HOW DOES PARENTAL LEAVE AFFECT FERTILITY AND RETURN TO WORK? EVIDENCE FROM TWO NATURAL EXPERIMENTS*

RAFAEL LALIVE AND JOSEF ZWEIMÜLLER

This paper analyzes the effects of changes in the duration of paid, job-protected parental leave on mothers' higher-order fertility and postbirth labor market careers. Identification is based on a major Austrian reform increasing the duration of parental leave from one year to two years for any child born on or after July 1, 1990. We find that mothers who give birth to their first child immediately after the reform have more second children than prereform mothers, and that extended parental leave significantly reduces return to work. Employment and earnings also decrease in the short run, but not in the long run. Fertility and work responses vary across the population in ways suggesting that both cash transfers and job protection are relevant. Increasing parental leave for a future child increases fertility strongly but leaves short-run postbirth careers relatively unaffected. Partially reversing the 1990 extension, a second 1996 reform improves employment and earnings while compressing the time between births.

I. INTRODUCTION

Working parents of a newborn child have to give full attention to their baby and their jobs. Aiming to address this double burden for working parents, most OECD countries offer parental-leave (PL) provisions. However, although countries agree that parents of small children need support, the design of current PL systems differs strongly across countries. The purpose of this paper is to provide information on one key aspect of PL. We ask how PL *duration* affects a working mother who has just given birth to her first child. By studying the decision to give birth to a second child, we can provide information on the role of PL policy for

* We are grateful to Larry Katz and to four anonymous referees for their comments. Johann K. Brunner, Regina Riphahn, and Rainer Winkelmann and participants at seminars in Amsterdam, Basel, Frankfurt, Kobe, Rotterdam, Vienna, Zurich, SOLE 2006, ESSLE 2006, the Vienna Conference on Causal Population Studies, the IZA Prize Conference 2006, and the German Economic Association meeting of 2005 also provided valuable discussion on previous versions of this paper. We bear the sole responsibility for all remaining errors. Beatrice Brunner, Simone Gaillard, Sandra Hanslin, and Simon Büchi provided excellent research assistance. We are grateful for financial support by the Austrian Science Foundation (FWF) under the National Research Network S103, "The Austrian Center for Labor Economics and the Analysis of the Welfare State," Subproject "Population Economics." Further financial support by the Austrian FWF (No. P15422-G05), the Swiss National Science Foundation (No. 8210-67640), and the Forschungs-Stiftung of the University of Zurich (project "Does Parental Leave Affect Fertility Outcomes?") is also acknowledged. *Rafael.Lalive@unil.ch; zweim@iew.uzh.ch.*

The Quarterly Journal of Economics, August 2009

higher-order births. This analysis is important for countries with fertility rates below the replacement level. Studying mothers' return to work, postbirth employment, and postbirth labor earnings, the paper provides information on how PL duration affects subsequent work careers of working women. This analysis allows assessment of the extent to which extending parental leave facilitates balancing work and life. Moreover, studying the effects of parental leave on both fertility and work allows us to assess whether institutions that shape the terms of postbirth female employment spill over to fertility.

Our analysis is based on the Austrian PL system. Under Austrian PL rules women can stay off work and return to the same (or a similar) job at the same employer thereafter. During the leave they receive a flat PL benefit of 340 euros per month. Interestingly, Austrian policymakers implemented two major reforms of the duration of PL—an extension of PL duration in 1990 and a reduction of PL duration in 1996. Specifically, before July 1, 1990, the maximum duration of PL ended with the child's first birthday. The 1990 reform extended PL until the child's second birthday for all children born on or after July 1. The 1996 reform partially reversed the extension granted in 1990 by taking away the last six months added in 1990.

These policy changes create natural experiments that allow us to assess how changes in PL duration affect fertility decisions of a mother who has just given birth to a newborn child. Extending PL duration affects this decision in two different ways. First, the probability of a higher-order birth is potentially determined by the PL duration for the baby that is already born. This is what we call the *current-child effect*. This effect is potentially important in the Austrian context because women who give birth no later than 3.5 months after the end of a previous PL are exempt from the work requirement and can automatically renew PL eligibility for the second child. Before the 1990 reform, mothers needed to give birth to a new child within 15.5 months. Such a tight spacing of children is both biologically difficult and not desired by many parents. The 1990 reform increased this period to 27.5 months, thus providing much broader access to automatic renewal. The 1996 reform reduced the automatic renewal period to 21.5 months—a space between births that is biologically feasible and potentially desired. Second, the probability of a higher-order birth is also determined by PL duration for the baby yet to be born. This is what we call the *future-child effect*. Because PL duration directly

affects the costs associated with childbearing, the future-child effect is expected to increase fertility.

This paper also studies how PL rules affect postbirth labor market careers of mothers with newborn children. The 1990 extension of leave encourages a mother to stay home with her child in the second year after birth and to delay return to work substantially. Future employment and labor earnings will be affected in two ways. First, providing parents with extended PL encourages mothers to stay off work longer and lowers employment and labor earnings immediately after a birth. This short-run effect is mechanical and intended by policy makers. Second, prolonged periods of absence from the workplace may lead to skill depreciation and weaker labor market prospects after labor market reentry. This potential for long-run deterioration of women's postbirth careers is clearly not intended by policy.

Although family policies in many countries are designed to support low-income (and often nonworking) women, the Austrian case is interesting because it affects working women of all income groups. However, it is not *a priori* clear for which group the PL rules generate the strongest incentives. The flat *PL benefit* implies that lower-income parents have a higher earnings replacement ratio. To shed light on the importance of cash transfers, we look at differences in response between high- and low-income women. The *job protection* policy may be more important for career-oriented women. This is because job protection shields working women from future income losses due to firm-specific human capital depreciation or deferred payment contracts. To shed light on the importance of job protection, we look at differences in responses between blue- and white-collar women. As firm-specific human capital and internal labor markets are arguably more important in white-collar professions, we would expect stronger responses from white-collar women.

The empirical analysis draws on a unique and very informative data set, the Austrian Social Security Database (ASSD). Set up to provide information to calculate pension benefits for private sector employees (about 80% of Austrian employment), the ASSD collects detailed information on a woman's earnings and employment history from employers; and it also contains information on take-up of PL benefits and on a woman's fertility history from the point of time when she first worked in the private sector. We extract information on PL-eligible women who gave birth to the first child observed in ASSD in periods that cover the reform, and we

analyze subsequent fertility and labor market outcomes both in the short run (three years after the first birth) and in the long run (ten years after the first birth).

Our empirical analysis uncovers five key results. *First*, we find that the extension of PL enacted in July 1990 had a strong impact on subsequent fertility behavior. We find that both the current-child PL effect and the future-child PL effect are quantitatively large. In the short run (within three years) fertility increases by 5 percentage points (15%) as a result of extended leave on the current child and by 7 percentage points (21%) as a result of extending leave for the future child. *Second*, we find not only that fertility increases temporarily, but also that this increase persists in the long run. Among women eligible for the more generous PL rules, three out of 100 women gave birth to an additional child within ten years after the birth of the first child who would not have done so with short leave. Although we do not observe the completed fertility cycles of mothers, we conclude that it is quite likely that the policy change affected not only the timing but also the number of births. *Third*, we find that most mothers exhaust the full duration of their leaves and that return to work is substantially delayed even after PL has been exhausted (by 10 percentage points in the short run and by 3 percentage points in the long run). Interestingly, although work experience and earnings decrease strongly in the short run, we do not find that longer leaves have long-run effects on work experience and cumulative earnings. *Fourth*, there are differential fertility responses of high- and low-wage women and blue- and white-collar workers, indicating that both cash transfers and job protection have a sizable impact on fertility and labor market responses. *Fifth,* we find that the 1996 reduction of PL duration had a significant effect on the timing of subsequent births but no impact on the number of children. The 1996 partial reversal of the extension granted in 1990 also partially undoes the short-run reductions in employment and earnings generated by the 1990 extension of PL duration.

This paper contributes to the literature on the impact of cash transfers on fertility behavior (Hardoy and Schøne 2005; Milligan 2005) and to the literature on the effects of welfare reform on fertility behavior of low-income women in the United States (Hoynes 1997; Moffitt 1998; Rosenzweig 1999; Joyce et al. 2004; Kearney 2004).[1] Furthermore, Averett and Whittington (2001) study the

1. Björklund (2007) provides a survey of recent empirical work on the impact of family policies on fertility.

impact of the Family and Medical Leave Act in 1993 on fertility. Hoem (1993) studies the impact of PL rules ("speed premium") for Sweden, and Piketty (2003) looks at parental education benefits in France. This paper also contributes to the literature studying the effects of family leave on labor market outcomes. Klerman and Leibowitz (1997, 1999) and Baum (2003) find only weak effects on employment and wages. Berger and Waldfogel (2004) for the United States, Baker and Milligan (2008) for Canada, and Ruhm and Teague (1997) and Ruhm (1998) for European countries find a closer relationship between PL provisions and the labor market attachment of mothers. Albrecht et al. (1998) show that PL-induced career interruptions are not associated with a wage penalty for women in Sweden. Schönberg and Ludsteck (2007) study the causal effects of successive changes in PL duration on employment and earnings in Germany.[2]

Our paper adds to this literature in at least four ways. *First*, our empirical analysis provides convincing evidence on the effects of changing PL duration for the current child by adopting a quasiexperimental approach. *Second*, our study also provides evidence on the effect of changing PL duration on the future child. Understanding these two effects is crucial in PL design. *Third*, our results speak to the important issue of how policies that enhance the balance between work life and family life affect fertility behavior. This is different from many previous papers that have focused on the effect of cash transfers on fertility. *Fourth*, our empirical analysis allows assessing the effects of changes in PL on both short- and long-run labor market outcomes for mothers. This allows addressing the frequently raised concern that generous PL policies will harm mothers in the long run because extended periods off work lead to depreciation of human capital and worse future labor market prospects.[3]

The paper is organized as follows. The next section discusses the institutional setup and develops testable hypotheses as to how the reform might have affected fertility and labor market

2. Several recent papers study the effects of parental leave or child care on child development (Baker and Milligan 2008; Dustmann and Schönberg 2008; Berger, Hill, and Waldfogel 2005; Baker, Gruber, and Milligan 2008). A further related literature analyzes the impact of financial incentives on fertility and labor supply using a structural approach. See Moffitt (1984) for an early approach to this question and Laroque and Salanié (2005) for a more recent study of the effects of financial transfers on fertility and labor supply.

3. In a companion paper, we discuss how the two Austrian reforms affect the quality of mothers' first postbirth jobs (Lalive and Zweimüller 2007). The analysis of the current paper is more comprehensive in providing a detailed assessment of the overall effects of PL on earnings and employment in all postbirth jobs.

behavior. Section III discusses the data and presents our empirical strategy for measuring the effects of PL duration on the current child and on the future child. Section IV presents the fertility and labor market effects of the increase in PL duration for the current child enacted with the 1990 reform. Section V studies the effect of the 1990 increase in PL duration for the future child. Section VI analyzes the impact of the 1996 reform, and Section VII concludes with a discussion of the relevance of our findings.

II. Background and Hypotheses

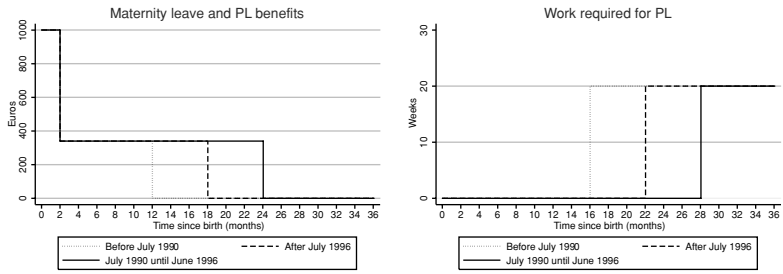
This section provides the institutional background of the Austrian PL system and discusses how two reforms in the 1990s may affect higher-order fertility and work careers of mothers.

II.A. The Austrian PL System in the 1990s

Working women have access to two types of family policies in Austria: maternity leave and parental leave. Maternity leave lasts for sixteen weeks (eight weeks before and eight weeks after the actual birth) and pays the average wage rate over the last quarter before the birth.

Before July 1990, PL started after maternity leave ended and lasted until the child's first birthday. To become eligible for PL a mother had to satisfy a work requirement. Women taking up PL for the first time had to have worked (and paid social security contributions) for at least 52 weeks during the two years prior to birth or be eligible for unemployment benefits—again fulfilling a work requirement of 52 weeks out of the two years prior to entering unemployment. For mothers with at least one previous take-up of PL or first-time mothers below the age of twenty years, the work requirement is reduced to twenty weeks of employment during the last year prior to birth. Moreover, PL is also renewed if the mother gives birth within a "grace period" that extends up to four months after the end of an earlier leave.[4]

4. The exact legal definition of the length of the grace period is that the work requirement is also abandoned if a new maternity protection period starts within a grace period of six weeks after the formal termination of a previous PL. Because maternity protection starts about eight weeks before the due date, the rules effectively imply that eligibility for PL is renewed for any new child expected to be born within fourteen weeks after the end of the previous leave. Because expected birth dates are not observed in our data, we consider a birth to be realized within the automatic renewal window if it occurs no later than four months after the end of the previous PL. Work exemptions for higher-order births are in place in countries where PL lasts long enough so that women could give



(A) Monthly transfer income

(B) Work requirement for higher-order births

FIGURE I

PL Benefits and Work Requirement for Higher-Order Births

Figure shows the benefit path for a women earning real 1,000 euros per month before giving birth to her first child (A) and the number of weeks she needs to work for parental leave to cover the subsequent child (B). The parental leave benefit is 340 euros per month irrespective of prebirth monthly income. Dotted line refers to the situation before July 1990, solid line refers to the situation between July 1990 and June 1996, and dashed line refers to the post–July 1996 rules. *Source.* Austrian federal laws, various years.

PL provisions are twofold. On the one hand, PL protects the previous job. A mother has the right to return to her previous employer until PL ends. Moreover, she cannot be dismissed during the first four weeks after returning to work.[5] On the other hand, PL is associated with a government transfer. A mother eligible for PL in 1990 received a PL benefit of about 340 euros per month (31 percent of gross median female earnings). Benefits are not means-tested and not taxed, implying a median *net* income replacement ratio of more than 40 percent. Single women (or women with a low-income partner) are eligible for higher benefit levels (*Sonderunterstützung*).

Figure IA shows the time path of transfer income for a PL-eligible woman who has earned 1,000 euros per month during the quarter before birth. Maternity leave transfers amount to 1,000

birth to a new child while being covered by a PL from a previous child. In Germany, job protection is extended when a mother gives birth to a child within a current leave. The "speed premium" in Sweden grants higher PL benefits to parents who have subsequent children within sufficiently short intervals. Also, the PL systems of the Czech Republic, Slovakia, and Estonia feature renewal rules that are very similar to the Austrian system.

5. PL renewal makes mothers eligible for a maternity leave transfer that is eighty percent higher than the regular PL transfer. The maternity leave transfer of mothers who work in between two births equals the average wage in the three months prior to giving birth (the same as for a first birth). PL renewal leaves job protection unchanged.

euros for a period of about two months after birth.[6] After maternity leave has been exhausted, this mother has two options. One is to arrange care for her newborn child and return to her prebirth job earning 1,000 euros per month. This option is complicated by the fact that the Austrian child care system for children under the age of three years is rather limited. Alternatively, she can provide care for her newborn child and take up PL, earning 340 euros per month until her child turns one year old. On her child's first birthday, she can decide to return to her prebirth job, take up a new job, or continue to provide care for her child. In the event that she gives birth to a new child before her previous child turns 15.5 months old, she has access to renewed leave (Figure IB). Any child born after that date will be covered only if the mother has been working for at least twenty weeks prior to giving birth to the new child.

In July 1990, a first PL reform increased the maximum duration of PL to two years and was enacted on July 1, 1990.[7] A further reform in 1996 introduced a change in PL duration by introducing a one-partner PL maximum of eighteen months. Because Austrian fathers effectively do not take up PL, the one-partner maximum removed the last six months of PL that were added in 1990.[8]

6. Because maternity leave is initiated eight weeks prior to expected date of birth, the pre- and postbirth durations of maternity leave vary.

7. In December 1989, the PL system was changed from a "maternity" to a "parental" leave system, allowing for the father to go on PL also. However, this is of no practical consequence. In 1990 fewer than 1% of fathers took advantage of that possibility. A second change was that women in farm households and family businesses, as well as women who did not meet the employment requirements, became eligible for a transfer equal to 50% of regular PL benefits up until the child's second birthday. This is of no importance in the present analysis because we confine ourselves to behavior of female dependent employees. Furthermore, the reform made it possible to take part-time PL, either between a child's first and second birthday (by both parents at the same time) or between a child's first and third birthday (only one parent or both parents alternating).

8. Compared to the U.S. Family and Medical Leave Act (FMLA), the Austrian PL rules are very generous. The FMLA grants twelve weeks of unpaid leave to employees in firms with more than fifty workers. Compared to current OECD systems, the pre-1990 PL system was of average generosity. The rules were very similar to those currently in place in Canada (twelve months PL, cash transfer 55 percent of previous earnings), Australia (twelve months PL, unpaid), or the United Kingdom (eighteen weeks paid maternity leave, thirteen months unpaid PL). Austrian post-1990 rules are more similar to those currently in place in continental Europe. The German system grants three years of PL and a generous cash benefit (100 percent of prior earnings on maternity leave, 67 percent of prior earnings for the first fourteen months of PL, and a flat transfer thereafter). In France mothers get three years of PL, 80 percent of prior earning for the first twelve months, and a flat transfer thereafter. Also, Sweden and Norway offer long leaves and PL benefits replace a very large fraction of prior income. Interestingly, the renewal option is not unique to the Austrian system. The Swedish "speed premium" shares similarities, as PL benefits are extended when an additional

II.B. Effects on Fertility and Work Careers

Extending PL from one year to two years may affect future fertility for two different reasons: (i) a longer PL duration for the *current* child facilitates access to automatically renewed PL benefits for a new child; and (ii) a longer PL duration for the *future* child reduces directly the cost of this child. Arguably, taking advantage of PL renewal is difficult when PL leave is short. The one-year policy forces a mother who wants PL protection for the future child to conceive a new child quite early after the birth of the previous child.[9] The 1990 reform adds twelve crucial months to the automatic renewal period. Thus, achieving automatic PL coverage for a future child is easier under the two-year policy than under the one-year policy (Figure IB).[10] In contrast to the 1990 PL extension, the 1996 PL reduction did not change the biological feasibility of PL renewal. To become eligible without having to go back to work, a mother has to give birth to a new child within 21.5 months.

By inducing mothers to give birth to a future child within the automatic renewal period, the 1990 PL extension is likely to change the spacing of births. Note, however, that any shock inducing mothers to give birth to planned children earlier may translate into a long-run increase in the total number of children. As fertility plans are realized earlier, shocks to partnerships, health, etc., that are inducing parents to give up family plans in a one-year system have weaker effects on fertility in a two-year system.[11]

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child is born within two years after the birth of a previous child. The German system also grants the possibility of PL renewal with respect to job protection (but, unlike in the Austrian system, PL benefits do not cease when a parent goes back to work). The PL systems of the Czech Republic and Slovakia are almost identical to the Austrian system and have the PL renewal feature.

9. To see this more clearly, consider a woman who gives birth on September 1, 1988. She would be entitled to PL through September 1, 1989. To qualify for PL renewal, with the eight-week prebirth maternity leave and the six-week post-PL grace period, she would have to give birth by December 14, 1989. Note that this requires conceiving a new child by March 1989, no later than 5.5 months after giving birth to the previous child, implying a space between births of at most 15.5 months.

10. Under the two-year policy, a woman who gives birth on September 1, 1990, qualifies for PL renewal if a second child is conceived by March 1992, or 18 months subsequent to giving birth to the previous child.

11. Notice that when this argument is applied to the 1996 PL reduction, it is not clear whether this reform will lead to more or less children. On the one hand, the 1996 reform requires a tighter space between births for a mother who takes advantage of renewal. On the other hand, although the required space is biologically feasible, it is shorter than before and may induce some mothers to delay a planned birth. The first effect increases and the last effect decreases the number of births.

Extending PL may also affect higher-order fertility because it lowers the cost of having a *future* child. *Ceteris paribus*, a two-year leave for the future child is more attractive than a one-year leave. Thus, the 1990 reform is expected to increase the number of children born to women exposed to the new policy.

The second key aim of PL policies is to facilitate balancing family work and market work. Changes in the duration of PL for the current child may affect mothers' *work careers* in two ways. Take-up of extended leaves delays return to work, lowers employment, and lowers labor earnings in the short run (0–36 months after the birth of the current child). Moreover, prolonged career interruptions may also lead to mothers' postbirth careers deteriorating in the long run (37 to 120 months after the birth of the current child). Changes in PL duration for the *future* child are expected to affect short-run postbirth work careers only indirectly, via their effect on births.

Austrian PL offers two distinct types of benefits: a flat transfer and job protection. Flat transfers translate into strong differences in replacement rates. We therefore expect strong *heterogeneity* in the responses to changes of PL in mothers with high earnings prior to birth and mothers with low prebirth earnings. Moreover, PL policies target not only costs associated with foregone current income but also costs associated with loss of lifetime income following a job loss. A longer duration of job protection may be particularly beneficial for mothers with firm-specific human capital or mothers who are on deferred payment contracts. To shed light on this issue, we compare women working in white-collar occupations to women in blue-collar jobs. Arguably, job-specific human capital, internal labor market, and career concerns are more important in white-collar jobs, so the job-protection channel should trigger stronger responses for white-collar women than for blue-collar women.

III. Data and Empirical Strategy

In this section we first discuss the available data. We then present the empirical strategies and explain the assumptions under which we identify the causal effect of changes in PL duration on fertility and labor market outcomes.

III.A. Data

Our empirical analysis is based on the Austrian Social Security Database (ASSD). This database collects information relevant

to old-age social security benefits. As these benefits depend on individuals' earnings and employment histories, the database collects information on work histories for the universe of Austrian private sector employees. Furthermore, the database also contains information on exact dates of births. A disadvantage of the ASSD is partial recording of birth histories. ASSD records all births that occur after a woman's first job in the private sector. This means that we can precisely determine the relative parity of any birth but we cannot determine any birth's absolute parity.[12]

Our ASSD extract covers women giving birth to their first ASSD child in the years 1985, 1987, 1990, 1993, and 1996. We observe second-child births, return to work, employment, and earnings for these women until the year 2000, allowing us to analyze about ten years of a woman's life for the 1990 reform and less than that for the 1996 reform. We focus on mothers who are likely to be at parity one because this yields a comprehensive picture of how changes in PL on this first child affect future fertility and work careers.[13]

We establish PL eligibility for these women by considering work careers two years prior to their giving birth to the first child. Note that measuring eligibility is complicated because a woman's work career in the public sector is unobserved (but counts for PL eligibility) and because a woman's parity is unobserved. Our eligibility indicator allocates a woman into the PL-eligible group if she demonstrates any employment or has ever been eligible for unemployment benefits in the two years prior to giving birth. Clearly, this definition of eligibility may give rise to misclassifying ineligible women into the eligible group, thus reducing take-up. More importantly, this encompassing definition of eligibility allows identification of a group of ineligible women (who neither worked nor received unemployment benefits in the two

12. Partial recording of previous births implies that we cannot precisely determine the parity of a birth. To make things precise, assume a working woman gives birth to a child at age thirty. If this woman is continuously employed in the private sector, we know this birth is her first birth and all subsequent births are recorded in the ASSD. However, if this woman entered the ASSD, say, at age 25 (e.g., because she was previously employed in the public sector and not covered by the ASSD), she could have could have given birth to children before entering the ASSD. More generally, if we observe x previous births in the data, we know that any subsequent birth is of parity x or higher.

13. Our focus here is on mothers, even though fathers could in principle take up PL provisions too. There are two reasons that we do not include fathers in our analysis. First, take-up by fathers is extremely low. Second, our database does not provide information on the dates of birth of a father's children. Hence, fathers' reactions to PL policies cannot be addressed in the present context.

years before giving birth) who do not go on to collect PL in our data. This finding makes us confident that we cleanly identify the group of PL-ineligible women—a group that is of importance in discussing the validity of the empirical strategy measuring the effect of changing PL duration for the future child. Furthermore, in line with demographic research, we restrict attention to women aged 15 to 45 years when giving birth to their first ASSD children.

The ASSD allows constructing a set of four key outcome measures. Information on the date of birth of the second ASSD child allows measuring whether a mother gives birth to at least one *additional child*. Information on the date of return to work allows discussing *return-to-work* decisions. Information on the woman's work and earnings career allows assessing *employment* and *earnings* in the two years prior to giving birth and up to ten years after birth. In the analysis below, we measure employment and earnings at a yearly frequency relative to the birthday of the first child. The set of conditioning variables comprises information on employment, unemployment, and earnings since entry into ASSD (either 1972 or time of entry into the labor market) and on a woman's labor market position exactly one year prior to birth (employed or unemployed, industry and region of employer, daily labor income white-collar or blue-collar occupation).[14]

III.B. Empirical Strategy

Our empirical strategy uses the 1990 and 1996 PL reforms to identify the effect of PL duration for the current child and the effect of PL duration for the future child.

Table IA shows PL durations for the current and the future child for three cohorts of women who gave birth to a first child at three different dates: July 1990, June 1990, and June 1987.[15] *July 1990 mothers* are eligible for 24 months of PL for the current child and PL renewal takes place when a future child is born within 27.5 months after the July 1990 birth. PL duration is 24 months for any child born within three years. *June 1990 mothers* are eligible for 12 months of PL for the current child and PL renewal is possible when a future child is born within 15.5 months. PL duration is 24 months for any child born within three years. *June 1987 mothers* are eligible for 12 months of PL for the current child and any

14. The data do not have information on hours, education, or marital status.
15. Table IB displays the analogous cohorts for the 1996 reform.

TABLE I
EMPIRICAL DESIGN

Current child born	Parental leave current child	Automatic renewal	Parental leave future child (born within 36 months)
	(A) 1990 reform		
June 1987	12 months	15.5 months	12 months
June 1990	12 months	15.5 months	24 months
July 1990	24 months	27.5 months	24 months
	(B) 1996 reform		
June 1993	24 months	27.5 months	24 months
June 1996	24 months	27.5 months	18 months
July 1996	18 months	21.5 months	18 months

Source: Austrian Federal Laws, various years.

future child born within 36 months. PL is automatically renewed if the future child is born within 15.5 months.

Identifying the Current-Child PL Effect. Can the current-child PL effect be identified from a comparison of June 1990 mothers with July 1990 mothers? These two groups differ in the duration of the PL renewal period (and the associated PL duration for the first child), but they have the same PL duration for a future child. The crucial identification issue is to what extent mothers could have influenced the date of birth of the current child in anticipation of the policy change. There are at least two reasons that lead us to believe that mothers cannot have "timed" births. First, the conception of a child is an event that cannot be perfectly planned by parents. Second, even if parents could deterministically plan a birth, self-selection requires that parents have been informed of the July 1990 policy reform *at the date of conception*. We performed a content analysis of the major Austrian newspapers to check the information that potential parents had nine months before the June/July 1990 births, that is, in September/October 1989. The public discussion about the PL reform started in November 11, 1989, but the ruling coalition (social democrats and conservatives) discussed it until April 5, 1990, until it had designed a policy reform apt to find parliamentary approval. Because it was not clear until three months prior to the policy change whether a PL reform would take place and how it would be implemented, the June/July 1990 births were not influenced by anticipation of the July 1990 PL reform. However,

although anticipation of the PL reform at the date of conception is unlikely, it is still possible that mothers could have influenced the timing of a birth by postponing induced births or planned caesarean sections.[16] We assess the presence of such fine tuning in two ways. First, analyzing the number of children born in June and July 1990, we do not find evidence of a spike in births on July 1, 1990. Second, because birth timing is likely to be strongest right around the reform date, we assess the sensitivity of our results by excluding births occurring one week before and one week after July 1, 1990.[17]

Because babies' dates of birth assign extended PL and parents could not anticipate extended leave, we can identify the current-child PL effect by comparing treated mothers giving birth (to the current child) in July 1990 to control mothers giving birth in June 1990.[18] Although treatment and control samples are selected over two successive months, we consider their fertility and labor market outcomes over the following 36 months (short-run effects) and the following 120 months (long-run effects). Differences between treated and control mothers cannot be attributed to differences in the environment. In fact, the treated and control mothers are facing different parental leave incentives but practically identical economic conditions following the June/July 1990 birth.

Identifying the Future-Child PL Effect. To identify the effect of PL duration on the future child, we compare short-run (0–36 months after birth) and medium-run (37–72 months after birth) outcomes of June 1987 to June 1990 mothers. Identification of the

16. Gans and Leigh (2006) show that the introduction of the Australian baby bonus on July 1, 2004, led to a significant increase in the number of births on that same day, suggesting that parents postponed their births to ensure they were eligible for the bonus. Similarly, Dickert-Conlin and Chandra (1999) show that the U.S. tax system creates an incentive to give birth to a child on the 31st of December rather than on the 1st of January. They find that the probability that a child is born in the last week of December, rather than the first week of January, is positively correlated with tax benefits.

17. Mothers could also have changed prebirth work patterns in order to become eligible for extended leave. Empirical evidence on prebirth employment in Figure VC is not consistent with such qualification effects.

18. This is essentially a regression discontinuity framework (RDD). Denote the treatment status of a mother by D, where $D = 1$ if a mother has access to a two-year leave, and $D = 0$ if a mother has access to a one-year leave. Eligibility for treatment is a discontinuous function of the current child's date of birth T. Denote by t the date when policy changes (July 1, 1990, for the change from the 12-month to the 24-month policy and July 1, 1996, for the change from the 24-month to the 18-month policy). Provided that $\lim_{\epsilon \to 0} \Pr(D = 1 | T = t + \epsilon) \neq \lim_{\epsilon \to 0} \Pr(D = 0 | T = t - \epsilon)$, our design satisfies the "fuzzy" RDD assumption (Hahn, Todd, and Klaauw 2001). Figure II is consistent with this assumption being strongly satisfied.

future-child PL effect requires stronger assumptions than those needed to identify the current-child PL effect. The central identifying assumption is that there are no substantial cohort or time effects that pollute the comparison between June 1987 and June 1990. We propose three ways of assessing the plausibility of this assumption. First, we analyze PL-ineligible women as a control group and check whether outcomes for June 1990 mothers follow a different trend than outcomes for June 1987 mothers, finding no significant time trend. Clearly, this small control group is less than perfect because it encompasses women with weak prebirth labor market attachment. Second, we study time and cohort trends for PL-eligible mothers both before and after the 1990 reform. Third, we also exploit the way PL rules change with time since first birth. Although differences in PL rules between the treated and the control group exist during the first 36 months, the same rules apply 37–72 months after birth. Thus, treated and control mothers should differ in the period 0–36 months after birth but less so in the period 37–72 months after birth.

Finally, adding up the effect of extending current leave with the effect of extending future leave allows estimating the *total* effect of PL duration and PL renewal. Arguably, this total effect comes close to the effects generated by moving fully from a one-year to a two-year system—an effect of prime policy interest.

IV. Extending PL Duration for the Current Child

This section discusses the effects of extending PL duration for the current child on fertility and return-to-work behavior. The analysis proceeds in three steps. We first document the fertility effects of changing PL duration for the current child. Next, we turn to labor market responses. And finally, we assess the potential heterogeneity in the responses to the reform by groups that differ in income and in broad occupation

IV.A. The Impact on Fertility

The ASSD reports information on PL take-up. Focusing on PL eligible mothers of newborn children, Figure II reports average PL take-up (including zeros) associated with a first child born between June 1 and July 30, 1990. June 1990 mothers are eligible for ten months of the parental leave (excluding the first two months of maternity leave). Results indicate that of these ten months, June 1990 mothers take up on average nine months of PL.

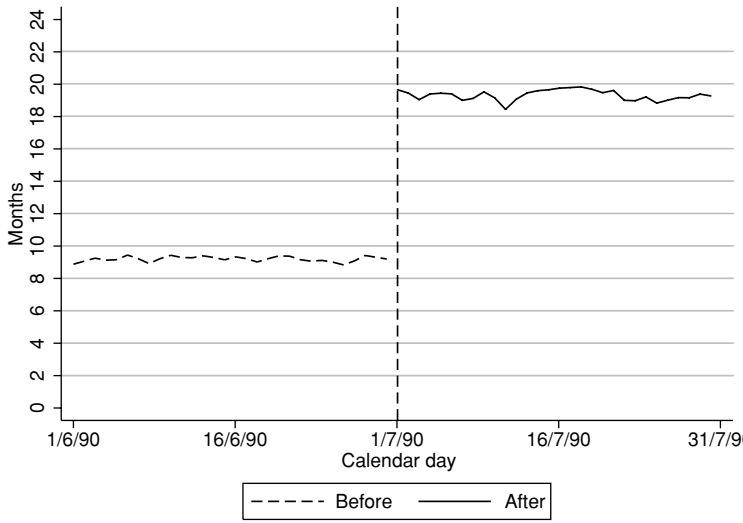


FIGURE II
Parental Leave Taken with Current Child

June smoothed backward, July smoothed forward (15-day moving average). *Source.* ASSD, own calculations. Sample restricted to PL-eligible women giving birth to a child in June 1–30 or July 1–30 of 1990.

In contrast, average PL take-up by July 1990 mothers amounts to 19 months, which is considerably more than for any mother giving birth in June 1990. Interestingly, average PL take-up is about 85 percent of the 22 months covered by PL after the 1990 reform (after two months of maternity leave). This suggests that the second year of leave is valued by the majority of eligible women.

Figure II suggests comparing treated mothers who give birth in July 1990 to control mothers who give birth in June 1990. How informative is this contrast on the causal effect of extending PL duration for the current child? Table II provides descriptive evidence on PL take-up by years since birth as well as on key prebirth characteristics. Treated and control mothers are identical with respect to PL take-up in the first year after giving birth to their current child. Both cohorts take up about 9.2 months out of the roughly 10 months offered by the PL system. Striking differences in PL take-up appear in the second year after birth. Whereas treated mothers spend about ten months on PL, control mothers spend less than one month on PL (with their second child).

TABLE II
DESCRIPTIVE STATISTICS, MOTHERS GIVING BIRTH IN JUNE AND JULY 1990

	July 1990		June 1990		Contrast	
	Mean	SD	Mean	SD	Est	SE
			(A) Treatment			
Parental leave, yr 1 (mths)	9.208	(2.194)	9.196	(2.139)	0.012	(0.055)
Parental leave, yr 2 (mths)	10.082	(3.486)	0.795	(2.209)	9.287	(0.074)***
			(B) Demographics			
Age 20–24	0.423	(0.494)	0.443	(0.497)	−0.02	(0.013)
Age 25–29	0.346	(0.476)	0.343	(0.475)	0.004	(0.012)
Age 30–34	0.109	(0.311)	0.087	(0.282)	0.022	(0.008)***
Age 35–44	0.029	(0.167)	0.025	(0.156)	0.004	(0.004)
			(C) Labor market history			
Employment (years)	5.846	(3.94)	5.701	(3.792)	0.144	(0.098)
Unemployment (years)	0.265	(0.543)	0.257	(0.484)	0.008	(0.013)
Earnings not observed? (1 = yes)	0.028	(0.165)	0.026	(0.16)	0.002	(0.004)
Daily earnings (euros)	34.49	(42.942)	33.313	(37.719)	1.178	(1.026)
			(D) One year before birth			
Employed (1 = yes)	0.868	(0.339)	0.867	(0.339)	0.001	(0.009)
White collar (1 = yes)	0.435	(0.496)	0.441	(0.497)	−0.006	(0.013)
Daily 1989 earnings (euros)	36.826	(20.935)	36.142	(20.397)	0.684	(0.526)
Observations	3,225		2,955			

Source: ASSD, own calculations. Sample restricted to PL-eligible women giving birth to a child in June 1–30 or July 1–30 of year 1990.

Notes: Mean and standard deviation (in parentheses) for women giving birth to their first child in June 1–30 or July 1–30, 1990. Labor market history covers the period from January 1972 to date of birth in June or July 1990. Labor earnings are unobserved for women coming from the public sector, which is not covered by ASSD. Daily earnings refer to real mean earnings measured in year 2000 euros per day worked—real total labor earnings divided by work experience. Daily 1989 earnings are earnings on the prebirth job measured in year 2000 euros—the job held exactly one year before giving birth. Data also contain information on region and industry of the prebirth employer.

In contrast to PL take-up, both cohorts appear to be quite similar with respect to prebirth characteristics. Both groups show similar amounts of previous work and unemployment experience and previous average labor earnings. Also, labor market status one year before the 1990 birth differs only slightly. Although July 1990 mothers are significantly more likely to be in the age bracket 30–34 years than June 1990 mothers, the overall age composition is quite comparable. Almost 80 percent of all births occur in the age group 20–29 and about 13 percent at ages thirty and older.

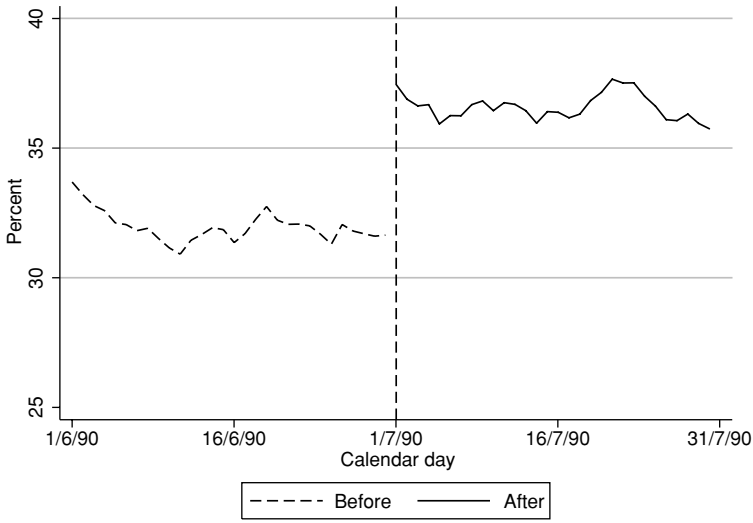


FIGURE III
How Does Parental Leave Affect Higher-Order Fertility?

Figure reports the percentage of women who gave birth to at least one additional child within three years after giving birth in June or July 1990. June smoothed backward, July smoothed forward (15-day moving average). *Source.* ASSD, own calculations. Sample restricted to PL-eligible women giving birth to a child in June 1–30 or July 1–30 of 1990.

Table II also indicates that there are substantially more births in July 1990 than in June 1990. Is this evidence for birth timing? We investigate this issue by analyzing the number of births in June and July 1990 on a day-to-day basis, finding a steady increase but no discontinuity in the number of births on July 1 (not reported). Thus, comparing June 1990 mothers to July 1990 mothers, we find little evidence of seasonality in the composition of cohorts but strong seasonality in the number of births.[19]

Figure III presents first evidence on the causal effect of extending PL for the current child on the decision to have an additional child. The vertical axis measures the percentage of women who gave birth to a second child within the 36 months following

19. Indeed, births in July exceed births in June in any given year of our sample period (1985, 1987, 1990, 1993, 1996). Nevertheless, we perform sensitivity tests comparing births that occur, respectively, in the first/second half of June 1990 and the first/second half of July 1990 to assess the sensitivity of our results to short-run timing of births.

the 1990 birth. To smooth out the noise in date-of-birth data, Figure III presents fifteen-day backward moving averages for June and fifteen-day forward moving averages for July. Results indicate that 32.2 of 100 women in the control group give birth to an additional child within the 36 months. In contrast, almost 36.7 of 100 women do so in the treated group. Thus, almost 5 of 100 women tend to give birth to an additional child in the treated cohort who do not do so in the control group. The magnitude of this effect seems quite robust and varies only slightly over the particular time window one adopts.

Table III discusses the validity of this result, explaining the probability of giving birth to an additional child within three years in the context of a linear probability model. Column (1) estimates a baseline difference in short-run higher-order fertility of about 4.5 additional births per hundred mothers. Column (2) includes information on age and prebirth labor market history to assess the sensitivity of the key result to composition of treated and control group mothers. Results indicate that extended PL increases short-run fertility by 4.9 additional children per hundred women. Moreover, estimates indicate that higher-order fertility is lower for older women and for employed women. Column (3) estimates the causal effect of extended leave on births by reducing the width of the baseline window from thirty to fifteen days. Results suggest that about 5.4 children are born to one hundred women with extended leave that are not present under short leave. Anticipating extension of leave, mothers with a strong desire to have two or more children might have timed the birth of their first child to take place on or after July 1, 1990 (by postponing a planned caesarean section or delayed induction of a birth to July 1 or later). Column (4) excludes births taking place one week before and one week after July 1, 1990. Excluding these observations leaves results essentially unchanged; point estimates even slightly increase. The last column of Table III runs a placebo regression where we repeat the regression of column (2) using data on mothers giving birth to their first ASSD child in June and July 1987. These two groups faced identical PL rules and hence we should not see any major differences between them. In fact, the estimated treatment effect is insignificant and the point estimate very close to zero.

The empirical analysis has documented a short-run response of higher-order fertility. Does this short-run response persist in the long run? Contrasting June and July 1990 mothers, Figure IV shows how extended leave for the first child affected higher-order

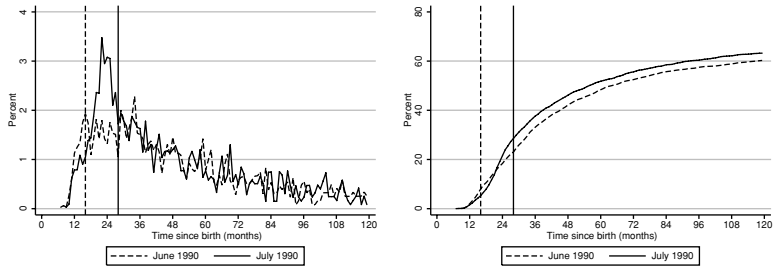
TABLE III

THE THREE-YEAR FERTILITY EFFECT OF EXTENDING PL DURATION FOR THE CURRENT CHILD, JULY 1990 (24 MONTHS PL) VS JUNE 1990 (12 MONTHS PL)

	Base	Controls	Half-window	Anticipation	Placebo
July	.045	.049	.054	.056	.008
	(.012)***	(.012)***	(.017)***	(.014)***	(.011)
Age 20–24		.045	.035	.042	.012
		(.024)*	(.034)	(.027)	(.021)
Age 25–29		.029	.014	.028	.048
		(.028)	(.039)	(.031)	(.025)*
Age 30–34		−.059	−.073	−.058	.020
		(.033)*	(.046)	(.037)	(.033)
Age 35–44		−.111	−.116	−.099	−.125
		(.043)***	(.062)*	(.049)**	(.034)***
Employment		.006	.003	.006	.008
(years)		(.006)	(.009)	(.007)	(.007)
Employment sq.		−.057	−.048	−.052	−.104
		(.038)	(.054)	(.044)	(.046)**
Unemployment		.011	.028	.011	−.020
(years)		(.022)	(.034)	(.025)	(.028)
Unemployment sq.		−1.793	−1.850	−1.783	1.065
		(.694)***	(1.202)	(.752)**	(1.233)
Earnings		−.025	−.038	−.004	.062
unobserved		(.045)	(.060)	(.051)	(.046)
Daily earnings		.000	−.000	.000	.001
(euros)		(.000)	(.000)	(.000)	(.000)**
Daily earnings sq.		−.000	.000	−.000	−.000
		(.000)	(.000)	(.000)	(.000)***
Employed		−.111	−.036	−.121	−.099
		(.050)**	(.075)	(.057)**	(.045)**
White collar		−.011	−.031	−.004	−.005
		(.017)	(.024)	(.020)	(.016)
Daily 1989		.002	.001	.002	.002
earnings		(.002)	(.003)	(.002)	(.002)
Daily 1989		−.000	.000	.000	−.001
earnings sq.		(.002)	(.003)	(.002)	(.002)
Industry	No	Yes	Yes	Yes	Yes
Region	No	Yes	Yes	Yes	Yes
Mean of dependent variable	0.345	0.345	0.346	0.345	0.258
N	6,180	6,180	3,045	4,757	6,151

Source: ASSD, own calculations. Sample covers PL-eligible women giving birth to their first child in June 1–30 or July 1–30 of the respective years.

Notes: Linear model of the probability of giving birth to a second child within three years of giving birth to a first child in June/July 1990. Standard error in parentheses. *(**,***) denote significance at the 10% (5%, 1%) level, respectively. Inference based on Huber–White standard errors. "Base": July (24 months PL) vs June (12 months PL). Controls: adds controls (Table II). Half-window: June 16–July 15. Anticipation: June 1–23 and July 8–30. Placebo: June 1987 (12 months PL) vs July 1987 (12 months PL).



(A) Hazard *(B) Cumulative proportion*

FIGURE IV
Additional Births ("Hazard" and Cumulative Proportion), July 1990 (24 Months PL) vs. June 1990 (12 Months PL)

Figure reports the additional child hazard, that is, the women giving birth to an additional child in month t as a proportion of those who have not given birth to an additional child up to month t (A), and the cumulative proportion of women giving birth to at least one additional child up to month t (B). Vertical bars indicate end of automatic renewal (dashed for June 1990 mothers, regular for July 1990 mothers). *Source.* ASSD, own calculations. Sample restricted to PL-eligible women giving birth to a child in June 1–30 or July 1–30 of 1990.

fertility within the ten years following the 1990 birth. Figure IVA shows the second-child hazard rate, that is, the likelihood that a woman gives birth to a second child t months after the 1990 birth conditional on not giving birth to a second child before month t. The control group has a somewhat higher second-child hazard rate between months 12 and 16, whereas the treated group has a much higher hazard between month 18 and month 28. The difference between the two groups is largest during months 22–25, when the additional birth hazard is almost 3.5% for the treated group but less than 2% for the control group. After month 28 there are no major differences between the two groups. This pattern can be rationalized by the PL rules. Recall that the rules grant renewal of PL to control group mothers giving birth before month 16 and to treated mothers giving birth before month 28. Figure IVA shows that the additional-child hazard diverges most strongly when PL renewal is possible to treated mothers but impossible to control mothers.

Figure IVB shows the cumulative proportion of women with a second child by time since the 1990 birth. Results indicate that the treated have a lower second-child probability before month 22 but a higher one thereafter. Interestingly, the difference does not erode in the long run. Even ten years after the 1990 birth, the

TABLE IV
SHORT-RUN AND LONG-RUN FERTILITY EFFECTS OF PL DURATION FOR THE CURRENT CHILD, JULY 1990 (24 MONTHS PL) VS JUNE 1990 (12 MONTHS PL)

	Base	Controls	Half-window	Anticipation	Placebo
Additional birth	.045	.049	.054	.056	.008
0–36 months	(.012)***	(.012)***	(.017)***	(.014)***	(.011)
	[.345]	[.345]	[.346]	[.345]	[.258]
Additional birth	.03	.035	.03	.048	−.006
0–120 months	(.012)**	(.012)***	(.017)*	(.014)***	(.012)
	[.617]	[.617]	[.62]	[.617]	[.556]
Additional birth	−.027	−.026	−.029	−.023	−.006
0–16 months	(.006)***	(.006)***	(.009)***	(.007)***	(.006)
	[.066]	[.066]	[.067]	[.066]	[.069]
Additional birth	.082	.084	.084	.09	.011
17–28 months	(.01)***	(.01)***	(.014)***	(.011)***	(.008)
	[.193]	[.193]	[.195]	[.194]	[.123]
Additional birth	−.024	−.021	−.023	−.018	−.011
29–120 months	(.012)*	(.012)*	(.017)	(.014)	(.012)
	[.36]	[.36]	[.359]	[.359]	[.366]
Observations	6,180	6,180	3,045	4,757	6,151

Source. ASSD, own calculations. Sample: PL eligible women giving birth to their first child in June 1–30 (12 months PL) or July 1–30 (24 months PL) in the year 1990.

Notes. This table reports the "July 1990" parameter estimate in a linear probability model comparing postbirth fertility of mothers giving birth to their first child in June/July 1990. Standard error in parentheses; mean of dependent variable in brackets. * (**,***) denote significance at the 10% (5%,1%) level, respectively. Inference based on Huber–White standard errors. Base: July (24 months PL) vs. June (12 months PL). Controls: adds controls (Table II). Half-window: June 16–July 15. Anticipation: June 1–23 and July 8–30. Placebo: June 1–23, 1987 (12 months PL) vs. July 8–30, 1987 (12 months PL).

second-child probability of July 1990 mothers is still three percentage points higher than for June 1990 mothers. This suggests that the increase in fertility created by the PL renewal effect affects not just the timing but also the total number of children.[20]

Table IV provides an econometric assessment of both short-run and long-run fertility effects using a linear probability model. The first row repeats the results of Table III on short-run fertility. The second row shows the corresponding result for long-run fertility (birth of a second child within 120 months). Column (1) shows that the effect of extending PL for the child born in 1990

20. Note that June 1990 mothers might still catch up to July 1990 mothers after ten years or due to differential third-child fertility. Although our data provide a window that is, arguably, too short to provide a definitive assessment of completed fertility, we believe that this is unlikely to happen. First, June and July 1990 mothers face identical economic and political circumstances on the third child. Second, because only about 65 percent of mothers give birth to two or more children, the third-child treatment effect would have to reach an implausibly large magnitude.

leads to three additional children being born to one hundred mothers within ten years. Adding controls (column (2)) increases the treatment effect to 3.5 percentage points; halving the estimation window and excluding births closer than seven days before and after July 1, 1990, does not reverse the result. We conclude that extending PL for the current child increases long-run fertility.[21]

Rows (3)–(5) in Table IV document the timing of excess fertility. Column (1) in Table IV shows that treated mothers reduce future-child fertility by 2.6 percentage points in the period when both treated mothers and control mothers have access to automatic renewal, that is, between months 0 and 16 (row (3)). Then there is a strong increase in fertility by 8.4 percentage points in the period when only treated mothers have access to automatic renewal, that is, months 17–28 (row (4)). Finally, treated mothers are slightly less likely to give birth to a second child between month 29 and month 120 (row (5)). This is the period when neither group has access to automatic renewal. In sum, our results suggest that the short-run change in access to automatic renewal leads to long-run effects on higher-order fertility.

The most likely explanation for the high persistence of fertility effects is shocks (to health, partnership, workplace, etc.) that may otherwise induce parents to revise their long-run plans. We show that more generous PL induces parents to realize a planned birth earlier. This means that some shocks that are inducing parents to change family plans in a one-year system no longer affect family planning under a two-year system. This is why short-term gains in fertility also persist in the long run.[22]

IV.B. Labor Market Outcomes

PL rules address the problems of parents in reconciling work and child care. Hence these rules also affect parents' labor market outcomes. We now explore whether and to what extent extending

21. Although the effect estimated here seems large, our estimated short-run impact is similar in magnitude to that found by Milligan (2005) for pronatalist transfer policies in Quebec where, depending on the parity, parents got a cash transfer up to 8000 CAD. Fertility of those eligible is estimated to have increased 12% on average and 25% for those eligible for the maximum benefit.

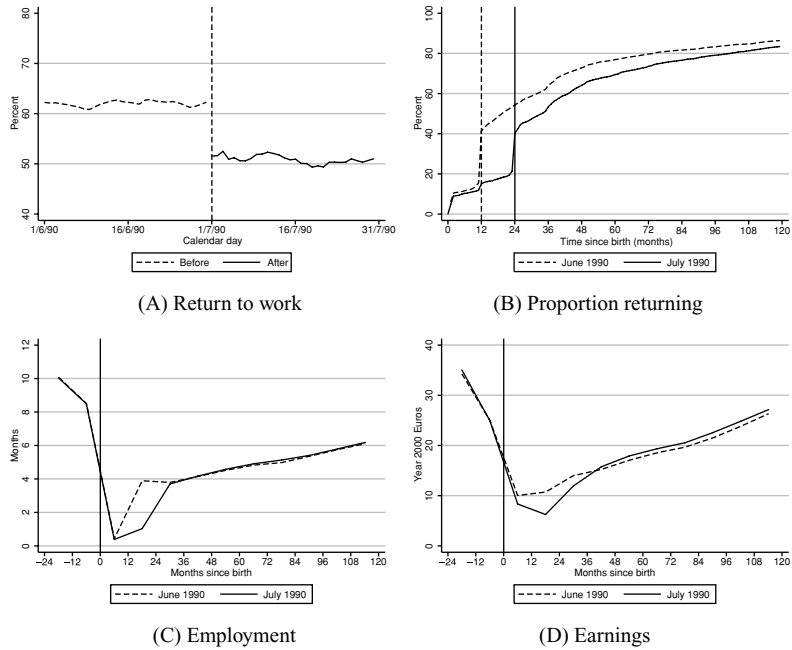
22. Although it is true that some women are induced to have a birth within 28 months who would have waited and then never conceived (for preference or biological reasons), there also appear to be some women who are induced to wait beyond 16 months. To the extent that these women experience a negative shock, the net positive effects on the other set of women will be offset. Because there is a positive net fertility effect, the data suggest that any offsetting of this kind is not complete.

leave from one year to two years affects women's labor market outcomes, by focusing on three different indicators. (i) *Return to work* measures the probability that a woman has returned to work at least once after giving birth to her first child in June or July 1990 in the short run (0–36 months after birth) and in the long run (0–120 months after birth). (ii) *Employment* refers to the months worked per calendar year after birth in the short run (0–36 months after birth) and in the long run (37–120 months after birth). (iii) *Earnings* measures average pay earned per calendar day after birth in the short run (0–36 months after birth) and in the long run (37–120 months after birth). Note that both employment and earnings are set to zero in periods where a woman does not work and are included in the empirical analysis.[23]

Figure VA compares the proportion of women returning to work within 36 months after a birth in June and July 1990 by day of birth. Whereas about 62 of 100 women return to work three years after giving birth in June 1990, only about 52 of 100 women do so after giving birth in July 1990, with a strong discontinuity from June 30 to July 1. This suggests a very strong causal impact of PL duration on short-run return-to-work behavior.

Figure VB compares the return-to-work profile during the 120 months following the 1990 birth. The figure clearly shows that the maximum length of PL has an extremely strong impact on return-to-work behavior. About 10% of mothers return to work within two months after giving birth (i.e., the end of maternity protection), the same for July 1990 and June 1990 mothers. About 80% of the treated and 83% of the control mothers exhaust the full PL duration. Although a substantial fraction of both treated (20%) and control mothers (25%) return to work exactly when PL has run out, the majority of women (60% among the treated, 58% among controls) stay home after PL has lapsed. Moreover, extended leave for the 1990 child seems to lower the fraction ever returning to work. Whereas 85 of 100 women return to work at least once ten years after the 1990 birth, only 82 of 100 treated women do so.

23. *Return to work* at date t measures the probability that a woman has stopped her baby break between date 0 and date t. In contrast, *employment* counts the days at work between date 0 and date t (set to zero when a woman does not work). Because a woman could have returned to work at some date $s < t$ but dropped out of workforce at some later date $\tau \in (s, t)$, the two indicators differ. Unconditional *labor earnings* are average earnings per month and set to zero when a woman does not work at all during the respective month. Employment and earnings are available at an annual frequency.



(A) Return to work (B) Proportion returning

(C) Employment (D) Earnings

FIGURE V

Return to Work, Employment, and Labor Earnings, June 1990 vs. July 1990

Panel A reports the percentage of women who have returned to work at least once within three years after the 1990 birth (June smoothed backward, July smoothed forward, fifteen-day moving average); Panel B reports the cumulative proportion of women who have returned to work at least once since the 1990 birth; Panel C reports average months in employment; and Panel D reports mean labor earnings per calendar day since the 1990 birth. (Panels C and D are drawn on an annual frequency; data points at six, eighteen, etc., months refer to the first, second, etc. year after the 1990 birth.) Employment and earnings are set to zero for women who do not hold a job. Zeros are included in all our analyses. *Source*. ASSD, own calculations. Sample restricted to PL-eligible women giving birth to a child in June 1–30 or July 1–30 of year 1990.

Figure VC explores the effects of extended leave on employment. Employment patterns of women giving birth to their first child are strikingly asymmetric. Whereas paid work takes up about nine to ten months per prebirth year, time spent in the workplace is below seven months in all postbirth years. Interestingly, adverse PL effects on return to work do not translate into lower employment rates. Whereas there is a clear short-run employment disadvantage of treated mothers compared to control mothers in the second year after the 1990 birth, employment is basically the same from the third year onward. Return-to-work

patterns can be reconciled with employment results as follows. Women eligible for short parental leaves who are planning a further child return to work in the short run temporarily to gain access to renewed parental leave. In contrast, women eligible for long parental leaves can exploit the renewal option and do not have to return. This behavioral pattern explains simultaneously the fact that the fraction ever returning to work is lower in the treated group but long-run employment in months 37–120 remains unchanged. Basically, extending parental leave reduces short-run temporary return to work but does not affect longer-run labor supply decisions.

Figure VD displays the evolution of average labor earnings for the two groups. Again, earnings patterns are strikingly asymmetric in periods covering a first-child birth. Whereas women earn about 33 euros per calendar day before birth, mothers of newborn children earn less than 30 euros in all ten postbirth years. In terms of assessing the effects of extended PL on earnings, Figure VD shows that prebirth average earnings are identical between June and July 1990 mothers but diverge strongly immediately after they give birth. Earnings are lower for treated women in the first three years after the 1990 birth. From year four onward, however, treated mothers earn slightly more than control mothers. The positive medium-run earnings effect of extended leave could be driven by various channels: participation in work, length of work, selection into work, and a genuine behavioral effect (more hours, better jobs due to promotions, etc.). Long-run employment results (months 37–120) suggest that the joint effects of participation and length of work are close to zero. There is also a small but insignificant composition effect: women with high prebirth wages return to the job earlier with extended leave than with short parental leave. This implies that the somewhat higher long-run earnings of July 1990 mothers are due to a genuine behavioral effect. Although this effect is small, it seems that those mothers who return after extended leaves work somewhat more and/or are employed in relatively better paid jobs than mothers who return after shorter leaves.

Table V uses linear regression to assess the causal effects of the 1990 PL extension for the current child on short- and long-run labor market outcomes. Columns (1)–(5) assess the sensitivity of the results in the same way as the corresponding columns in Table IV on short-run fertility. Treated mothers are significantly less likely to have returned to work three years

TABLE V
LABOR MARKET EFFECTS OF PL DURATION FOR THE CURRENT CHILD, JULY 1990 (24 MONTHS PL) VS. JUNE 1990 (12 MONTHS PL)

	Base	Controls	Half-window	Anticipation	Placebo
Return to work	−.109	−.11	−.109	−.105	.009
0–36 months	(.013)***	(.012)***	(.017)***	(.014)***	(.012)
	[.564]	[.564]	[.567]	[.561]	[.619]
Return to work	−.03	−.027	−.046	−.023	.009
0–120 months	(.009)***	(.009)***	(.013)***	(.01)**	(.009)
	[.847]	[.847]	[.85]	[.845]	[.83]
Employment	−.999	−1.02	−1.001	−1.031	−.051
0–36 months	(.073)***	(.071)***	(.1)***	(.081)***	(.083)
	[2.185]	[2.185]	[2.194]	[2.183]	[2.908]
Employment	.07	.074	.047	.09	−.09
37–120 months	(.111)	(.109)	(.155)	(.124)	(.111)
	[5.136]	[5.136]	[5.202]	[5.107]	[4.889]
Earnings	−2.739	−2.998	−3.156	−3.044	−.821
0–36 months	(.335)***	(.304)***	(.429)***	(.348)***	(.321)**
	[10.159]	[10.159]	[10.223]	[10.096]	[12.155]
Earnings	.852	.545	.195	.522	−.862
37–120 months	(.563)	(.522)	(.74)	(.598)	(.518)*
	[20.759]	[20.759]	[21.014]	[20.658]	[19.39]
Observations	6,180	6,180	3,045	4,757	6,150

Source: ASSD, own calculations. Sample: PL-eligible women giving birth to their first child in June 1–30 (12 months PL) or July 1–30 (24 months PL) in the year 1990.

Notes: This table reports the July 1990 parameter estimate in a linear regression/linear probability model comparing postbirth labor market outcomes of mothers giving birth to their first child in June and July 1990. Standard error in parentheses; mean of dependent variable in brackets. Employment and earnings are set to zero for women who do not hold a job. Zeros are included in all our analyses. * (**,***) denote significance at the 10% (5%,1%) level respectively. Inference based on Huber–White standard errors. Base: July (24 months PL) vs. June (12 months PL). Controls: adds controls (Table II). Half-window: June 16–July 15. Anticipation: June 1–23 and July 8–30. Placebo: June 1987 (12 months PL) vs. July 1987 (12 months PL).

after giving birth to their first in July 1990 (row (1)) and the difference is quantitatively large: An additional 10 of 100 mothers have not returned to work within three years after the 1990 birth. This difference in return to work shrinks over time but a significant three-percentage point difference still remains even after ten years (row (2)). Interestingly, although treated mothers work about one month per year less during the first three years after giving birth (row (3)), there are no long-run employment differences between treated and controls. During months 37–120 after birth, average employment is the same for the two groups (row (4)). A similar finding obtains for earnings per calendar month. Treated mothers earn about three euros less from working on the average day of the three first postbirth years (row (5));

there is even a positive albeit statistically insignificant earnings differential between treated and control mothers four to ten years after giving birth (months 37–120, row (6)). Thus, although the 1990 reform slightly reduced the number of women ever returning to work, staying out of work for an extended period does not appear to harm employment and earnings of treated mothers.

IV.C. Heterogeneous Responses: Income and Occupation

Austrian PL provisions offer job protection and a financial transfer during the time a mother stays off work. Although both types of policies reduce the costs of having children, they target quite different dimensions of these costs. Cash transfers help extend the time a mother can stay home with her baby without running into financial distress. This is more likely to help low-income parents. In contrast, job protection extends the time a mother can spend with her baby without losing her job. This is more likely to help career-oriented women, for whom job loss may be very costly.

Table VI explores whether extending PL duration affects high- and low-wage women differently. A mother is considered "Hi Wage" if daily earnings on the job held exactly one year prior to giving birth (prebirth job) exceeds the median of daily prebirth earnings (37.12 euros per day worked); and a mother is considered "Lo Wage" otherwise. The flat rate transfer of 340 euros translates into a low replacement rate for high-wage women and a high replacement rate for low-wage women. Moreover, taking occupation as a proxy for the extent of job-specific skills, we also investigate whether the responses for women holding a white-collar occupation one year prior to birth (column (4)) were different from the responses of women holding a blue-collar job (column (5)).[24] For comparison purposes, column (1) repeats the baseline result (column (1) of Tables IV and V).[25]

Results indicate that the 1990 PL reform led to a significant increase in short-run fertility for both high- and low-wage women (Table VI, columns (2) and (3)). Excess short-run fertility amounts

24. Women who did not hold a job one year prior to giving birth to the 1990 child are allocated to the low-wage/blue-collar categories. Results remain qualitatively unchanged if we exclude nonemployed women.

25. Clearly, such rough sample splits along one dimension are likely to be contaminated by imbalance along other dimensions. For instance, 62% of high-wage women hold a white-collar occupation, whereas only 44% of all women hold a white-collar occupation. Nevertheless, splitting the sample along these two dimensions allows discussing the relevance of earnings replacement and value of job protection.

TABLE VI
HETEROGENEOUS EFFECTS OF PL DURATION FOR THE CURRENT CHILD (1990 REFORM)

	All	Hi wage	Lo wage	Wt col	Bl col
		(A) Fertility			
Additional birth	.049	.036	.068	.055	.048
0–36 months	(.012)***	(.017)**	(.017)***	(.018)***	(.016)***
	[.345]	[.351]	[.339]	[.349]	[.342]
Additional birth	.035	.016	.054	.034	.036
0–120 months	(.012)***	(.017)	(.017)***	(.018)*	(.016)**
	[.617]	[.616]	[.618]	[.611]	[.622]
Additional birth	−.026	−.033	−.018	−.018	−.031
0–16 months	(.006)***	(.009)***	(.009)*	(.009)**	(.009)***
	[.066]	[.06]	[.071]	[.058]	[.072]
Additional birth	.084	.08	.089	.095	.078
17–28 months	(.01)***	(.014)***	(.014)***	(.015)***	(.013)***
	[.193]	[.203]	[.183]	[.206]	[.183]
Additional birth	−.021	−.031	−.013	−.042	−.008
29–120 months	(.012)*	(.017)*	(.017)	(.018)**	(.016)
	[.36]	[.353]	[.366]	[.348]	[.369]
		(B) Labor market outcomes			
Return to work	−.11	−.103	−.124	−.137	−.094
0–36 months	(.012)***	(.017)***	(.018)***	(.018)***	(.017)***
	[.564]	[.632]	[.496]	[.647]	[.5]
Return to work	−.027	−.028	−.029	−.039	−.018
0–120 months	(.009)***	(.012)**	(.014)**	(.012)***	(.013)
	[.847]	[.874]	[.82]	[.889]	[.814]
Employment	−1.023	−1.186	−1.15	−1.054	−.556
0–36 months	(.114)***	(.101)***	(.114)***	(.102)***	(.172)***
	[2.594]	[1.984]	[2.659]	[1.913]	[1.505]
Employment	.2	−.125	.071	.026	.238
37–120 months	(.173)	(.162)	(.171)	(.163)	(.286)
	[5.88]	[4.762]	[5.95]	[4.681]	[3.92]
Earnings	−3.548	−2.7	−3.914	−2.347	−2.356
0–36 months	(.56)***	(.354)***	(.564)***	(.335)***	(.748)***
	[14.247]	[7.183]	[13.921]	[7.454]	[6.508]
Earnings	1.142	.311	.45	.895	−.403
37–120 months	(.927)	(.64)	(.923)	(.614)	(1.465)
	[26.467]	[16.139]	[26.336]	[16.183]	[17.179]
Observations	6,180	3,087	3,093	2,705	3,475

Source. ASSD, own calculations. Sample covers women giving birth to their first child in June 1–30 (12 months PL) or July 1–30 (24 months PL) in the year 1990.

Notes. This table reports the "July 1990" parameter estimate in linear regressions/linear probability models comparing postbirth labor market outcomes of mothers giving birth to their first child in June and July 1990. Standard error in parentheses; mean of dependent variable in brackets. Employment and earnings are set to zero for women who do not hold a job. Zeros are included in all our analyses. * (**,***) denote significance at the 10% (5%,1%) level, respectively. Inference based on Huber–White standard errors. All: repeats column (2) of Table 4 and column (2) of Table 5 for comparison. Hi/lo wage: median splits for prebirth daily income; Wt/bl col: splits by white- and blue-collar occupation; wage and occupation measured one year prior to birth; women who are not employed one year prior to birth are allocated to the low-wage and blue-collar categories.

to almost four children per 100 high-wage mothers and to almost seven children per 100 low-wage mothers (row (1)). This result suggests that taking advantage of automatic renewal is less attractive to high-wage women than to low-wage women. Long-run fertility effects disappear for women with high earnings power (1.6-percentage-point difference) but not for women whose prebirth earnings power lies below the median (6.4-percentage-point difference). Rows (3)–(5) in Table VI assess the timing of fertility. High-wage women delay fertility more than low-wage women up to month 16 (when control women also have access to automatic renewal, row (3)). From month 17 to 28 (when the treated have access to automatic renewal but controls do not; row (4)), treated high- and low-wage women display excess fertility of eight and nine children per 100 women, respectively. In the period following month 29, high-wage (but not low-wage) controls have significantly higher fertility (row (5)). In sum, excess fertility for low-wage women results from not delaying initial fertility by the treated and from not catching up by the controls after automatic renewal has lapsed.

These differences in fertility timing are likely to be explained by differences in work attachment between high-wage women (63% return to work within three years, row (6), number in brackets) and low-wage women (only 50% return to work within three years, row (6), number in brackets). Because returning to work between children induces a wider space between first birth and second birth, offering automatic renewal compresses the space between children more strongly for the group with a larger *ex ante* space between births.

Interestingly, although there are significant differences in fertility responses between high- and low-wage women, the PL reform affects employment and earnings of high- and low-wage women to a similar extent (Panel B in Table VI). The decrease in return-to-work probabilities is somewhat smaller for high-wage women than for low-wage women in the short run but almost identical in the long run (rows (6) and (7)). The reduction in employment is identical for both groups in the short run and in the long run (rows (8) and (9)). Short-run earnings reductions are greater for high-wage women than for low-wage women (row (10)). However, because employment responses are nearly identical, differential earnings responses arguably reflect *ex ante* differences in earnings power rather than differential earnings consequences of extending PL duration. There are no significant

long-run earnings consequences of extended career interruptions (row (11)).

Turning to fertility results by occupation reveals that short-run and long-run fertility responses are quite similar for white-collar and blue-collar women (columns (4) and (5), rows (1) and (2)): three additional children within 10 years. Yet even though the long-run result is similar, the time pattern of the responses differs somewhat between white- and blue-collar women (rows (3)–(5)). Both blue- and white-collar women delay second-child fertility in the period, giving both treated and control women access to automatic renewal (row (3)); both blue- and white-collar women eligible for extended PL concentrate births of second children in the period with access to automatic renewal (row (4)). Yet white-collar control women catch up to treated women more strongly than blue-collar control women in the postrenewal period (row (5)). This pattern of results is, again, consistent with differential postbirth labor market attachment between white-collar women (65% return to job within three years, row (6)) and blue-collar women (50% return to job within three years, row (6)).

Although occupation does not appear to mediate fertility responses of extended leave strongly, occupation is important for the labor market consequences of extended PL (Panel B in Table VI). About 14 of 100 treated white-collar women do not return to work within three years because of extended PL. In contrast, only 9 of 100 blue-collar women delay return to work in the short run (row (6)). Long-run return to work of blue-collar women is not affected, whereas almost 4 of 100 women in the white-collar group do not return to work within ten years (row (7)). Extended PL reduces employment and earnings more strongly for white-collar women than for blue-collar women in the short run (rows (8) and (10)). However, in the long run PL-induced career interruptions are not harmful (rows (9) and (11)). In sum, the results suggest that labor market outcomes of white-collar women are more sensitive to extending PL.

We conclude that the finding of higher fertility responses for low-wage women than for high-wage women suggests that cash transfers (through their impact on replacement ratios) are important determinants of fertility responses. Finding that there are no differences in fertility responses between blue- and white-collar workers suggests that the job protection provisions are of importance for white-collar women. White-collar women have, on average, higher incomes than blue-collar women and, on the basis

of their lower average replacement ratios, they should also react less strongly to the PL extension. It seems that lower replacement ratios are compensated by the benefits of job protection. This interpretation is consistent with the idea that internal labor markets and career concerns are more important for white-collar jobs but less relevant for blue-collar workers.[26]

V. Extending PL Duration for the Future Child

This section assesses the effect of extended leave on the future child ("future-child PL effect").[27] To identify this effect we compare the June 1990 cohort (eligible for a one-year PL for the current child but for a two-year PL for the future child) to the June 1987 cohort (one-year PL for the current child and one-year PL for any second child born within three years after the first birth).

The June 1990 to June 1987 contrast may be biased due to cohort effects and time trends. Hence Table VII presents a range of supplementary analyses that shed light on the plausibility of the key identifying assumption of identical *ex ante* fertility plans and labor market trajectories for two cohorts. Assessing the sensitivity of our results to time trends, we provide (i) a placebo estimate of the reform among PL-ineligible mothers (column (3)), (ii) estimates of a three-year postreform time trend that compares July 1993 mothers to July 1990 mothers (column (4)), and (iii) estimates of a two-year prereform time trend that compares June 1987 mothers to June 1985 mothers (column (5)).[28] Moreover,

26. Our results also relate to the existing literature on the trade-off between fertility and labor supply. In contrast to our long-run results, Angrist and Evans (1998) find that U.S. women with two children worked less than women with just one child in 1990. There are at least two reasons for the differences in our results. First, Angrist and Evans (1998) do not condition on time since birth. Their finding of a reduction in labor for the average mother could be consistent with a temporary reduction in labor supply in the short run but no reduction of labor supply in the long run—the situation we document for Austria. Second, Austria and the United States differ in terms of female labor force participation. In 1994, the earliest year with comparable OECD statistics, 65% of American working-age women participated in the labor market whereas only 59% of Austrian women did. Because these participation differences presumably reflect differences in the speed of postbirth labor market reentry, a second child is likely to crowd out more employment in the United States than in Austria. Thus, the fertility effects of extended parental leave may come at higher long-run employment cost in countries with high postbirth labor market participation.

27. Note that, although the change in the PL system could in principle also affect first-child, third-child fertility, and so forth, we confine our analysis to the analysis of second-child fertility because for this parity the effects should be most pronounced.

28. The prereform time trend cannot be three years because our ASSD extract starts in 1985.

TABLE VII
THE EFFECT OF PL DURATION FOR THE FUTURE CHILD (1990 REFORM)

	Base	Controls	Ineligible	Posttrend	Pretrend
(A) Short-run effects (0–36 months after birth)					
Additional birth	.069	.068	−.019	−.006	.001
	(.012)***	(.012)***	(.051)	(.012)	(.011)
	[.286]	[.286]	[.236]	[.364]	[.25]
Return to work	−.002	−.003	−.053	.008	.018
	(.013)	(.012)	(.038)	(.012)	(.012)
	[.622]	[.622]	[.135]	[.524]	[.614]
Employment	−.183	−.164	−.336	−.103	−.045
	(.084)**	(.083)**	(.216)	(.058)*	(.086)
	[2.799]	[2.799]	[.583]	[1.71]	[2.909]
Earnings	−.181	−.229	.512	−.75	−.589
	(.361)	(.331)	(1.927)	(.282)***	(.325)*
	[11.68]	[11.68]	[9.031]	[8.974]	[11.849]
(B) Medium-run effects (37–72 months after birth)					
Additional birth	−.019	−.014	−.072	−.011	.033
	(.011)*	(.011)	(.047)	(.01)	(.011)***
	[.21]	[.21]	[.182]	[.179]	[.205]
Return to work	.028	.024	.011	.022	.005
	(.009)***	(.01)**	(.043)	(.011)**	(.009)
	[.158]	[.158]	[.156]	[.227]	[.144]
Employment	−.172	−.191	−.492	.315	−.007
	(.123)	(.122)	(.397)	(.117)***	(.125)
	[4.585]	[4.585]	[1.599]	[4.77]	[4.688]
Earnings	−.13	−.325	−.252	.441	.053
	(.547)	(.523)	(2.285)	(.524)	(.498)
	[17.015]	[17.015]	[13.084]	[18.654]	[16.814]
Observations	5,977	5,977	274	6,406	5,892

Source: ASSD, own calculations. Sample covers eligible and ineligible women giving birth to their first child in June or July of the years listed in the notes.

Notes: This table reports the "After" parameter estimate in linear regressions/linear probability models comparing postbirth labor market outcomes of mothers giving birth to their first child in June or July of various years. Standard error in parentheses; mean of dependent variable in brackets. Employment and earnings are set to zero for women who do not hold a job. Zeros are included in all our analyses. *(**,***) denote significance at the 10% (5%,1%) level, respectively. Inference based on Huber–White standard errors. Base: eligible, June 1990 (24 months PL for second child, 12 months PL for first child) and June 1987 (12 months PL for first and second child). Controls: adds controls (Table II) to Base. Ineligible: ineligible with controls, June 1990 vs. June 1987. Posttrend: eligible with controls, June 1993 vs. July 1990. Pretrend: eligible with controls, June 1987 vs. June 1985.

Table VII distinguishes between months 0–36 after the first birth (where second-child duration differs) and months 37–72 after the first birth (where second-child duration is identical).[29]

29. Note that the inverse pattern of eligibility holds for the pre- and post-reform trend cohorts. Prereform cohorts are eligible for the same second-child PL duration during months 0–36 after the first birth, but PL duration differs

Results indicate that the future-child PL effect is quantitatively important (Table VII). Short-run fertility is 7 percentage points higher for June 1990 mothers than for June 1987 mothers (Panel A of Table VII, row (1)). Adding prebirth characteristics does not change this result. We do not find that PL-ineligible June 1990 women tend to give birth to more future children than PL-ineligible June 1987 women (column (3)). We also do not find a high importance of time trends. Higher-order fertility is similar between July 1993 and July 1990 mothers (column (4)) and is also similar between between June 1987 and June 1985 mothers (column (5)).

Interestingly, extending leave for the future child does not appear to affect labor market outcomes to any great extent (rows (2)–(4) of Panel A in Table VII). Return to work and earnings do not display statistically significant effects (rows (2) and (4)). Although work experience is reduced significantly, estimates indicate that treated mothers work 0.2 months per year less.[30]

Panel B in Table VII shows that the short-run fertility effect persists in the medium run. Our results indicate that there is no significant catch-up of control mothers during months 36–72. Although June 1990 mothers give birth to slightly fewer second children than June 1987 mothers, the effect is quite small (1.4 children per 100 women) and not statistically significant. Furthermore, results on PL-ineligible women are insignificant. The last two columns of Panel B of Table VII show time-trend results. More precisely, these results measure time trends plus future-child differences in PL duration in the medium run. For instance, pretrend estimates compare June 1987 mothers who are covered by a two-year leave in the medium run (months 36–72 cover the period from July 1990 to June 1993) and June 1985 mothers who are covered by a one-year leave for the first two years and a two-year leave for the third year (months 36–72 cover the period from July 1988 to June 1991). Consistent with this pattern of PL eligibility,

during months 37–72 after the first birth. In the prereform time trend analysis, for instance, second children of June 1987 mothers are eligible for 24 months of PL duration in months 37–60 after the first birth, whereas second children of June 1985 mothers are still only eligible for 12 months of PL duration. In months 61–72 after the first birth, both second children of both cohorts are eligible for 24 months of PL duration.

30. Note that employment estimates could be spurious because there is a significantly negative postreform trend in employment (column (3), Table VII). Moreover, the coefficients on labor market outcomes are very imprecise, so the data are consistent with zero effects but also with large negative effects on employment and earnings.

the future-child PL effect is 3 percentage points higher for the June 1987 cohort than for the June 1985 cohort.[31] Posttrend estimates capture the fact that second-child leave is reduced from 24 months to 18 months for July 1993 mothers, whereas July 1990 mothers still have access to a two-year leave. Point estimates are quantitatively consistent with the future-child effects estimated above but are not statistically significant.

Except for a small increase in return to work, we do not find large future-child PL effect on medium-run labor market outcomes.

What can we learn from the current-child and future-child effects? Recall that the current-child estimates compare families with different benefits (in terms of transfers and time for care) for the current child but identical benefits for the future child. Abstracting from automatic renewal, extending parental leave should crowd out short-run postbirth labor market participation but leave fertility decisions unaffected. In contrast, future-child estimates compare families with different benefits for the future child but identical benefits for the current child. Extending parental leave should affect fertility decisions but not crowd out short-run postbirth labor market participation.

Turning to results, we find that extending parental leave for the current child reduces short-run postbirth work experience by one month, whereas the corresponding future-child effect is about one-fifth of a month. Thus, the pattern of labor market results is in line with the pattern of incentives. In contrast, whereas extending parental leave for the future child boosts short-run fertility by 7 percentage points, doing so for the current child also increases short-run fertility by 5 percentage points. Thus, fertility results suggest that access to automatic renewal is valuable; indeed almost as valuable as extended leave for a future child.

VI. Reducing PL Duration

This section discusses the effects of the 1996 reduction of PL. Results comparing mothers giving birth to their first child in July 1996 (eligible for eighteen months of leave) with mothers

31. The effect is about one-half of the short-run estimate in row (1), column (2), of Table VII. This lower importance of extended leave for a future child can probably be explained by two facts. First, the prereform control group of June 1985 mothers gets access to extended leave in the period 61–72 months after birth. Second, mothers might be less responsive to extended leave three to six years after birth than zero to three years after birth.

TABLE VIII
THE EFFECTS OF REDUCING PL DURATION FOR THE CURRENT CHILD (1996 REFORM): JUNE 1996 (24 MONTHS PL) VS. JULY 1996 (18 MONTHS PL)

	Base	Controls	Half-window	Anticipation	Placebo
			(A) Fertility		
Additional birth	−.003	−.001	−.025	.003	−.021
0–36 months	(.012)	(.012)	(.017)	(.014)	(.012)*
	[.321]	[.321]	[.331]	[.309]	[.349]
Additional birth	.028	.028	.023	.022	−.021
0–22 months	(.009)***	(.009)***	(.013)*	(.01)**	(.009)**
	[.152]	[.152]	[.157]	[.148]	[.151]
Additional birth	−.03	−.029	−.032	−.028	.001
23–28 months	(.008)***	(.008)***	(.011)***	(.009)***	(.008)
	[.103]	[.103]	[.109]	[.098]	[.122]
Additional birth	.004	.005	−.013	.013	−.003
29–36 months	(.007)	(.007)	(.01)	(.008)*	(.007)
	[.077]	[.077]	[.076]	[.076]	[.084]
			(B) Labor market outcomes		
Return to work	.051	.053	.058	.047	.003
0–36 months	(.012)***	(.012)***	(.017)***	(.014)***	(.012)
	[.661]	[.661]	[.66]	[.663]	[.536]
Employment	.675	.684	.703	.676	.057
0–36 months	(.069)***	(.067)***	(.095)***	(.076)***	(.056)
	[2.456]	[2.456]	[2.46]	[2.487]	[1.729]
Earnings	2.65	2.697	2.295	3.045	−.267
0–36 months	(.367)***	(.321)***	(.444)***	(.371)***	(.264)
	[12.302]	[12.302]	[12.148]	[12.469]	[9.135]

Source: ASSD, own calculations. Sample: PL-eligible women giving birth to their first child in June 1–30 (24 months PL) or July 1–30 (18 months PL) in the year 1996.

Notes. This table reports the "July 1996" parameter estimate in linear regressions/linear probability models comparing outcomes of mothers giving birth to their first child in June or July 1996. Standard error in parentheses; mean of dependent variable in brackets. Employment and earnings are set to zero for women who do not hold a job. Zeros are included in all our analyses. * (**,***) denote significance at the 10% (5%,1%) level, respectively. Inference based on Huber–White standard errors. Base: July (18 months PL) vs. June (24 months PL). Controls: adds controls (Table II). Half-window: June 16–July 15. Anticipation: June 1–23 and July 8–30. Placebo: June 1993 (24 months PL) vs. July 1993 (24 months PL).

giving birth to their first child in June 1996 (eligible for 24 months of leave) indicate, first, that the number of children born within three years is not affected by the partial reversal of the 1990 policy change (Table VIII, row (1)). Second, although the number of children is unaffected, the timing of second-child fertility is significantly altered. There is excess future-child fertility of about 3% before month 22 (when both treated and control mothers have access to PL renewal) and a decrease of the same order of magnitude during months 23–28 (when the treated lose access to PL renewal; Table VIII, rows (2)–(4)). Reducing PL duration strongly affects

the timing of births but not the number of children being born because, arguably, mothers could take advantage of PL renewal before and after the 1996 reform, whereas the 1990 reform represents a switch from a system where PL renewal was not feasible to a system where it become highly attractive.[32]

Third, reducing PL duration affects return to work, employment, and earnings considerably. In the short run, 5 of 100 women return to work within three years who would not with extended leave (Table VIII, row (5)). Women on the 18-month leave also work on the average about 0.7 months more per year and earn 3 euros more per day more than women with access to a two-year PL (Table VIII, rows (6) and (7)). Notice that the six-month reduction in PL duration affects return to work, employment, and earnings by about half as much (in absolute value) as the twelve-month extension of PL duration in 1990. Hence results for the 1996 reform confirm that that PL duration for the current child has a strong impact on short-run labor market outcomes.

VII. Conclusions

The focus of this paper is the relevance of the duration of job-protected, paid PL for higher-order fertility and labor market outcomes of working women. The empirical analysis is based on a 1990 extension of PL duration from one year to two years and on a 1996 reduction of PL from two years to eighteen months.

We find that extending PL affects fertility via two channels. First, increasing leave for the *current child* opens up the possibility of renewing PL benefits without going back to work. The resulting tighter spacing of births gives rise to both excess short-run fertility (5 additional children per 100 women within three years) and excess long-run fertility (3 additional children per 100 women within ten years). Moreover, increasing leave for the *future child* reduces the cost of care for that child, inducing mothers to give birth to about 7 additional second children per 100 women. This means that extending job-protected paid PL with automatic renewal from one year to two years induces mothers to give birth to about 12 additional children per 100 women. Regarding the labor market consequences of extended leave, we find that most

32. We also investigate the effects of reducing PL duration for the *future* child by comparing mothers who give birth to a first child in June 1996 to mothers who give birth to a first child in June 1993. Findings indicate that reduced leave on the future child is associated with a decrease in short-run fertility.

mothers exhaust the full duration of their leaves; that return to work is substantially delayed even after PL has been exhausted; and that prolonging leave leads to significant short-run reductions in employment and earnings but only minor effects in the long run. Fertility and labor market responses are heterogeneous with respect to earnings and occupation on the prebirth job. This is consistent with both replacement rates and job protection mediating the effects of extended leave on fertility and labor market responses. Finally, our findings indicate that the 1996 reduction of PL duration compresses the space between first and second births, but does not have a significant effect on the number of second children born within three years. Moreover, the labor market responses closely mirror those of the 1990 extension of PL duration.

Providing causal evidence on how Austrian policy changes affect fertility and labor market careers is interesting and important for the non-Austrian public. In many countries fertility levels have fallen strongly and the question of whether PL policies can help to increase fertility is hotly debated. Our results show that such policies can have a quite strong impact and that both transfers and job protection matter for fertility responses. Our analysis of labor market effects addresses the issue of whether too generous PL rules might have a negative impact on mothers' subsequent work careers—an issue of paramount importance. We think the Austrian case is interesting in this respect because the 1990 PL reform was a move from a system of average generosity (by current OECD standards) to a system of high generosity. Although we do find that the PL extension increases the proportion of women who never return to work, we do not find detrimental effects on employment and earnings over an extended time horizon. Hence we conclude that generous PL policies do not necessarily harm women's long-run labor market outcomes.

FACULTY OF BUSINESS AND ECONOMICS, UNIVERSITY OF LAUSANNE, CEPR, IFAU, IZA, CESIFO, AND IEW
INSTITUTE FOR EMPIRICAL ECONOMIC RESEARCH, UNIVERSITY OF ZURICH, CEPR, IZA, AND CESIFO

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