million child spells—parental leave related to the birth of a child—from 700,000 mothers.

2.3 Microcensus data

In the second part of our analysis, we explore survey data from the Austrian Microcensus. Although the Austrian administrative data allow us to estimate the reform effects on leave duration and labor market outcomes, they offer little insight into the underlying mechanism driving these effects. To better understand observed changes, we instead leverage detailed data on labor market states and work preferences from the Microcensus.

Conducted by Statistics Austria, the survey collects data on a representative sample of 22,500 households every three months. Households remain in the sample for up to five consecutive quarters. Since 2004, it also includes the Austrian Labor Force Survey. The core questionnaire contains detailed questions about the respondents' work history, as well as several questions about work-related preferences and expectations. Specifically, we infer from the survey how often mothers work part-time and, if they do not work, to what extent they search for a job or complete further education or (re)training. Depending on the reported labor market state, respondents are also asked to report why they do not search for work or why they do not work full-time. An important distinction to the administrative data discussed above is that the labor market state *parental leave* does not necessarily refer to a parental-leave benefit spell. Some parents might still report being on leave although their leave benefits are already exhausted if they still focus on childcare duties afterward.

Our analysis of the Microcensus focuses on mothers of children aged 0-3 years who were interviewed between 2005 and 2013.[7] This sample includes almost 60,000 observations from about 16,600 mothers. To get representative results for the Austrian population, we will weight all estimates using survey weights. Supplementing our analysis with insights from the survey data, we can get a more complete picture of the labor market situation of mothers. Moreover, the data allow us to reconcile our findings on the impact of the two parental leave reforms.

[7]Due to revisions of the Microcensus, we do not extend the sample with data from earlier or later years.

3 Effects of the parental leave reform

3.1 Identification

As in our companion paper on paternity leave (Ziegler and Bamieh, 2023), we use a regression discontinuity (RD) design to identify the impact of the 2008 and 2010 parental leave reforms. Specifically, we compare labor market outcomes between mothers who gave birth before and after the introduction dates, while accounting for secular trends during this period. For every post-childbirth outcome Y_i for mother i, we estimate the following regression equation:

$$Y_i = \alpha_{m(i)} + \beta\, f(month_i) + \gamma\, post_i \times f(month_i) + \delta\, post_i + \varepsilon_i. \tag{1}$$

Variable $month_i$ denotes the normalized birthmonth, with month 0 defined as the first month in which the respective reform took effect. $post_i$ indicates whether the child was born after January 1, 2008 (or January 1, 2010), and polynomial $f(.)$ accounts for cohort trends in the outcome variable. To control for seasonal variation, we also include calendar month indicators ($\alpha_{m(i)}$).

Effects of the two reforms, captured by the coefficient on $post_i$ (δ), are assessed separately using two distinct samples. For the evaluation of the 2008 reform, the sample includes parents of children born between 2002 and 2009. Subsequent cohorts are excluded to prevent the second reform from confounding the estimates. Similarly, when examining the 2010 reform, we limit the sample to children born between 2009 and 2015. This is because parents of children born before this period already experienced changes due to the first reform.

As discussed in the previous section, both reforms were implemented with a transition period. Also, leave-taking parents of children born before the implementation dates had the opportunity to switch to one of the new schemes. In 2008, parents of children born in the preceding 24 months could switch, while in 2010, only the preceding three birthmonths were affected. Having the option to change the parental leave scheme, these parents do not constitute a valid control group. To avoid biased estimates of the reform effect, we exclude all children born during the affected months from our estimation sample. This leave-out approach, also referred to as donut RD, implicitly extrapolates trends during these months from changes in the preceding period, which are captured by the cohort trend $f(t)$ and the calendar month fixed-effects α_m.[8]

[8]See Ahammer et al. (2020); Kleven et al. (2020) for other applications of donut RD designs. Kleven et al. (2020) use the leave-out approach to analyze the effects of the 1961 parental leave reform in Austria, which was also implemented with a transition period for earlier births.

3.2 Impact on labor market outcomes

Using the administrative dataset, we apply the outlined RD design to estimate the reform effects on leave duration, employment, and earnings of mothers. When we discuss leave outcomes in this section, we always refer to leave-benefit spells, which are covered in the administrative records. Our main focus is on the effects within the first three years following childbirth. This period corresponds to the maximum duration for which parental leave benefits are paid for each child.[9] While longer-run effects are also possible, we expect that most changes occur within the first three years. This is when mothers have the opportunity to opt for shorter leave.

We start our analysis with a graphical illustration of trends around the introduction of new parental leave schemes. Figure 1 shows leave and work duration of mothers in the first three years (measured in months) by the child's birthmonth. The upper plot (blue bins) demonstrates that the two reforms in 2008 and 2010 substantially reduced leave duration among mothers. While the average length of leave spells decreases slightly and smoothly before and after each reform, the plot exposes clear discontinuities around the implementation dates. This decline already starts in the last months of the transition periods (red bins), indicating that many mothers of children born shortly before each reform used the opportunity to switch to one of the newly introduced schemes.

The timing of effects highlights the importance of accounting for transition periods in the estimation of our RD design. Comparing mothers who gave birth just around the introduction dates will not yield any meaningful differences because everyone in this sample could benefit almost equally from the additional leave options. Instead, we need to extrapolate the expected leave duration just before each introduction from previous trends. These pre-trends can be estimated precisely because we observe all leave-takers in multiple cohorts prior to each reform. As shown in the graph, the pre-trends of both reforms are small and exhibit almost no fluctuation between adjacent birthmonths.

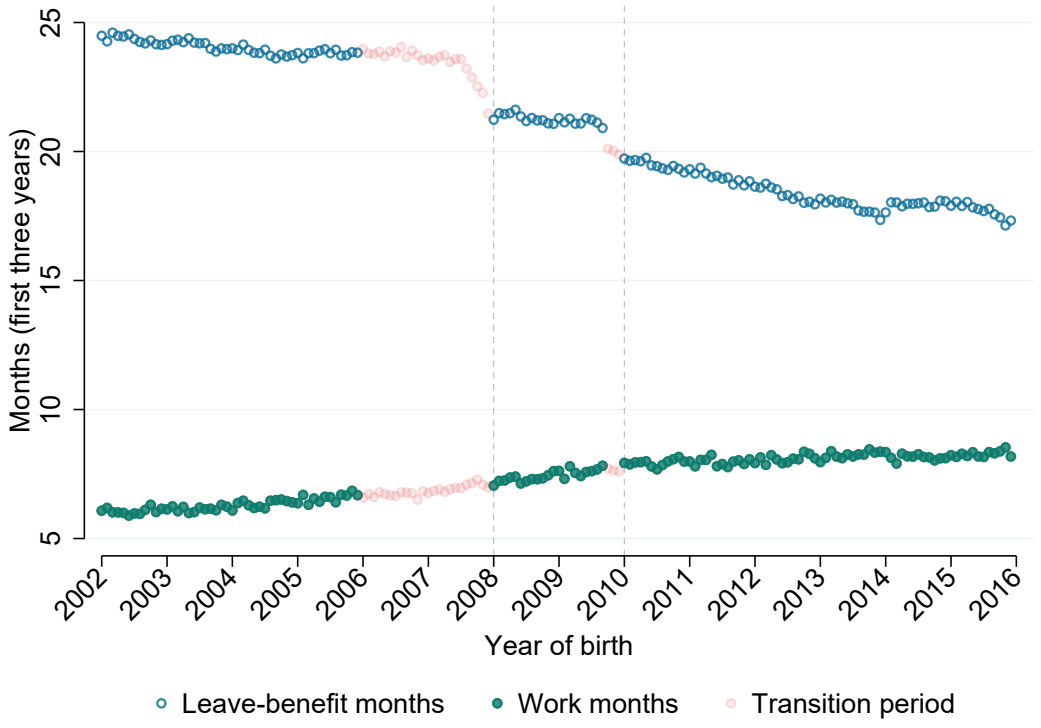
While the new schemes led to a substantial reduction in average leave duration, we find no evidence for simultaneous changes in labor supply. The lower plot (green bins) illustrates trends in work months during the first three years after birth. Across the span of child cohorts in our sample (2002-2015), work months of mothers monotonically increased by about 35 percent but the time series exhibits no visible discontinuities around the reform implementation dates. This shows that the reform-induced decline in parental leave duration did not lead to an increase in labor market participation of mothers with

[9]Receipt beyond three years is only possible if an additional child is born while mothers still receive benefits for the previous child.

young children.

To quantify the discontinuities after each reform, we estimate the RD design as shown by equation (1) for various outcomes. Table 2 reports the corresponding estimates and compares them to mean outcome levels observed in the 12 months prior to the respective transition period (referred to as *pre-reform mean*). Analogously to Figure 1, the first two columns show changes in leave and work months. The reforms in 2008 and 2010 reduce parental leave duration by 2 and 1.5 months, which corresponds to decreases of approximately 7-8 percent relative to pre-reform averages. However, we find no evidence of meaningful changes in work months. The RD estimate for the 2008 reform is only marginally significant, indicating an increase of merely 0.16 months. The corresponding estimate for the 2010 reform is even smaller and statistically indistinguishable from zero. This confirms that the reduction in leave duration during the first three years after birth is not accompanied by a corresponding increase in labor supply.

Figure 1: Leave benefits and work by birthmonth of child



Alongside the separate analysis of leave and work months, we also consider the duration in which mothers are either on leave or working. Leave-takers are allowed to continue working during benefit receipt, and benefit payments are only reduced if their earnings

exceed the scheme-specific additional-income allowance threshold. Consequently, reform-induced changes in the joint duration do not necessarily equal the sum of effects on leave and work months. This is particularly relevant in the context of our study. The first reform in 2008 substantially reduced the minimum leave duration but left the maximum income allowance unchanged at a relatively high level (see Table 1). Assuming that women return to the labor market with the same hourly wage they earned before childbirth, they can still work at least 60 percent of their previous working hours without any deduction in benefit payments. In contrast, the additional income limit is significantly lower when parents opt for the income-dependent scheme (5,800 euros per year). Therefore, we expect that, after its introduction in 2010, relatively fewer women would choose to work while receiving parental leave benefits.

Table 2: Reform effects on leave, work and fertility (first 3 years)

	Leave months	Work months	Leave/work months	Monthly earnings	Further children
2008 reform	-1.870***	0.159**	-0.738***	13.058***	0.001
	(0.071)	(0.080)	(0.077)	(4.178)	(0.004)
Pre-reform mean	23.819	6.570	26.966	267.291	0.219
2010 reform	-1.546***	0.054	-0.994***	7.986**	-0.004
	(0.063)	(0.071)	(0.068)	(3.953)	(0.003)
Pre-reform mean	21.149	7.570	26.059	316.080	0.221

Note: N = 430,975 (Reform 2008); N = 596,819 (Reform 2010). The table shows the reform effects as estimated by RD-equation (1). All regressions include calendar month indicators and a linear time trend. * p<0.10, ** p<0.05, *** p<0.01

We observe indeed that overlapping leave and work spells are not uncommon: mothers work on average during 12 percent of their parental leave days. The RD estimates in the third column of Table 2 show how the introduction of new schemes affected the duration in which mothers are either on leave or engaged in work. Although both reforms led to a strong reduction in this outcome, the impact is smaller than the combined effects on leave months and work months, as shown in the previous columns. This suggests that mothers who would have already started working while on leave before the reforms are more likely to choose one of the shorter schemes. The discrepancy between the sum of effects in column (1) and (2) and the impact on the joint duration in column (3) is larger in 2008 than in 2010. This is plausible because the income-dependent leave scheme introduced in 2010 imposes a low additional-income threshold, diminishing the financial incentives to work when parents receive parental leave benefits.

Although shorter leave schemes do not affect the employment rates of mothers, there may be positive effects on their earnings. Our estimates in Table 2 provide little support for this hypothesis. Although the coefficients are positive, the effect size (relative to pre-reform means) is very small and only marginally significant in 2010. These changes could be driven by higher hourly wages or an increase in working hours. Because the Austrian Social Security Database does not record working hours, we cannot distinguish between these two channels. Previous literature shows that, upon returning to the labor market, mothers tend to receive lower hourly wages because they work part-time or switch to jobs that offer lower pay (Manning and Petrongolo, 2008; Cortés and Pan, 2019; Le Barbanchon et al., 2021). Nonetheless, we argue that strong effects on hourly wages are implausible in our setting. Given that we do not find employment effects, for there to be an effect on hourly wages we would have to assume that women switch to higher-paid jobs as a result of shorter leave duration. A more plausible explanation for strong positive earnings effects, which in any case we do not find, would have been an increase in the extent of work because mothers no longer have income restrictions when their leave spell ends.

Because the new leave schemes are substantially shorter, it is possible that the induced changes in leave duration also affect future fertility choices of parents. In our sample of maternity leave spells, we observe that every fifth woman gives birth to another child during this period. Lalive and Zweimüller (2009) show that the extension of parental leave in 1990 delayed return to work and increased fertility among affected mothers. Given the absence of strong employment effects after the 2008 and 2010 reforms, we would not expect analogous decreases in fertility when parental leave spells become shorter. Being able to choose shorter and more generous benefit schedules, parents might instead decide to have more children sooner. Before the reforms, they would have to forgo benefit payments for the current child if another child was born during the first three years. Choosing one of the new schemes introduced in 2008 and 2010 allows them to receive a similar or even higher amount of benefits in a shorter period, which may alter fertility in subsequent months. Yet, our estimates demonstrate that the probability of having another child within the first three years remains unaltered. As shown in the last column of Table 2, the reform effects are close to zero and estimated with narrow confidence intervals.

To test the robustness of our RD estimates, we replicate the analysis using different regression specifications. Instead of a linear time trend, we allow for a quadratic polynomial, and we also assign greater weight to observations close to the threshold, using an

Epanechnikov kernel. Table A.1 in the appendix summarizes the results, showing that most estimates are similar across specifications. All columns indicate that, while leave months decrease considerably, changes in labor supply are very moderate.

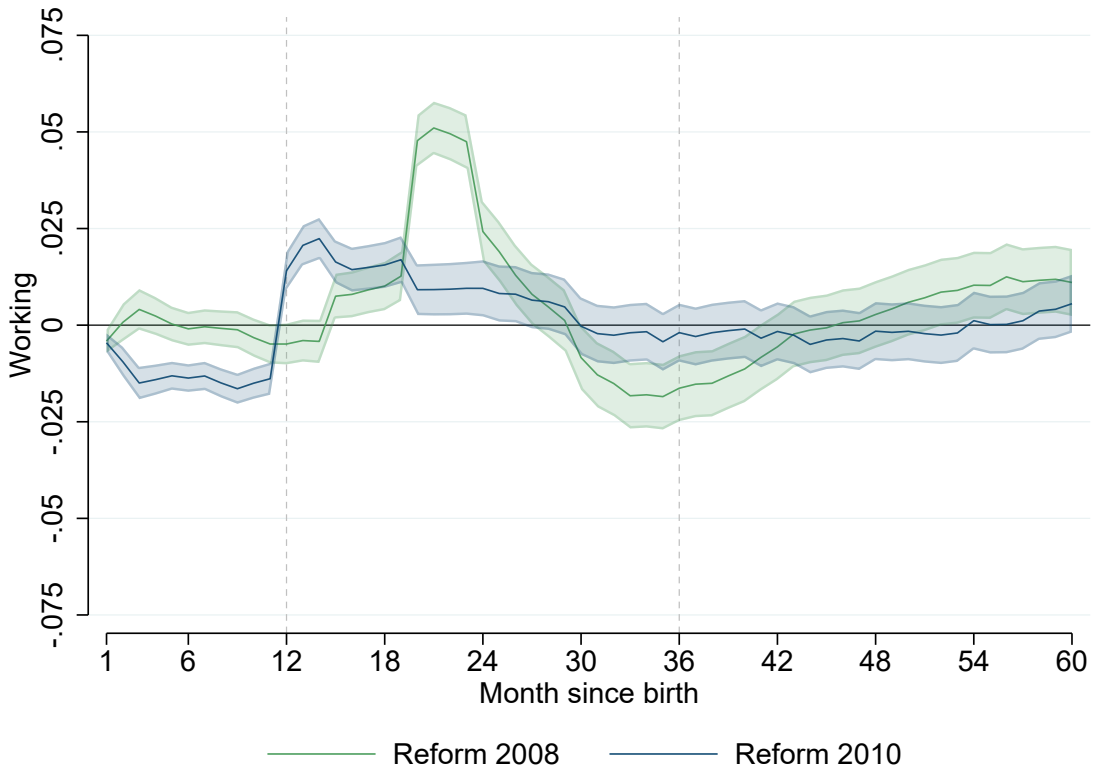
The lack of sizeable employment and earnings effects is unexpected, considering that each reform shortened the average leave duration by about 1-2 months. To better comprehend this result, we study the effect dynamics by estimating changes separately for each month after childbirth up to the fifth birthday of the child. The graphs in Figure 2 show the corresponding RD estimates for both reform effects on employment. Even though the cumulative impact after three years is close to zero (as shown in Table 2), we do observe significant changes in specific months, which coincide with the maximum benefit duration of the introduced leave schemes.

The graph shows that the 2008 reform slightly accelerates mothers' return to work. While working rates are not affected during the first months, the estimates turn statistically significant in the 15th month after childbirth, when the duration of the shortest available scheme (15+3) is exceeded. The effect size further jumps to about five percentage points after 24 months, coinciding with the expected end date of the 24+4 scheme. In later months, the estimates decrease and even turn negative before recovering again. This suggests that some mothers indeed return to the labor market earlier but that the corresponding work spells tend to be short-lived, yielding lower working rates in subsequent months. As a result, we do not observe significant cumulative changes in labor supply within the first three years.

The 2010 reform, instead, leads to significantly lower working rates in the first 12 months after childbirth. This change likely reflects attenuated work incentives of mothers who choose the income-dependent scheme, which allows only 5,800 euros in additional income per year. The restriction renders most regular work relations during an active parental leave spell unfeasible, unless they can work very few hours or accept a one-to-one deduction in benefit payments. As expected, the reform effect turns positive and peaks at 2.5 percentage points after 12 months, when the benefits of the 12+2-leave options are exceeded. But, similar to the impact of the 2008 reform, the positive work effect does not persist and diminishes in later months to zero. The two opposing effects explain why there is no cumulative impact after the first three years. Additionally, in the subsequent years, we do not find evidence of sizable differences due to the two reforms.

As shown in Figure A.2 of the Appendix, the timing of effects on monthly earnings follows a very similar pattern, suggesting that the income dynamics are largely driven by the changes in employment.

Figure 2: Impact on working rates by month after childbirth



Note: N = 430,975 (Reform 2008); N = 596,819 (Reform 2010). The graph shows reform effects on working in each month after childbirth, which are obtained from separate regressions of RD-equation (1). All regressions include calendar month indicators and a linear time trend.

4 Labor market states and work preferences

Due to the availability of shorter leave options, women take substantially shorter leave after the birth of a child. Yet, this reduction in leave-taking is only accompanied by very modest increases in maternal labor supply. From a financial perspective, it can be beneficial to choose one of the shorter leave schemes because the overall amount of benefit payment is comparable between all flat-rate options (if the maximum duration of each scheme is used up). This allows parents to receive benefits sooner and removes the limitations imposed by the scheme's additional-income restrictions. Moreover, the income-dependent scheme, which is only available for the shortest duration (12+2), offers up to 100 percent higher benefit payments. In light of these gains, many mothers may opt for one of the shorter schemes, even if they do not intend to return earlier to the labor market. Because parents have to choose the scheme at the start of parental leave, some mothers may not have decided yet on the timing of their return and wish to maintain the possibility of an early return without compromising benefit payments.

Another explanation might be that mothers plan to return earlier but cannot find

suitable childcare alternatives since childcare spots for children below the age of three are still limited in Austria.[10] As a result, many mothers may remain on leave after the parental leave reforms, although their parental leave spell already ended. While the reforms' intention was to remove financial disincentives to return quickly to the labor market, our analysis shows that overall labor supply responses are negligible.

Although we can precisely estimate reform effects on employment and parental-leave benefit spells, the administrative records fall short in explaining the observed discrepancy between leave and employment changes. To better understand these patterns, we supplement the analysis with survey data from the Austrian Microcensus. Respondents of this survey report their labor market states in greater detail, and they are also asked to state the reasons behind some of their labor market choices. In this section, we will use the survey's cross-sectional data on mothers to study trends in labor market participation, stratified by the age of their youngest child (age 0-3).[11]

Figure 3 provides a descriptive characterization of the mothers' self-reported primary labor market state at the time of the survey interview. Next to being on parental leave and working, respondents also frequently report that they are seeking employment, are taking care of the household, or are enrolled in education or training programs.[12] As discussed in Section 2.3, the definition of parental leave differs between our samples. While the administrative records only include parental-leave benefit spells, the Microcensus asks about parental leave in general. In addition to benefit spells, this might include leave periods from work that are not covered by benefits or periods in which mothers without an active work contract or benefit spell take care of their children.

Figure 3 shows that almost 90 percent of women with children younger than one year report that they are either on leave or taking care of the household. This changes only marginally when children are one year older. Less than 20 percent have returned to the labor market, and two-thirds of the working respondents report having part-time jobs. 75 percent of mothers are still on parental leave or maintain the household. By the time the youngest child is two years old, 43 percent of mothers have started working again, and another 12 percent are in training or seeking work. Only one fifth of the working

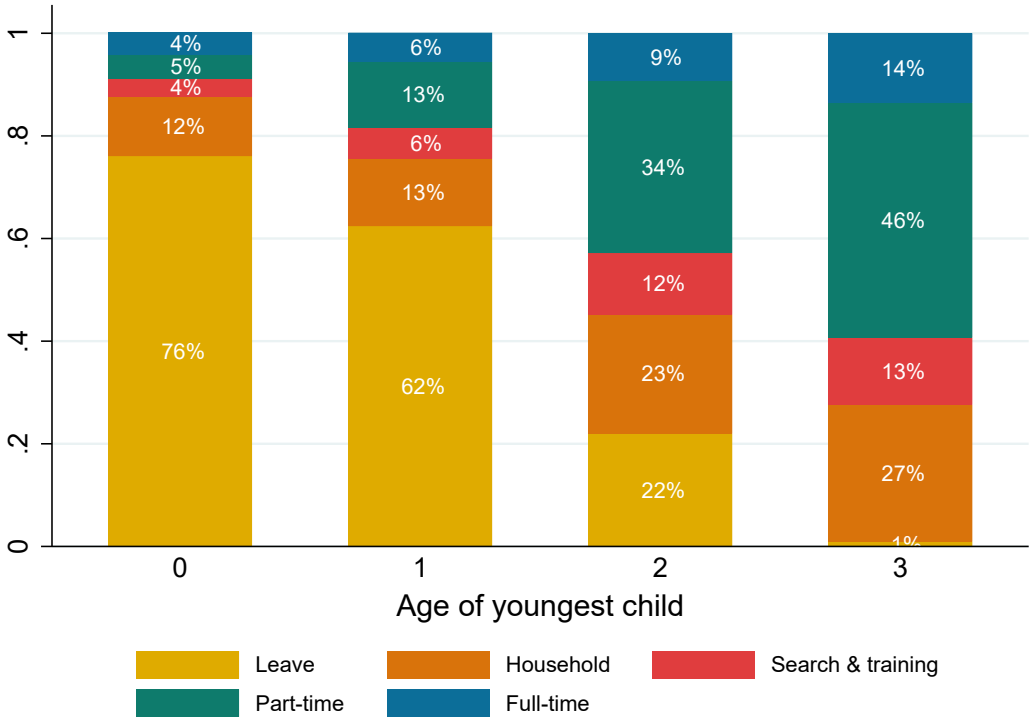
[10] In 2011, one year after the second parental leave reform, only 14 percent of children aged 0-3 were in formal childcare in Austria. The European Union average was 29 percent in that year. (European Commission, 2018)

[11] Unlike the social security records, the Microcensus only covers a subset of households and tracks them for at most five consecutive quarters, which does not allow us to replicate our earlier analysis.

[12] We disregard all remaining labor market states, and we do not consider cases where it is not reported whether respondents work part- or full-time. These instances amount to less than two percent of the sample. If respondents claim to be unemployed but they neither search for work nor participate in training or education programs, we classify them as managing the household.

mothers report being employed full-time. When the child turns three, parents are not eligible for parental leave benefits anymore, regardless of the leave scheme they choose. In line with the expiration of leave benefits, only one percent of mothers report still being on leave. 60 percent of women have returned to the labor market by this age, mostly still working part-time jobs, and 27 percent take care of the household.

Figure 3: Labor market states of mothers



Note: The sample excludes workers without part-/full-time information (0.6%) and other labor market states such as disability and pension (1.1%). *Leave* and *Search & training* exclude individuals who concurrently work. *Household* includes unemployed individuals who do not search and are not on leave.

These changes show that the mothers' transition to the labor market is slower than the average duration of leave benefit schemes would predict, which decreased from approximately 24 to 18 months between 2005 and 2013 (see Figure 1). Even when the youngest child is already two years old, only about half of the mothers report being back to work, seeking work or undertaking additional training or education. As 80 percent of working mothers have part-time jobs, choosing a shorter scheme is unlikely to provide a financial advantage at this stage. Without full-time earnings, the longer scheme's additional-income limit is rarely reached.

Next, we examine trends in self-reported parental leave of mothers and compare them to the corresponding trends in leave benefits, as observed in the social security records. The two graphs of Figure 4 show that benefit spells and self-reported leave spells have

evolved similarly during the period of observation (2005-2013). Due to the smaller sample size, trends in the Microcensus are estimated more noisily. Strong trends begin to emerge around 2008, the year of the first parental leave reform, and the observed changes are consistent with the high take-up rates of the newly introduced shorter leave options. Note that whether parents are affected by the first reform in a given survey year depends on the age group. For instance, parents of three-year-old children who are eligible for the shorter schemes introduced in 2008 are first observed in 2011. To visualize this difference, the graphs depict pre-reform cohorts with dashed lines, and post-reform cohorts with solid lines.

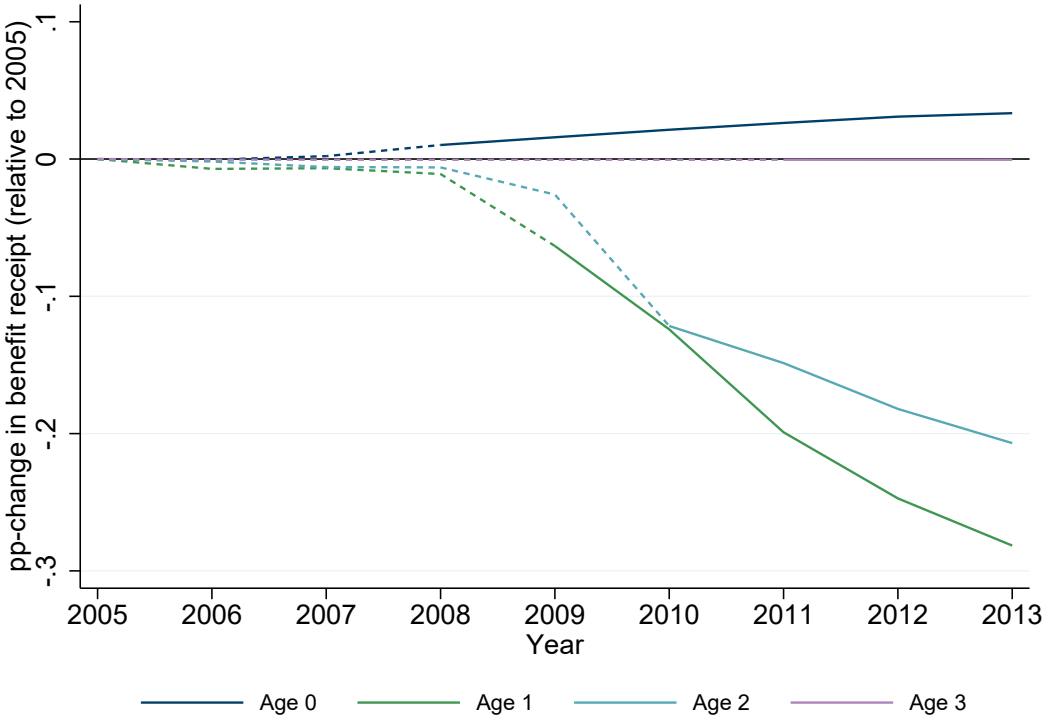
When children are below one year old, we observe little change over time because the two reforms did not alter the leave incentives at this stage. For parents of one- and two-year-old children, leave rates strongly decline, and the decline largely coincides with the first child cohorts that were eligible for shorter leave schemes. While the share of mothers with leave benefits decreased between 2005 and 2013 by 20 percentage points for one-year-olds and 30 percentage points for two-year-olds, we observe smaller decreases of approximately 10 and 15 percent in self-reported parental leave. Comparing both trends, the difference suggests that about half of the mothers who chose shorter benefit options remained on leave. When children turn three, parents are not eligible for parental leave benefits anymore, and we do not observe any changes over time in this group either.

Focusing on the sample of mothers with 1-2-year-old children, who have been found to decrease parental leave duration in response to the reforms, we next examine concurrent trends in the remaining labor market states. Figure 5 shows that the share of mothers with part-time employment steadily rose over time, while the shares of the remaining categories (excluding leave) remained relatively similar. This is consistent with the findings from our previous analysis of employment outcomes: labor supply of mothers in the first three years after childbirth gradually increases over time but we cannot find evidence that the parental leave reforms contributed to this trend.

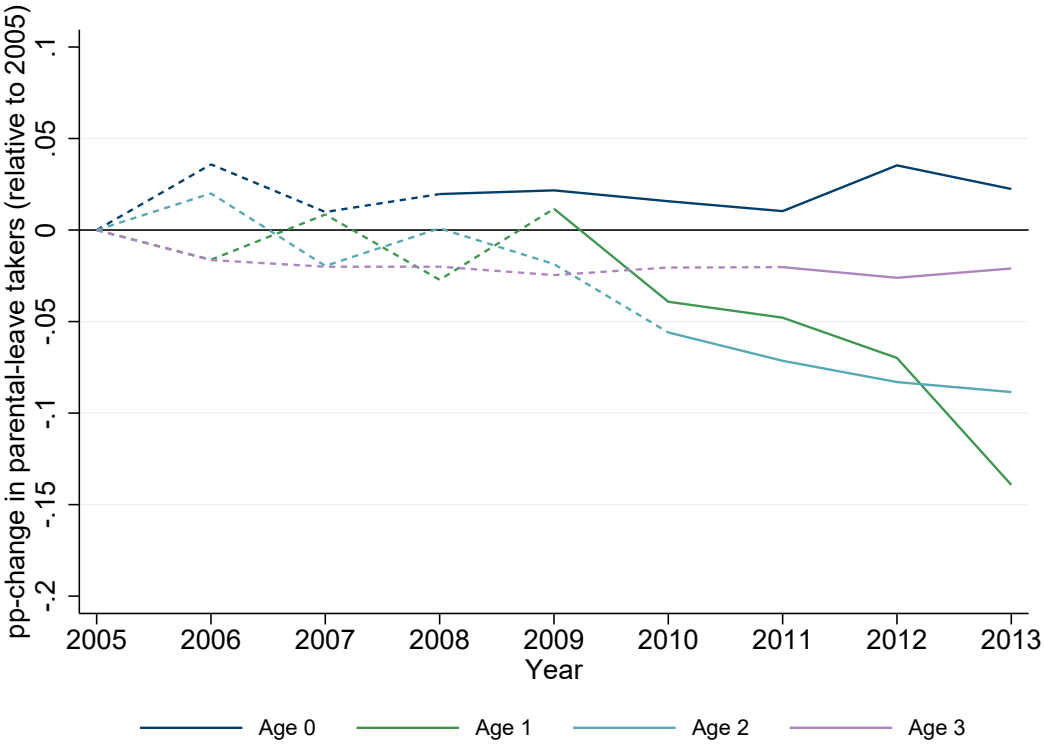
To better understand the overall low working rate among mothers, we next consider responses of mothers without an active work contract who neither seek work nor partake in further training. Respondents in this sample are asked to report the reason why they currently do not seek employment. As Figure 6 demonstrates, across all age groups, a large majority of mothers report children as their primary reason. For most mothers, this is not due to a lack of childcare facilities. Only around 30 percent of mothers with children aged 1-3 would seek work if the appropriate child care needs could be satisfied.

Figure 4: Parental leave trends of mothers

(a) Parental-leave benefit spells (Social security data)



(b) Self-reported parental leave spells (Microcensus)



Note: The graphs depict pre-reform cohorts with dashed lines and post-reform cohorts with solid lines.

Figure 5: Trends in labor market states of mothers

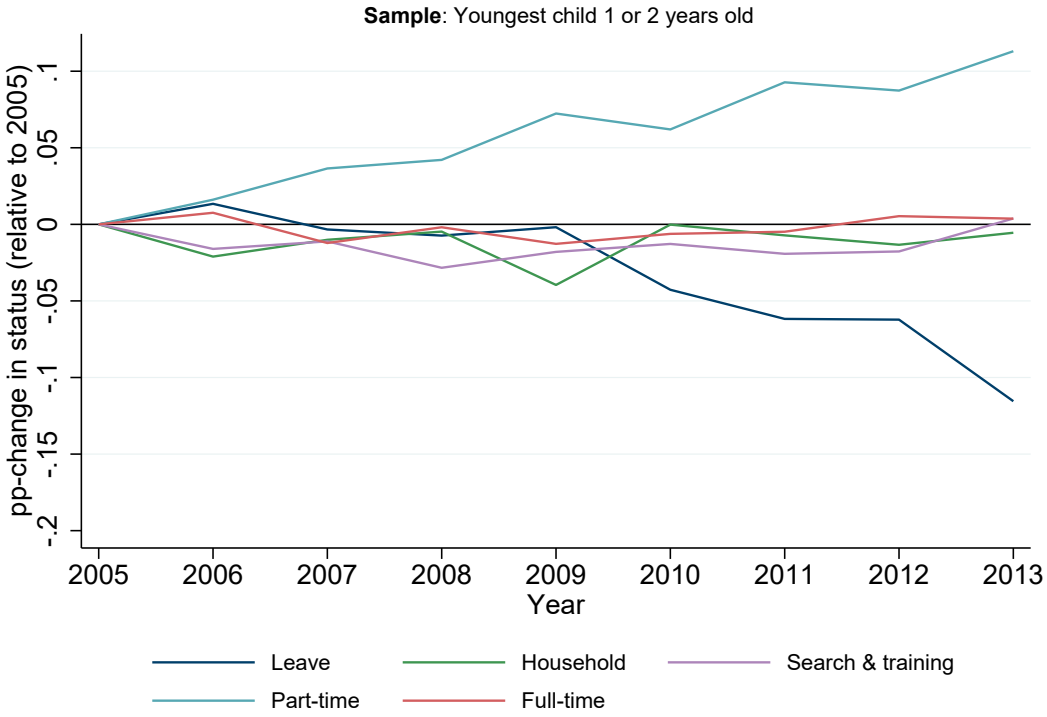
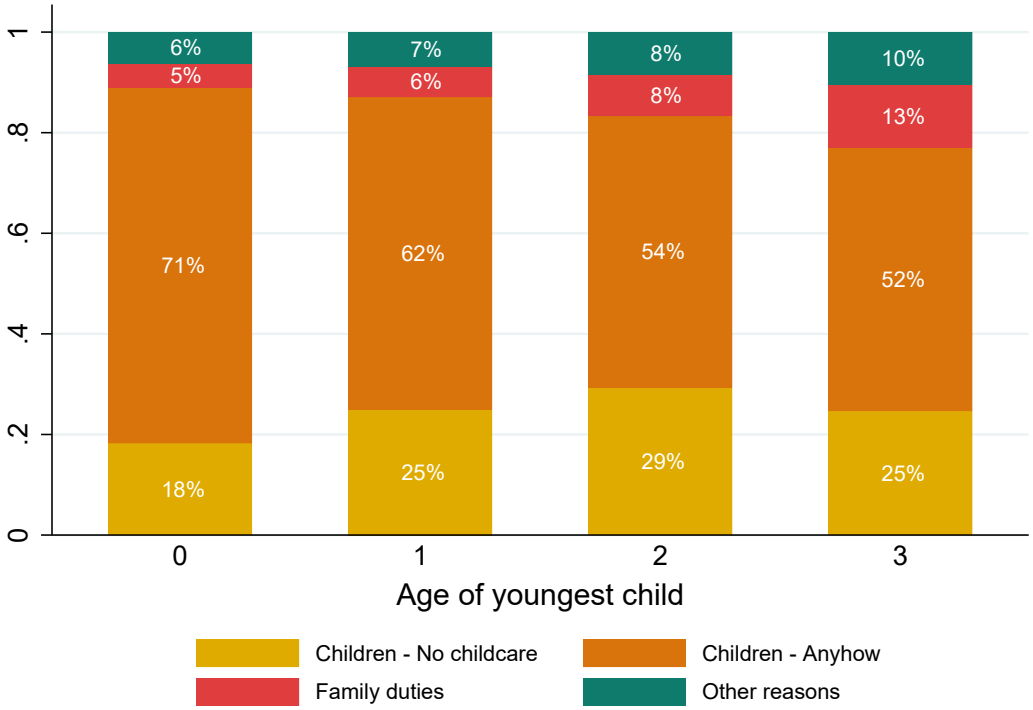


Figure A.3 in the appendix shows that the share of mothers reporting a lack of childcare options did not change over time in these age groups.

Similar patterns can be observed for the decision to work full-time (Appendix Figures A.4 and A.5). When mothers are asked about their reasons for not seeking full-time work, approximately 90 percent say that childcare responsibilities is the primary reason. Among those, only 10-15 percent indicate that they would switch to full-time work if suitable childcare options were available. Again, we do not observe that childcare has become a more salient constraint over time.

Taking all survey evidence together, the two parental leave reforms had little effect on labor market choices of women. Despite the strong decline in benefit duration shown in the first part of our analysis, many mothers still report being outside the labor market without intentions to join the workforce. And, for the majority of mothers, improved access to childcare would not affect this decision.

Figure 6: Mothers' reasons for not searching for work



5 Conclusion

When women leave the labor market after the birth of a child, their long-run earning losses can be substantial. Kleven et al. (2019a) estimate for Austria that, even after 10 years, mothers in Austria have on average 40-50 percent lower earnings. If mothers take extended periods of leave from work to care for children, they often struggle to return to the labor market later on because long-term detachment can lead to a loss of skills and their professional network. Optimal design of public leave policies must take these negative consequences into account. On the one hand, parents require financial support when they find themselves unable to work or when they cannot find suitable childcare facilities. On the other hand, leave policies should minimize incentives for prolonged absence from work to prevent labor market detachment and its potential long-term negative consequences. This is especially relevant in labor markets that increasingly struggle with a shortage of qualified workers.

Using both administrative data and survey evidence, we study how increased flexibility in parental leave options affects the work outcomes of mothers with young children. Our research design exploits the staggered introduction of new leave schemes in 2008

and 2010 as a natural experiment. The analysis demonstrates that, while the reforms each decreased leave duration by 1-2 months, labor supply responses were largely absent. Leveraging survey data from the Austrian Microcensus, we can link these effects to persistent preferences about parental leave. Two years after childbirth, only 55 percent of mothers are either employed, actively seeking work, or engaged in formal education. Even after exhausting parental leave benefits, many mothers continue to shoulder child care duties as they do not consider formal childcare as a desirable alternative for their children. Despite the substantial reduction in paid parent leave duration caused by the reform, the presented evidence does not suggest any changes in leave preferences over time.

To increase labor force participation of mothers, policymakers should design leave policies that provide direct work incentives, such as higher benefit payments for mothers who start working after the end of their parental leave period. Fathers could also take up a larger share of child care duties. Men account for just 20 percent of parents going on parental leave, and there are large differences between countries (OECD, 2016). Several studies have found that appropriately designed leave policies can have positive effects on paternity leave take-up, but, despite these changes, still few fathers decide to go on leave for longer periods (Ekberg et al., 2013; Dahl et al., 2014; Patnaik, 2019; Ziegler and Bamieh, 2023). Another solution could be to further expand the availability of formal childcare for children below age three. Although we show that most mothers do not feel constrained by the lack of nurseries, increased supply might positively affect demand as parents may reassess their attitudes towards external childcare options.

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Appendix

Figure A.1: Share with further children by birthmonth of child

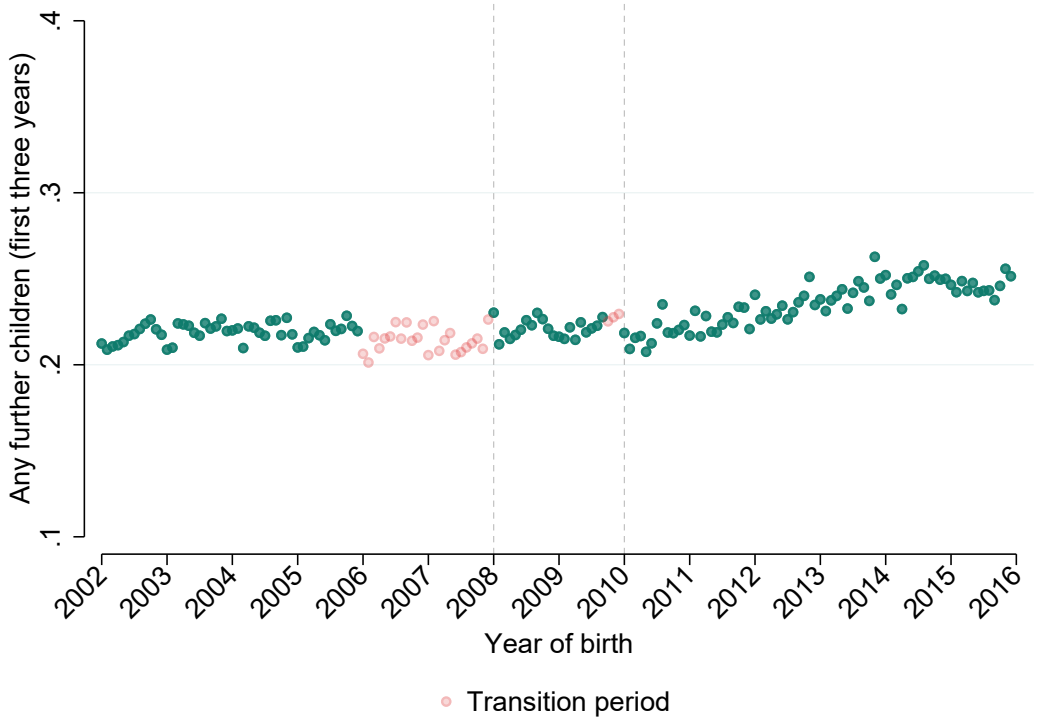
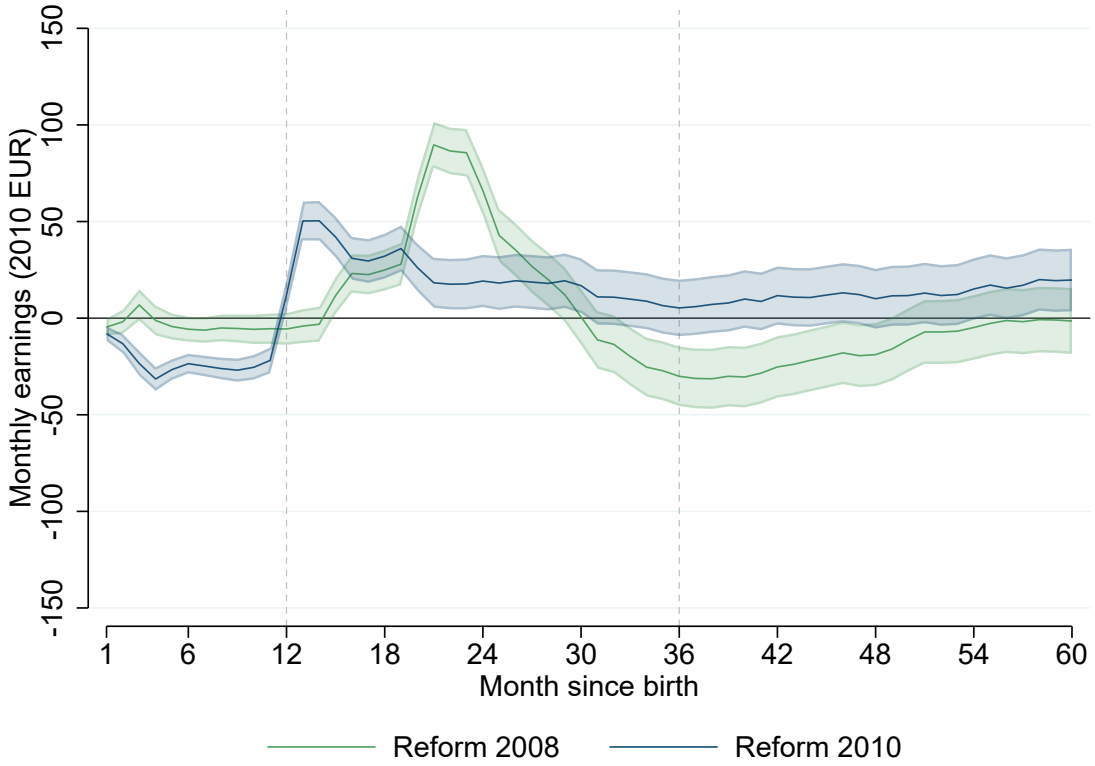


Table A.1: Alternative RD specifications

	2008 reform				**2010 reform**			
Leave months	-1.870***	-1.972***	-2.632***	-3.129***	-1.546***	-1.421***	-1.140***	-1.260***
	(0.071)	(0.080)	(0.210)	(0.248)	(0.063)	(0.069)	(0.130)	(0.146)
Work months	0.159**	0.079	-0.381	-0.403	0.054	0.022	-0.061	-0.157
	(0.080)	(0.089)	(0.235)	(0.275)	(0.071)	(0.079)	(0.147)	(0.167)
Leave/work months	-0.738***	-0.829***	-1.426***	-1.810***	-0.994***	-0.898***	-0.670***	-0.851***
	(0.077)	(0.087)	(0.226)	(0.267)	(0.068)	(0.075)	(0.140)	(0.157)
Av. earnings/month	13.058***	10.125**	-6.352	-0.307	7.986**	4.678	-3.938	-6.650
	(4.178)	(4.704)	(12.094)	(14.263)	(3.953)	(4.396)	(8.177)	(9.333)
Add. child	0.001	0.003	0.018*	0.013	-0.004	-0.006*	-0.013**	-0.011
	(0.004)	(0.004)	(0.010)	(0.012)	(0.003)	(0.003)	(0.006)	(0.007)
Polynomial order	1st	1st	2nd	2nd	1st	1st	2nd	2nd
Kernel	Uniform	Epanechnikov	Uniform	Epanechnikov	Uniform	Epanechnikov	Uniform	Epanechnikov

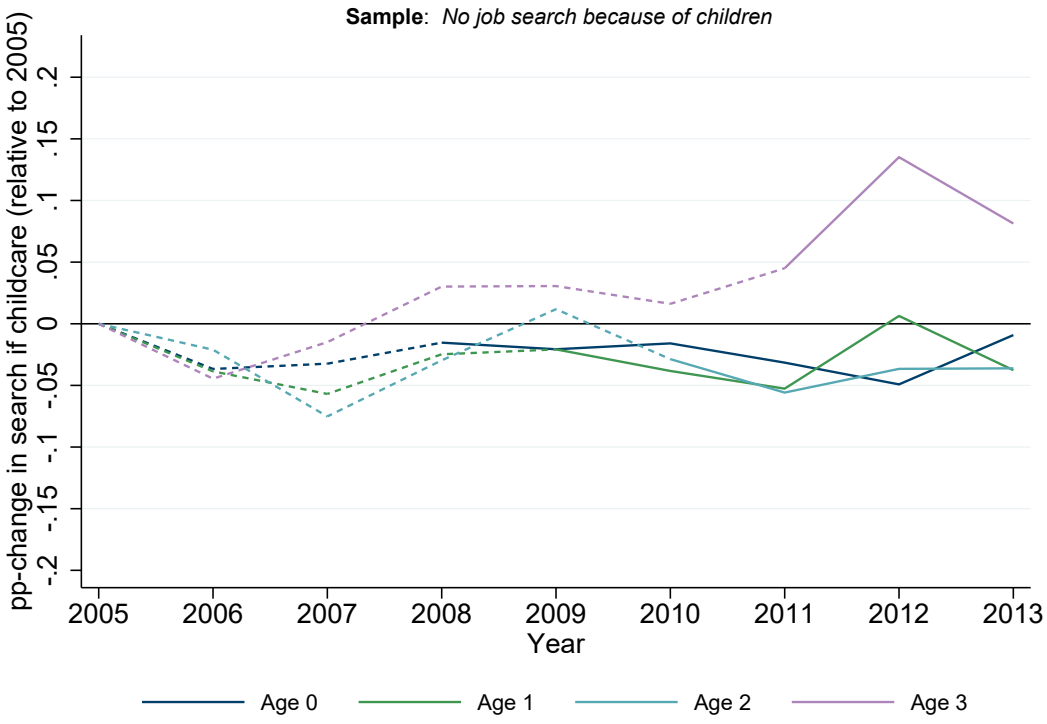
Note: N = 430,975 (Reform 2008); N = 596,819 (Reform 2010). The table shows the reform effects as estimated by RD-equation (1). All regressions include calendar month indicators and a linear time trend. * p<0.10, ** p<0.05, *** p<0.01

Figure A.2: Impact on earnings by month after childbirth



Note: N = 430,975 (Reform 2008); N = 596,819 (Reform 2010). The graph shows reform effects on earnings in each month after childbirth, which are obtained from separate regressions of RD-equation (1). All regressions include calendar month indicators and a linear time trend.

Figure A.3: Trends in *job search if childcare were available*



Note: The graph depicts pre-reform cohorts with dashed lines and post-reform cohorts with solid lines.

Figure A.4: Reasons for part-time work

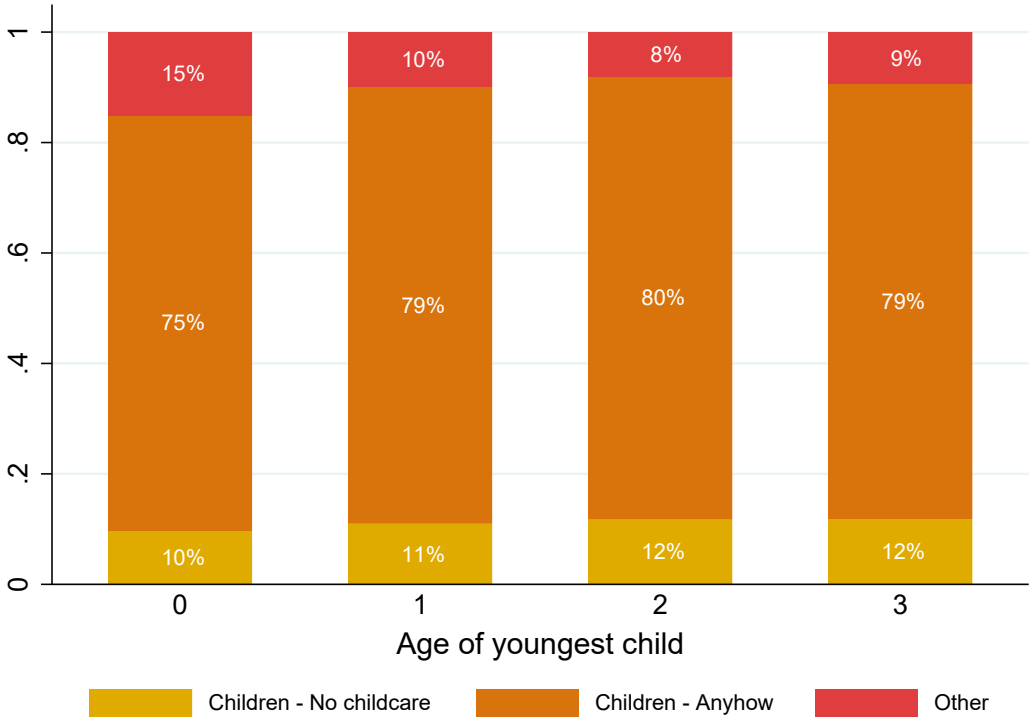
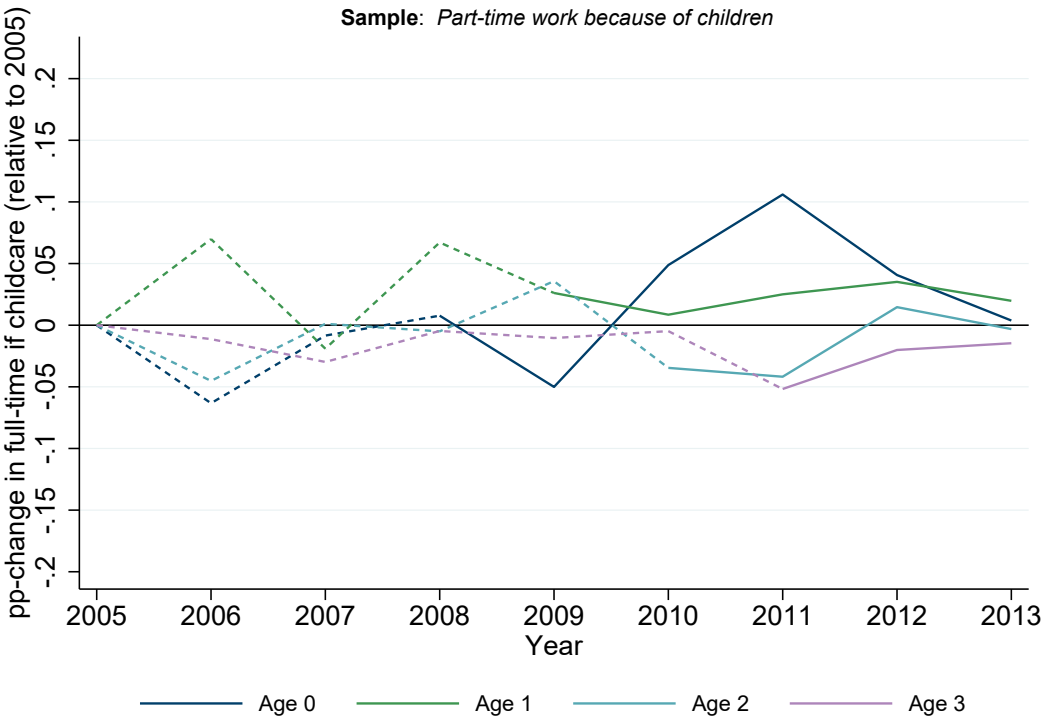


Figure A.5: Trends in *full-time work if childcare were available*



Note: The graph depicts pre-reform cohorts with dashed lines and post-reform cohorts with solid lines.