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Changing Parental Leave and Shifts in Second and Third-Birth Rates in Austria



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Abstract

We analyse the effects of changes in parental leave regulations in Austria in 1990, 1996 and 2002 on second and third-birth rates. These changes determined both the length of parental leave and the possibility for its prolongation in case of subsequent pregnancy. We construct monthly duration and order-specific fertility rates and parity progression ratios to study both short-term shifts in period second and third-birth rates and the trends in cohort parity progression ratios among women affected by changing leave regulations. The extension of parental leave from one to two years in 1990, which created an incentive for women to have their subsequent child within 26 months, led to an immediate and marked increase in second and third-birth rates at intervals 21-26 months after the previous birth. De facto shortening of paid leave in 1996 generated a sharp increase in second and third-birth rates at shorter intervals of 15-20 months. Although we find clear evidence of immediate changes in birth spacing that are in line with the 'logic' of the new leave regulations, this discontinuity in childbearing patterns did not have any discernable impact on the overall second and third-birth cohort progression rates or on period fertility trends. As in most cases analysed for other developed countries, the main effect of the policy change was on the tempo of fertility, namely on the spacing of second and third births.

Keywords

Austria, parental leave, family policies, fertility, second births, third births

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1 Introduction

Persistent low fertility rates in many European countries have increased public and political interest in family policies that could increase or maintain fertility levels (e.g. Caldwell et al. 2002; Vienna Yearbook 2008). A broader discussion whether family policies indeed have an impact on fertility is also stimulated by rather ambiguous results of various studies (Gauthier 2007; Neyer and Andersson 2008). There is polarisation between those who view public policies as obvious means for increasing the currently low fertility levels in Europe and those who consider family policies as inefficient or unnecessary and fruitless (Hoem 2008).

Frequent changes in family policies in many countries of Europe provide ample opportunities for studying their effects on fertility trends. Particular attention has been paid to the effects of changes in parental leave regulation (some of them are summarised in Neyer 2003 [Appendix] and Gauthier 2007). Best known is the case of Sweden, where a prolongation of paid parental leave since 1986 created an opportunity for previously employed women to have another child during that time and thus qualify for a renewal of their paid leave. This option, which was hardly feasible under the previous conditions of shorter parental leave, led to a substantial increase in second and third-birth rates at shorter birth intervals (which Hoem (1993) aptly termed ‘speed premium’) and also contributed to sizeable fluctuations in period fertility in Sweden (see e.g. Andersson 1999; Andersson et al. 2006). Effects of parental leave policies on the spacing of the second and higher-order births, but also on period fertility, have also been identified in other European countries, including Austria, France, Finland, Norway and Russia, and will be discussed in the next section.

Our study analyses in detail changes in the timing and quantum of fertility following the modifications of parental leave provision in Austria, where leave regulations changed three times between 1990 and 2002. We look at both short-term shifts in period second and third-birth rates and the trends in cohort parity progression ratios among women affected by changing leave regulations. Austria, which has experienced low fertility levels since the mid-1980s (Prskawetz et al. 2008), constitutes an ideal setting to study an interaction between changing parental leave provision and fertility rates. In analogy to Sweden, paid

parental leave in Austria until 2002 was tied to previous employment, although it was paid as a flat-rate payment independent of the previous income level. Women who gave birth to another child while on parental leave were eligible to its renewal, obtaining another full period of paid leave as a ‘bonus’. This rule created an important incentive for women to try to space their second and higher-order children in a way that they can benefit from a continuous uptake of paid leave. In fact this option became more realistic only since the prolongation of paid parental leave from one to two years in 1990 and was modified again in 1996, when the parental leave period was in effect cut back by half a year. The unlinking of paid parental leave from the previous employment experience in 2002 reduced its peculiar birth-spacing attractiveness despite its further extension to 30 months (or 36 months if the leave is shared by both parents, see OECD 2003).

Previous studies have suggested that changing parental leave regulations in Austria influenced period fertility rates and birth intervals. Sobotka et al. (2005) found that an extension of paid parental leave in 2002 was followed by an increase in higher-order parity progression rates in the period through 2004. Prskawetz et al. (2008) reported shifts in period second and third-birth intensities at shorter birth intervals during the 1990s, which were broadly in line with the ‘logic’ of incentives created by the parental leave provisions after 1990. Hoem et al. (2001: 255) suggested that the extension of parental leave in 1990 may have softened the ongoing decline in third-birth rates and found some evidence of shortening third-birth intervals. Similarly, Prskawetz and Zagaglia (2005) found that second births occurred at shorter intervals in 1993-1996. The most extensive investigation to date, focusing entirely on the extension of parental leave in 1990, was conducted by Lalive and Zweimüller in 2005. They viewed changing leave regulation as a ‘natural experiment’ and investigated the pace of subsequent childbearing among women having a child in June and July 1990, i.e. during a month preceding and following the change in parental leave rules. Their research design took advantage of the fact that women having a child, say, on 30 June, were still only entitled to a shorter period of parental leave, while those having a child on 1 July could benefit of an extended leave period and thus also of the new ‘incentive’ for a close spacing of their subsequent birth. Lalive and Zweimüller’s study identified a strong rise in childbearing intensities at shorter birth intervals up to 3 years among women having a child in July 1990 and also detected a lasting impact on their overall progression rate to the next birth, which was by 3.9% higher in a 10-year period.

We use individual birth records for 1989-2007, supplied by Statistics Austria, to investigate changes in the spacing and quantum of second and third births in Austria among women having their first and second child in 1989-2002. We use a parity cohort design and focus especially on changes in second and third-birth progression rates among women most affected by changing parental leave provision. For this purpose, most of our

data are organised in a monthly format: our parity cohorts of women are defined by the month when they gave birth to their first and second child; their subsequent fertility history is also computed on a monthly basis. The monthly format of analysis contributes to a better understanding of the shifts in childbearing reflecting differing incentives introduced or abandoned by changing parental leave regulations. We look at short-term changes in the timing the childbearing as well as at the long-term trends in parity progression ratios. In addition, we also analyse whether the changes in parental leave could had some discernible effect on period fertility rates in 1990-2005.

Our study differs from the detailed study of Lalive and Zweimüller (2005) in a number of important points. First, it covers all the three large shifts in parental leave regulations in Austria between 1990 and 2002. Second, we use complete records on births in Austria, whereas Lalive and Zweimüller (2005) based their analysis on a more restricted sample of births provided in the Austrian Social Security Database. Third, our data enable us to distinguish birth orders of children, whereas the data used in Lalive and Zweimüller's study did not enable birth order identification for second and higher-order children. Finally, our data allow us to compute detailed monthly series of period fertility indicators and discuss whether their shifts might be related to changing leave regulation. We omitted fourth and later births from our analysis as they make up only a small portion of births in Austria (6% in 1990-2007) and also because their small numbers imply high fluctuations in monthly childbearing rates.

The paper is organised as follows. First, we review the evidence on the impact of changing parental leave on fertility in other countries of Europe. Then we outline the changes in parental leave policies in Austria since 1990 in more detail. Subsequently, we describe data and methods used. Our analysis focuses first on the long-term changes in second and third-birth intensities at selected intervals since the previous birth and then on short-term changes among women having their first or second child three months before and after the change in parental leave regulation. We analyse whether these shifts had a lasting impact ('quantum effect') on the second and the third-parity progression rates five and ten years after the birth of the first and second child. We also look at the possible effects of changes in parental leave on period fertility trends. The concluding section summarises our major findings and emphasises the advantage of using monthly data for this type of research.

2 Parental leave and fertility: Evidence for European countries

Research shows that both the length of parental leave period and the amount of benefits paid may influence fertility, but changes in leave provision most frequently affect the timing of subsequent births and, to a smaller extent, short-term trends in period parity progression ratios. There is no clear evidence of a long-term impact of leave policy changes on fertility level and completed family size (Gauthier 2007; Neyer 2003). This section reviews studies analysing the effects of changes in parental leave policies on fertility in selected countries of Europe. It should be noted that shifts in family policies often influence fertility in a complex way and may affect unevenly different groups of people as they interact with other changes in socioeconomic and institutional setting. Moreover, changes in parental leave regulations were frequently accompanied by changes in other family-related measures and benefits, making it impossible to study their influence in isolation.

The well-documented case of the Swedish ‘speed premium’ introduced in the 1980s probably comes closest to the situation in Austria in 1990-2002. In Sweden the benefit received during parental leave is connected to previous labour-market activity and the leave allowance corresponds to a high percentage¹ of the pre-birth salary up to a relatively high ceiling (Andersson et al. 2006). Moreover, if parents space their subsequent births sufficiently closely, they are guaranteed the same benefit level when starting a new leave period. The maximum eligibility interval between two births was set to 24 months in 1980 and was extended to 30 months in 1986. These longer eligibility intervals resulted in shorter birth spacing and thus also an upswing in fertility rates (Hoem 1990, 1993; Andersson 1999) and contributed to the rise in the period total fertility rate (TFR) at a time of increasing women’s employment in the 1980s (Hoem and Hoem 1999).

In Finland a new policy measure supporting home care for children under three years of age was introduced in 1985 when the demand for public day care outstripped the supply. The policy became fully effective in 1990. There is an indication of a positive impact of this allowance—in effect a 3-year paid parental leave—on third-birth rates (Rønsen 2004). A continuous increase of second and higher-order birth rates in Finland, uninterrupted despite a severe economic recession in 1992-1994, also gives an indirect indication of an effect of home care allowance on fertility (Vikat 2002). Similarly, Norway introduced a home care benefit scheme in 1998 to give parents more flexibility in their choice between home care and public child care. Using matching techniques Aassve and Lappegård (2009) found that couples taking cash benefit progressed more rapidly to their second and third

¹ Between 1974 and 1994 it was set at 90%, thereafter the level dropped to 80% (Andersson et al. 2006).

child than those who preferred institutional child care and the difference in behaviour between the two groups was substantial.

For France, Breton and Prioux (2005) studied the effects of policies specifically targeting third births, introduced between 1978 and 1980. During this period maternity allowance and family allowance were substantially increased for the third and subsequent children, and their level rose well above the allowance paid for the second child. Breton and Prioux (2005) indicate that these changes primarily influenced the timing of births. Nevertheless, these measures together with the parental leave allowance introduced in 1985 may have helped to maintain and even slightly increase the probability of having a third child (Breton and Prioux 2005: 441).

In the former German Democratic Republic (GDR) a remarkable increase of period fertility rates after 1976 was associated with the implementation of a pronatalist policy package which included a prolongation of maternity leave and introduced an additional paid leave for working mothers. Büttner and Lutz's (1990) analysis indicates that this policy resulted in a short-term anticipation of births and its effect on fertility rates was limited in time. Monnier (1990) shows that pronatalist policy measures accelerated family formation for some women, but had no discernible effect on completed fertility. Moreover, East German policy measures that aimed to support unmarried mothers resulted in effect in declining popularity of marriage (Salles 2006) and thus cancelled some of the pronatalist effects of other measures (Monnier 1990: 139-140). Similarly, in Russia the demographic effect of family policy (namely a series of subsidies and measures provided since 1981, including an extension of maternity leave and different options for child-care leave) was largely limited to a timing effect, expressed in the 'rejuvenation' of fertility of the cohorts affected (Zakharov 2008: 923-924).

3 Family policy and changes in parental leave in Austria

Austria, along with Germany and Switzerland, belongs to the group of countries with 'conservative' welfare regimes, characterised by an extensive system of state support to families, which is closely linked to employment status, and which conforms to the more traditional division of gender roles concerning childrearing and employment (Esping-Andersen 1999; Gauthier 2002: 462-463; Neyer 2003 and 2006). In this system, the level of direct financial support is medium to high, child care leave is relatively long and institutional child care facilities are limited.

According to Neyer (2003: 16), Austria was the first country in Europe that established 'parental' leave in 1957, allowing mothers an option to take unpaid leave for six months after their maternity leave ended. Parental leave policies and benefits in Austria have been gradually developed in part as recognition of the incompatibility of child care and work involvement (Thenner 1999). Complicated rules regarding the return to employment "underline the policy intentions to value mothers' care work more than their employment" (Neyer 2003: 22). Thus, family policy and parental leave legislation are still to a large extent shaped by the traditional male-breadwinner model and a combination of work and family is difficult due to deficiencies in public and private child care and inconvenient opening times of many day-care institutions and schools (Prskawetz et al. 2008: 340; OECD 2003).² Child care remains particularly little developed for children below age 3, among whom fewer than 5% benefited from publicly funded formal child care in 2005 (Prskawetz et al. 2008). Clearly, there remains considerable 'unmet demand' for public child care (OECD 2003). In addition, many public child care institutions have rather short opening times (basically, in the morning until lunch time) and long closing periods during vacations.³ Low provision of public child care makes parental leave particularly important for parents with young children.

This general framework provides a background to frequent changes in parental leave regulations, which are primarily motivated by the goal of providing sufficient social protection and a minimum level of income to temporarily non-employed mothers with small children, but, at the same time, are also influenced by the more traditional views of gender role division.⁴ A particular feature of the parental leave allowance in Austria until 2002 was its being linked to previous paid employment and the possibility of its renewal when a mother gave birth to another child during the leave period (Lalive and Zweimüller 2005; Prskawetz et al. 2008). If women spaced their childbirths closely enough, parental allowance and mandatory job protection were extended for the period of a subsequent parental leave and no minimum period of employment prior to the leave 'renewal' was required. A gap of six weeks was allowed between the last parental leave and the

² Recently, a flexibilisation of parental leave took place from January 2008, diminishing the problem of different durations of job protection and the maximum period of receiving the leave allowance. Three variants of parental leave were introduced, with a maximum duration of 18, 24, and 36 months if the partner takes at least 3, 4 and 6 months, respectively. Different leave duration also implies different levels of monthly parental leave allowance (EUR 800, 624, and 436, respectively).

³ As public childcare in Austria is regulated by provinces, there are huge regional variations in its availability, organisation and cost (Neyer 2003).

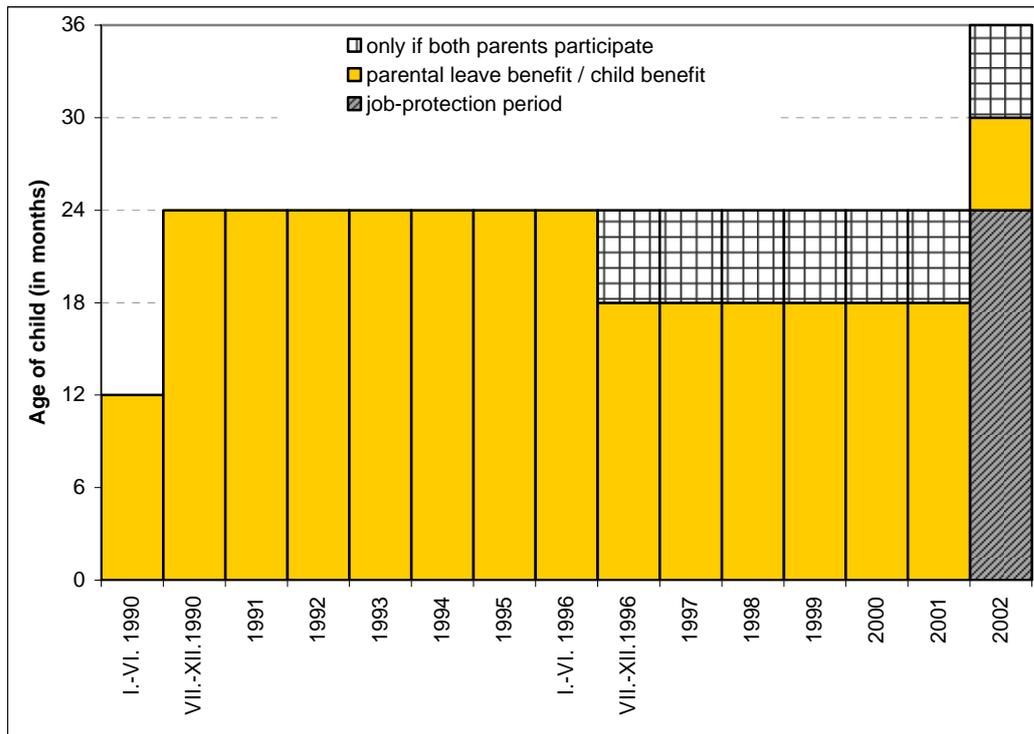
⁴ Although both men and women are entitled to parental leave since 1990 (see also below) women in practice make up the vast majority of parental leave users. Therefore we commonly relate our analysis and discussion to women only and frequently ignore men's negligible involvement in parental leave.

beginning of a new maternity leave. Considering that the maternity leave⁵ usually starts eight weeks before childbirth, renewal of parental leave was possible if a new birth occurred within 14 weeks after the end of the previous leave period.

A simplified scheme of changes in the duration of parental leave between 1990 and 2002 is provided in Figure 1 and in Appendix (see also Thenner 1999). Until July 1990, parental leave lasted up to the child's first birthday and therefore its renewal without any interruption was feasible only if a woman gave birth to another child within 15 months (12 months + 14 weeks). This was difficult to achieve for both practical reasons and biological limitations (frequent temporary infecundity due to breastfeeding combined with a large variability between couples in their chance of achieving pregnancy (e.g. Dunson et al. 2002)). Since July 1990, paid parental leave was extended until the child's second birthday and, as a result, the take-up of parental leave increased substantially (Thenner 1999). The extension made it more attractive for women to space their subsequent births closely enough to qualify for an extension of paid leave. Having another child within 27 months (24 months + 14 weeks) was far more realistic option than the previous short limit. In July 1996, a new regulation stipulated that at least 6 months of the leave should be taken by the second parent if couples wanted to benefit from the full length of paid leave up to the child's second birthday (employment-protected leave remained at two years; OECD 2003: 127). In practice, this led to the shortening of the maximum duration to 18 months for a great majority of women, considering that fathers' take-up of parental leave remained negligible (Thenner 1999; Lalive and Zweimüller 2005; Prskawetz et al. 2008). At the same time the requirement of the length of previous employment for receiving parental allowance for the second and subsequent children increased from 20 to 26 weeks during the year preceding the leave period (Hoem et al. 2001; Lalive and Zweimüller 2005; Prskawetz et al. 2008).

⁵ Maternity leave normally starts eight weeks before the expected date of birth and lasts 16 weeks. After the leave a mother is entitled to return to work or to take parental leave.

Figure 1: Duration of parental leave, Austria 1990-2002



In 2002, the system of parental leave was reformed into two separate schemes—on the one hand, employment-protected parental leave covering employees with a sufficient work record and, on the other hand, a new child care benefit provided to all parents whose annual individual income was below a newly introduced limit of EUR 14,600 (OECD 2003:127). Therefore, from January 2002 the cash benefit associated with parental leave was no longer conditioned by employment experience prior to the childbirth and it was possible to receive it up to the child’s 3rd birthday if both parents participated in the leave (or until the child reached the age of 30 months if only one parent drew the benefit). However, the protection of the parent’s workplace remained fixed at two years, creating a tension between offering parents a possibility to stay longer at home and their ability to return to their previous job afterwards. Subsequent flexibilisation of parental leave duration as of 2008 reduced this incongruity.

Changes of parental leave could have an impact on a mother’s labour force participation and her re-entry into the labour market after childbirth. Experience with the 1990 parental leave reform in Austria suggests that the longer period of benefit payment increases the average time spell when mothers are out of work after childbirth (OECD 2007). Neyer et al. (1998, cited from Neyer 2003) find that the extension of the parental leave from one to two years in 1990 decreased the re-entry rates for one-child mothers at

the end of the leave period. Similarly, after the leave reform in 2002 employment rates for parents with children aged 18 to 30 months dropped by some 20 percentage points (Riesenfelder et al. 2006, cited from OECD 2007) and mothers were likely to stay at home for at least 30 months, even though they lost their entitlement to return to their previous work place after 24 months (Lutz 2003, cited from OECD 2007)).

The value of parental leave benefits in Austria is lower than in the countries where parental leave is defined as a fraction of the previous wage. For instance, in the late 1990s the amount of leave benefit corresponded to 35% of women's median net income and to 24% of that of men (Thenner 1999). From 2002 parents received EUR 14.53 per day irrespective of their employment status (around EUR 436 per month), which amounted to 26% of the average net monthly wage in 2002.

To sum up, different maximum intervals between two childbirths were required for mothers during the period studied in order to benefit from uninterrupted paid parental leave. Whereas until June 1990 the maximum time spell between births needed for the renewal of paid parental leave was 15 months, it subsequently increased to 27 months and, from July 1996 it fell in effect to 21 months (excluding the small portion of couples where fathers participated in the leave). Since January 2002, a woman can draw child care benefit payments without interruption if she spaces her subsequent children within 33 months⁶. Moreover, parental allowance is no longer linked to the previous work experience, weakening thus the incentive for a 'targeted' spacing of the second and higher-order births.

4 Data, methods and indicators used

The analysis is based on individual birth records provided by Statistics Austria. We use data on all live-born children of birth orders 1 to 3 born between January 1989 and December 2007 to women resident in Austria. We work with the information on the date of birth and biological birth order of each child and the date of the previous birth that serves for a computation of birth interval (duration) since the previous birth⁷. All the data are

⁶ Or 39 months if her partner takes part of parental leave.

⁷ We were not able to assign an appropriate birth interval to all multiple births. For multiple births among women with no previous births, the duration since the previous birth is 'correctly' defined as 0 for each child coded as a second or a third biological birth order (despite resulting from the first delivery). However, the distinction is problematic in the case of multiple births in second or higher-order deliveries as each of the multiple-born children in birth records is assigned a separate birth order, but the date of the previous birth always refers to the previous delivery. In these cases, which pertain only to third births in our analysis, our coding of birth interval is not set as 0, but it refers to the time elapsed since the last previous delivery.

sorted and analysed on a monthly basis, which makes it possible to allocate more precisely possible shifts in fertility timing and quantum and link them to the changes in parental leave regulations.

Our analysis focuses on monthly first and second-parity cohorts, i.e. cohorts of women defined by the month of giving birth to their first or second child, respectively. We compute unconditional fertility rates $f_i(d,c)$ for monthly parity cohorts m :

$$f_i(d,c) = B_i(d,c) / B_{i-1}(m=c),$$

where B are live births, i denotes birth order, d is duration since the last previous birth (birth interval), c stands for monthly parity cohorts and m for calendar month (i.e. $B_{i-1}(m=c)$ denotes total number of live births of order $i-1$ in month m which equals the number of women giving birth to their $i-1$ th child in month m). In this approach, we relate births of order i at duration d to the initial number of women giving birth of order $i-1$ in month $t-d$. We also compute cumulative progression rates for first and second-parity cohorts of January 1989 to December 2002 and their (partial) parity progression ratios five and ten years after the birth of their first and second child. In addition, we organise all the data in a period format and compute unconditional monthly fertility rates $f_i(d,m)$ and monthly parity progression ratios:

$$f_i(d,m) = B_i(d,m) / B_{i-1}(m_0=m-d),$$

$$PPR_{i-1,i}(m) = \sum f_i(d,m)$$

One possible drawback of our computation is that it does not make any adjustment for migration and mortality in the period under study. All women giving their second or third birth in Austria are assumed to have given their previous childbirth in Austria as well. While this is a strong assumption which does not hold in reality, it should not affect our analysis of trends over time. Especially the fluctuations in childbearing rates and parity progression ratios among women giving birth around the time of an implementation of the new regulations should be insensitive to migration and mortality.

Much of our analysis focuses on changes in fertility rates and cumulated progression rates shortly before and after the ‘decisive’ duration for leave extension in case of a subsequent birth, particularly, for the durations 15-20, 21-26, 27-32 and 33-41 months (see Appendix).

5 Results

We first inspect long-term trends in second and third-birth rates at selected intervals for women giving birth to their first or second child between 1989 and 2002. Subsequently, we analyse shifts in fertility rates only for the cohorts of women having their first or second birth in the periods shortly before and after the implementation of new parental leave regulations. Finally, we check whether these women also differed in their long-term second and third-parity progression rates.

5.1 Changes in second and third-birth rates at shorter birth intervals, 1989-2002

Figures 2 and 3 show second and third-birth rates, specified by duration since the previous birth, for women giving their first or second birth in 1989-2002. Due to large fluctuations only half-yearly parity cohorts are shown for third-birth rates in Figure 3. The most pronounced shifts are closely associated with the cohorts that were affected by the changes in parental leave regulations in July 1990 and July 1996. There is a marked and immediate upward shift in second and third-birth progression rates 21-26 months after the first and second birth for the parity cohorts of July 1990 and later and this rate remained elevated up until the June 1996 parity cohort. At the same time, a decline in the progression to second and third birth at duration 33-41 months was observed, indicating a declining propensity to give birth at longer intervals when women were no longer entitled to an uninterrupted parental leave. Meanwhile, second and third-birth rates at very short duration of 15-20 months declined and had remained at a lower level until the next shift in policy regulations in 1996. Thus, it appears that women attempted not to space their children in a shortest possible interval, but rather that many have tried to maximise their period of 'at-home' child care by spacing their births just closely enough to qualify for a leave 'renewal'.

The July 1996 change led to a convergence of birth rates at durations 15-20 and 21-26 months (Figures 2 and 3). Having a next child within 21 months was no longer sufficient to benefit from an uninterrupted parental leave for those mothers who gave birth after 1 July 1996. Therefore, those who wanted to qualify for the continuous paid allowance had to 'speed up' their subsequent birth to stay within a 20-month period. Not surprisingly, the second and third-birth rates fell sharply at durations 21-26 months, whereas a sizeable increase took place at durations 15-20 months. However, this increase was just temporary and starting with the 1998 parity cohorts a general downward trend can

be observed for second and third-birth rates at shorter intervals, while a parallel increase in fertility rates at longer intervals and a general increase in mean birth interval took place. We cannot offer a clear explanation for this development. Arguably, the shorter time between births needed for a continuous parental leave since 1996 was probably too short a target for many women, so that even the benefits from continuous parental leave could not outweigh other factors influencing child spacing.

Figure 2: Duration-specific second-birth rates by the year at first birth, Austria (first births in 1989-2002), 5 months moving average

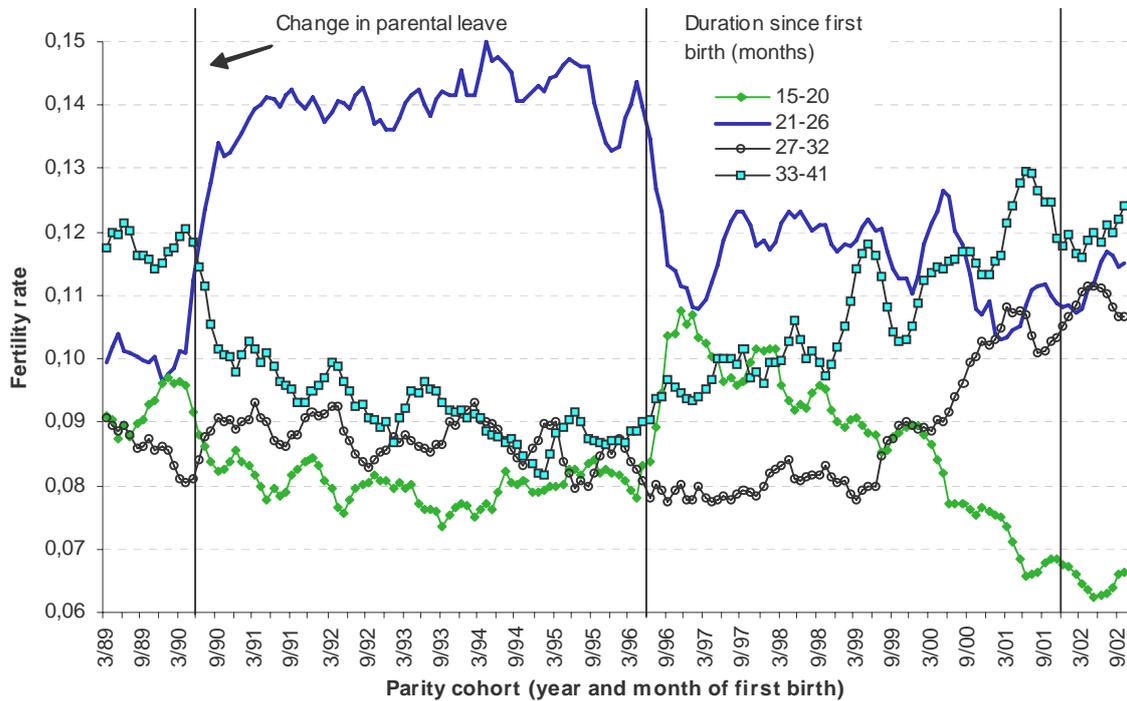
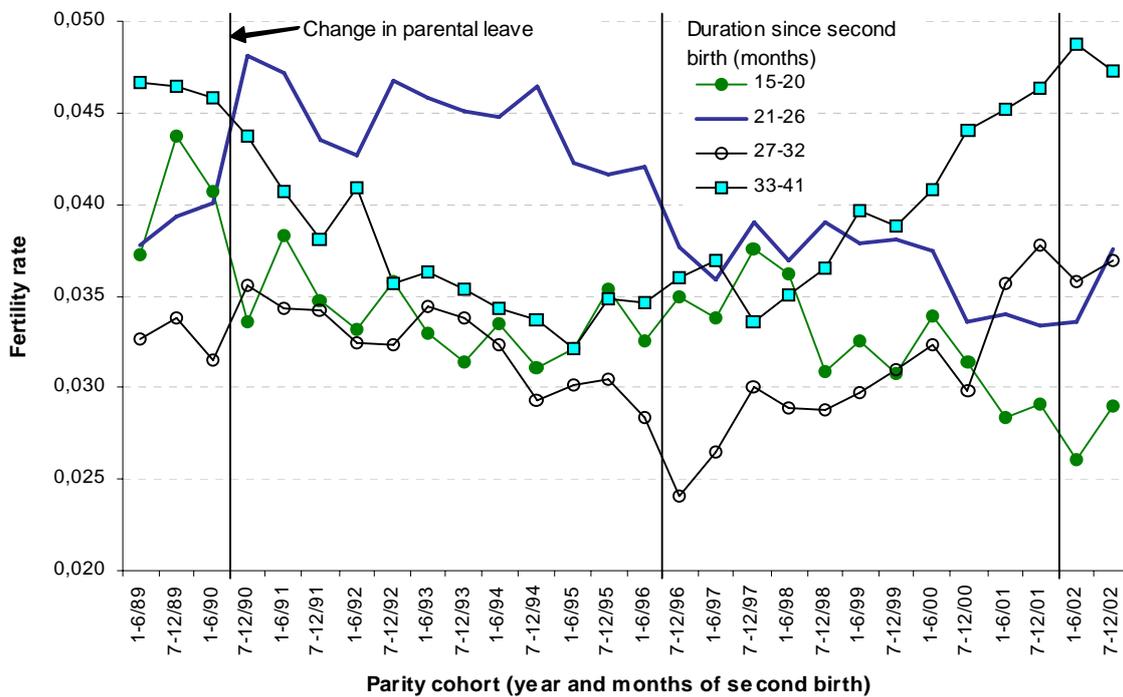


Figure 3: Duration-specific third-birth rates by the year at second birth, Austria (second births in 1989-2002)



5.2 Changes in second and third-birth intensities among monthly parity cohorts affected by the policy change

To get a finer picture of the effect of policy changes, we provide a more detailed analysis for women who became mothers around the time of the 1990 and 1996 policy changes. We focus mostly on second births as the comparatively small number of third births causes considerable fluctuations in monthly third-birth rates. Figure 4a plots second births rates at selected intervals for women having had their first birth between July 1989 and June 1991, relative to the second-birth rates for women who gave birth in June 1990. Similarly, Figure 4b relates second-birth rates among women having had their first birth in July 1995 to June 1997 to the first parity cohort of June 1996. The immediate effect of both policy changes on duration-specific second-birth rates is clearly shown: the first parity cohort of July 1990 shows a massive increase in second-birth rates by more than 40% when compared with the first-birth mothers of June 1990, who were the last ones entitled to a short parental leave only. A compensating drop by 10-20% in second-birth rates at both shorter (15-20 months) and longer (33-41 months) intervals can be observed. A reverse effect accompanied the 1996 shortening of parental leave (Figure 4b). Second-birth rates for the first-parity cohort of July 1996 increased by more than 40% for the duration of 15-20 months and, in parallel, fertility rates at duration 21-26 months fell.

Figure 4a: Relative second birth intensities, Austria, July 1989-June 1991 (June 1990=1)

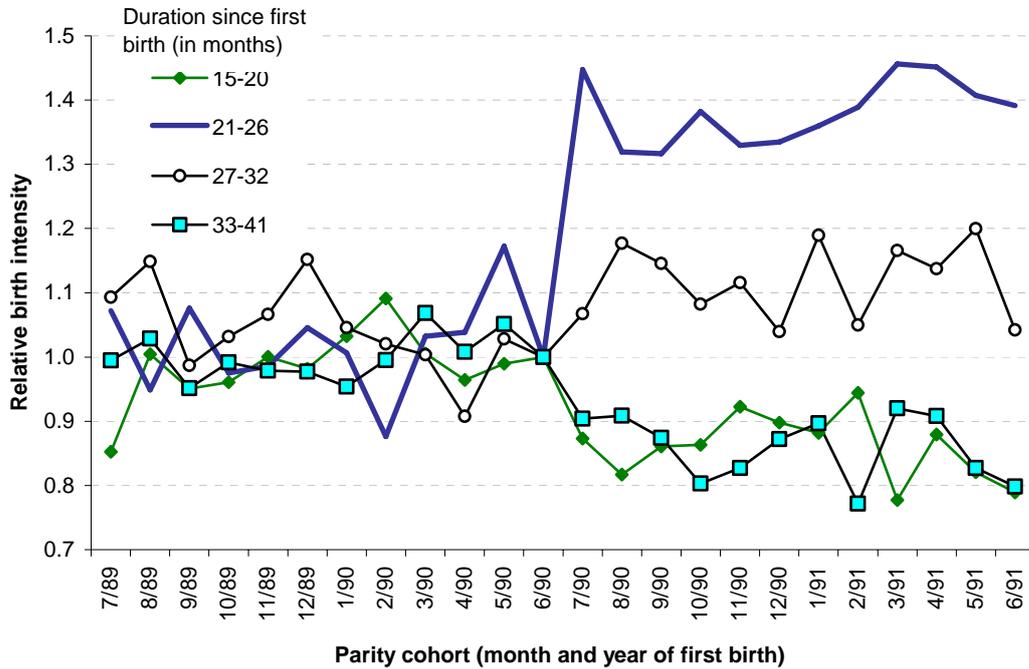
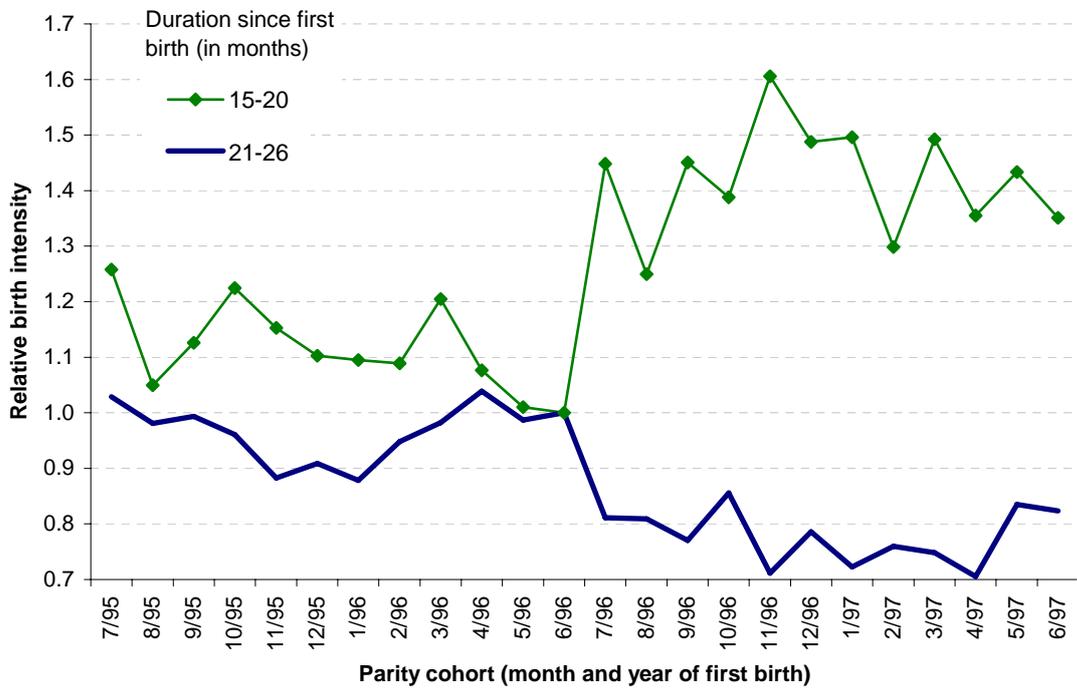


Figure 4b: Relative second birth intensities, Austria, July 1995-June 1997 (June 1996=1)



A rapid change in the spacing of second births is also obvious from a comparison of duration-specific second-birth rates for the parity cohorts three months prior and three months after the policy change (Figure 5). For the 1990 change, already the initial parity cohorts that could ‘take advantage’ of the new regulation show an emergence of a pronounced peak in second-birth rates at interval 23-24 months, which is very close to the maximum threshold of 26 months. This new peak is retained just until the next revision of parental leave legislation effectively shortens the maximum threshold for its uninterrupted take-up and then it immediately disappears, starting with the first parity cohorts of July-September 1996.

Figure 5: Second-birth rates by duration since first birth, first birth parity cohorts of April to September 1990 and April to September 1996

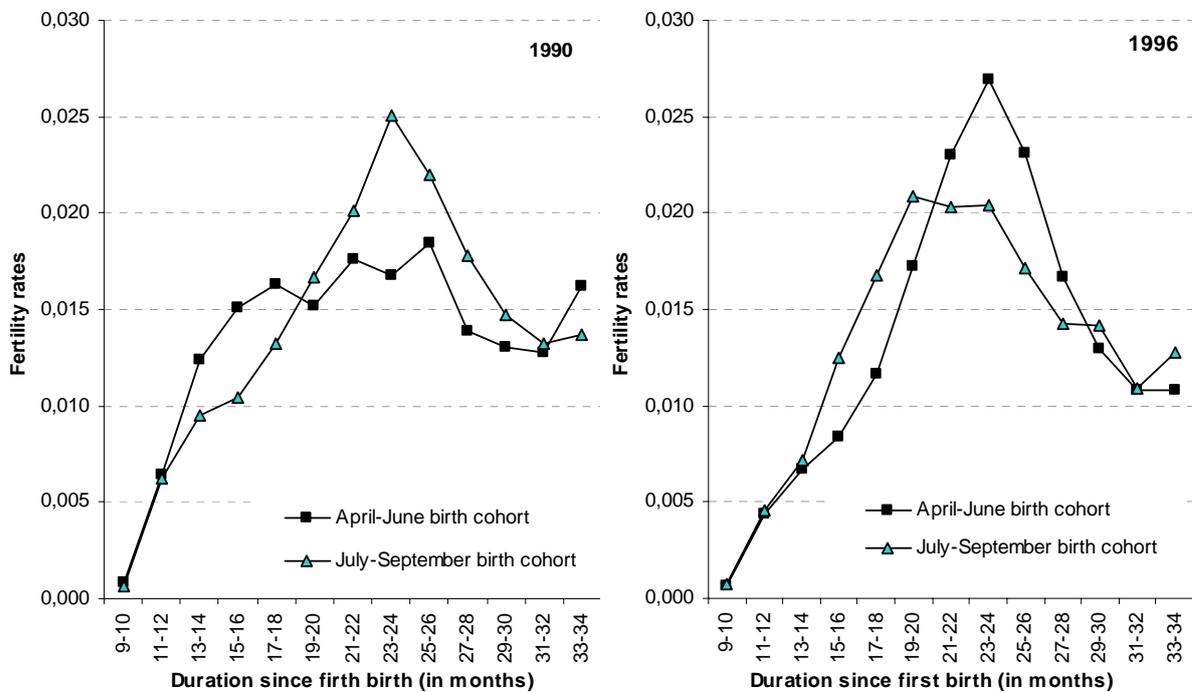


Table 1 summarises the evidence on short-term effects of parental leave changes in 1990, 1996 as well as 2002 by comparing absolute and relative changes in duration-specific second and third-birth rates for mothers who had their first (second) birth during the three months preceding and following the policy change. In line with Figures 2-5 the table provides clear evidence of an immediate impact of the legislative changes in 1990 and 1996 on birth spacing. Only minor changes in duration-specific second and third-birth rates could be observed in relationship to the de-facto abolishment of the ‘speed bonus’ that came into force in January 2002.

Table 1: Duration-specific second and third-birth intensities, Austria (first and second birth 3 months before and 3 months after policy changes of 1990, 1996 and 2002)

Duration since previous birth (in months)	Intensities 2nd birth			Intensities 3rd birth		
	1990					
	April-June	July-Sept.	Relative change (April-June = 1)	April-June	July-Sept.	Relative change (April-June = 1)
9-14	0.039	0.033	0.84	0.019	0.013	0.71
15-20	0.093	0.081	0.86	0.040	0.032	0.80
21-26	0.106	0.134	1.27	0.040	0.050	1.26
27-32	0.079	0.092	1.15	0.032	0.037	1.16
	1996					
	April-June	July-Sept.	Relative change (April-June = 1)	April-June	July-Sept.	Relative change (April-June = 1)
9-14	0.024	0.025	1.06	0.010	0.012	1.18
15-20	0.075	0.100	1.34	0.029	0.034	1.17
21-26	0.146	0.116	0.79	0.042	0.038	0.91
27-32	0.081	0.079	0.97	0.028	0.025	0.89
	2001/2002					
	Oct.-Dec. 2001	Jan-May 2002	Relative change (Oct.-Dec. = 1)	Oct.-Dec. 2001	Jan-May 2002	Relative change (Oct.-Dec. = 1)
9-14	0.021	0.020	0.94	0.014	0.012	0.89
15-20	0.066	0.061	0.92	0.028	0.028	0.98
21-26	0.107	0.114	1.07	0.032	0.031	0.98
27-32	0.108	0.113	1.05	0.037	0.035	0.95

5.3 Was there an effect of parental leave changes on second and third-parity progression rates?

The analysis presented above suggests that the observed shifts in second and third-birth rates for the analysed parity cohorts of women frequently run in opposite direction for different birth intervals, possibly cancelling or compensating each other for the most part. To see whether they had any lasting effect, we compare cumulative progression rates to the next birth after 3, 5 and 10 years for those mothers who had their first or second child during the three months preceding or following the policy change.

No durable effect of parental leave policy changes on parity progression rates could be identified in our analysis. The prolongation of parental leave in 1990 did not have a discernible effect on cohort second and third-birth progression rates. Although minor shifts can be observed at shorter durations of up to 3 years, no difference can be seen 5 or 10 years after the first or second birth (Table 2). Similarly, there are no lasting and significant differences in long-term cohort parity progression rates among parity cohorts who gave

their first or second birth shortly before and after the policy change of 1 July 1996. Some fertility-stimulating effect of the de-facto shortening of parental leave is evident only for a short duration up to 21 months, when the cumulated transition rate to the second and to the third birth rose by 27% and 17%, respectively. Once again, this effect was counterbalanced by lower second and third-birth rates at longer durations and, eventually, the same proportion of mothers had progressed to have a subsequent child, no matter whether they were entitled for a longer or a shorter parental leave. For the 2001 and 2002 parity cohorts, we can reconstruct their second and third births only up to the duration of five years. At that time, once again, there were no significant differences between the two groups of mothers compared.

Despite pronounced shifts in fertility rates at specific birth intervals, mean birth intervals remained stable for the parity cohorts analysed (Table 2). Policy-related changes in duration-specific rates apparently compensated each other and did not affect the mean birth intervals computed 5-10 years after the birth of the first or second child.

Table 2: Duration-specific progression ratios to second and third birth, Austria (first and second birth 3 months before and 3 months after policy changes of 1990, 1996 and 2002)

Duration since previous birth (in months)	Progression to 2nd birth (%)			Progression to 3rd birth (%)		
	1990					
	April-June	July-Sept.	Relative change (April-June = 1)	April-June	July-Sept.	Relative change (April-June = 1)
15	3.9	3.3	0.84	1.9	1.3	0.71
21	13.3	11.3	0.86	5.9	4.6	0.77
36	36.5	38.0	1.04	14.7	14.8	1.00
60	57.0	57.1	1.00	24.6	24.2	0.98
120	72.6	72.0	0.99	34.3	34.6	1.01
Mean birth interval (censored after 10 years)	41.4	41.1		46.7	47.5	
	1996					
	April-June	July-Sept.	Relative change (April-June = 1)	April-June	July-Sept.	Relative change (April-June = 1)
15	2.4	2.5	1.06	1.0	1.2	1.18
21	9.8	12.5	1.27	3.9	4.6	1.17
36	35.6	35.8	1.00	11.9	12.1	1.02
60	53.7	53.2	0.99	19.8	19.6	0.99
120	68.5	68.1	0.99	29.6	29.8	1.01
Mean birth interval (censored after 10 years)	41.3	41.0		49.5	49.5	
	2001/2002					
	Oct.-Dec. 2001	Jan-May 2002	Relative change (Oct.-Dec. = 1)	Oct.-Dec. 2001	Jan-May 2002	Relative change (Oct.-Dec. = 1)
15	2.1	2.0	0.94	1.4	1.2	0.89
21	8.7	8.0	0.92	4.2	4.0	0.95
36	35.3	35.6	1.01	12.9	12.4	0.97
60	54.6	55.9	1.02	22.2	22.1	1.00
Mean birth interval (censored after 5 years)	31.3	31.6		33.3	34.0	

5.4 Did the changes in parental leave affect period fertility trends?

We have shown that changing parental leave regulations in Austria did not have any appreciable effect on parity cohort progression rates, besides strongly influencing fertility rates at selected birth intervals. Given this evidence, we do not expect to find a significant influence on period fertility trends. Still, shifts in the distribution of second and third-birth rates at selected intervals could have had a short-term effect on period fertility. We begin our analysis with an inspection of the overall period monthly fertility, using two indexes, the ordinary period total fertility rate (TFR) and an index of Period Average Parity (PAP), constructed from a set of age-specific childbearing probabilities for first births and

duration-specific childbearing probabilities for second and higher-order births (see Sobotka et al. 2005 for details on the construction of a monthly PAP index).⁸ Figure 6 also shows the timing of the changes in parental leave, both actual (dashed lines) and lagged by 15 months (straight lines). The 15-month time lags delineate the beginning of a period when the first and the second parity cohorts affected by the new parental leave regulations would begin giving birth to another child. This time lag is also consistent with the findings of our analysis of the shifts in the distribution of the second and third births by duration (Figure 5 above).

Figure 6 shows a minor decline followed by a small rise in the PAP and the TFR in 1991-1992, which could have been caused by the 1990 policy change; these period changes are, however, very small and short-lived. In 1997-98, we observe that a minor uptick that comes with a delay of several months and lasts until around May 1998. Much more interesting, however, is an increase in period fertility just after the implementation of more generous parental leave provisions in 1990 as well as in 2002, which does not follow the logic of a time gap needed to accumulate for the analysed parity cohorts before having another child. In addition, a fall in period fertility took place during most of the year 1997, shortly after an implementation of less generous parental leave in 1996. These two trends are most probably unrelated. A slight increase in period fertility after the 1996 change as well as a more pronounced decline in the first half of 1997 could possibly be attributed to the abolishment of maternity grants effective since January 1997.⁹ Furthermore, a longer-term fall in period fertility starting in early 1993 shows that the new parental leave regulations did not have any lasting positive effect on period fertility.

To analyse the peculiar rise in period fertility rates just at the time of the new leave regulations, we inspected period second and third-birth parity progression rates (data not shown here). We found no change in trends around the time the new regulations came into effect in 1990 and 1996 and we observe an unexpected slight increase shortly after the implementation of the 2002 policy change. It seems that an increase in period fertility in 1990-91 and possibly also in 2002 should be predominantly explained by the shifts in first-

⁸ The PAP is based on the assumption that following the birth of the first child, childbearing intensity is primarily a function of the time elapsed since the previous birth rather than age. As long as birth intervals remain relatively stable, this index is not affected by the ongoing trend towards later childbearing for birth orders two and higher. Appendix 3 in Sobotka et al. 2005, which is available as supplementary online material, provides more details on the PAP construction. Latest monthly data on fertility in Austria can be found at the VID (2009) website.

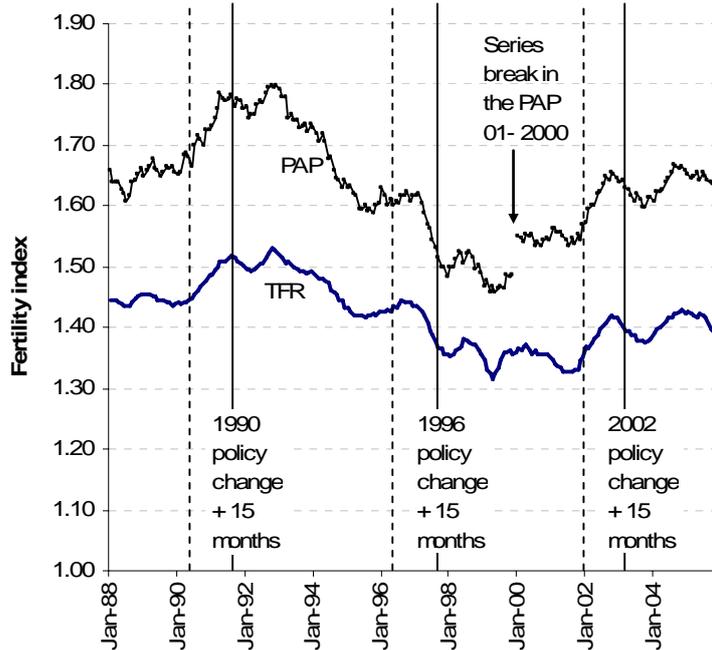
⁹ Maternity grant (*Geburtenbeihilfe*) of 15,000 Austrian Schillings (an equivalent of 72% of the average net monthly wage), provided under the condition that a pregnant women undergoes all the prescribed health and pregnancy checks, was abolished since 1 January 1997. The planned abolishment was announced early in 1996 and therefore some couples have probably advanced their planned pregnancy in order to qualify for receiving the grant.

birth rates. Our further investigation (Figure 7) largely confirmed this hypothesis. First-birth rates increased appreciably—although only for a limited period of time—after the new parental leave laws were implemented in 1990 and 2002.

Taken together, this analysis offers some speculative interpretation on the effects of policy changes on period fertility in Austria. The availability of longer parental leave in 1990 did not stimulate second and third-birth rates, except for a very minor and short-lived effect due to a restructuring of birth intervals. Did the policy changes contribute to a short-term increase in first-birth rates, which would have otherwise taken place later? It is difficult to argue that the new parental leave rules would have an immediate effect on fertility, considering the duration of a pregnancy and also allowing some months for actually achieving one. It is conceivable that some couples were aware of the ongoing political discussions and well-informed in advance about the prepared changes in leave provision, but in the case of the 1990 parental leave rules, the new policies were announced in April 1990 (Lalive and Zweimüller 2005), too late for any couple to achieve pregnancy and give birth soon after July 1990. Such a rapid reaction would be more feasible in the case of the 2002 policy change, which was proposed by the government in April 2001 (Gisser and Fliegenschnee 2004). Possibly, a new child benefit no longer related to the previous work status, extended up to the child's third birthday and combined with a slight increase of the amount paid,¹⁰ could have motivated some couples to have a child somewhat earlier. In contrast with the 1990 policy change, the 2002 parental leave extension was followed by increasing fertility trends lasting until autumn 2004 and affecting all parity progression rates, especially the third and fourth birth rates (see also Sobotka et al. 2005). However, it remains unclear whether this trend is linked to the more generous leave provision.

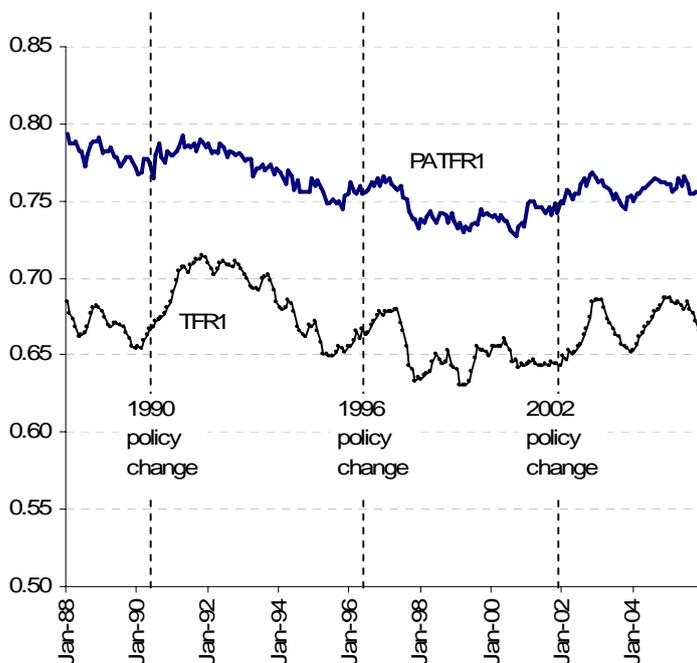
¹⁰ By the end of 2001 persons on parental leave received € 13.56 per day (self-employed and peasants € 6.74 per day). From 2002 parents received € 14.53 per day irrespective of their employment status (around € 436 per month, which amounted to 26% of the average net monthly wage in 2002).

Figure 6: Monthly total fertility rates and period average parity (PAP), 1988- 2005



Note: The series break in the PAP between December 1999 and January 2000 is due to a change in its computation; until December 1999 the PAP was computed from duration and order-specific incidence rates (non-exposure rates) for birth orders 2 and higher, whereas starting in January 2000 it was computed from the set of duration and parity-specific birth probabilities (exposure-specific indicators). For more details, see Sobotka et al. 2005.

Figure 7: Monthly indicators of first-birth rates in Austria, 1988-2005



Note: PATFR1 is a fertility index for first births, controlling for age and parity, computed from a set of age- and parity-specific first-birth probabilities (see Rallu and Toulemon 1994; also Sobotka et al. 2005).

6 Summary and conclusions

Our analysis of the effects of changes in parental leave provision in Austria in 1990, 1996 and 2002 on second and third-birth rates took advantage of a sharp temporal delineation between mothers that were subjected to different rules regarding the duration of their paid parental leave and the possibility of its uninterrupted prolongation. We constructed different indicators of second and third-birth rates defined for both parity cohorts and calendar months. The monthly format of our analysis enabled us to better depict the temporal correspondence between changing parental leave and fertility rates and to draw firmer conclusions on the likely causal effects of parental leave on fertility in spite of working with aggregated data rather than performing a micro-level analysis (see Ní Bhrolcháin and Dyson 2007). Since some of contextual variables change from month to month, there is a great potential gain from a transition to monthly data for analysing fertility rates that may change suddenly from one month to another (Sobotka et al. 2005).

The main findings can be summarised as follows:

- There were strong shifts in the spacing of second and third births among women having first and second birth in 1990 and 1996, closely corresponding to the ‘logic’ of the incentives provided by parental leave rules (‘speed premium’). No similar changes could be observed for women having second and third births after 2002, when parental leave payment was no longer conditioned on previous work experience.
- These changes were manifested as immediate and sharp reactions, starting with the first monthly cohort of women affected by the new parental leave regulations.
- Policy changes affected cumulative second and third-parity rates at shorter birth intervals of up to 36 months.
- However, no lasting (cohort) effects were detected and no change in the cumulative parity progression rates after 5 or 10 years was found.
- Similarly, the impact of the shifts in second and third-birth spacing on period fertility trends was very minor and of a short duration, detected only when analysing monthly data.
- There was a short-term rise in first-birth rates right after the new policy regulations came into effect in 1990, 1996 and 2002. This increase was unrelated to the analysed changes in second and third-birth patterns and it remains unclear whether and how it was linked to the shifts in parental leave regulations.

Our conclusions concerning long-term effects differ from the analysis of Lalive and Zweimüller (2005), who found a slight lasting influence of the 1990 parental-leave change on second and higher-order birth progression rates. A more detailed format of our dataset that allowed us to distinguish the birth orders of second and later children, gives us more

confidence in our finding of no lasting effects of parental-leave changes on fertility. All in all, our analysis confirms frequent findings from many detailed country-specific studies (see also Section 2 above): modifications in parental-leave regulations and, more broadly, in family-related policies, often influence the timing and spacing of childbearing, but usually have no discernible effect on the level (quantum) of period and cohort fertility (Gauthier 2007). Many couples are happy to ‘take advantage’ of a new regulation, having a child somewhat sooner or later than initially intended, but perhaps only very few couples would have an extra child or would forego an intended child just because of a change in family policies.

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Appendix: Parental leave in Austria 1990-2002

Period	Paid parental leave	Particularities	Employment requirements	Maximal gap between two births	Interval since the birth of the previous child (in completed months) used in the analysis
until June 1990	until the child's 1st birthday		52 weeks in the preceding 2 years before the first birth, 20 weeks within the last year for second and higher order birth (and for mothers until the age 25 at first birth as well from 1989)	15 months = 12 months + 6 (weeks after) + 8 (new maternity leave)	9-14
July 1990- June 1996	until the child's 2nd birthday	system changed from a 'maternity' to a 'parental' leave system, also fathers could take parental leave	for second and subsequent births 20 weeks within the last year	27 months = 24 months + 6 (weeks after) + 8 (new maternity leave)	21-26
July 1996 - December 2001	18 months after the child's birth, up to 2nd birthday only in case when both parents take leave		for second and subsequent births 26 weeks within the last year	21 months = 18 months + 6 (weeks after) + 8 (new maternity leave); or up to 27 if both parents take parental leave	15-20
since January 2002	Child care benefit until the child is 30 months old, another 6 months for the other parent	2 separate schemes introduced: employment-protected parental leave until the child's 2nd birthday, Child benefit not associated with parental leave	no	33 months = 30 months + 6 (weeks after) + 8 (new maternity leave); or even up to 39 if both parents take parental leave	27-32

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