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THE EFFECT OF PUBLIC POLICIES,  
EDUCATIONAL ATTAINMENT AND  
LABOUR-FORCE ATTACHMENT**

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***LABOUR ECONOMICS***



**Centre for Economic Policy Research**

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## ABSTRACT

### Third Births in Austria: the Effect of Public Policies, Educational Attainment and Labour-Force Attachment\*

Total fertility in Austria has declined slowly but persistently from about 1.7 in the late 1970s to around 1.4 in the mid-90s, a reduction of less than 20%. As we show in this paper, a much stronger reduction (over 50%) occurred over the same period in the standardized rate of third births. This decline was accompanied by a gradual postponement of the third birth over the years up through 1991-2, after which there was a sudden increase in the tempo of childbearing in response to a change in the parental-leave policy that inadvertently favoured women who had their second or subsequent child shortly after their previous one. We cannot find any indication that the general decline in third births can be seen as a consequence of women's increasing independence of their husbands at the stage in life that we study. Furthermore, it still seems to be more difficult to combine motherhood and market work in Austria than in Sweden, which is a leader in reducing such incompatibility. We conclude that these results mirror some of the ambiguities in public policies in Austria, especially the tension between the development of gender equality and the dominance of traditional norms.

JEL Classification: C49, J13

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## **NON-TECHNICAL SUMMARY**

Total fertility in Austria has declined slowly but persistently from about 1.7 in the late 1970s to around 1.4 in the mid-1990s, a reduction of less than 20%. As we show in this paper, a much stronger reduction (over 50%) occurred over the same period in the standardized rate of third births. This decline was accompanied by a gradual postponement of the third birth over the years up through 1991-2, after which there was a sudden increase in the tempo of childbearing in response to a change in the parental-leave policy that inadvertently favoured women who had their second or subsequent child shortly after their previous one.

Our data comprise retrospective individual-level life histories from the Austrian Fertility and Family Survey of 1995/6. We are fortunate in having information about educational attainment not only of each female respondent but also of her husband or partner when she lives in a marital or non-marital union. This allows us to investigate the relative role of the educational attainment of each partner in a union. By concentrating on third rather than earlier births, we get satisfactory variation in the respondents' and their partners' educational attainment as well as their values on the intervening variables.

The analysis is based on a version of intensity (or hazard) regression. This is now a standard method, which efficiently allows us to make use of even incomplete life histories and to study the simultaneous effects of several explanatory variables and circumstances on the behaviour (or life-stage transition) of interest. It enables us to find the specific effect of one covariate while all other covariates included are kept under control. We group our regressors into four categories: those that represent social background, indicators of demographic outcomes, variables that reflect educational attainment and labour-force behaviour, and a period factor.

The results show a remarkable lack of effect of the respondent's own educational attainment, even when we leave out the husband's attainment from the analysis. We interpret this as an indication that women's educational attainment influences their third-birth intensities mainly via its impact on the age pattern of their own childbearing behaviour as they start up their family-building process. Furthermore, we essentially learn a lot about her husband's educational level once we get to know a woman's own attainment. His characteristics (as far as we know them) are important for the rate at which the family has any third birth. Once we control for her age and his attainment, there does not seem to be any further (direct) impact of her educational level on the third-birth intensity.

We have found that respondents with a stronger attachment to the labour force have significantly lower 'risks' of the third birth event than women with little such attachment. We are struck by the fact that no significant difference in this direction appeared in recent Swedish studies. We believe that the greater difficulty of combining motherhood and labour-force participation in Austria than in Sweden may explain such a contrast between the countries, and that this may be an important ingredient in recent fertility developments in the two countries.

Summing up, we have not found much that could be interpreted as effects of increasing female autonomy, at least not if that is to be understood as married women's growing independence of their husbands. What we do see in Austrian childbearing behaviour are effects of a persistent conformity to traditional social norms (with the possible exception of reduced adherence to the two-child norm among women with some tertiary education). There is a considerably stronger incompatibility between motherhood and market work in Austria than in Sweden, the country we have picked for our comparisons. In this light, Austria appears as a country that has hesitated to put its money on gender equality and that has retained much of the old spirit of family-role specialization.

If arguments based on Austrian women's growing independence of their husbands are unwarranted, an explanation of the drop in Austrian third-birth rates must be sought elsewhere. We believe that increasing opportunity costs connected with the third child may be part of the story, for market work among women may have increased over much of the period we study while there was little corresponding growth in job-and-parenthood compatibility after the maternity leave. It may be equally (or more) important that unemployment has risen for both men and women over most of our study period. Men's unemployment is important for fertility trends in any population, and particularly so in a country where the man is the sole income-earner in a large fraction of households with children, as is the case in Austria. Increasing difficulties of acquiring adequate housing for a growing family may be another element in this story, and so may improved fertility control through better contraceptive usage.

## 1. Introduction

After the strong drop in fertility that Austria experienced from the mid-1960s to the late 1970, as did most other industrialized countries at the time, the country's fertility level has only had small undulations around a slow downward path (Figure 1). Cohort parity progression ratios (Figure 2) suggest that much of the fertility decline has been concentrated at parities two and above, which means that Austrians have had declining rates for third and higher-order births.<sup>4</sup>

In this paper we provide an account of the patterns in third-birth rates of Austrian women, essentially between 1975 and 1996. Beside the pivotal role that third births seem to have had in the recent (slow) fertility decline, they also represent a kind of borderline case between the births that just about "everyone" has and those that many people feel they can abstain from. In a country with a strong two-child norm, the third birth somehow is the first birth that couples may decide not to have. As a mirror image of this it is also the lowest-order birth that allows a couple with a preference for children to go against the stream. We concentrate, therefore, on the third birth in this first in-depth demographic investigation of child-bearing behavior in Austria.

We focus on the influence of educational attainment and the role of public policies as determinants of the rate at which people have a third birth. In a manner of speaking, education and public policies span the space in which our analysis is carried out.

Educational attainment is an indicator of differences between individuals, and it is so on many dimensions. It is a measure of talent, income potential, and social status or class. It should also measure individual autonomy, for one would expect more highly educated women to be more independent, of men in general, of their husbands in particular, and perhaps also of general norms in society.<sup>5</sup> Educational attainment also visibly influences fertility indirectly. First, educational aspirations are a determinant of the age at which childbearing starts (if ever), and there is a lot of evidence that age at first birth is important for the timing and extent of subsequent childbearing. Secondly, educational attainment influences labor-force behavior, and for a woman an attachment to the labor force is likely to affect her childbearing decisions strongly, particularly for births beyond number two.

Conversely, Austrian public policies should tend to reduce individual differences, for all eligible mothers (and fathers) must accept the same rather inflexible arrangements of the length and conditions of any parental leave and subsequent childcare. These arrangements probably impede market work for women who have children. Austrian parents also get essentially the same monetary amounts as benefits during such leaves, irrespective of previously earned incomes. This makes the opportunity cost connected with a birth rise strongly with the woman's educational attainment, which creates a strong interaction between policy and attainment. By including both of these major dimensions in our analysis, we are able to view each of them in the light of the other, and we can pick up tensions between them that influence couples' childbearing decisions.

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<sup>4</sup> Parity progression ratios at parities 4 and 5 are very close to those for parity 3 and are not shown in the diagram.

<sup>5</sup> We use the word 'autonomy' both in the sense of economic independence and also mental independence. One would expect both of them to increase with improving educational attainment.

Some of those tensions work through the woman's labor-force participation, which appears as an intervening factor. Public policy regulations can facilitate or impede market work for women who have children by being more or less flexibly adapted to the circumstances of the individual. In this, Austrian family policies constitute an interesting contrast to Swedish ones, say, which are much more generous and flexible. We are able to understand childbearing behavior in Austria better by approaching our investigation in a comparative mode where we use Sweden as our country of reference.

We have picked Sweden for two reasons. First, we know its policies well and are acquainted intimately with previous investigations of third births in this country (Hoem and Hoem 1989; B. Hoem 1993, 1995, 1996; Berinde 1997).<sup>6</sup> The other reason for picking Sweden is that during the 1970s and early 1980s it served explicitly as a model country for the Austrian government in its endeavor to modernize Austrian society and the Austrian welfare state (Fischer-Kowalski 1980, pp. 103-110, 1994, p.96; Tálos and Falkner 1992, p. 201). In particular, the reforms of the maternal-leave policies and labor-market policies of the 1970s were influenced by their Swedish counterparts and were directed toward furthering greater individualism, improving gender equality, and enhancing labor-force participation among women with children. Nevertheless, class, status, and gender differentials have remained stronger in Austria, whose family policies have adhered far more than Sweden's to notions of private childcare and to traditional views on gender segregation in childrearing and market work. We should be able to throw new light on fertility developments in Austria by relating our results on third births in this country to those of Sweden and by taking into account explicitly the ambivalent approach to family policies in Austria since the 1970s.

Our data comprise retrospective individual-level life histories from the Austrian Fertility and Family Survey of 1995/96. We are fortunate in having information about educational attainment not only of each female respondent but also of her husband or partner when she lives in a marital or nonmarital union. (Very few unions in our analysis are non-marital.) This allows us to investigate the relative role of the educational attainment of each partner in a union. By concentrating on third rather than earlier births, we get satisfactory variation in the respondents' and their partners' educational attainment as well as their values on the intervening variables.

Using intensity (or hazard) regression analysis we display a consistent and sometimes surprising story about the influence of educational attainment and labor-force participation on third births. It has been much harder to pick up direct consequences of public policies. We have approached policy issues from two angles. First, as is often done, we have included a period factor among our explanatory covariates and have grouped the calendar years of observation into periods that reflect both economic trends and reforms in Austrian parental-leave provisions (which we will call family policies for short). We know from previous experience with other data sets, however, that this method is inefficient and likely to pick up effects of only major economic shocks and massive public interventions. True to form, our period factor turns out to reflect mainly the secular decline in third births that we observed an aspect of in Figure 2 already. As in so many other countries, most Austrian family policies have developed gradually and we should expect their effects to build up cumulatively over time and become perceptible only when they have worked for a considerable time. A period-factor covariate in an intensity-regression analysis is not an efficient instrument for the detection of such effects.

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<sup>6</sup> Third births have been given special attention in other countries as well, notably the Great Britain (Wright et al. 1988; Ní Brolcháin 1993), Norway and the United States (Kravdal 1992), but they all fit into the same pattern and we believe that the utility of further cross-national comparisons would be small at this time and for our purposes.

One policy feature is different, however, and it has generated our second approach. As of July 1, 1990, Austria extended its parental-leave period by a year. Although this hardly was the intention behind the prolongation, it favored women who brought their second or higher-order birth forward, and we are able to show (for third births) that Austrians subsequently reacted by increasing the tempo of their childbearing. This change in the timing of the third birth constitutes a reversal of a slow postponement that occurred over the preceding two decades. Unless some other explanation can be given for this reversal, this should show that public policies do indeed affect childbearing behavior in Austria too, though for the most part it is difficult to detect this in a small data set with tools like ours. We suppose that the development of Austrian policies on maternal (and eventually paternal) leave may have served as a cushion against a stronger decline in fertility in the short run. What happens in the long run, may be a different matter. It is possible that current Austrian policies may tend to preserve the present comparatively low fertility by failing to facilitate the combination of motherhood and labor-force participation.

## 2. Data and method of analysis

As we have mentioned already, the data for our analysis come from the Austrian Fertility and Family Survey (FFS), which was conducted between December 1995 and May 1996 (Doblhammer et al. 1997). In the survey, retrospective histories of partnerships, births, employment and education were collected for 4581 women and 1539 men between ages 20 and 54. The overall response rate was 72 per cent (Integral Markt- und Meinungsforschungsgesellschaft 1996), which is good for a study of this content and scope in present-day Austria (Birgit Weiss, personal communication).

Our study concentrates on third births to female Austrian respondents. We have excluded foreigners since the difference in cultural background might affect third-birth intensities. To be included, a woman should be Austrian and should have borne at least two children in the same marital or nonmarital union, which we will call her birth-union for short. We have excluded those who had one or both of their first two children outside of any union or who had them in different unions, because their childbearing behavior is likely to be different (Vikat, Thomson and Hoem 1999). For similar reasons we have excluded records where the respondent lost her first child before the second birth, adopted rather than gave birth to her first or second child, had twins at the first or second birth, had an interval of more than seven years between the first two births, or was over 36 years at first birth. We have also excluded women who were pregnant with their third child at interview. (We cannot know whether the pregnancy would result in a live birth, and our analysis is about live births.) Furthermore, we have excluded a few women whose births were not recorded in an increasing time sequence (because we do not trust their records) and a few women for whom we had no record of their numbers of siblings (for we wanted to use this information in our analysis). Similarly, we have eliminated a few records where information was lacking about religiosity or about the partner's age at her second birth when those covariates were included in the regression. Finally, we excluded the records of eleven women who had no recordable individual exposure time because they were interviewed in the month of birth of their second child, broke up their union in that month, or had some other special circumstances.

A count of the various exclusions is given in Table 1. The number of women finally included in our analysis was 1623. They had 519 recorded third births. The remaining 1104 records were censored at the death of the first child if it occurred after the birth of the second (and before the censoring date), at the death of the second child if there was a record of such a death, at the date of any disruption of the birth-union, or at interview, whichever occurred

first. We would also have censored the record at the date of adoption if the third child was adopted, but we found no such cases.

To prevent reverse causality between the respondent's employment and educational histories on the one hand and the birth of a third child on the other, we backdated the event under study to seven months before the third birth. This is the time when the respondent must have been sure she was pregnant and finally decided to carry the pregnancy to term. For the first and second birth, we used the recorded month of birth.

Our analysis is based on a version of intensity (or hazard) regression. This is now a standard method, which efficiently allows us to make use of even incomplete life histories and to study the simultaneous effects of several explanatory variables and circumstances on the behavior (or life-stage transition) of interest. It enables us to find the specific effect of one covariate while all other covariates included are kept under control.<sup>7</sup> We have used only categorical covariates and have specified the baseline intensity to be piecewise constant. Our time (or duration) variable is months since second birth (or equivalently the age of the second child, computed in months), and we have partitioned the duration axis into seven intervals, namely 0-11 months, 12-23 months, 24-35 months, 36-47 months, 48-59 months, 60-83 months, and 84 months or more. These correspond to the second child's first year of life, second year, and so on. We behave as if transition rates were constant in each of these intervals. We permit interactions between covariates and use interactions between a covariate and the duration variable to allow the baseline hazard to vary across the levels of the covariate. Such interactions with duration enable us to test (and possibly remove) the proportionality assumption of the intensity-regression model for each covariate. In particular, an interaction with our period factor is used to pick up any change in the profile of third-birth risks over calendar time.

We will describe our covariates below. We have run them through our regressions in a stepwise procedure where the covariates are entered in a systematic sequence. Causally more distant factors are entered before ones that are causally closer to the childbearing behavior that we study. Covariates that have entered the regression at one stage may be removed again at a later stage to keep the number of covariates manageable at all stages. We do so if their effect coefficients turn out not to be much influenced by the inclusion of other covariates and if, conversely, their removal does not affect appreciably effect coefficients of entered covariates more central to our current topic. We do not hesitate to remove peripheral covariates even if they have an appreciable effect on third births. Such removal constitutes a misspecification of the intensity model, but we can live with that because the misspecification is harmless (J. Hoem 1992, 1995). We only display highlights from these experiments in this paper. Further documentation can be requested from the second author.

Dates are given to the accuracy of a calendar month in our data. Our computations are made as if the interview and all demographic events happened in the middle of the calendar month. As we will describe below, we include a grouping of calendar years into periods in some of our analyses. Since calendar years obviously do not end in the middle of a month, we work with a time unit of half a month. For this reason, our exposures are computed in half-month units. (This information may facilitate perusal of the column of exposures in Table 2 and Appendix C.)

Our analysis produces maximum-likelihood estimates for the effect parameters of the intensity model. We present them in the form of relative risks (see below). The procedures are

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<sup>7</sup> Such a clause about *ceteris paribus* is understood whenever we mention features of our findings in what follows.

well known (Cox 1972, Kalbfleisch and Prentice 1980, Andersen, Borgan, Gill, and Keiding 1993, Lancaster 1990), to demographers perhaps mostly through work by Tuma and Hannan (1984), Allison (1984), Yamaguchi (1991), or Blossfeld and Rohwer (1995). J. Hoem (1987, 1993a) has reviewed their connections with life-table and standardization methods otherwise common in demography.

### 3. Theory and covariates

Invariably, one's choice of regressors is a compromise between what is desirable in theory and what is possible in practice. In reflection of our theoretical considerations and in compliance with the given data set, we have followed common practice and have grouped our regressors into four categories, namely

- (i) those that represent social background (number of siblings, religiousness),
- (ii) indicators of demographic outcomes, namely the respondent's year of birth, highlights of early demographic behavior (own age at first and second birth, age of partner at second birth, sex of the first two children, whether the birth-union was her first or second union or of a higher order), and current civil status in any month of observation,
- (iii) variables that reflect educational attainment and labor-force behavior (educational attainment of the respondent and of her partner, her employment history, her current job status in any month of observation), and
- (iv) a period factor designed to reflect economic trends and the development of parental-leave policies.

The distribution in our data across the levels of various representations of these variables can be seen in Table 2 and Appendix C.

One indicator of social background is missing in this list: We could not include the social class of the respondent's parents, simply because the Austrian survey does not contain this information. For a study of the stage in life that we address, this should not impair our results. In our experience, the social class of the parental home plays out its role as a determinant of demographic (and educational) behavior at early stages in life, and it has turned out to be unimportant for the study of third births in European investigations as soon as one controls for behavior in those early phases.<sup>8</sup> We see no reason to believe that things should be different in Austria.

#### 3.1. Social background and demographic outcomes

Religiousness: Since Austria is a dominantly Catholic country, we would expect individuals with a religious inclination to have higher natality than others. To avoid contamination of effects more central to our study, we have thought it wise to include a corresponding factor in our analysis. Since the strength of our respondent's own religiousness is measured at the time of the interview, it is debatable how one should represent it in our data. We have followed Hoem and Hoem (1989) in taking religiousness to be a stable personal trait for which it does not matter much at what adult age it is measured, and have used the respondent's own statement as to whether she is religious as a sufficiently accurate indication. The information was originally recorded on a five-point scale, but after some initial experimenta-

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<sup>8</sup> See our references to previous studies of third births in our introductory section.

tion we have grouped the responses and have contrasted the strongly religious with all others.<sup>9</sup>

Family or job orientation: Individuals are bound to differ according to how strongly they give priority to family life and what value a job or career has for them. We would expect that whether a respondent is mainly oriented toward job or toward family would manifest itself during the early stages of family building, and we use age at first and second birth as well as early labor-force behavior in part as indicators of such features. For good measure, we have also included the partner's age. One of the most stable findings in demographic fertility analyses is that initial childbearing behavior has a pronounced influence on the third-birth intensity (Westoff et al. 1963; Rodríguez et al. 1984; B. Hoem 1993; Berinde 1997; and many others.) Correspondingly, we expect to find that Austrian rates decline with an increasing age at first (or second) birth and with an increasing interval between births one and two. As we shall see below, these covariates have other functions as well, however, and we use the respondent's number of siblings as a cleaner indicator of family orientation. In line with results of previous findings for Sweden we expect women who grew up with many siblings to have higher third-birth rates than women who did not (Berinde 1997, Table 6).<sup>10</sup>

Character and order of union: In Scandinavian and perhaps some other countries, cohabitation is quite prevalent even among women with two children. Berinde (1997, Table 7) found twice as high third-birth intensities among married Swedish women as among comparable cohabiting women. Evidently, marriage remains an important indicator of a family-oriented life style in that country. We similarly initially considered including a time-varying covariate to indicate whether the respondent lived in a marital or nonmarital union in any month of observation. When we found that married women account for about 99 per cent of the time of exposure to the "risk" of a third birth event in our data (Appendix C), we dropped the idea. At the stage in a couple's life that we investigate, cohabitation is very uncommon in Austria.

We also contemplated including the order of the birth-union as a covariate in order to test whether women might have a different natality in a higher-order union. Since 97 per cent of all women included in our study had their first two children in their first union, the prospects of any interesting findings with respect to this variable are bleak and we have left it out.

An extra: Out of curiosity we have included the sex composition of the two first children in some of our work, even though its effect on third births is of more peripheral interest in our study, which concentrates on education and public policies. B. Hoem (1993) found for Sweden that the desire to have at least one boy or to have at least one boy and one girl increased the third-birth intensity whenever one of these preferred sex compositions had not been attained with the first two births. Schullström (1996) made similar findings.

Respondent's birth cohort: To catch effects of value changes and residuals left after the inclusion of other covariates, demographers typically include the respondent's birth cohort in their analysis, and so do we some of the time. We have grouped our respondents into the cohorts from the 1940s, 1950s, 1960s, and a residual group born in the 1970s. As we added variables in our stepwise regressions, the birth-cohort covariate became dangerously close to a linear combination of other variables that are more interesting and better grounded in theory, however, and at that stage we removed the cohort variable again.

### 3.2. Educational attainment

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<sup>9</sup> We do not have information about the religiousness of the respondent's parents.

<sup>10</sup> For a general discussion of the experience of such demographic events across generations, see Murphy and Wang (1998).

A couple's educational attainment is reflected in the educational level attained by the respondent as well as that of the partner. Assuming that a higher educational level of the partner indicates a more prosperous family, we suppose that his family can more easily afford a third child. The educational attainment of the respondent has an income component too, but as we shall soon see, it also has an additional range of functions in our analysis. For practical reasons, we handle our respondents and their partners separately, as follows.

Respondents: Swedish investigations (Hoem and Hoem 1989, B. Hoem 1993; Berinde 1997) have used months spent in tertiary education (rather than the completion of an academic degree or a similar certificate) as a criterion for assignment of their highest educational level. This practice seems relevant in the Austrian situation as well, and we have assigned the highest of our educational levels to a respondent when she has completed twenty months of tertiary instruction. This means that the respondent should have been influenced by at least some (non-negligible) amount of education at that level, yet need not have completed her tertiary education.<sup>11</sup> For each respondent, we can compute her educational attainment on this scale for each month of observation, and we have used it as a time-varying covariate.

The nine original categories of educational activity (*Lehre, berufsbildende mittlere Schule, allgemeinbildende höhere Schule*, and so on) reflect both the horizontal and the vertical structure of the Austrian school system, but as a precaution against misclassification we have reorganized them into four vertical groups termed basic, lower-secondary, upper-secondary, and tertiary education. Basic education contains up to 9 years of schooling. Lower-secondary education includes apprenticeships and normally between 10 and 12 years of ordinary school attendance. Upper-secondary education encompasses the Austrian *gymnasium* and its equivalents, such as corresponding non-academic vocational training at a similar level (*berufsbildende höhere Schule*), including the training of nurses. Tertiary education includes university-level studies (including postgraduate studies), training in art academies, and so on, as well as post-upper-secondary education that lead to a professional certificate rather than an academic degree, such as the training of teachers for primary school. We re-coded as basic education the few missing values on the educational variable.<sup>12</sup>

Partners (mostly marital spouses): The representation of the educational level of the partner has required some further consideration. We know the educational attainment of the respondent's birth-union partner, but "only" at the start of that union. This raises two issues.

First, we have assigned a tertiary level of education to the partner when such attainment was claimed in the interview. This means that, in principle, a partner is assigned our highest level of attainment only if he has actually completed a degree or certificate at that level. A partner with education on the upper-secondary and tertiary level may therefore have more education than a respondent who has been assigned the same formal level. After some consideration, we have decided to give priority to the comparability with the Swedish data for our (female) respondents and to accept the slightly asymmetric representation of the educa-

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<sup>11</sup> We set the cut-off point at twenty months assuming that this exposure to tertiary education is long enough to influence one's attitudes. Such an influence shows up clearly in our analysis of the age at first and second birth (see below).

<sup>12</sup> We also introduced the following practice in computing the values of this covariate.

(a) We have never reduced a respondent's educational attainment as her educational history progresses, even if she is recorded as having gone back to take education at a level that is lower than the one once attained.

(b) We have ignored a recorded transition to postgraduate studies in a few cases where the respondent had not completed upper-secondary school first. As a consequence, such cases were "frozen" at the lower-secondary level. This precaution was prompted by indications that some respondents may have been confused by the inclusion of "postgraduate studies" (with the words used in English) as a response category, since postgraduate studies are not very common in Austria and the term itself not widely known.

tional attainment of the respondent and her partner.<sup>13</sup>

Secondly, we need to ask how well the partner's educational level at the beginning of the birth-union represents his educational attainment during the segment of life we are interested in, namely after the second birth. The question is how much change there is in the partner's educational attainment (on the educational scale that we use) up through that later life segment. To check this, we have selected male respondents in the same manner as we did for females and have inspected their educational histories after the start of the relevant union.<sup>14</sup> It then turns out that there is very little subsequent educational activity at the stage in question. We feel confident that our variable captures the educational attainment of the partner at and after the birth of the second child as well.

Back to the respondents: A corresponding check for female respondents shows that they hardly have any educational activity after entry into motherhood.<sup>15</sup> We might as well have represented the woman's educational attainment by how far she had got by the time of her first or second birth, and will often use this fact without further reference below.

In contrast to many other analysts, we expect women with an education classified as "high" to have at least as high a fertility as other educational groups. This fits with the pattern in Sweden, where women on the highest assigned educational level have significantly elevated intensities for the third birth event (B. Hoem 1993, Table 5; Berinde 1997, Table 7), or at least do not have lower intensities than others (B. Hoem 1996, Table 1), and we can think of several reasons for such a pattern.

First, women with a "high" education can better afford a third child in general and they may be better at making use of the advantages of the public system. This may balance or out-balance the effects of other factors, such as differential family-orientation, female independence, or opportunity costs. Many theorists expect more highly educated women to want fewer children than others, to strive for greater independence from family life, and to have higher opportunity costs than other women in our societies. Faced with findings like those we just described for Sweden, economists (who normally focus on monetary aspects of behavior) would say that income effects are stronger than substitution effects.

Secondly, we want to contest some of the basic notions that produce the expectation of reduced fertility among the better educated. We do not find it self-evident that more individualism among women must lead to lowered natality at the life stage that we study, we doubt that respondents in our most highly educated group necessarily have less family-oriented values than other women, and we are not even certain that the best educated have the highest total opportunity costs in all societies. Selectivity and the peculiarities of the definition of educational levels in a small data set may both contribute to play havoc with conventional notions. Here is why.

(1) General expectations about highly educated women may really only pertain to a small group consisting of the very highly educated, if they apply at all.<sup>16</sup> Such women may be

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<sup>13</sup> With our definition, 5.9 per cent of the exposure time was at the tertiary level for female respondents and 7.8 per cent for the men (Table 2). Any stricter definition of this level of education for women would have made the distribution more lopsided.

<sup>14</sup> Remember that in principle we have "complete" educational histories for all respondents, whether male or female. It is the partners that we have less information about. Most corresponding surveys contain even less.

<sup>15</sup> According to the tabulation under 'current activity status' in Table 2, only about three-quarters of one per cent of the exposure time recorded after the second birth was spent in some educational activity, and the figure for the time after the first birth is similar.

<sup>16</sup> We are suspicious of the theoretical and empirical basis for common expectations about the effect of

too few to appear as a separate group; they certainly are in our data set. A large part of the women we have assigned to the tertiary level of education are in the teaching professions. We would expect female teachers to have at least as strong a family orientation as other women. In fact, their choice of occupation may reflect such an orientation.

(2) The advantages of education may be reinforced in Europe, and certainly in Austria and Sweden, because the public sector is the most important employer of better-educated women in these populations. Since people employed in the Austrian public sector have more protective labor contracts than most others (as is typical of European countries), it may be easier for them to combine work and parenthood. For such reasons, it is not even certain that more highly educated women always have higher total opportunity costs than other women.

(3) Individual autonomy may entail preferences quite different from the normal focus exclusively on career prospects and income potentials. Indeed autonomy need not mean curtailing one's reproductive behavior but realizing one's reproductive choices, even when they deviate from the societal norm or from group pressure. Suppose that better educated women have greater freedom to transgress existing rules. Why should their preferences then necessarily be toward having fewer children than the two-child norm?<sup>17</sup> What if the deviation consists in having rather than abstaining from a third child, especially since having none or only one child has been the legal and cultural norm imposed upon educated women well into the twentieth century? Advocates of gender equality have long strongly backed women's right to both have a satisfying job and choose the number of children they want, and have demanded public policies that facilitate it.<sup>18</sup> At issue is whether actual policies have supported or hampered their demands (Neyer 1998).

(4) Women who have had two children are a select group (Heckman et al. 1985) and have already manifested some preference for children. It is possible that women for whom independence of men is important are strongly underrepresented in our data segment and that the more highly educated women whose records we analyze value a different kind of independence, namely the independence of the existing two-child norm. These women, who have a better-situated husband on average, may prefer to make use of the better opportunities and the greater freedom of their social class to go beyond that norm (Tölke 1989, 1993).<sup>19</sup>

### 3.3. Age at first and second birth

It is standard practice among demographers to include the mother's age at first birth and the interval between the two first births in analyses of third births. This is connected to consistent empirical patterns of elevated rates of third birth for women who have their first birth at an early age and the second birth shortly afterwards, and also to theoretical arguments made in explanation of this pattern (Westoff et al. 1963; Rodríguez et al. 1984; Heckman et al. 1985; B. Hoem 1993). As an alternative, one can replace the age at first birth by the age at

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educational attainment on childbearing behavior, at least for third births, much in the same way as Oppenheimer (1995, 1997, and earlier) has been critical of common notions of the impact of education on marriage formation.

<sup>17</sup> The strength of the two-child norm in Austria shows up in the response distribution to Question 684 in the survey that produced the data set we use. It is not displayed here.

<sup>18</sup> For contributions concerning Austria, see Neyer 1984 and Anderson 1992.

<sup>19</sup> Such preferences were documented in the recent Austrian Population Policy Acceptance Survey, where the percentage wanting another child among mothers-of-two increased with educational attainment (Gisser et al., 1995, p. 51, Table 16; see also their p. 54, Table 20; for preference persistence over the 1980s, see their p. 57, Table 22). Women with no more than a basic education fell outside this pattern and had a stronger preference than other women for a third child.

second birth. So long as one retains the interval between the first two births in the analysis, using one of these ages provides some control over the other. If one groups these variables rather coarsely, the control is less than perfect, however, and one's choice between them depends on which childbearing age one wants to control most completely. We have experimented with both alternatives and have opted for the woman's age at second birth in our presentation in this report, because this gives us better control of her biological age during the life segment in which a third birth might occur. We feel that this may be the more important age to control for biological reasons and also because of the societal expectations about childbearing behavior at various ages attained (rather than starting ages). The third-birth intensity declines as the age at either birth increases, and more strongly so when we use age at first birth (effects not displayed here). Our basic grouping of the mother's age at second birth was 16-22 years, 23-24, 25-26, 27-28, and 29-40 years. We chose these categories to get an even distribution over the groups (Table 2, column 2). The corresponding grouping of the age at second birth for male partners was 18-25 years, 26-27, 28-29, 30-33, and 34-60.

So far, we have been talking about absolute age at first or second birth, as is common procedure. As has been pointed out by B. Hoem (1996), however, age attained at (say) second birth has a different meaning for women at different educational levels. As is made evident by the distributions of age at second birth (Table 3a), having it before age 23, say, is quite common for women with just basic education while almost no women on the tertiary level start childbearing that early. Fully one third of the women with the least education enter motherhood before age 23, while only one per cent of the women in our highest educational category started so early. By the time one third of the latter group had had their first child (at age 27), all of 83 per cent of the former group had entered motherhood. Evidently, women's first births occur at widely discrepant ages in the respective educational groups.

If we use the age at birth initiation as an indicator of a family-oriented life style, therefore, something can be said for letting the age grouping depend on the educational level. Using the age distributions in Table 3a to subdivide each of the four educational groups roughly into quintiles, we get the four separate age groupings listed in Table 3b. For each level of education, women are characterized there as having their second child very early, early, at a medium age, late, or very late. We have used this attainment-related age variable as an alternative to absolute age at childbearing in our analysis. The division of the respondents into quintiles on each of these age specifications facilitates comparison between their impacts.

The idea behind this operation is that educational attainment is a strong determinant of the age at second birth (as is evident in Table 3a) and that it may influence subsequent childbearing in part via this age and in part possibly directly. Using the absolute instead of the relative age at second birth may amount to a harmful misspecification of the intensity model.

We use the relative age to capture a woman's degree of family orientation relative to her educational group. It is conceivable that there might be residual effects that would make highly educated women have particularly low "risks" of third birth events even when we control for the (relative) age at second birth, as should be predicted by a conventional female-independence hypothesis. This could happen if even the most family-oriented (or otherwise most highly fertile) of the highly educated have a lower inclination (or ability) to bear a third child than corresponding women with less education do. As we have made clear above, we believe otherwise, but we have taken pains to devise a procedure that should be neutral vis-à-vis one's theory about this feature.<sup>20</sup>

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<sup>20</sup> This and most of our arguments hold irrespective of whether we use age at first or second birth in our analyses.

### 3.4. Employment history

In a study of third-birth rates it is essential to include some representation of a woman's employment history, for the level of the rate of occurrence of the third birth event for those who have an attachment to the labor market relative to those who do not (when everything else is equal) may indicate how hard or easy it is to combine parenthood with gainful employment. As outlined in B. Hoem (1993; see also Hoem and Hoem 1989), a woman's employment experience after the birth of children should also indicate her position on a scale that separates more family-oriented from more job-oriented women. Moreover, any change in employment status, e.g. from before to after a birth, might be a sign of significant revisions of the woman's employment and childbearing plans.

There is no single, evident way to represent a woman's employment experience for our analysis, and we have carried out extensive experiments, only some of which are displayed here. In this connection, we have partitioned a woman's working life into four segments. Her first segment starts on her fifteenth birthday and ends at the beginning of the birth-union. (Remember that all the respondents whose records we analyze have had two children in the same union.) Her second life segment ranges from the formation of the birth-union to the birth of the first child. Her third segment goes from there to the arrival of the second child. And for any month that we keep her under observation after the second birth, she is in her fourth life segment. We have considered various measures to capture her labor-force attachment during each segment.<sup>21</sup>

In a first round, we defined her employment ratio as the number of months spent in employment during a life segment divided by the corresponding number of months not spent in education. The denominator of this ratio is the number of months that she was free from school and could have used in the labor force in principle. Appendix C shows how our respondents were distributed over deciles for the employment ratio. We see that in each life segment, as many as about 20 per cent of our respondents have an employment ratio of one per cent or less. On the other hand there is also a strong concentration in the upper tail of these distributions.

Following our Swedish precedents, we could define women as persistent housewives in a life segment (or throughout) if they have spent less than 25 per cent of the time in employment, as persistent jobholders if they have more than 75 per cent, and as "intermediary" otherwise. While about 57 per cent of our Austrian respondents might be regarded as persistent jobholders before the formation of the birth-union, this number decreases to about 26 per cent in the segments between the formation of the birth-union and the birth of the second child. As many as 16 per cent of our exposure time comes from respondents who withdrew from the labor force as early as at the start of the birth-union. About 55 per cent of all our recorded exposure time after second birth was contributed by women who never were in the labor force in that final observed life segment. This is an entirely different picture than the one for Sweden (B. Hoem 1995, Rønsen and Sundström 1998), where there is much more labor-force participation among women, both before and after entry into motherhood.

The subdivision into persistent housewives, jobholders, and others gave a sensible structure to third-birth patterns in the Swedish studies. Despite repeated attempts from various angles, we have not been able to gain nearly as sharp results as theirs with this representation

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<sup>21</sup> There is no information about unemployment in the data set, so we have not been able to account for this feature. Except for the situation at the time of the interview, the Austrian survey also does not distinguish between part-time or full-time work, so every respondent is credited equally for her labor-force participation for every month for which employment is recorded.

in our Austrian data. Labor-force participation patterns in Austria are sufficiently different from those in Sweden to make a different representation necessary. (See also Biffl 1991, 1996, and Findl 1985, p. 110 etc.)

To get a robust set of covariates for our Austrian data, and also to account for the very strong concentration at the lowest and highest deciles of labor-force participation discussed above (Appendix C), we have dropped the fine-graded net implied by our partition into deciles and have developed measures that are much cruder but also less influenced by any reporting errors in the employment histories. For each of our four life segments we have computed an indicator of whether the respondent had any recorded participation in the labor force at all. Let us call them indicators of (minimal) labor-force attachment.<sup>22</sup> We have then concentrated on the three segments in the birth-union. After numerous experiments we have settled for the following representation.

(i) We take a lack of any recorded labor-force participation in the birth-union before the first child has arrived as an indication that the respondent has little attachment to the labor force.<sup>23</sup> We have used the corresponding indicator as a separate (fixed) covariate. We expect the intensity of the third birth event to be the higher for respondents who did not even spend a month in the labor force between the start of the birth-union and the first birth.

(ii) We combine the indicators of labor-force attachment for the two life segments that follow upon the first birth into one indicator with four levels. Let  $x$  be 1 or 0 as the respondent has or has not any recorded labor-force participation in the months between first and second birth. Also, for any month  $t$  since second birth, let  $y(t)$  be 1 or 0 as she is or is not recorded as employed in the labor market in that month. Then the pair  $(x, y(t))$  has four possible values, namely 00, 01, 10, and 11. (For simplicity, we write  $xy$  for  $(x,y)$ .) We use this pair as a time-varying covariate with four levels in our intensity regressions. The value 00 is our counterpart to the persistent-housewife status in the Swedish studies, 11 is our counterpart to the persistent jobholders, and 01 and 10 are our counterparts to the in-between statuses.

Because of our expectation about the effects of the pair  $(x,y)$ , we have locked the two covariates into a permanent interaction in our analysis. A likelihood-ratio test shows that this fits the data better than if we let them operate without interaction.<sup>24</sup>

For reasons that we will explain further below, we expect the combination of motherhood and labor-force participation to be difficult for many Austrian women with (small) children. In consequence, we expect the value 1 on either coordinate to mean the stronger labor-force orientation and therefore the lower intensity of the third birth event. This is pretty obvious for coordinate  $x$  but it should hold for  $y$  as well. Remember that  $t$  runs over the months from the second birth to seven months before any third birth, so for each  $t$  where we use  $y(t)$ , it is measured at least seven months earlier than the third birth. Therefore, the pregnancy leading up to that birth cannot motivate a woman who has a job to stay in the labor force at duration  $t$  to avoid losing her maternity rights connected with it, simply because  $t$  comes before she can act on any actual pregnancy. For the same reason, an actual pregnancy is unlikely to induce a woman who is jobless at duration  $t$  to enter the labor force to gain those rights. If we had not taken the precaution of stopping observation seven months or so before any third birth (or a precaution equivalent to it), we could have run into a case of cause reversal. If we

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<sup>22</sup> We are grateful to Britta Hoem for the incentive to try this solution.

<sup>23</sup> Remember that we have no data on unemployment and that we can therefore not distinguish between intentional or imposed absence from the labor market.

<sup>24</sup> Our significance level for this test is  $p = 0.086$ , which we consider adequate for a data set of our size.

had kept going up to the third birth itself, the prospect of maternity rights could have out-balanced the difficulty of combining job and further motherhood.

By way of summary, our general expectation is that the intensity associated with the factor level 00 will be higher than for any of the other levels (01, 10, and 11). We suppose that the intensity for 10 will be higher than the one for 11. Finally we expect the intensity connected with the covariate value 01 to be the lowest of them all, for it indicates that the woman has entered the labor market after the second birth even though she stayed out of it throughout the months between her first two births. Presumably, this occurs when she plans not to have a third birth anytime soon in most cases. We make all of these comparisons under a *ceteris paribus* assumption where the values on all other covariates in the analysis are kept constant.<sup>25</sup>

In addition to this specification, which we regard as our main alternative among several possible ones, we have experimented with a specification where the indicator  $y(t)$  of current membership in the labor force is replaced by a different time-varying covariate  $z(t)$  which indicates whether the respondent has had a recorded month in the labor force any time between the second birth and the current month  $t$ , inclusive, much as we defined the covariate  $x$  above for the period between the births. Note that  $z(t)$  retains the value 1 for all subsequent months once it has attained this value (if ever). We would expect effect patterns for the  $(x, z(t))$  specification much in line with those for the  $(x, y(t))$  specification, but the effects of the latter should be sharper since we have a better reflection of the respondent's labor-force behavior in the current month  $t$  when we use  $y(t)$ . Anticipating our empirical outcome for one moment, we report that the two effect patterns were indeed very close and that our preferred specification was somewhat the sharper. We could have tried out further specifications that could pick up more of any changes in labor-force behavior between the second birth and the current month  $t$ , but we have not pursued the matter further.

### 3.5. Calendar periods

In an attempt at capturing the effects of changes in family policies and the country's economic performance, we include (as a time-varying covariate) the calendar-time period, split into six distinct sets of calendar years, which we have determined as follows.

Major changes in Austrian family policies in recent decades (see our Appendix A) would first suggest five calendar periods, namely, the years before 1957, 1957-1960, 1961-1973, 1974-1990, and 1991-1996. There were no exposures in our data prior to 1960 and only a small number of third births recorded in 1961-1973, so we redefined this partition as 1960-1973, 1974-1990, and 1991-1996. In a second step we split these periods to capture economic up- and downswings in Austria. This gives the following set of calendar periods: 1960-1973 (high economic growth), 1974-1979 (fluctuating economic growth), 1980-1987 (low economic growth), 1988-1990 (high economic growth), 1991-1992 (declining economic growth) and 1993-1996 (low economic growth). We expect higher intensities of the third birth event during time periods of economic upswings and when family policies became more generous, though we are skeptical as to the strength of the effects we can pick up in this manner. We do expect our period variable to reflect the downward secular trend in third-birth intensities suggested by Figure 2.

One feature of Austrian parental-leave regulations deserves special attention. From before our period of observation (in fact since 1961) and until 1996, a woman who had once

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<sup>25</sup> Much of this reasoning follows the lead of B. Hoem (1993; Hoem and Hoem 1989).

claimed (paid) maternity leave (or later: parental leave) was entitled to another such (paid) leave after a subsequent birth provided she had been in (insurable) employment for at least twenty weeks during the year before this birth. The duration of active employment could actually be shorter than twenty weeks since the compulsory maternity protection period (*Mutterschutzfrist*) was normally counted fully as part of the twenty-weeks employment requirement.<sup>26</sup> In principle, the *Mutterschutzfrist* begins eight weeks before the expected date of delivery and lasts until eight weeks after it. (In some cases this is extended up to twelve weeks after the birth.). Moreover, all employment requirements are waived if the maternity protection period for a new pregnancy begins while a woman is still on parental leave from her previous birth.

Starting in 1961, the (optional) paid maternity leave lasted until the child's first birthday. Effective as of 1 July 1990, it was extended to last until the child's second birthday. So long as the parental leave was "only" a year, the waiver of employment requirements had little practical consequence, for only very few women got pregnant quickly enough after a birth to make use of it. Once the period was extended to two years, parents who intended to have another child had an incentive to make sure that it was conceived in time for this regulation to come into play.<sup>27</sup> We therefore expect to find an increase in the tempo of childbearing (for third births) in the period that followed. This should show up when we run an interaction between our period variable and the duration factor.<sup>28</sup>

## 4. Results

### 4.1. Demographic covariates

The basic outcome of our empirical work is summarized in Table 4. (Note that it extends over two pages.) Much of the outcome is as expected. We see that very religious women have an increase in the "risk" of a third birth event estimated at some eighty-five per cent. Being religious still influences your childbearing behavior strongly in Austria, but not as much as in Sweden, where being religious is the exception rather than the norm.<sup>29</sup>

Respondents with three or more siblings had a relative "risk" estimated at 1.43 for the third birth event by comparison to respondents whose parents followed the cultural norm of two or fewer children. This confirms our expectation that the siblings variable would pick up an aspect of family orientation. We have been disappointed in our hope that it would help throw more light on how other variables work, however, for it has turned out to be largely orthogonal to them. It does not matter much to the estimated effects of other covariates whether the siblings variable is included in the regression or not, nor does the selection of other covariates seem to have much influence on the estimated effect of the siblings variable. For these reasons, we eliminated it from our work once we had established its effect pattern.

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<sup>26</sup> Starting in 1996 (i.e., essentially after our period of observation), women need 26 weeks of (insurable) employment. Women under the age of 25 need 20 weeks, but 16 of these weeks must be spent in active employment.

<sup>27</sup> Moreover, since 1990, under certain circumstances mothers are entitled to parental leave payments after a second or higher-order birth if their (paid) maternity protection period starts within 6 weeks after their previous parental leave (12 weeks since 1995).

<sup>28</sup> Even though the extension was made in the middle of 1990, we have assigned all of 1990 to the preceding period on the assumption that fertility reactions to the reform could not be immediate.

<sup>29</sup> On a weaker definition of religiosity, about half as many respondents were classified as religious in a Swedish survey as in the Austrian one, and B. Hoem (1993) found that religious Swedish women had a relative "risk" of 2.25 for third births.

With some important exceptions that we will mention soon, it is actually remarkable how little effect the inclusion or elimination of other covariates has on the estimated effect of a given variable. Another case in point is the interval between the two first births. As we see from Table 4, the third-birth intensity declines as the birth interval becomes longer, as expected, but the coefficients are remarkably robust against model re-specification. We have kept this variable in our regressions to avoid contamination of other effects.

Correspondingly, third-birth intensities decline as the respondent's age at second birth increases.<sup>30</sup> The age effects remain largely the same as for absolute age at second birth if we switch to a separate age grouping for each educational attainment ("relative age"). Even though the age effects are not affected much by the specification of age at second birth, the effect of educational attainment is. We return to that below.

In a small part of our analysis we included the sex-combination of the two first children. This covariate turns out not quite to make it to significance ( $p=0.191$ ), but its coefficients suggest that Austrian parents have a third child more readily if they do not have (enough) boys among the first two children. If we use as our baseline the case where the respondent had boys in both her first two births, then the effects are 1.09 for (boy,girl), 1.29 for (girl,boy), and 1.20 for (girl,girl). The (boy,boy) case has an effect of 1 by definition since it is our baseline level.

#### 4.2. Secular trends

It is evident that Austrian third-birth intensities declined over the cohorts (first numerical column in Table 4), as expected, and the decline continues to be picked up when we switch to the calendar period as the bearer of secular trends (page 2 of Table 4). Other effect estimates are not influenced much by this change of covariate. As we suspected, for the most part we cannot discern much specific influence on period trends of (changes in) family policies nor of economic fluctuations. Developments in public policies may have softened the downward path of third-birth intensities in Austria, but if they did, we have no way of detecting it with our model specifications, with the following single possible exception. As we have mentioned, there was a significant extension of the parental leave as of 1 July 1990, and this just may have helped to produce the reduction in the rate of decline that we can observe thereafter. The reform also has further consequences, as follows.

Our use of a piecewise-constant baseline intensity facilitates a check of the proportionality assumption in the hazard specification. One simply runs an interaction between the basic duration variable (i.e., the age of the second child) and any other covariate. When we do this, the interaction with the period factor reveals that there is a significant difference between the baseline intensities in the various periods ( $p=0.000$ ). We have plotted selected baseline hazards in Figure 3.<sup>31</sup> Evidently, the duration profile moved toward the right between 1960-73 and 1991-92, which means that over that stretch of time Austrian couples postponed their third births progressively in addition to reducing the corresponding natality level. By 1993-96, however, a substantial portion of the third-birth intensity moved back toward the left and the corresponding baseline curve acquired two peaks, one in the second and one in the fifth year of the second child's life. (The first peak is significant at  $p = 0.039$ .)

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<sup>30</sup> See Table 4 for one of our specifications of this covariate. We get a similar pattern but a stronger negative gradient in the effects if we replace it with age at first birth (not displayed here). An early first birth is more of an indicator of high natality at later stages of childbearing than an early second birth is.

<sup>31</sup> In order not to clutter up the diagram, we have left out the curves for 1974-79 and 1980-87. They fall neatly into the progression of the plotted curves.

As we expected, it appears that the parental-leave extension in mid-1990 led many Austrian women to increase the tempo of their childbearing in order to benefit from the more generous rules concerning parental leave. If a sufficient number of couples did so while a considerable segment followed natality patterns from preceding years, this could produce a bimodal intensity curve like the one observed for 1993-96. This profile would fit with a situation where knowledge about the “speed premium” spread gradually through the population. Slow diffusion may also explain why we cannot discern much immediate reaction to the new possibilities in the period 1991-92 already. When Sweden introduced a “speed premium” in 1980 and extended it in 1986, the new benefits were widely publicized and people changed their childbearing behavior quickly (J. Hoem 1993b, Andersson 1999). In Austria the reform did not get similar publicity.

In fact, the motivation for the Austrian leave extension seems to have been quite different from what it was in Sweden and the increase in tempo must have been an unintended side effect. The law was changed partly to make more women stay home and take care of their children instead of participating in the labor force. Although calculations suggested that the extension would increase public expenditure, one also thought that the increase would be limited, because women would stay out of the labor market longer and would accumulate less benefit entitlement as a consequence. How difficult it was for policy-makers to foresee the public’s reaction is demonstrated by the unexpectedly large rise in public expenditure that followed when couples had their children faster instead. As a consequence, family benefits were cut in 1995 and 1996. This is likely to contribute toward a further reduction in Austrian fertility in subsequent years.

#### 4.3. Educational attainment

The woman’s own educational attainment. When we include the respondent’s own educational attainment in the analysis and use her absolute age attained at second birth, then the educational variable contributes significantly to the model and women with a tertiary educational level have noticeably higher third-birth intensities than other comparable women. The first column in Table 5 contains the relevant effects and the corresponding coefficients for the age variable.<sup>32</sup>

The interaction between the educational and age variables reveals, however, that this elevated fertility of the highly educated is entirely due to greatly increased third-birth “risks” (not displayed here) for respondents with a tertiary education whose age at second birth (24 years or less) is very low by comparison to other women with a tertiary education. Only nine per cent of our respondents with a tertiary education have their second child before age 25. By comparison, all of 55 per cent of our respondents with no more than a basic education had their second child before age 25 (Table 3a). What is quite common childbearing behavior for one educational group is quite unusual for the other. When we replace the absolute age at second birth by the corresponding age computed relative to the respondent’s educational attainment, as described in Section 3.3 above, then the educational variable loses its significance and the elevated fertility for the highly educated largely disappears (second column in Table 5). We get completely parallel results when we replace absolute or relative age at second birth by the corresponding age at first birth (not displayed here). Evidently, the influence of educational attainment on the third-birth intensity works mainly through the age at

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<sup>32</sup> We regard a  $p$ -value of 0.095 as sufficient for significance in this small data set. We have suppressed the regression coefficients for most covariates throughout this table because they are so close to those given in Table 4 that including them again here would be needlessly repetitious.

previous childbearing. When the relative age at first or second birth has been fixed under the influence of the woman's educational attainment, then there is no essential difference in third births between women at the various educational levels. In particular, when we know the life stage at which a highly educated woman has her first (second) child as compared to other women on the same educational level, she does not have a lower third-birth intensity than a corresponding woman with less education. There may be differentials in female autonomy between the educational groups, but this does not affect third births.

The age coefficients in Table 5 illustrate a couple of features: First, the various model re-specifications included in the table only produce small changes in the age coefficients. As we have mentioned already, this is typical of our findings for most covariate effects.

Secondly, there is no important difference between the coefficients in the three age groups up to 26 years at second birth, nor does it matter much whether the birth arrives very early, early, or medium early relative to other respondents on the same educational level. For this reason, we have combined the first three levels on the age variable in the regressions given in Table 4. The covariate seems to capture primarily the slow-down at the higher child-bearing ages.

The educational attainment of her partner. For our respondents, the impact of their partners' educational attainment on third births depends only weakly on our model specification but it is always strongly significant.<sup>33</sup> The effect coefficients suggest that at least for third births there may be two cultures in childbearing behavior in Austria, much as Lesthaeghe recently described as the situation among Belgian cohabitants (Surkyn and Lesthaeghe 1996, quoted by Lesthaeghe 1998, p.11). Austrian families in which the husband has no more than basic education have higher third-birth intensities than others do.<sup>34</sup> Once more, it seems that social classes form subcultures with different norms as to the appropriate goals in life (Lesthaeghe 1998, p. 9).

In families in which the husband has more than a basic education, the third-birth intensity increases uniformly with the man's educational attainment. Something important happens when we add the partner's educational attainment to our regression. As we see in Table 5, the respondent's own educational level loses significance completely and its effect is reduced. Once we control for the age at second birth (or equivalently at first birth), the educational attainment of the woman mainly appears to function as a signal about what educational level her husband has. When we know the latter, the influence of her attainment on natality vanishes.<sup>35</sup> These results may indicate that the husband's social class and the norms tied to it may have an important influence on childbearing behavior in present-day Austria.

#### 4.4. The respondent's labor-force behavior

Among all our experiments with the representation of the respondent's labor-force behavior, the effect coefficients of the one we have settled for are listed at the end of page 2 in Table 4. (No other representation gives a radically different pattern.) The effect of the labor-force attachment between the start of the birth-union and the first birth is disappointingly

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<sup>33</sup> See page 2 of Table 4 and columns 3 and 4 of Table 5.

<sup>34</sup> We noted a similar pattern in preferences for another child among mothers-of-two in the Austrian Population Policy Acceptance Survey; see footnote 19 above.

<sup>35</sup> One might suspect that an identification problem could produce this finding, but we doubt it. We have checked and not found any indication of a linear relation between the wife's and the husband's educational attainment, or of anything close to it.

small and not significant, but otherwise the coefficients confirm all of our expectations. Respondents who moved into the labor market (group 01, who had no labor-force attachment between the first two births but who returned to the labor market after the second birth) have the lowest third-birth intensity among our four groups, and the value of 0.61 is significantly smaller than the baseline level of 1 ( $p = 0.007$ ). We read this as an indication that most of them do not have any immediate plans for a third birth. Conversely, respondents who moved out of the labor market (group 10, who were in the labor market between their first two births but who are not there in the current month after the second birth), have a relatively low fertility level, again as expected. However, their relative risk of 0.81 is not significantly different from 1 ( $p = 0.162$ ) nor from the risks of any of the other groups ( $p > 0.33$ ). We read this as a mild indication that they may be planning for a third child and abstain from labor-force participation for the time being. With a coefficient of 0.74 ( $p = 0.011$ ), women who were in the labor market between births 1 and 2 and who are currently there (group 11) have significantly lower third-birth intensities than our baseline group of respondents who have no recorded job activity between the first two births and who are currently not in the labor force (group 00, risk coefficient 1).

A significant interaction between our indicator  $y(t)$  of current participation in the labor force (Section 3.4) and the age of the second child ( $p = 0.087$ ) reveals a striking difference between the third-birth intensity profiles of women inside and outside of the labor market (Figure 4). While working women have much the lower intensities when their second child is over two years old, they have by far the highest intensity (*ceteris paribus*) when the child is in its second year. (Their relative risk is about 1.25 at that point, standardized for our other covariates.) Several interpretations come to mind: It is possible that women who want more than two children and also want to remain in the labor force choose to have their third child quickly after the second one to limit the life segment during which they must attend to small children. It is also possible that the prospect of paid maternity leave (which women outside the labor force do not have) make some women return to the labor force to generate new maternity rights. In addition, an ambiguity in the meaning of labor-force participation can easily lead to a misinterpretation of the peak in the child's second year of life in the curve for women who formally are in the labor force. In Austria, women on maternity leave are officially regarded as "employed" if their work contract has not expired. Long before the introduction of a two-year parental leave for all employed and unemployed women in 1990, the large percentage of women who are in public service enjoyed the right to an unpaid extension of their parental leave well beyond the general leave period of one year. During such a leave extension, a woman in public service retains her job contract. It is not clear whether a woman on paid or unpaid maternity leave should (or would) be recorded in the interview as a member of the labor force or not. There may be similar problems for self-employed women, especially in agriculture. If a sufficient number of women do record themselves as employed in this situation, then the notion of incompatibility of parenthood and market work gets blurred in our data, and intensity profiles like those in Figure 4 become less surprising.<sup>36</sup>

Rainer Münz and Wolfgang Lutz (personal communications) have made us aware that women in the labor force are somewhat underrepresented among the respondents. If working women have fewer third births than others, then this differential nonresponse should mean that if anything our relative-risk estimates for the 11 and 01 groups are too high, as is the

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<sup>36</sup> Those intensity profiles are present in our data for the years before 1990 already and are not produced by a reaction to the new "speed premium" or by the extension to women outside of public service. Their features are also retained if we add to the interaction the respondent's indicator of labor-force attachment between the first two births. We do not display either sub-finding here.

curve for respondents in the labor force in Figure 4. Third-birth differentials by labor-force behavior should be even stronger in an unbiased sample.

## 5. Discussion

### 5.1. Conformity or increasing autonomy among women?

There is a remarkable lack of effect of the respondent's own educational attainment in our Austrian data, even when we leave out the husband's attainment from the analysis.<sup>37</sup> We interpret this as an indication that women's educational attainment influences their third-birth intensities mainly via its impact on the age pattern of their own childbearing behavior as they start up their family-building process. Furthermore, we essentially learn a lot about her husband's educational level once we get to know a woman's own attainment. His characteristics (as far as we know them) are important for the rate at which the family has any third birth. Once we control for her age and his attainment, there does not seem to be any further (direct) impact of her educational level on the third-birth intensity.

In many ways, these features go against the grain of the notion of increasing female autonomy, which dominates some existing theory about these matters. If autonomy means a woman's independence of men, it should be particularly disconcerting that any impact of the wife's educational attainment on third births is taken over by her husband's attainment. This may be an indication of general power relations in Austrian marriages, and perhaps it shows that childbearing decisions are still noticeably influenced by the norms of the husband's social class. One's social-stratum identification may still be more important than one's personal autonomy for childbearing behavior in Austria.

One could perhaps try to interpret the clear downward trend that we have found in third-birth intensities for married women as a manifestation of progress in their autonomy in general, but if that were the case, it does not seem reasonable that it should affect women on all educational levels uniformly.<sup>38</sup> We would expect increasing mental and economic independence to spread like an innovation process. If it were to have consequences for third births, women on our highest educational level should have lower third-birth intensities than other corresponding women at any point in time, which they conspicuously do not.

One of our regressions appears to suggest that women with a tertiary education may have higher rather than lower intensities than others do. We have discarded it as a result of model misspecification because the elevated risks turned out to be produced by a small number of respondents who had their first or second birth when they were unusually young for their educational level. Our solution was to replace the respondent's (absolute) age at second birth by her position in a grouping constructed to catch her age relative to her educational attainment. Those who would prefer to use absolute rather than relative age at (first or) second birth are faced with the fact that this disagrees even more strongly with conventional autonomy arguments.

### 5.2. The incompatibility of motherhood and market work

We have found that respondents with a stronger attachment to the labor force (our attachment group 11) have significantly lower "risks" of the third birth event than women with little such attachment (group 00). We are struck by the fact that no significant difference in

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<sup>37</sup> This fits with corresponding findings for Sweden by B. Hoem, 1996.

<sup>38</sup> Our search among interactions gave no additional insights.

this direction appeared in recent Swedish studies (Hoem and Hoem 1989, B. Hoem 1993, Berinde 1997). We believe that the greater difficulty of combining motherhood and labor-force participation in Austria than in Sweden may explain such a contrast between the countries, and that this may be an important ingredient in recent fertility developments in the two countries.

Public policies in Austria seem to put considerably less stress on issues of gender equality and less consistently seek to promote women's labor-force participation than is the case in Sweden. Swedish family and labor policies (and collective labor contracts) are designed to make it feasible for families to have both children and a working mother (*arbetslinjen*), and policies and wage settlements have developed under the assumption that both adults in a family have an income of their own. Austria has some features of the same kind, but has not pursued these goals as vigorously. Its policies appear to be based more on traditional notions of the non-working mother as the primary childrearer. The policies largely segregate family obligations from labor-market participation and offer much less of a systematic infrastructure to facilitate a combination of activities for mothers and fathers of small children. In a nutshell we believe that the greater generosity in the Swedish system and the greater flexibility of arrangements offered to its families are important elements of an explanation of the differences that we see. We spell out the details of this assessment in our Appendix B.

### 5.3. Summing up

Third-birth intensities have declined in Austria over our data period, but we have not found much that could be interpreted as effects of increasing female autonomy, at least not if that is to be understood as married women's growing independence of their husbands. What we do see in Austrian childbearing behavior are effects of a persistent conformity to traditional social norms (with the possible exception of reduced adherence to the two-child norm among women with some tertiary education). There is a considerably stronger incompatibility between motherhood and market work in Austria than in Sweden, the country we have picked for our comparisons. In this light, Austria appears as a country that has hesitated to put its money on gender equality and that has retained much of the old spirit of family-role specialization. It may not be a particularly extreme case in this spectrum. The accounts by Schiersmann (1991) and Hantrais (1994) of family policies in Germany suggests that the ambivalence we have noted in Austria's policies and the demographic effects they produce may be typical of the current situation in societies in its part of the Western world.

If arguments based on Austrian women's growing independence of their husbands are unwarranted, an explanation of the drop in Austrian third-birth rates must be sought elsewhere. We believe that increasing opportunity costs connected with the third child may be part of the story, for market work among women may have increased over much of the period we study<sup>39</sup> while there was little corresponding growth in job-and-parenthood compatibility after

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<sup>39</sup> Even though labor-force participation is included among our covariates, we probably have limited control over compositional effects of this variable so some further documentation would be valuable. Unfortunately, it has been difficult to get reliable documentation of a growth in market work in the relevant population segment. Increasing rates of labor-force participation do show up in diagrams for women of all parities published by Cyba (1995, p. 439, Graph 1) and Biffl (1995, p. 375, Graph 5) as well as for married Austrian women with two children below age 15, the latter being the more relevant for our argument (see our own Figure 5 in Appendix B2). However, women on leave from a job should normally be included in the labor force by definition, so some of the observed increase must reflect extensions in women's rights to maternity leave rather than a genuine growth in market work. (Note the spurt in labor-force participation rates after 1991 in both curves for Austria in our Figure 5.) We have been unable to locate a time series based on data that eliminate

the maternity leave. It may be equally (or more) important that unemployment has risen for both men and women over most of our study period (Cyba 1995, p. 443, Graph 3; Biffi 1995, p. 373, Graphs 2 and 3). Men's unemployment is important for fertility trends in any population, and particularly so in a country where the man is the sole income-earner in a large fraction of households with children, as is the case in Austria.<sup>40</sup> Increasing difficulties of acquiring adequate housing for a growing family may be another element in this story,<sup>41</sup> and so may improved fertility control through better contraceptive usage.<sup>42</sup> To pursue these ideas goes well beyond the scope of the present paper and is a matter of future research.

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women on maternity leave for a substantial part of our period of observation.

<sup>40</sup> Compare the emphasis that Oppenheimer et al. (1997) put on the impact of men's career developments on first-marriage rates in the United States.

<sup>41</sup> Housing costs increased considerably, especially during the 1990s, and families needed to spend an increasing part of their income on housing. Almost one third of the 20-39 year old respondents in the recent Austrian Population Policy Acceptance Survey said that inadequate housing conditions are an important (very important or rather important) reason for not having children (or for not having another child). Among their respondents of age 20 to 39 who had two children, 25.9% stated that their housing conditions were a (very or rather) important reason for not having another child (Gisser et al. 1995, p. 62).

<sup>42</sup> For whatever it is worth, we note that the fraction of second births that were reported as planned in our data set rose steadily from about half in the years before 1974 to above eighty per cent in the mid-1990s.

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## Appendix A. Major changes in Austrian parental-leave policies, 1957 through 1996

1957

- paid mandatory maternity-protection period of 6 weeks after birth (8 for nursing mothers) extended by 6 weeks before birth, at least 12 weeks in all, nursing mothers up to 14 weeks, premature births up to 18 weeks; benefit (*Wochengeld*) equals average income over preceding 13 weeks
- unpaid maternity leave up to 6 months with job security

1961

- paid maternity leave up to child's first birthday with job security
- maternity leave payment equal to unemployment benefit for single mothers, half of unemployment benefit for married women; with reductions according to household income, no benefit above a certain maximum household income; eligibility requirement: 52 weeks of (insurable) employment during the two years immediately preceding a first birth, 20 weeks during the most recent year for second and higher-order births

1974

- paid mandatory maternity-protection period extended to 16 weeks, 20 weeks for premature or multiple births
- maternity leave payment independent of household income at flat rates with a 50% higher rate for single mothers and for married mothers if husband has little or no income
- special maternity leave payment (*Sondernotstandshilfe = SNH*) for single mothers up to child's third birthday if mother cannot be gainfully employed due to lack of child-care; SNH benefit related to unemployment relief
- eligibility requirements for mothers under age 20 reduced from 52 to 20 weeks of employment preceding a first birth as well
- mandatory maternity protection period counted as part of employment requirements for maternity leave payments if work contract exceeds mandatory maternity protection period.

1976

- entitlement enhanced to gainfully employed mothers with adopted children and to foster-mothers

1978

- paid mandatory maternity protection period extended to 20 weeks in case of Cesarean section

1982

- farmers and self employed mothers entitled to 16 weeks of flat rate transfer payments, 20 weeks in case of premature birth, multiple birth or Cesarean delivery

1984

- special maternity leave payment (*SNH*) restricted to 'actually' single (=noncohabiting) mothers

1989

- employment requirements for maternity leave payment for women below age 25 reduced to 20 weeks at first birth as well

1990

- parental leave for fathers if mother is eligible for parental leave herself or if mother is employed; switch from one parent to the other permitted once, three-months mini-

mum leave for one parent

- special maternity leave payment (*SNH*) extended to married women and women in a consensual union (paid if husband/partner has little or no income)

1.7.1990

- parental leave period extended up to the child's second birthday
- employer's consent required for part-time work.
- part-time leave permitted after the child's first birthday up to the 2<sup>nd</sup> birthday (both parents at the same time) or up to the 3<sup>rd</sup> birthday (one parent alone or both parents alternating)
- parental leave subsidy (of half the regular flat-rate parental-leave payment) for farmers and self-employed mothers up to the child's second birthday
- parental leave subsidy (also of half the regular flat-rate parental-leave payment, until entitled to full parental leave payment) for mothers who are not self-employed and who do not meet the 52 (respectively 20) weeks employment requirement for parental leave payments

1993

- part-time leave possibility extended to the child's first year of life and up to its 4<sup>th</sup> birthday
- unemployment-benefit (up to 26 weeks) for mother/father if dismissed from job after parental leave; participation or willingness to participate in training course offered by the labor office required
- paid maternity protection period extended up to 16 weeks after birth in case of premature birth and shorter maternity protection period before birth

1995

- special maternity leave payments (*SNH*) made dependent on certification from local authorities that no childcare facilities are available; municipality must pay a third of *SNH*-benefit

1996

- employment requirement for parental leave payments kept at twenty weeks for mothers under age 25 extended: 16 out of the 20 weeks of employment requirement must be spent in active employment
- employment requirements for parental leave payments for second and subsequent births extended from 20 to 26 weeks
- parental leave payments at one flat rate for all eligible mothers; single mothers and mothers whose husband/partner has little or no income may get additional loan-benefit (about 45% of flat rate); loan-benefit must be paid back by the child's father (vice versa if father goes on parental leave)

1.7.1996

- parental leave payments reduced to a maximum of 18 months for one parent, 6 months for the other parent; part-time parental leave payments adapted accordingly (max. 3 years for one parent, 1 year for the other parent)

Source: Neyer 1998. For the history of the maternity legislation in Austria since 1885, see Neyer (1984, 1997).

## **Appendix B. Swedish and Austrian family policies**

### B1. Introduction

The structure of labor-force participation among married women is quite different in Austria and Sweden, and this has important implications for our interpretation of the patterns we have found in intensities of the third birth event. We believe that much of the difference in market work among women with children can be understood as a consequence of the different approaches to labor and family policies in the two countries.<sup>43</sup> This appendix contains an account of what we take to be most important elements in this connection. Chronological accounts are given in our Appendix A and the corresponding appendix of Hoem and Hoem (1996).

First of all, in reflection of the higher incompatibility of motherhood and market work in Austria, labor-force activity rates among mothers of minors are notably lower in that country than in Sweden.<sup>44</sup> Secondly, Swedish regulations give parents much greater flexibility vis-à-vis the labor market and daycare arrangements. Thirdly, Swedish benefits to parents are by far the more generous ones. We spell this out in the following sections.

### B2. Labor-force participation

Figure 5 shows labor-force activity rates for women who have children below age 17 in Sweden and below age 15 in Austria. The Swedish data come from annual summaries of labor surveys issued by Statistics Sweden. The Austrian data come from annual averages of the quarterly micro-censuses and have been published by the Austrian Central Statistical Office. (The Austrian data for 1994 are not available.)

Figure 6 shows the extent of part-time work. We would have liked to display curves for the same women as in Figure 5 (i.e., women with minors), but it turned out to be too difficult and costly for our purposes to obtain them. For Austria we could not get data restricted to women with children, and we could not get data based on the same definition of part-time work for both countries. Here is the information we have been able to piece together:

In the curve for Austria, part-time work is defined as gainful employment with 14-36 normal weekly working hours for 1974-83 and 13-36 hours for 1984-1990. For these years, women on maternal leave are included in the data. In a separate time series for 1988-1995, part-time work was defined as 12-35 normal weekly working hours and women on maternity leave were excluded. Our plot is based on data from the Austrian micro-censuses as summarized by Bartunek (1993, 1997).

It is easy to get more complete data for Sweden, again based on the annual labor-survey summaries. We have obtained data separately (i) for all women and (ii) for women with children under age 17, but in either case part-time work is defined as either 1-34 or 20-34 normal weekly work-hours. We have plotted the per cent that have 1-34 normal weekly working hours among all women in the labor force for the years 1968 through 1997 as our main basis of comparison with the Austrian percentages. It is evident that part-time work is

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<sup>43</sup> An enlightening contrast between the political climates in which decisions on family policy are made in Austria and Sweden can be inferred from the accounts of Badelt (1991) and Sundström (1991). For an insightful account of the philosophy behind Swedish family policies, see Söderström and Meisaari-Polsa (1995).

<sup>44</sup> See Figure 5. The decline in Swedish activity rates after 1990 reflects the difficult times that the country's economy then encountered. We describe the data basis for Figures 5 and 6 in Appendix B4.

much more common in Sweden than in Austria.<sup>45</sup>

To account better for the differences in the definition of part-time work, we have also plotted the percentage of women who have 20-34 normal working hours among all women who spent at least 20 hours per week in the labor force for the years 1987-97. Since we are primarily interested in women with children, we have done the same for this more restricted group, and have then excluded women who were absent from work both in the numerator and the denominator of our calculation. Of course, part-time work is more prevalent among women with children than among all women, and more prevalent the more short weekly hours we include as part-time work, but the differences are small by comparison to the difference between the Swedish and the Austrian data.

See Biffl (1991, 1996) for further comparisons of labor-market participation in these (and other) countries.

### B3. System flexibility and the compatibility of motherhood and market work

Let us first address various aspects of the issue of flexibility. One important feature of it is the far greater availability and significantly more extensive use of part-time work in Sweden than in Austria (Figure 6). Beside even more favorable individual and collective contractual arrangements, all Swedish parents have had an unconditional right since 1979 to reduce their working hours to three-quarters of full-time work until the youngest child is eight years old. The corresponding rule in Austria covers “only” parents in public service and gives them the right to half-time employment until the child enters school or for a total of four years.<sup>46</sup>

This means that while a rather high percentage of working women in Austria are covered for a non-negligible period of early parenthood (Neyer 1990), in practice the time reduction must be considerably lower than the one used by their Swedish counterparts.

Another difference in flexibility of great importance for the compatibility issues we consider is the availability of childcare. It has been hard for us to get consistent and reliable relevant time series of childcare for Austria for all of our period of observation, but some highlights should suffice to make our point. On the surface, childcare coverage for age groups that lead up to entry into primary school appears to have been about the same in the two countries in recent years. At the beginning of the 1990s, for instance, both had recorded childcare spots for some sixty-odd per cent of such age groups as a whole (ages 3 to 5 for Austria, 3 to 6 for Sweden; Neyer 1995, Statistics Sweden 1991, Table 2; Statistics Sweden 1997, Table 2C; see also Waldfogel 1998). However, differences in coverage between the different parts of Austria are much greater than in Sweden, which has the ambition that everyone should have the same benefits no matter where in the country they live. Opening hours can

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<sup>45</sup> Women who work 1-19 normal weekly hours account for only some six per cent of the total Swedish female work force every year. In Austria, there is a category called ‘*geringfügig Beschäftigte*’. It comprises employed persons whose monthly income from employment is below the requirement for social-security coverage. In general such low income is equivalent to a very limited number of weekly working hours. In 1994 this group alone constituted some six per cent of the female labor force, and it grew fast in the years that followed, to some eight per cent in 1996 and to almost ten per cent in late 1998/early 1999 (Karl Wörister, personal communication). This may reflect an adaptation to current regulations by Austrian women who want to combine motherhood with some labor-force participation.

<sup>46</sup> There are exceptions to this regulation so that part-time work is not available to all parents in public service. However, parents in public service may also take an unpaid leave after their parental leave until the child enters school. They have a right to this leave if the child is disabled.

also be problematic in Austria. While childcare normally is offered full-time and children regularly are offered meals while in daycare in Sweden, it is quite common that they must be picked up for lunch in Austria, or that the *Kindergarten* is only open half the day. (According to the childcare statistics of the Austrian Central Statistical Office, about one quarter of the *Kindergärten* were closed for lunch and another quarter were open for only half the day in 1993/94; for calculations see Neyer 1993, 1995, and Faßmann et al. 1988.) Similarly, the number of days that an Austrian parent has the right to take out to tend to a sick child (since 1977 one week per year for all children taken together, since 1993 an additional week if a sick child is under 12 years of age) is much less than the corresponding number of days in Sweden (two months for each child since 1980, three months since 1989, and four months since 1990).

Some of these items may look marginal but their sum total may produce quite different life situations for parents of post-toddlers in the two countries. For parents of children below age 3, we are no longer talking about marginal items but of radical differences. About one third of all Swedish children are in public daycare at these ages (Statistics Sweden 1989, Table 2); Austria provides its public *Krippen* for little more than two per cent (Neyer 1995, Waldfogel 1998). This must mean that most mothers of Austrian toddlers must either sever any relation they might have with the labor market at least until the child is three or even four years old,<sup>47</sup> or else they must rely on private (paid or unpaid) help for childcare.

The final aspect of flexibility differences that we will mention is connected with the length of the statutory parental leave. It has been longer in Austria than in Sweden since 1961, and it is now all of nine months longer (since mid-1990). In Austria its usefulness is restricted by the requirement that the leave be taken out in one go, however; once the mother returns to her job, she forfeits the right to any remaining part of the leave for the present child. (No wonder Austrian women rarely return to the labor market before the end of their statutory leave, see Münz and Neyer 1986.) In the last half-decade covered in our data, Austrian parents could stretch out the leave period by taking out part-time leave until the child's third or fourth birthday if they could get their employer's consent; they could also share the leave between the mother and father. Swedish parents have had similar but more flexible rights since 1974. They can mix work, vacation, part-time leave, and full-time leave in any manner that they like until the child's eighth birthday. (This upper age limit has varied somewhat over time). If they fall ill during parental leave, they can go off leave and record the sickness period as absence from work, saving a corresponding number of days of parental leave for later use. There is no forfeiture of any remaining leave days if a Swedish parent returns to work.

In this light it is not surprising that Austrian mothers put much store in greater system flexibility when they are asked about their preferences concerning family-policy reforms. (Over half of our respondents said that above all they wanted better labor-market conditions for working parents with small children, for instance more flexible hours and more part-time work.)

Since 1990, Austria has made its parental-leave system somewhat more flexible than before, but to make use of the new flexibility, Austrian parents must decide within four weeks after childbirth how they want to arrange their parental leave. Once they have decided there is no room for them to change their minds. Moreover, the complexity of the whole system stands in striking contrast with the transparency and generality of the Swedish system. The details of the Austrian regulations have been less than lucid from the onset, and since their introduction they have been changed several times, which must have increased their impenetrability to the

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<sup>47</sup> Eligibility for kindergarten is three or four years of age, depending on which state (*Bundesland*) or municipality the child lives in.

common parent. Such complexity may influence people's behavior on its own. It may be part of the reason why the majority of Austrian parents have adhered to "traditional" behavior where the child's mother takes out all the parental leave and does so on full time.<sup>48</sup>

#### B4. System generosity

We turn finally to monetary matters. The one public payment for children where Sweden has not been massively more generous than Austria is the cash child benefit. The Swedish *barnbidrag* for a third child was equivalent to some US\$ 155 per month at the same time as the Austrian *Familienbeihilfe* was something like US\$ 120, or "only" some twenty per cent lower. The child benefit did not depend on personal income in either country. The *Familienbeihilfe* may have amounted to some fourteen per cent of the total benefit for a third child in Austria. Even though this is not a negligible contribution to family income, we doubt that it is important for the issues we address here. We include it for completeness only.

Other differences between the countries cannot have failed to influence their childbearing patterns in different directions. The most important contrast in generosity level between the two countries is probably the one connected to maternity benefits. They are much higher in Sweden, and their structure may upset common notions of how opportunity cost of childbearing differ between different segments of the population.

First of all, between 1974 and the end of the observational period in the Swedish data, Swedish maternity benefits were all of ninety per cent of the salary of the parent who was on leave.<sup>49</sup> The benefit was taxed at normal rates, and there were no tax reductions for any family member. In Austria in the corresponding period, the standard benefit has been independent of the salary and an additional tax reduction (*Kinderabsetzbetrag*) has also been the same for everyone who paid enough tax to make use of it. Rough calculations suggest that for a couple with a normal combined income, the total maternity benefit for a third child in Sweden may have been something like twice that for a corresponding child in Austria. Thus, the monetary opportunity cost of childbearing was much the higher in Austria, and progressively more so as the mother's income increased. If we take educational attainment as an indicator of income potential, then this should work toward a smaller educational gradient in third-birth intensities in Austria than in Sweden (according to current economic theory). If the gradient is about zero in Sweden, as is suggested by B. Hoem's findings (1993), it should be negative in Austria. If more highly educated women have higher intensities than other women do in Sweden, as Berinde (1997) suggests on the basis of a younger data set, then in Austria they should not be as much higher as in Sweden, and possibly lower than for other women. In fact, we find little or no effect of educational attainment in our Austrian data. For reasons that we discussed in our Section 3.2, we are not surprised.

An additional monetary difference between our two countries is the much lower public subsidies paid in Austria for daycare. Grants to parents normally cover up to half of childcare costs (ILO 1988, pp. 81-82). This may sound generous, but in Sweden the subsidy was rarely below ninety per cent during the period covered in the Swedish data (Gustafsson 1990, p.

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<sup>48</sup> In 1997 only 3.1 per cent of all parents on parental leave were on part-time leave and less than one per cent were fathers (Arbeitsmarktservice Österreich 1997). The percentage of women on part-time leave has increased somewhat over time, but the percentage of fathers who take out parental leave has been persistently low since the introduction of the paternal-leave legislation.

<sup>49</sup> In the public sector and parts of the private sector, an additional ten per cent of the salary was paid for a substantial part of the maternity leave in Sweden.

65).<sup>50</sup> Such generosity cannot have failed to influence patterns of childbearing and labor-force participation.

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<sup>50</sup> Even in 1997, when Sweden had encountered several years of adverse economic trends, parental contributions to public childcare only amounted to some fifteen per cent of the expenses (Svenska Kommunförbundet 1998, p. 128). See also the annual publication of accounts data for Swedish municipalities, e.g., Statistiska centralbyrån och Svenska Kommunförbundet (1998).

## Appendix C. Further counts in the present analysis

Factor	Occurrences and exposures distributed over selected characteristics			Respondents distributed by characteristics	
	Occurrences	Exposures		Number of respondents	Per cent
		half-months	per cent		
<b>FIXED CHARACTERISTICS</b>					
order of birth-union					
1	507	313,865	97.1	1557	95.9
2	11	8,878	2.7	60	3.7
3+	1	416	0.1	6	0.4
sex of first two children					
both boys	131	93,690	29.0	440	27.1
both girls	131	74,399	23.0	391	24.1
first boy / second girl	120	81,648	25.3	400	24.6
first girl / second boy	134	72,366	22.4	388	23.9
no answer	3	1,056	0.3	4	0.2
employment ratio <sup>(a)</sup> , age 15 to start of birth-union					
no activity or interval<12 months <sup>(b)</sup>	74	39,161	12.1	233	14.4
<= 1%	63	29,168	9.0	150	9.2
1 < < 10%	14	4,353	1.3	25	1.5
10 <= < 20%	9	3,890	1.2	18	1.1
20 <= < 30%	8	7,033	2.2	29	1.8
30 <= < 40%	8	4,663	1.4	29	1.8
40 <= < 50%	15	9,986	3.1	50	3.1
50 <= < 60%	16	8,519	2.6	45	2.8
60 <= < 70%	16	11,286	3.5	64	3.9
70 <= < 80%	35	17,303	5.4	103	6.3
80 <= < 90%	40	34,722	10.7	166	10.2
90 <= < 99%	109	74,823	23.2	359	22.1
>= 99%	112	78,252	24.2	352	21.7
employment ratio, start of birth-union to birth of second child					
no activity or interval<12 months	17	6,784	2.1	40	2.5
<= 1%	121	62,341	19.3	295	18.2
1 < < 10%	28	13,652	4.2	66	4.1
10 <= < 20%	50	15,337	4.7	107	6.6
20 <= < 30%	31	17,922	5.5	104	6.4
30 <= < 40%	35	22,271	6.9	117	7.2
40 <= < 50%	33	29,636	9.2	142	8.7
50 <= < 60%	37	27,617	8.5	143	8.8
60 <= < 70%	30	23,504	7.3	128	7.9
70 <= < 80%	25	18,671	5.8	103	6.3
80 <= < 90%	17	15,058	4.7	78	4.8
90 <= < 99%	11	16,733	5.2	61	3.8
>= 99%	84	53,633	16.6	239	14.7
<u>aggregated:</u>					
employment ratio, age 15 to start of birth-union					
no activity or interval<12 months	74	39,161	12.1	233	14.4
0-24%	89	40,572	12.6	204	12.6
25-75%	78	46,108	14.3	256	15.8
76-100%	278	197,318	61.1	930	57.3
employment ratio, start of birth-union to birth of second child					
no activity, or interval<12 months	17	6,784	2.1	40	2.5
0-24%	217	99,409	30.8	521	32.1
25-75%	163	124,097	38.4	639	39.4
76-100%	122	92,869	28.7	423	26.1

(continued)

## Appendix C. Further counts in the present analysis (continued)

Factor	Occurrences and exposures distributed over selected characteristics			Respondents distributed by characteristics	
	Occurrences	Exposures		Number of respondents	Per cent
		half-months	per cent		
labor-force attachment, age 15 to start of birth-union					
no employment (v=0)	136	65,741	20.3	361	22.2
at least one month of employment (v=1)	383	257,418	79.7	1262	77.8
labor-force attachment, start of birth-union to first birth					
no employment (w=0)	164	82,785	25.6	407	25.1
at least one month of employment (w=1)	355	240,374	74.4	1216	74.9
labor-force attachment, first to second birth					
no employment (x=0)	340	185,858	57.5	1014	62.5
at least one month of employment (x=1)	179	137,301	42.5	609	37.5
crossstabulation of labor-force in these three life spans <sup>(c)</sup>					
000				166	10.2
001				41	2.5
010				87	5.4
011				67	4.1
100				167	10.3
101				33	2.0
110				594	36.6
111				468	28.8
<b>TIME VARYING CHARACTERISTICS</b>					
current civil status					
cohabiting	8	3,544	1.1		
married	511	319,615	98.9		
labor-force attachment since second child					
no employment	349	176,184	54.5		
at least one month of employment	170	146,975	45.5		
<b>Total number</b>	<b>519</b>	<b>323,159</b>	<b>100.0</b>		

- Notes: (a) The employment ratio in a life segment is defined as the ratio of the time spent in employment to the length of the time period adjusted for time spent in education. Thus, the ratio's denominator is the length of the segment minus the time spent in education during it.
- (b) 'No activity' means that neither an educational nor a job activity has been recorded in any segment month. 'Interval' indicates the denominator in the definition of the employment ratio.
- (c) Explanation of three digit code: the number vwx gives the labor-force attachments in the three life spans. For each digit (v,w or x), 0 stands for 'no employment' and 1 stands for 'at least one month of employment'.

**Table 1: Number of respondents excluded or censored, by cause**

Total number of records	6120
Of these for women	4581

Of the records for female respondents:

**A. Excluded cases**

<u>Cause of exclusion</u>	<u>Count of exclusions</u>
foreign nationality	188
never lived in a union	641
had less than two children	1447
first child died before second child was born	12
first or second child was adopted	22
twins at first or second birth	46
births not ordered chronologically	12
first two children not born in the same union	470
interval between first and second child greater than seven years	96
age of mother at birth of first child greater than 36 years	4
pregnant with third child at date of interview	5
incomplete information on number of own siblings	4
no exposure	<u>11</u>
total exclusions	2958

**B. Censored cases**

<u>Cause of censoring</u>	<u>Censoring date</u>	<u>Count of censored events</u>
no third child	date of interview	920
third child adopted	date of adoption of third child	0
birth-union split	date of disruption	172
first child died after second birth and before censoring date	date of death of first child	3
second child died before censoring date	date of death of second child	<u>9</u>
total censored cases		1104

**C. Occurrences**

third birth	<u>519</u>
total cases	<u>1623</u>

**Table 2. Basic counts in present analysis**

Factor	Occurrences and exposures distributed over selected characteristics			Respondents distributed by characteristics	
	Occurrences	Exposures		Number of respondents	Per cent
		half-months	per cent		
<b>FIXED CHARACTERISTICS</b>					
religious (by self-assessment)					
very religious	114	42,075	13.0	231	14.2
less religious, not religious	405	279,857	86.6	1387	85.5
no answer	0	1,227	0.4	5	0.3
number of siblings					
none	42	35,833	11.1	153	9.4
one	106	81,301	25.2	385	23.7
two	102	68,918	21.3	368	22.7
three or more	269	137,107	42.4	717	44.2
year of birth					
1941-1949	218	141,314	43.7	468	28.8
1950-1959	199	121,132	37.5	560	34.5
1960-1969	97	58,609	18.1	539	33.2
1970-1976	5	2,104	0.7	56	3.5
respondent's age at birth of second child					
16 - 22	163	79,422	24.6	362	22.3
23 - 24	119	66,689	20.6	319	19.7
25 - 26	109	69,164	21.4	346	21.3
27 - 28	64	51,012	15.8	268	16.5
29 - 40	64	56,872	17.6	328	20.2
partner's age at birth of second child					
18-25	154	66,471	20.6	339	20.9
26-27	93	62,174	19.2	284	17.5
28-29	81	62,973	19.5	283	17.4
30-33	109	70,974	22.0	400	24.6
34-60	74	55,025	17.0	287	17.7
no answer	8	5,542	1.7	30	1.8
birth interval between 1st and 2nd child					
0 - 11 months	15	8,127	2.5	33	2.0
12 - 23 months	224	105,453	32.6	533	32.8
24 - 35 months	136	89,379	27.7	477	29.4
36 - 47 months	78	58,734	18.2	292	18.0
48 - 84 months	66	61,466	19.0	288	17.7
education of partner at start of birth-union					
basic	105	40,384	12.5	234	14.4
lower secondary	295	210,609	65.2	1017	62.7
upper secondary	71	47,728	14.8	246	15.2
tertiary	48	24,438	7.6	126	7.8
labor-force attachment, start of birth-union to first birth					
no employment (w=0)	164	82,785	25.6	407	25.1
at least one month of employment (w=1)	355	240,374	74.4	1216	74.9
labor-force attachment, first to second birth					
no employment (x=0)	340	185,858	57.5	1014	62.5
at least one month of employment (x=1)	179	137,301	42.5	609	37.5

(continued)

**Table 2. Basic counts in present analysis (continued)**

Factor	Occurrences and exposures distributed over selected characteristics		
	Occurrences	Exposures	
		half-months	per cent
<b>TIME VARYING CHARACTERISTICS</b>			
current educational level			
basic	205	111,933	34.6
lower secondary	259	177,311	54.9
upper secondary	21	14,962	4.6
tertiary	34	18,953	5.9
current activity status (labor-force participation and enrollment in school)			
no recorded activity	373	192,501	59.6
only educational activity	2	1,389	0.4
only job activity	144	128,313	39.7
job and educational activity	0	956	0.3
labor-force attachment in life segments since first birth			
00	308	145,395	44.99
01	32	40,463	12.52
10	67	48,495	15.01
11	112	88,806	27.48
calendar period			
1960-1973	104	28,467	8.8
1974-1979	117	46,048	14.2
1980-1987	163	98,795	30.6
1988-1990	55	48,429	15.0
1991-1992	35	36,891	11.4
1993-1996	45	64,529	20.0
<b>Total number</b>	<b>519</b>	<b>323,159</b>	<b>100.0</b>

**Table 3a. Age attained at second birth; cumulative percentages**

Age	educational level			
	basic	lower-secondary	upper-secondary	tertiary
15	0	0	0	0
16	0	0	0	0
17	1	0	0	0
18	3	0	0	0
19	7	1	2	0
20	14	4	3	0
21	23	11	6	0
22	34	19	9	1
23	43	29	14	6
24	55	40	23	9
25	65	52	33	17
26	76	62	53	21
27	83	70	64	33
28	90	78	77	44
29	93	84	83	55
30	95	89	88	71
31	96	92	89	79
32	97	95	91	84
33	97	97	96	90
34	98	98	98	94
35	99	99	99	97
36	100	100	99	98
37	100	100	100	100

Note: For each educational level we have grouped together ages in 20 per cent intervals

**Table 3b. Relative age at second birth**

Age	age according to educational level			
	basic	lower secondary	upper secondary	tertiary
very early	15-21	15-22	15-24	15-26
early	22-23	23-24	25	27-28
medium	24-25	25-26	26-27	29
late	26-27	27-28	28-29	30-31
very late	28-40	29-40	30-40	32-40

**Table 4. Relative risks of the third birth event. Austrian women**  
**Selected models**

Covariate	Model 1	Model 2 <sup>f</sup>
	<i>p</i> -value	<i>p</i> -value
Respondent's siblings	<i>0.001</i>	a
none or one	1 <sup>b</sup>	
two	1.09	
three or more	1.43	
Religiousness	<i>0.000</i>	a
very religious	1.85	
otherwise	1	
Birth interval (months)	<i>0.001</i>	<i>0.001</i>
0-11	1	1
12-23	1.22	1.05
24-35	0.84	0.75
36-47	0.84	<sup>c</sup>
48-84	0.73	0.64
Year of birth	<i>0.001</i>	d
1941-49	1	
1950-59	0.91	
1960-69	0.61	
1970-76	0.72	
Mother's age at birth of second child (years)	<i>0.000</i>	<i>0.013</i>
16-26	1	1
27-28	0.70	0.78
29-40	0.55	0.63
Partner's age at birth of second child (years)	<i>0.012</i>	<i>0.078</i>
18-25	1	1
26-27	0.71	0.77
28-29	0.64	0.72
30-33	0.88	0.88
34-60	0.83	<sup>c</sup>
Age of second child (years)	<i>0.000</i>	<i>0.000</i>
0	1	1
1	2.13	2.19
2	1.75	1.85
3	1.32	1.46
4	1.14	1.31
5-6	0.99	1.20
7 or more	0.28	0.42
Intercept <sup>e</sup>	0.004205	0.005986

(cont'd.)

**Table 4 (cont'd). Relative risks of the third birth event. Austrian women**  
**Additional factors in Model 2**

Covariate		Model 2 <i>p</i> -value
Mother's educational attainment	<i>0.469</i>	
basic		1
lower secondary		0.90
upper secondary		0.88
tertiary		1.19
Partner's educational attainment	<i>0.000</i>	
basic		1
lower secondary		0.60
upper secondary		0.67
tertiary		0.87
Calendar period	<i>0.000</i>	
1960-73		1
1974-79		0.95
1980-87		0.81
1988-90		0.61
1991-92		0.51
1993-96		0.44
Labor-force attachment, start of birth-union to first birth	<i>0.592</i>	
no employment		1.07
some employment		1
Labor-force attachment between first two births, combined with current labor-force participation	<i>0.008</i>	
00 (no,no)		1
01 (no,yes)		0.61
10 (yes,no)		0.81
11 (yes,yes)		0.74

## NOTES:

<sup>a</sup> Factor removed due to its peripheral interest for us.

<sup>b</sup> Baseline levels are indicated by a value of 1 without decimals.

<sup>c</sup> Level combined with previous level.

<sup>d</sup> Factor removed to allow inclusion of calendar period (see page 2).

<sup>e</sup> One gets the baseline intensity by multiplying the intercept by the effect coefficients for the age of the second child. The intercepts differ because the baseline groups for the two models are quite different.

<sup>f</sup> Model 2 fits the data significantly better than Model 1. The log likelihood is equal to -2607 for Model 1 and equal to -2052 for Model 2; DF=15.

**Table 5. Effects of educational attainment,  
standardized for our other covariates**

<u>Covariate</u>	<u>Without partner's age</u>		<u>With partner's age</u>	
	<u>Definition of respondent's age at second birth</u>			
	absolute age <sup>a</sup>	relative age <sup>b</sup>	absolute age <sup>a</sup>	relative age <sup>b</sup>
Respondent's own educational attainment	<i>0.086<sup>c</sup></i>		<i>0.400</i>	
basic	1	1	1	1
lower secondary	0.84	0.81	0.90	0.86
upper secondary	0.80	0.74	0.85	0.78
tertiary	1.20	1.00	1.10	0.89
Partner's educational attainment	<i>0.000</i>			
basic			1	1
lower secondary			0.58	0.57
upper secondary			0.63	0.63
tertiary			0.85	0.83
Mother's age at second birth				
very low <sup>a</sup>	1	1	1	1
low	0.99	0.95	0.96	0.92
medium	0.95	0.92	0.92	0.88
high	0.79	0.77	0.81	0.79
very high	0.68	0.62	0.64	0.59

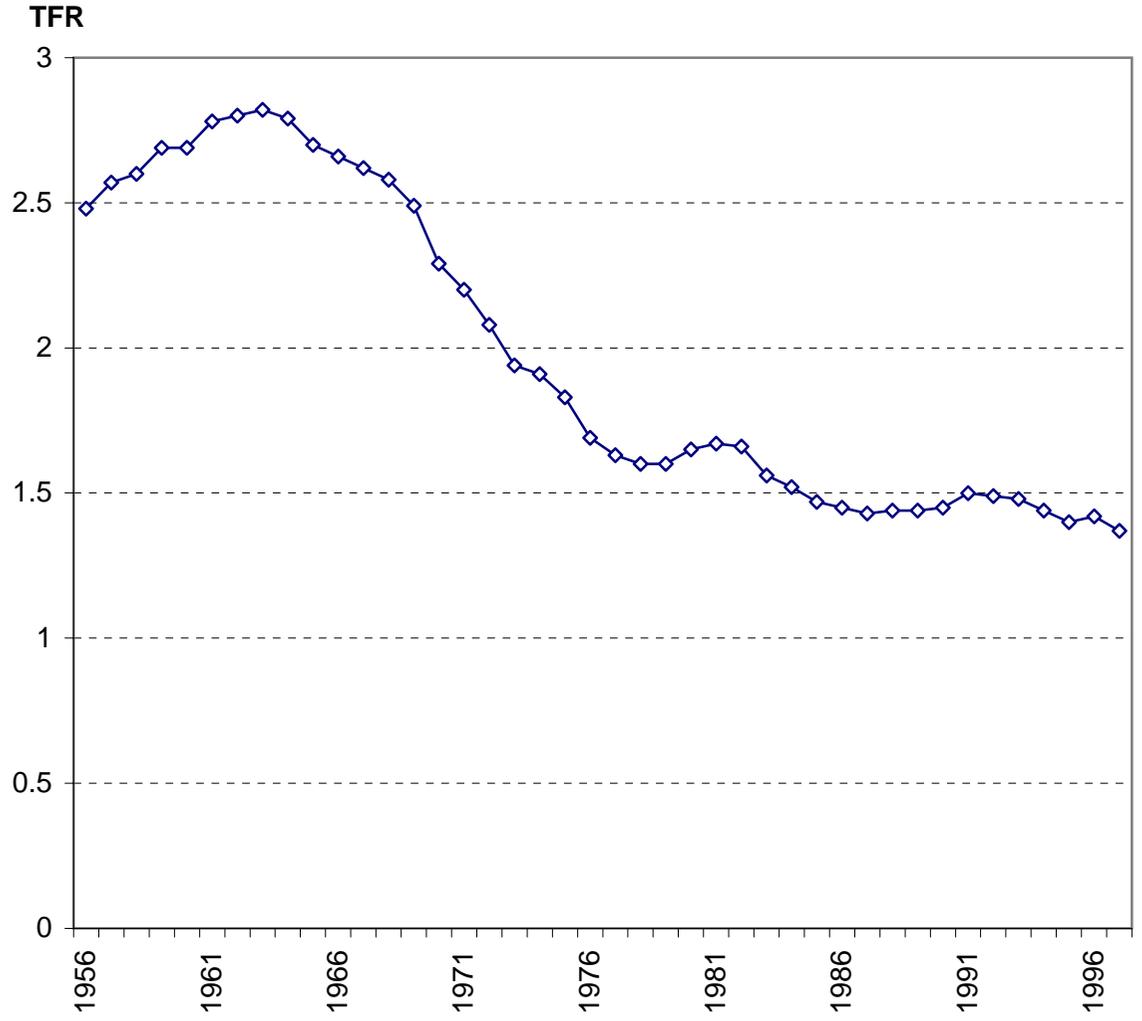
NOTES:

<sup>a</sup> The groups for the absolute age at second birth were 15-22, 23-24, 25-26, 27-28, and 29-40 years.

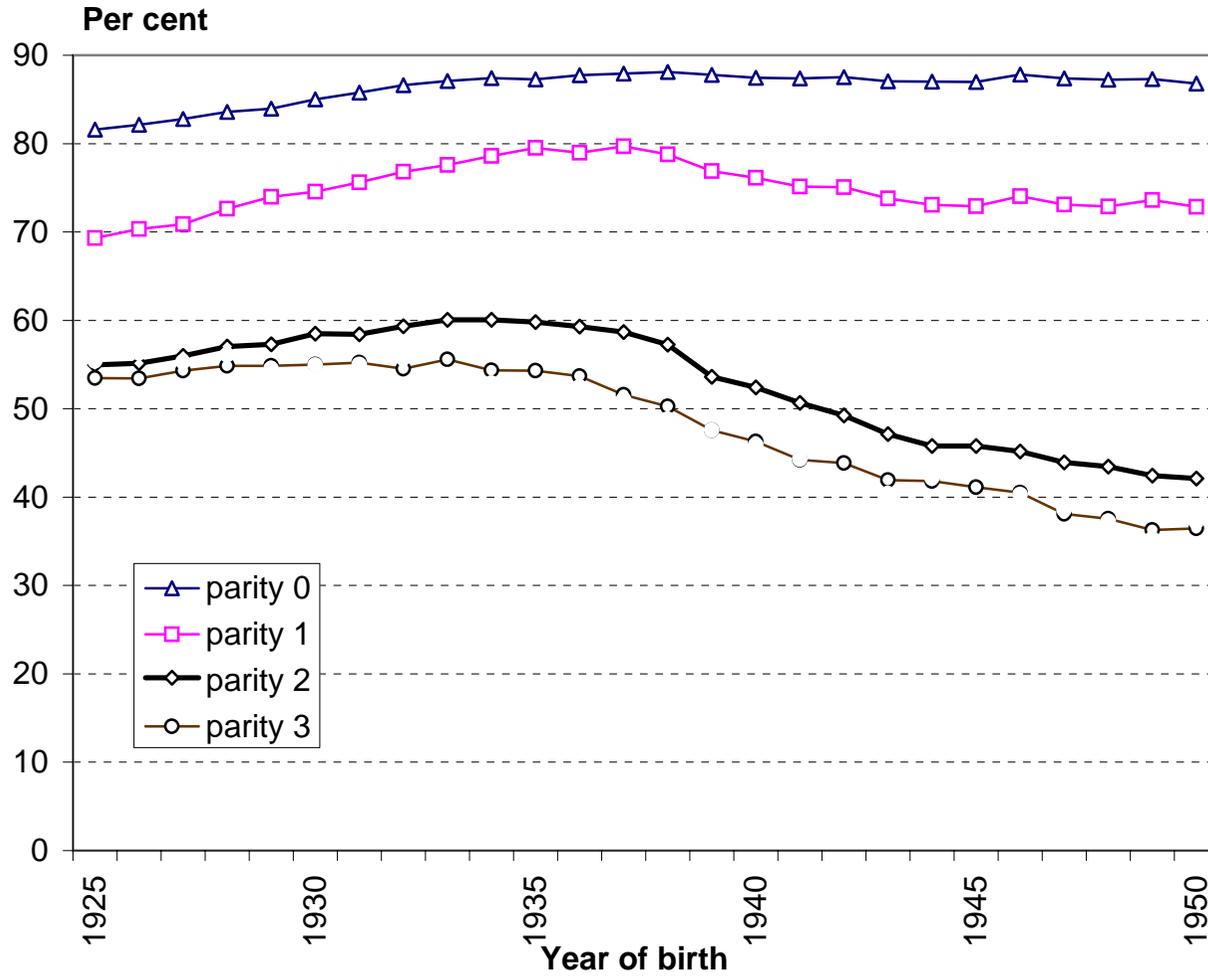
<sup>b</sup> Age of mother at second birth, grouped separately for each individual educational level.

<sup>c</sup> *p*-values for covariates are given in small italics.

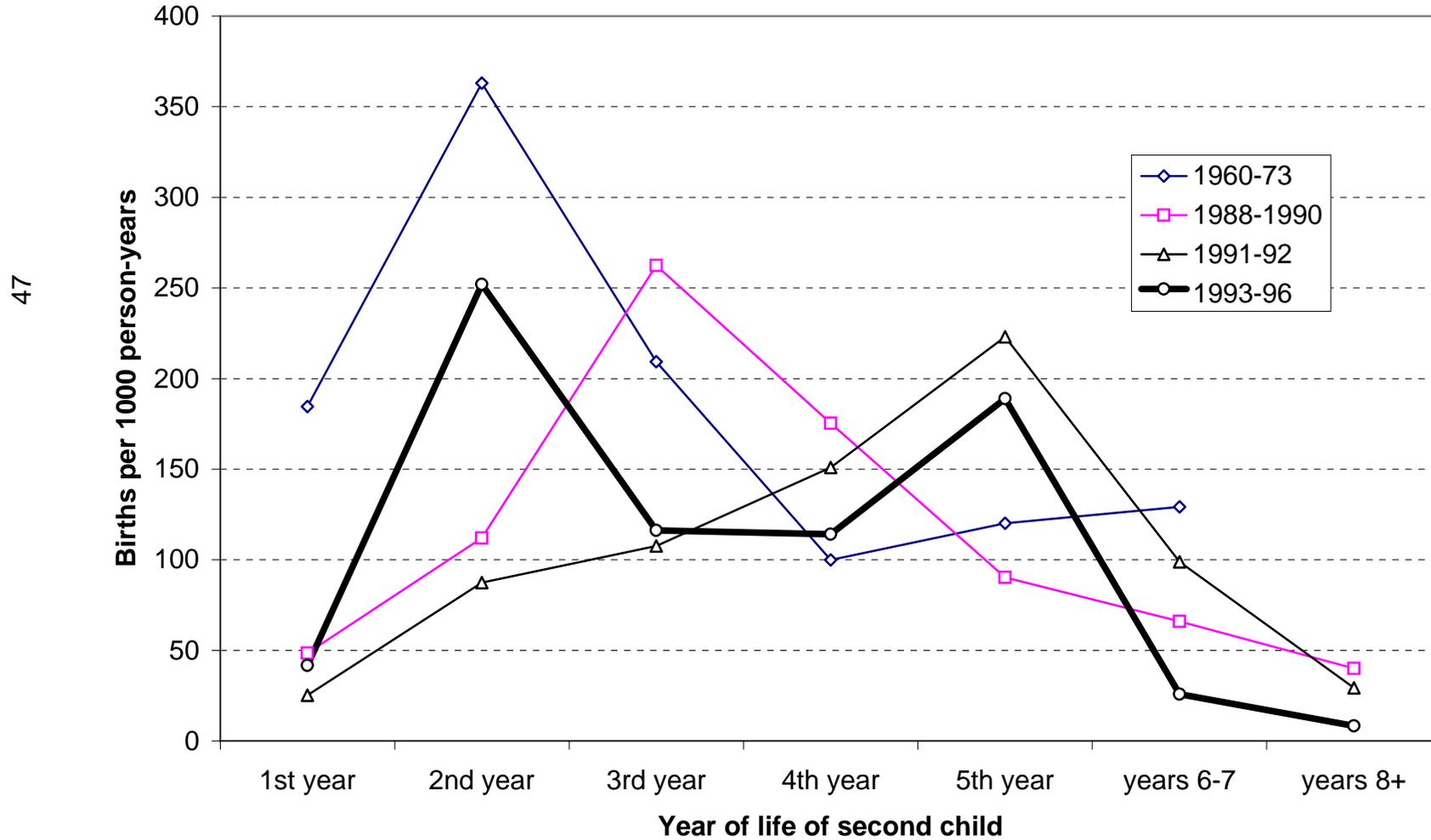
Figure 1. Total fertility in Austria, 1956-1997



**Figure 2. Probability of having a(nother) child, by current parity.  
Austrian women born in 1925-1950**



**Figure 3. Baseline intensities of the third-birth event for selected calendar periods, standardized for all other covariates**



**Figure 4. Baseline intensities of the third birth event, by the woman's current labor-force status, standardized for all other covariates**

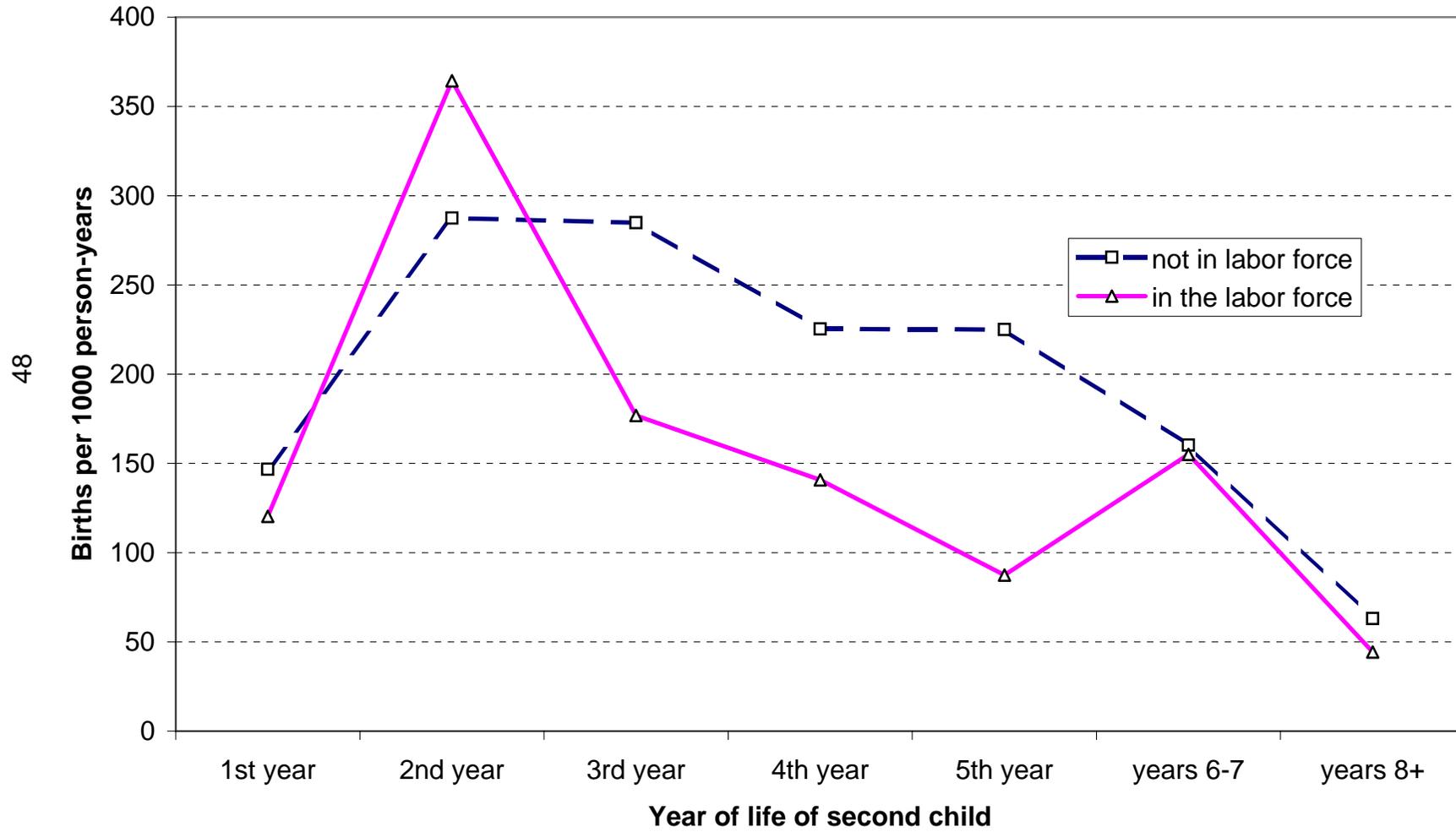
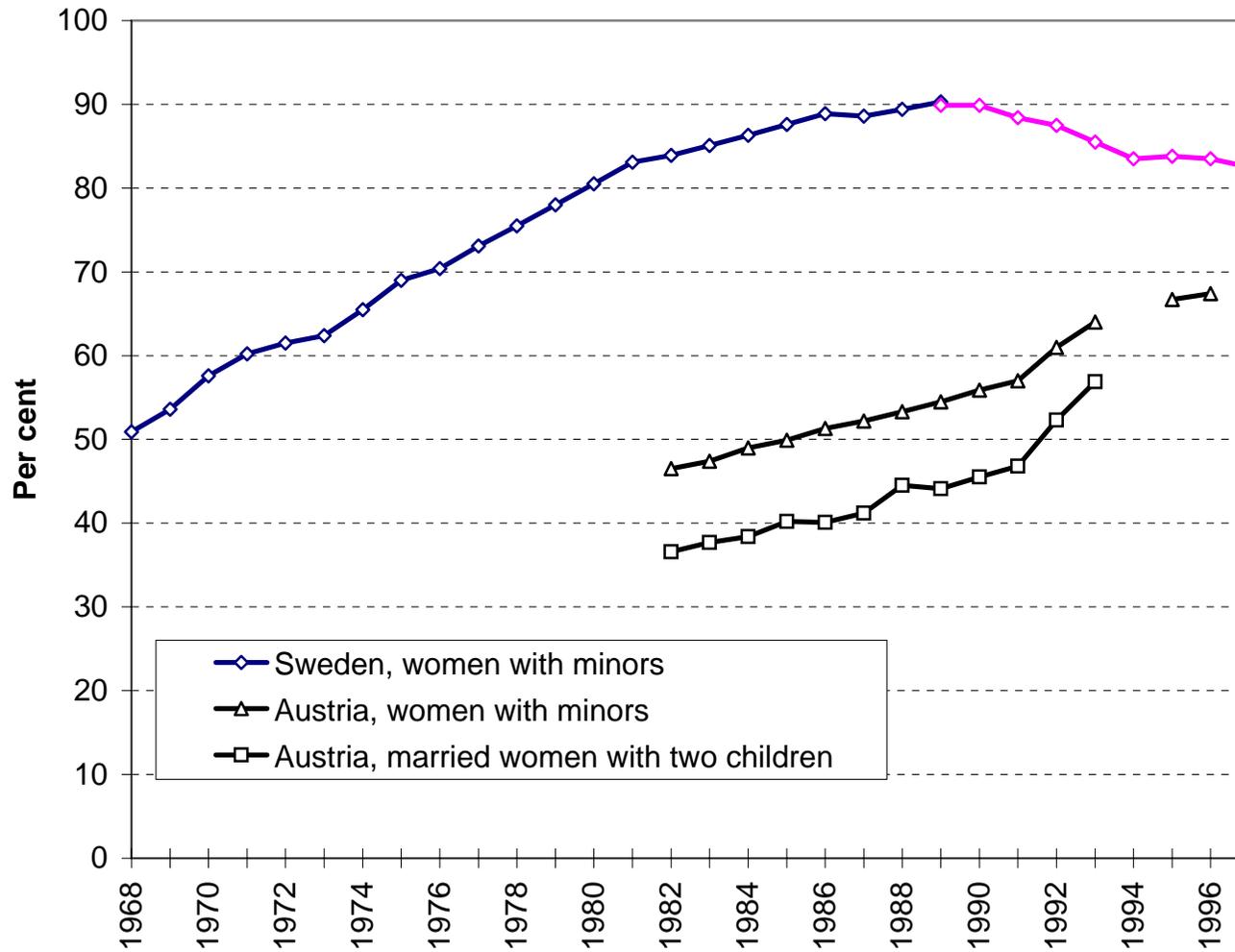


Figure 5. Per cent in the labor force among women with minors.  
Sweden and Austria

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**Figure 6. Part-time work by women in Sweden and Austria.**

Per cent

