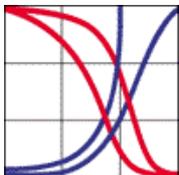


(Re-)Entry into the Labor Force after First Childbirth

-An Analysis for Austria

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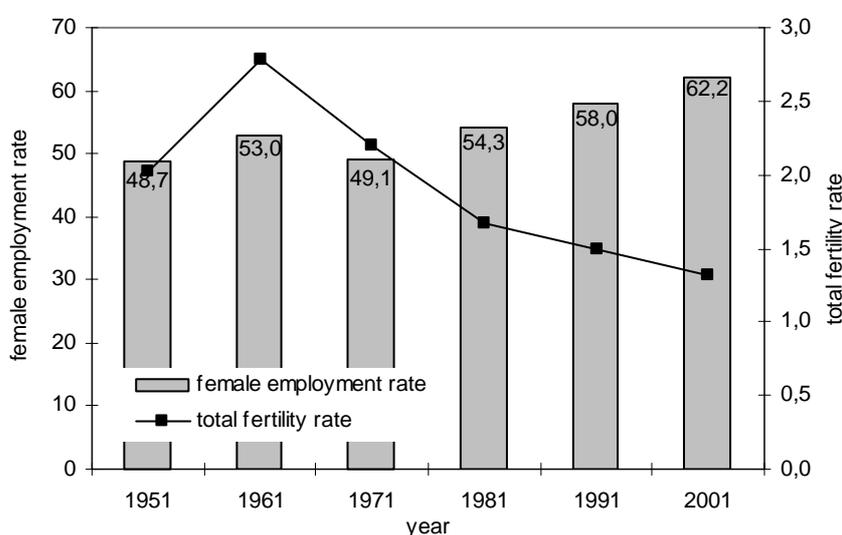
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1 Introduction

In many modern societies a negative relationship between women's employment and fertility can be observed. For Austria, these two contrary trends are depicted in Figure 1 below.

However, the causality between fertility and employment is ambiguous and has been focus of numerous studies (e.g. Bernhardt, 1993; Brewster & Rindfuss, 2000; Engelhardt & Prskawetz, 2002). On the one hand fertility has an obvious negative influence on work-force participation, since the presence of a new born restrains mothers from being engaged in paid market work. On the other hand women's employment and career plans adversely affect fertility. The present research concentrates exclusively on the prior causal direction, by analyzing the duration of career breaks related to first childbirth.

Figure 1: Women's employment rate and total fertility rate for Austria, 1951-2001



Source: Statistik Austria, Statistical yearbook 2003

The increase in women's employment accompanied by the decrease in fertility can be interpreted as incompatibility between market work and motherhood. Especially, at the birth of the first child, the interdependence between work and fertility behavior is particularly strong.

However, the positive trend in women's employment has to be scrutinized carefully. First, the increase in employment is partly caused by increases in atypical employment, i.e. part-time and marginal employment. Second, statutory parental leave duration has been extended gradually throughout the observation period and individuals on leave are counted among the employed, thereby (artificially) contributing to the increase in the employment rate.

Despite the increase in maternal employment in Austria, women are still the main providers of childcare. Usually, the arrival of a newborn leads to a transition from a dual-earner to a single earner household. Hence, while males have a more or less continuous work history, women still interrupt their job because of family-related reasons (Statistik Austria, 2002).

Several studies have pointed out that socio-political settings in Austria do not favor women's labor force participation but instead enforce the traditional gender roles (Kapeller et al., 1999; Hoem et al., 2001; Auer, 2002).

In her comparative study on attitudes towards maternal employment, Scott (1999) finds that among European countries the normative acceptance of employed mothers is lowest in Austria. Austrians, more than any other nation, believe that a child suffers if it's mother participates in the labor force.

In light of Scott's results, finding factors that accelerate the job take-up after birth in Austria is particularly interesting. Thus, this report focuses on the work-family balance by examining the timing of (re-)entry into the labor market. Aim of this research is to discover which factors affect the length of time spent outside the labor force after first childbirth. Women who gave birth to their first child between 1960 and 1996 in Austria were followed until they (re-)entered the labor force, or alternatively until the date of censoring. While the subsequent section discusses findings of related literature, section 3 briefly presents the conceptual background. The data, sample, variables and hypotheses are described in section 4. Thereafter, multivariate proportional hazard models of the rate and timing of labor market (re-)entry following first birth are estimated and the results are discussed in section 5. This report ends with a discussion and gives a brief outlook of future research possibilities on this topic.

2 Review of Literature

Due to their increased labor force participation, women's employment behavior around childbirth has received increased attention in recent research. Numerous authors have investigated the dynamics of labor force exits and entries connected with childbirth in order to find out how the presence of children and/or family policies influence the labor market status of women. Only a few studies and their major findings are mentioned in this section.

Joesch's (1994) findings suggest that work interruptions around childbirth in the US are often too short to justify lower wages and career disadvantages. In her sample, 18% of women interrupted work for one month or less and by the beginning of the fifth month the probability of having started employment again was 50%. Work during pregnancy had the largest effect on reentering the labor market.

Barrow (1998) also investigates the return-to-work decision for new partner-present mothers in the US who have some pre-birth labor force attachment. In her model child care expenditures enter the mother's budget constraint thereby affecting her employment decision. According to Barrow's results, higher child care costs and higher other family income have a negative effect on the probability of returning to work while potential wages positively affect reentry.

In another study for the US, Greenstein (1989) finds that for married husband-present women the net effect of human capital variables exceeds that of the marital and birth timing factors.

Leibowitz et al. (1992) analyzed the employment reentry of American women who had a first birth in the 80s and worked during pregnancy. They found that women who worked longer into pregnancy are more likely to return sooner after delivery. Especially higher wages are a driving factor of pulling women back into employment.

Rønsen and Sundström (1999, 2001) considered the joint effect of parental leave and child care programs on female labor supply, by investigating the return to work decision of mothers in three

Scandinavian countries. They estimate both full- and part-time return rates for first- and second-time mothers, independent of their preceded work histories. Their analyses reveal that generally mothers who are entitled to maternity leave return to work sooner than non-entitled mothers both after first and second birth. However, as the leave duration lengthens, differences between the two groups diminish.

3 Theoretical Framework

Economic theory and especially labor market theory provides the theoretical background of this present research. The analysis is embedded in an intertemporal labor supply model, in which fertility is exogenously determined. Two crucial wage concepts are relevant in this context: the full wage $w(t)$ and the reservation wage $r(t)$. The full wage reflects the total opportunity costs of not working for pay. Therefore it consists not only of the current market wage the mother could earn but also accounts for the present value of the reduction in forthcoming earnings connected with depreciation and non-accumulation of human capital. The reservation wage is the lowest market wage rate at which the mother is willing to work, thereby reflecting the utility of her home time. The birth of a child raises the reservation wage, by making the time spent at home more valuable. However, as the children age, they become less time intensive but more goods-intensive and consequently market work becomes more rewarding.

According to the concept of opportunity costs, a mother maximizes her discounted expected lifetime utility by entering employment as soon as her full wage exceeds her reservation wage, i.e. when $w(t) > r(t)$.

4 Data, Method and Variables

4.1 Data: The Austrian Fertility and Family Survey

The Austrian 'Fertility and Family Survey' (FFS) constitutes the database for the empirical analysis. The FFS was coordinated internationally by the Population Activities Unit (PAU) of the Economic Commission of Europe (UNECE) and was carried out in more than twenty countries. The Austrian FFS was conducted from December 1995 until May 1996. It contains retrospective histories regarding education, partnership, residence, occupation and childbearing. Overall, 6120 individuals aged 20-54 have been interviewed, whereof 4,581 were females and 1,539 were males. The sample, which also includes non-Austrian citizens, is considered to be representative both on a national level and a federal level¹.

Of the 4,581 women in the Austrian FFS, 3,518 reported to have at least one child. However, I considered only those cases where the first child was the woman's own biological child (i.e. not adopted, no stepchild), where the mother was at least 16 years old at the time of childbirth, where the first birth was not a multiple birth and where the mother was resident in Austria at the time of childbirth. Further I deleted a few cases where the child was born in the month of the interview or when the child died in the month of birth. Finally, I had to delete a limited number of cases with

¹ However, crucial for the analyses conducted here is the fact that women in the labor force are somewhat underrepresented among the respondents (Hoem et al., 2001).

obviously incorrect and/or incomplete answers. Thus, I ended up with a final sample size of 3353 women.

4.2 Variables and hypotheses

The dependent variable in the following analyses is the length of time a woman spends outside the labor force after the birth of her first child. The time period has been calculated by simply summing up the total number of months between first childbirth² and the first month when the women reported being in the work force (again). According to this classification I count parental leave episodes as periods of non-employment.

Post-birth labor force participation is defined the first post-natal employment record, irrespective of the number of hours worked and the duration of the job. However, many women did not (re-)enter at all or ended their employment break after such a long time that we cannot actually speak of *reentry*. Thus, observations were censored latest at the first child's sixth birthday, or alternatively when the first child died, at the birth of a second child or at the time of the interview, whichever event came first.

Information about whether an employment was interrupted due to first childbirth is drawn just from gaps in the employment history. Since from the FFS questionnaire we do not know the actual reason for the break (layoff, illness, parental leave, etc.) I defined a job end/interruption as being due to birth if it was ended/interrupted six months before birth up to three months after childbirth.

The following paragraphs give details about the explanatory variables used in the analyses. All variables have been categorized and for each variable one category has been chosen to be part of the baseline group.

- *Work Status*

This variable comprises the work/employment status immediately before birth (i.e. during pregnancy) and serves as an indicator of labor market attachment. Women can either work or not work six months before birth and they can interrupt their job or be continuously employed. Being not employed before birth might be due to various motives: First, a woman might have never worked before delivery (status 1). Or she might have some labor market experience but ended her job long before delivery because of non birth-related reasons (status 2), e.g. unemployment. If the woman was still employed six months before birth and if she (temporarily) ended her job within the following nine months, she has been categorized as interrupted her job due to childbirth (status 3). However, a considerable number of women did not report any discontinuity in their employment around first childbirth (status 4), although around 90% of employed women take parental leave (Auer, 2002). This phenomenon might be caused by misinterpretation, since for women on leave

² Practically, due to the mother protection law mothers are not allowed to be engaged in market work during maternity leave (currently eight weeks pre- and post-birth) Therefore, withdrawal from the labor force actually takes place before delivery and reentry is forbidden by law within the two months immediately following childbirth. Nevertheless I take the birth of the child as a starting point in my analyses and study only post-birth labor market absences, including maternity and parental leave. Thus, the dependent duration variable can also be interpreted as the age of the first child.

it might be ambiguous whether to classify themselves as being inside or outside the labor force (Hoem et al., 2001).

Summing up, four types of women are distinguished:

- Work status 1: never worked before birth
- Work status 2: not worked immediately before birth
- Work status 3: interruption of employment due to childbirth
- Work status 4: no interruption reported

The first two groups of women cannot *reenter* the labor force since they were not engaged in market work (immediately) before delivery. Therefore one can only speak about *entering* the labor market. Women belonging to status 2 have to be analyzed separately from those in status 3, since the first group exhibits a more intermittent work history. This indicates less labor market attachment and might also reflect a lesser degree of work commitment. Due to the job security while on parental leave we expect women of status 3 to reenter fastest, since they in general can return to their pre-birth workplace. Women in status 4 constitute a special case and – in order to avoid biased results – they have to be treated carefully: At first, they are assumed to have reentered in the third month after childbirth, i.e. at the end of maternity leave. Thus, I treat them like women of work status 3. However, since I do not have actual information about their employment behavior around childbirth I leave them aside and in a second step I calculate only the risk of (re-)entry for individuals where I have data on employment exits/entries.

- *Calendar time period*

This time-varying covariate accounts for major changes in birth-related family policy. Family policy in Austria has a long tradition and is one of the most extensive in Europe (Auer, 2002). The variable differentiates three periods which are marked by new regulations in parental leave law (Thenner, 1999; Münz & Neyer, 1986).

1960-73: In 1961 the maximum parental leave period was prolonged from six to ten months, i.e. until the child's first birthday. At the same time, a parental leave allowance was introduced on a means-tested basis. This benefit amounted to 100% of unemployment benefits for lone mothers, half thereof for married women with further reductions according to household income.

1974-June 90: In 1974, the paid maternity leave period was extended from six to eight weeks pre- and post-birth. Moreover, the formerly income-oriented parental leave benefit was modified into a flat rate benefit. Those in need (e.g. lone mothers and low-income families) receive a 50% higher benefit rate ('erhöhtes Karenzgeld').

July 1990-96: In 1990, the parental leave legislation was fundamentally modified³. From July 1990 on, the maximum parental leave period was extended up to the child's second birthday.

³ From January 1990 on, for the first time fathers were entitled to take parental leave. However, since the number of fathers taking leave is negligible (1% of those on parental leave), I do not expect any consequences on the mother's workforce (re-)entry.

Simultaneously, the option of taking part-time leave⁴ between the child's first and third birthday was set up.

Extensions of the parental leave period are hypothesized to delay the return to the labor market, since eligible mothers generally use their full entitlement and hardly ever (re-)enter before the end of the statutory leave (Hoem et al., 2001; Rønsen & Sundström, 2002). Because parental leave regulations in Austria became more generous over time, we expect a negative effect on the rate of (re-)entry.

- *Age*

The first human capital variable entered into the model is age. Age is measured as age at first birth in months and thus it is a fixed covariate. From theory we would expect a negative effect of age on the timing of labor market (re-)entry. One reason is that younger women have a longer future planning and working horizon, so from a human capital point of view it is rational for them to participate in the labor market rather soon after childbirth to avoid punishment caused by human capital non-accumulation and depreciation. Another line of argument would be that younger women are likely to be more flexible in most regards, and they generally do things faster – which also holds for ending their career break. Moreover, older women might have been longing for a child a long time so that they now really want to stay at home for a while. In contrast to young women they have most probably already accumulated some wealth so that they also can afford to do this.

- *Education*

This fixed covariate is not defined as the highest educational attainment, but the latest education successfully finished before delivery. This can be justified, since the latest type of education might be the one most relevant for the labor market. Originally, I distinguished four different educational categories (basic compulsory education, lower secondary, upper secondary, and tertiary)⁵. However, since differences in (re-)entry behavior between the first three categories seemed to be negligible, I subsumed them into one single category, thereby producing the dummy variable *tertiary education*. Education serves as an indicator for full wage. Better educated women are expected to have higher relative risks of (re-)entering the workforce since their higher earning potential raises the opportunity costs of being outside the labor market. Moreover, since they earn more, higher educated mothers can afford expensive childcare more easily, which further speeds up (re-)entry to the workforce.

- *Partner status*

This variable refers to the partner status at first birth. It combines the union status with the *highest* education of the *birth-union partner* at the beginning of the union. For the partner's educational attainment, educational levels have been combined differently from mother's education, e.g. compulsory education and lower secondary education have been combined to a non-Matura category

⁴ The work time has to be decreased by at least 2/5 to receive part-time parental leave benefit (50% of the 'normal' parental leave benefit at maximum).

⁵ Women who stated that they have not completed compulsory school were assigned the category compulsory school. In a few cases, highest education at the time of first childbirth was not identifiable. If this happened, I used the highest education at the time of the interview instead.

(*low education*), while the educational levels higher secondary and tertiary education have been merged into a single Matura category (*high education*). Periods of cohabitation are characterized by living together in the same household without being married. The beginning of a cohabitation period is defined by the date of establishing a common household, it may end in case of marriage or by moving out of the common household. Thus, when cohabiting, the woman might also be divorced, widowed, etc. The category cohabitation has been chosen to indicate that a partner has been present at the time of the birth. Women in the category *not living with partner* are not necessarily single women, but if they have a partner he is not living in the same household. Thus, altogether five different categories can be distinguished to specify the presence and education of a partner:

- Not living with partner
- Cohabiting/ low education of partner
- Cohabiting/ high education of partner
- Married/ low education of partner
- Married/ high education of partner

Due to financial needs I expect lone mothers - who might be overrepresented in the *not living with a partner* category - to (re-)enter the labor force faster than cohabiting or married women. Further, higher education reflects a higher earnings potential of the partner, so I anticipate this to delay women's (re-)entry.

- *Urbanness*

The dummy variable *urbanness* controls for regional differences within Austria. Being the capital and the only city with more than one million inhabitants, living conditions in Vienna are somewhat different from the rest of the country. In Vienna, the supply of institutional childcare is higher and more manifold than in other parts of Austria (Kapeller et al., 1999). Besides, labor demand is comparatively higher in Vienna which also affects labor market participation of mothers. The variable therefore distinguishes whether a woman lived in Vienna at the time of first childbirth. Living there is expected to speed up women's (re-)entry to the work force, mainly because of the superior provision of childcare.

- *Religiousness*

Austria is a predominantly catholic country and this dummy variable is supposed to measure traditional attitudes. From the original five categories (very religious, rather religious; rather not religious; not at all religious; no answer) the first two and the consequent two have been combined into a dummy variable with the categories *religious* and *not religious*. Women belonging to the last category have been excluded from the sample. The variable is not measured at the time of childbirth, but at the time of the interview. According to Hoem & Hoem (1989, cit. in Hoem et al., 2001), religiousness is more or less stable throughout adult life and the time of measurement therefore is less relevant. Mothers which classify themselves as being not religious are expected to have higher relative risks of (re-)entering the labor market.

All these independent variables have been used to estimate their effect on the baseline rate of (re-)entry into the workforce after first childbirth. Table 1 presents the descriptive statistics of all variables included in the analysis. It illustrates how total time at risk is distributed over the vari-

able categories. The total sample is split into five groups of women according to their pre-birth labor market status: The first column refers to the whole sample. In the first column women who did not report any interruption are treated as they had interrupted and immediately returned after maternity leave (thus, work status 3 equals work status 4). The remaining four columns each refer to a type of pre-birth labor status.

As displayed in Table 1, women who did not report any interruption gave birth to their first child disproportionately more often in the first calendar time period (1960-1973). In this period, statutory parental leave duration and benefits were limited and so women simply could not afford any interruption of employment. Not surprisingly, the age variable shows that women without pre-birth work experience are the youngest in the sample. As can be seen from the education-variable, mothers with tertiary education constitute a very small group. However, the proportion of high educated mothers is highest in the group of women without specified workforce absence (last column). High education entails high opportunity costs of non-employment and helps to explain the continuous work pattern of these women. Regarding their partner status, mothers without prior workforce attachment exhibit the highest share among women living without a partner at the time of childbirth. This is another indicator of their relatively younger age. Urbanness shows a similar distribution in all five groups, the majority of women living in rural areas. The same holds for religiosity: across all groups around 70% characterize themselves as being religious. The percentage is just slightly lower for those without any pre-birth work experience.

Table 1: Descriptive statistics of variables used in the analyses

	total sample (work status 4=3)	no pre-birth work	no work immediately before birth	interruption & reentry	no reported interruption
work status*					
never worked before birth	19,89	100,00			
no work immediately before interruption	13,30		100,00		
(non-)interruption	66,81			100,00	100,00
calendar time**					
1960-1973	17,89	27,12	17,89	14,14	38,05
1974-June90	56,91	55,21	57,07	57,78	48,45
July1990-96	25,20	17,66	25,03	28,08	13,50
age*					
16-20	26,62	59,97	17,92	18,13	25,28
21-22	23,94	18,73	26,48	24,99	24,63
23-25	23,91	13,14	27,12	26,61	23,34
26+	25,53	8,16	28,48	30,26	26,74
education*					
non-tertiary	98,06	99,79	99,09	97,37	96,39
tertiary	1,94	0,21	0,91	2,63	3,61
partner status*					
no union	18,14	26,73	14,67	16,05	21,24
cohabitation/low	16,34	16,63	15,18	16,57	14,57
cohabitation/high	3,93	4,84	4,22	3,57	4,51
marriage/low	47,40	38,87	55,19	48,47	46,52
marriage/high	14,18	12,93	10,74	15,33	13,16
urbanness*					
not vienna	86,75	87,63	86,69	86,46	87,32
vienna	13,25	12,37	13,31	13,54	12,68
religiousness*					
not religious	30,31	33,64	29,05	29,66	27,64
religious	69,69	66,36	70,95	70,34	72,36
total time at risk =	83.714	16.649	11.138	53.601	2.326

* fixed covariate

**time-varying covariate

4.3 The method: Event history analysis

Allison (1984) defines an 'event' as a qualitative change occurring at a specific point in time. Thus, event history in its simplest form can be described as a set of longitudinal records of when events happen to a specific group of individuals. Analyzing such data with conventional statistical techniques like multiple regression might lead to severe biases or to a loss of information when analyzing longitudinal data (Allison, 1984). The advantage of event history analysis is the inclusion of censored cases and time-varying covariates in the analysis.

The analyses conducted in this paper is based on multiplicative intensity-regression which allows finding the specific effect of one covariate while keeping all other covariates in the model constant. The (re-)entry intensity $h(t)$ is the probability that a mother will (re-)enter the labor market

next month, given her characteristics. The multiplicative intensity model (*proportional hazard model*) without any interactions has the form

$$h(t) = a_{i(t)} b_j c_{k(t)} d_l e_m f_n g_o h_p,$$

where $a_{i(t)}$ is the underlying baseline intensity (*hazard*) or alternatively the effect of the first child's age. b_j is a parameter for the impact of the pre-birth work status, $c_{j(t)}$ is the parameter for the calendar time (time-varying) and etc. For each covariate included in the analysis a baseline level has been chosen. The piecewise constant baseline intensity is modified by the parameters of the (fixed or time-varying) explanatory variables in a multiplicative way. Thus, a coefficient greater than 1 indicates that this variable increases the probability of (re-)entry at each point in time, while a coefficient less than 1 indicates that a given variable decreases the probability of (re-)entry. The likelihood values which are displayed for each model specify whether the inclusion of an additional variable significantly increases the model fit. The maximum likelihood method is used for estimating the model parameters in an iteration process.

The hazard function $h(t)$ gives the probability that an event (i.e. re-entering the workforce after first childbirth) occurs at time t to a given individual, given the event has not happened before. The hazard depicts both the occurrence and the timing of an event (Allison, 1984). Over time, it declines due to a sorting effect because more and more individuals with the non-observed preference for non-working dominate the group of people still out of the labor force⁶. The survival function $S(t)$ gives the probability that a given woman has not (re-)entered the paid labor force by time t .

Starting from first childbirth, I follow all women in the sample until they make their first post-natal transition to employment, regardless whether this is part-time or fulltime work. However, I right censor at the death of the first child, at birth of the second child, at the first child's sixth birthday or at the time of the interview, whichever occurs first. The only time-varying covariate included in the model is calendar time period to account for changes in family policy. All other variables are fixed variables, i.e. they are measured at the time of first birth. In case of education this seems reasonable, since after entry into motherhood women rarely take part in any educational activities (Hoem et al., 2001).

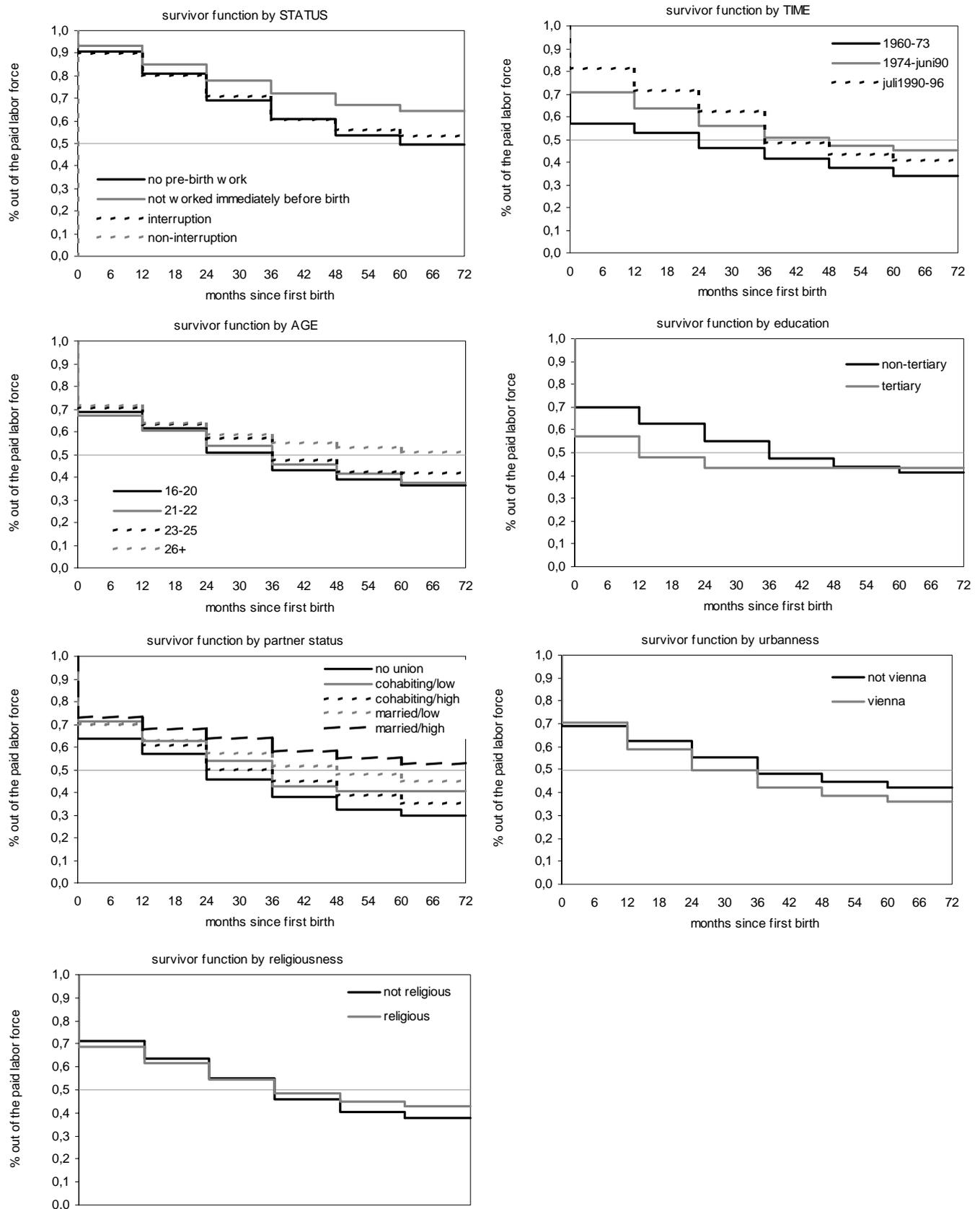
Figure 2 plots the proportion of women who have not (re-)entered the labor market for all the variables used in the analyses. Regarding the employment status before birth we observe a quite unexpected phenomenon: Those who never held a job before childbirth have a similar (re-)entry pattern like those who interrupted their job because of childbirth. Contrary to these two groups of women, those who got their child while on a non birth-related career break exhibit a noticeably slower (re-)entry behavior. An explanation therefore might lie in their discontinuous professional life which possibly indicates less labor force commitment. Having a look at calendar time period it becomes obvious that the extension of parental leave duration and related benefits slows down the (re-)entry into employment within the first three years after birth. From the third graph we see that variation in the timing of (re-)entry across age groups is negligible during the first 24 months. Once the child is two years old, it appears that mothers who were aged 26 or older when giving birth (re-)enter slower than younger ones. Survivor functions by education display that 50% of

⁶ However, preferences for work are partly observable by differences in the level of education and prior labor market experience (Pylkkänen & Smith, 2003).

women holding a university degree have reentered at their first child's first birthday. Interestingly, there are no changes in the (re-)entry pattern two years after childbirth. The mean duration of labor market absence due to childbirth for mothers without university degree is three years. As regards union status at the time of first childbirth, we can see that mothers not living with a partner reentered fastest. Half of them are back in the labor market two years after birth, whereas living with the partner in the same household delays (re-)entry notably. For married women a differentiation between the educational level of the partner is visible: being wife of a high-educated husband further postpones the end of the birth-related career break. Except for the first post-birth year, mothers living in Vienna reenter slightly faster than others. As depicted in the last graph of Figure 2, the (re-)entry behavior of those being not religious is more or less identical to the group of religious mothers, at least until the child's third birthday.

Altogether, these to some extent notable differences in the (re-)entry behavior promote a deeper investigation, which is done in the forthcoming chapter.

Figure 2: survivor functions of employment (re-)entry after first birth



5 RESULTS

The first model in Table 2 provides the baseline intensity of (re-)entering the labor market. In order to avoid a potential selection bias by leaving aside women who did not report any interruption (Rønsen & Sundström, 2002), these women have been coded as having entered the labor market immediately after the end of maternity leave (i.e. within 3 months after childbirth). Thus, women of work status 4 are treated as women of status 3 and thus have been analyzed together. Due to the above assumption the baseline hazard is highest within the first three months after birth. Thereafter the risk drops and remains low for the rest of the observation period. Model 2 additionally includes a variable controlling for the pre-birth labor market status. Compared to the reference category of women who interrupted their job due to first childbirth, the relative risk of entering the workforce is only half for women with no pre-birth labor-market attachment and just a third if the woman already has some labor market experience but was not employed at the beginning of pregnancy. Adding calendar time period in model 3 reveals a steady decline in the risk of labor market reentry over time. Compared to the reference category of women who gave birth to their first child in the 60s or early 70s, when statutory parental leave duration was relatively short and benefits were reserved only for lone mothers, the risk of (re-)entering the workforce decreased over time when leave durations were prolonged and benefits became more generous. Age at first childbirth is the first human capital variable entered into the model. As can be clearly seen, women up to the age of 20 have significantly higher intensities of taking up market work after giving birth to their first child than do women aged 26 or older. With increasing age, the risk of entering the labor market decreases.

As regards education (model 5), the post-birth employment intensity is 43% higher for mothers having tertiary education compared to lower educated mothers. However, the insignificance of this factor is due to the very small number of women in the sample holding a university degree.

In model 6 the partner status variable – which comprises marital status and the partner's education – is entered. In the presented model, women not living with a partner have the highest risk of post-birth labor market participation while the opposite is true for married mothers. However, not only the family status but also the partner's education matters: among married mothers, those being married to a high educated partner have considerably lower employment intensities than those having a partner without 'Matura'. Interestingly, when controlling for the presence of a partner and his education, the effect of the mother's own education becomes also more pronounced. Model 7 illustrates that (re-)entry intensities are higher in Vienna than in the rest of Austria. Probable explanations therefore are the better conditions regarding childcare supply and job vacancies. Moreover, attitudes in Austria's capital are likely to be less conservative compared to rural areas. The last model shows that post-birth job take-up risks are more or less the same whether women are religious or not.

It has to be noted, that in contrast to the baseline model 1, the final model shows that the baseline risk is not steadily decreasing. Instead, it slightly increases at the child's third birthday. This seems plausible, since in Austria most children attend kindergarten from the age of three on (Statistik Austria, 2002). This seems to impact mother's reentry behavior.

Table 2: Relative risk of (re-)entry into the labor market after first childbirth, controlled for employment status before birth, calendar time period, age at first child-birth, education, union status& education of partner, urbanness, and religiousness (absolute risk per 1000 woman months)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
months since first birth*								
0-3	0.08	0.09	0.13	0.11	0.10	0.10	0.10	0.10
4-12	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01
13-24	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01
25-36	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01
37-48	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
49-60	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
61-72	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
work status*								
no pre-birth work		0.51 ***	0.48 ***	0.44 ***	0.44 ***	0.43 ***	0.43 ***	0.43 ***
not worked before birth		0.33 ***	0.33 ***	0.33 ***	0.33 ***	0.33 ***	0.33 ***	0.33 ***
interruption and reentry		1.00	1.00	1.00	1.00	1.00	1.00	1.00
calendar time**								
1960-1973			1.00	1.00	1.00	1.00	1.00	1.00
1974-June90			0.67 ***	0.71 ***	0.71 ***	0.70 ***	0.70 ***	0.70 ***
July1990-96			0.59 ***	0.64 ***	0.64 ***	0.61 ***	0.61 ***	0.61 ***
age*								
16-20				1.34 ***	1.38 ***	1.26 ***	1.26 ***	1.26 ***
21-22				1.19 **	1.23 ***	1.17 *	1.18 **	1.18 **
23-25				1.08	1.11	1.10	1.10	1.10
26+				1.00	1.00	1.00	1.00	1.00
education*								
non-tertiary					1.00	1.00	1.00	1.00
tertiary					1.43 **	1.54 **	1.55 **	1.54 **
partner status*								
no union						1.38 ***	1.39 ***	1.39 ***
cohabitation/low						1.14 *	1.14 *	1.14 *
cohabitation/high						1.32 **	1.32 **	1.31 **
marriage/low						1.00	1.00	1.00
marriage/high						0.85 *	0.85 *	0.85 *
urbanness*								
not vienna							1.00	1.00
vienna							1.15 *	1.14 *
religiousness*								
not religious								1.02
religious								1.00
- Log Likelihood	-3776.1466	-3691.5969	-3663.3431	-3655.9255	-3653.7441	-3636.9376	-3635.305	-3635.2151
degrees of freedom	6	8	10	13	14	18	19	20

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

As can be seen from Table 2, the timing of (re-)entry into the labor market after first childbirth highly depends on whether or not the woman was engaged in market work (immediately) before birth. Therefore it seems reasonable to make separate analysis for women according to their work status. Moreover, in the preceding analysis women who did not report any interruption were assumed to have interrupted their job and returned to their workplace immediately after the end of maternity leave, i.e. within three months after childbirth. However, since this assumption may bias the results, the new calculations presented in Table 3 consider only women where I have data on their employment exits/entries. Table 3 therefore presents the relative risks of (re-)entering the workforce for women who interrupted their job because of birth (column 2), those who never held a job before first birth (model 2) and for those who intermitted/ended a job due to other reasons before the childbirth. Thus, the group of women who did not report any interruption is left aside. The first column in the table below replicates the final model of Table 2 and just serves as comparison. When comparing the three work status groups (column 2 to 4) it can be seen the baseline hazard of (re-)entering the labor force is highest for those who interrupted their pre-birth job due to childbirth. This is reasonable since most women in this group can return to their prior workplace because of job security while on parental leave. Contrary to Model 8 which also includes women who did not report any interruption, the impact of calendar time period on the hazard of (re-)entry is no longer significant for any group of women according to their pre-birth work status. Thus, the significant decline in relative risks is entirely due to a decreasing propensity of women reporting no job interruption at all.

For all 3 different groups of women we see a similar effect of age on the intensity to become engaged in market work after first childbirth. The effect is strongest for women without any job experience (column 3) which is no surprise since in Table 1 we already saw that women who never worked are the youngest ones.

Regarding the impact of education on the timing of labor market (re-)entry a striking difference between the three pre-birth work status groups can be observed: For women who have never worked before childbirth the entry risk seems to be extraordinarily high if they hold a university degree compared to the reference category without tertiary education. However, this effect is caused by the small number of women belonging to this special group (see Table 1). For the two other single work status groups the effect of education on (re-)entry to the labor market lacks significance.

Not living with a partner is connected with significantly higher (re-)entry risk only for mothers who have not been engaged in market work immediately before the birth of their child. In all three groups of work status, the risk of participating in the labor market after childbirth is lowest for women married to a high educated partner. However, for most other categories risks are insignificant but differ between the groups.

Only for women who interrupted their job living in Vienna at the time of childbirth is connected with an almost 50% higher relative risk of (re-)entry to the labor force. Concerning religiousness relative risks are more or less the same regardless of the mother's pre-birth work status.

Table 3: Relative risks of (re-)entering the workforce, separately for different work statuses before birth, controlled for calendar time period, education, partner status, mother's birth cohort, urbanness and religiousness (absolute risk per 1000 woman months)

	Model 8	interruption	never worked	not immediately worked before birth
months since first birth*				
0-3	0.10	0.00	0.00	0.00
4-12	0.01	0.01	0.00	0.00
13-24	0.01	0.01	0.00	0.00
25-36	0.01	0.01	0.00	0.00
37-48	0.02	0.01	0.00	0.00
49-60	0.01	0.00	0.00	0.00
61-72	0.01	0.00	0.00	0.00
work status				
no pre-birth work	0.43 ***	-	-	-
not worked before birth	0.33 ***	-	-	-
interruption and reentry	1.00	-	-	-
calendar time**				
1960-1973	1.00	1.00	1.00	1.00
1974-June90	0.70 ***	0.86	1.07	1.14
July1990-96	0.61 ***	0.98	0.88	0.87
age*				
16-20	1.26 ***	1.39 **	21.36 ***	1.57
21-22	1.18 **	1.59 ***	14.25 **	2.63 **
23-25	1.10	1.49 ***	10.71 **	1.84
26+	1.00	1.00	1.00	1.00
education*				
non-tertiary	1.00	1.00	1.00	1.00
tertiary	1.54 **	1.29	62.01 ***	5.41
partner status*				
no union	1.39 ***	1.22	2.05 ***	2.44 ***
cohabitation/low	1.14 *	1.30 **	0.91	1.01
cohabitation/high	1.31 **	1.34	0.75	1.54
marriage/low	1.00	1.00	1.00	1.00
marriage/high	0.85 *	0.89	0.57	0.47
urbanness*				
not vienna	1.00	1.00	1.00	1.00
vienna	1.14 *	1.47 ***	1.00	1.40
religiousness*				
not religious	1.02	1.03	1.26	1.08
religious	1.00	1.00	1.00	1.00
Time at risk	83.714	53.601	16.649	11.138
- Log Likelihood	-3635.2151	-1302.2428	-408.72101	-210.33354
degrees of freedom	20	18	18	18

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

6 Discussion and Outlook

This research, which builds on earlier work by Städtner (2003), aimed to find factors which influence the timing of (re-)entry into the labor force after first childbirth.

The results more or less confirm the expected hypotheses, e.g. better educated women have higher (re-)entry intensities than women without tertiary education. The effect of the partner status variable on the timing of labor force participation found in Table 2 to some extent supports the male-breadwinner model and the traditional division of tasks according to comparative advantages.

In a policy perspective the analyses show that parental leave schemes somewhat influence the timing of post-birth workforce participation. In Austria, the extension of the leave period and the

more generous benefits delay reentry. This result is especially relevant in the context of more recent changes in parental leave regulations.

However, to speed up women's (re-)entry into the labor force not only the abolishment of (dis-)incentives of family policy measures is of importance. Moreover, labor market policies, social policies and tax policies have to be coordinated in order to enable a combination of market work and family responsibilities. Presently, the social security system in Austria is employment-centered and orientated towards the typical male employment pattern, thereby reinforcing existing gender inequalities (Kapeller et al., 1999; Hoem et al., 2001; Auer, 2002). There are several starting points for reforms to make the combination of work and family easier.

In the present research exclusively career breaks due to first birth have been investigated. However, for a comprehensive understanding of birth-related labor force absences the same analyzes should be applied to second and higher order births. Another drawback of this research is that it focuses exclusively on the participation decision, leaving the hours decision completely aside. Since working mothers mostly work part-time, an important aspect has been ignored. But the FFS data provides information about working hours only for the current job and therefore it was impossible to account the hours decision. Thus, using a different data set, this could be an interesting starting point for future research on this topic.

As already specified in Städtner (2003), another aim of the research is the implementation of the transition probabilities into the dynamic microsimulation model FAMSIM+. By help of this tool projections of labor market absences due to birth can be done. So far, education-, partner-matching- and fertility-modules have been developed and implemented into the model. Thus, in the virtual world of FAMSIM+, individuals are born, attend different types of schools according to pre-calculated transition rates, find partners, marry, bear children and eventually leave the model by dying. One of the next steps will be the development of a reliable labor supply module. The ultimate aim will be the exact reproduction of male and female employment patterns, which will enable the determination of duration of career breaks. This is particularly interesting with regard to calculating the time spent in employment necessary for pension benefit entitlement. Besides, knowing factors that prolong or shorten career breaks is essential for developing policies aimed to helping reconcile work and family life. In addition, an accurate prediction of female labor market behavior is necessary regarding the predicted shortage of workers in the future.

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8 Annex: Terminology

Ambiguities in the use of labor definitions may occur since I cannot distinguish the employment status at the time of childbirth, i.e. I do not know whether a person was employed or self-employed. Whereas the definition of labor force actually also includes the unemployed, in the terminology used in this study comprises only the employed and self-employed (independently of the number of hours worked), ignoring those searching for a job. Similarly, the term *work* refers to paid market work, i.e. being employed or self-employed.