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Abstract

The goal of this study is to investigate whether and how fast Swedish women returned to work after their first birth and what were the incentives and constraints for their decisions during the latest decades when Sweden was experiencing significant fluctuations both in its economy and in its level of fertility. The analysis is conducted at individual level based on a longitudinal data set from the latest two waves (1991 and 2000) of a long-time running panel survey of "The Swedish Level-of-Living survey" (LNU). We employ the methods of event-history analysis. The findings suggest Swedish women delayed their return to paid work after the first birth in the 1990s due mainly to the gradual extensions in the parental leave benefits in the 1990s, although the economic crisis in the 1990s might result in a faster return for young mothers. In addition to the strong influences of personal and family characteristics such as age at first birth, eligibility for parental leave and father's share of parental leave, whether a woman worked or not prior to the first birth strongly influences the outcomes of her after-birth labour force participation. The study seems to suggest convergences in the timing of return to work in terms of women's education, the sector (public or private) of employment and the size of the company, but an enlarged gap between women with high job positions and the others.

Introduction

In order to have a profound understanding about the interaction between an individual's family formation and his/her active labour force participation, it is important to study the changes in the individual's labour force attachment as he/she passes through a various phases in his/her family formation. The goal of this specific study is to investigate how childbearing influences female labour force participation in Sweden in the latest decade, when Sweden was experiencing significant fluctuations both in its economy and in its level of fertility. In particular, our attention focuses on whether and how fast women returned to work after the birth of their first child and what were the driving forces for their choice to return to the labour market or to stay at home to take care of the small child. A woman's choice of labour-force commitment after first birth is a very important predictor of labour force participation in the later years of her life (Hoem, 1992).

Female labour force has become an important part in the labour market of Sweden. Sweden has experienced rapid increases in female labour force participation between the 1960s and early 1990's, in terms of both the rate of employment and the amount of hours of paid work (Sundström, 1995). The increase was even more remarkable in the 1980s. At the end of 1980s Sweden had one of the highest rates of female labour force participation (about 83% in 1990) in Europe. Although female employment rates declined significantly during the 1990s, along with the overall employment rate of the country, due to the economic crisis, it is still higher than that of most other Western European countries (Engelhardt and Prskawetz, 2004). Knowledge about how a woman's labour supply changes over time and at different stages of her life course and its driving forces, is thus important for us to understand the overall changes in the whole labour market, and is also a base to foresee the possible trend of the labour market in the next couple of decades.

The increase in female labour force participation during the last few decades has mainly involved women at ages of childbearing. One of the most important events in a woman's life course that influences her continuation in labour force participation is childbearing, due mainly to the incompatibility between childbearing and female employment, as well as to the costs (both direct cost and opportunity cost) that arise from interruptions of labour supply in conjunction with childbearing (Willis, 1974; Easterlin, 1980; Brewster and Rindfuss, 2000). Considerable fluctuations in the level of childbearing and

employment could be observed in Sweden during the last two decades (Andersson, 2002; 2002). The Total Fertility Rate (TFR) of Sweden rose from a low level of about 1.6 (in 1983) to around 2.1 at the end of 1980s. As a result, in the beginning of the 1990s, Sweden had one of the highest fertility levels among European countries, and a record high rate of female labour force participation at the same time. In the 1990s, however, along with the remarkable drop in the rate of employment, TFR declined sharply to a low level of about 1.5 in the late 1990s, the lowest level ever reached for the country. The high female labour force participation and relatively high fertility in the 1970s and the 1980s have been widely attributed to public policies and societal responses, which were aiming at easing the incompatibility between childbearing and female employment, combined with increasing demand for labour until the beginning of 1990s (Hoem, 1992; Sundström, 1996). Our knowledge is, however, limited about how this welfare system affects female labour supply in connection with childbearing during the 1990s when the economy shrank and the opportunities in the labour market were much more limited.

The drop in employment in the 1990s primarily hit young people, particularly young entrants into the labour market (Hoem, 2000, Figure 3). Meanwhile, the decline of TFR in the 1990s was followed by a significant postponement of entry into motherhood among young women (Santow and Bracher, 2000), particularly among those with a weak position on the labour market. The postponement of entry into childbearing has often been related to the extension of time to get an education and to get established in the labour market. Thus it is important to know whether the postponement in childbearing and in entering into labour market, or in other words the experiences before the first birth, affect a woman's after-birth opportunities of employment.

The current study is going to shed some light regarding the issues mentioned above. In addition, our attention will focus mainly on whether and how the differentials in the timing and likelihood of returning to work are related to social and economic inequalities (reflected by educational level and labour market position) between women, which may imply differentials in opportunities and constraints in returning to work after childbirth. Social class differences in occupation are suggested to be a major source of variation in women's labour market outcomes after childbirth (McRae, 1993), which may in turn strengthen the inequalities between families in the following years (Saurel-Cubizolles et al, 1999).

Theoretical framework and existing studies

A new mother's decision of returning to work may be governed mainly by her desires to work and the constraints on her opportunities after childbirth (McRae, 1993). The current paper does not study the social norms about women's employment after childbirth, and therefore they can be regarded as exogenous in the model analyses. The incentives and constraints on mother's return to work may fall into three broad categories: labour market position (including human capital and the employment circumstances), personal and family situation, as well as public policies and macro-level labour market circumstances.

Economic theory suggests that women assess the cost and the value of time at work and at home and then choose one or the other to gain the highest expected utility. The cost of work may include the direct expenses of child-care and other household services as well as psychological losses of being apart from the new baby. However, the benefits a woman gained from the time spent with a new child implies a direct loss of income from employment, and may also carry heavy costs in relation to her future employment opportunities and potential earnings. Many studies have reported on the short-term and long-term consequences of women's career interruption around childbearing for their professional career, income and pension opportunities (Joshi et al. 1996, Gustafsson et al. 1996, Albrecht et al. 1999). It is an established finding that women as a group and individuals lose earnings by interrupting their job. In some countries, with advanced welfare measures such as Sweden, the lost earnings are less important than in other countries (Albrecht, Edin, Sundström and Vroman 1999). Thus it is reasonable that women who have invested more in their human capital in general have higher earnings and thus larger financial penalties attached to leaving the labour market, therefore are more likely to return to work sooner. These women are also more likely to have higher job status and better opportunities to return to work after childbirth.

Education is a major part of human capital endowment. A study (Albrecht et al., 1999) shows that women with higher education are especially affected by work interruption related to childcare. One of the rational strategies employed by working mothers would be to shorten such periods of career interruption and return sooner than other women after childbearing. Previous research for Sweden shows that women with higher education return sooner to work than women with lower educational attainment (Rönsen and Sundström 1996, Jonsson and Mills 2001). Recent research for Spain shows that education has positive effects

on return to work both for one-child mothers and for two-child mothers (Gutiérrez-Domènech 2001). Studies showed more positive effects of mothers' educational level on return to work for countries with a more classical division of household and childcare labour between the sexes at home such as US, Britain and Germany (Joshi et al 1996; Dex et al 1996; Macran et al. 1996; Gustafsson et al 1996; Drobic et al 1999). A recent study compared Denmark to Sweden (Pylkkanen and Smith 2003) found similar positive effects. A more recent study on Sweden (Kenjoh 2004), however, shows very small educational differentials in the work resumption behavior. The author explains it by the egalitarian access to both day care and paid parental leave. In other words, women in all occupations and economic sectors have similar rights to take up parental leave and resume work at about the same interval after birth.

Human capital endowment increases also with work experience. Work experience was found to act in different ways in women's return to work after childbirth according to whether the woman returned to work full-time or part-time. For example, more work experience before childbirth reduced the rates of entry into full-time employment after first birth (Korpi 1989). Strong negative effects of unemployment were found in Sweden for first-time mothers and for full-time entries for second-time mothers (Rönsen and Sundström 2002).

The employment circumstances may be observed through the sector (public or private) of the employment, the occupation, the size of the company, and the industry of the employment. The extent of the conflict between work and child-care may differ by the employment circumstances. Different coping strategies may also be identified or developed by the employers and employees to deal with the work-child-caring tensions based on different nature of the employment. For example, public sector is often found as more compatible with the female employees' double role of worker and mother (Mills and Jonsson 2001, Saurel-Cubizolles et al 1999). Working in the public sector often provides flexible work schemes, more generous terms for parental leave duration and benefits and stronger employment security.

Sweden has one of the most generous paid parental leave in the world. Since 1974 fathers were allowed to share the leave with a major objective to promote female labour force participation. A previous study based on Nordic countries (Rönsen and Sundström, 2002) found that women who were entitled to a paid leave have in general higher employment rate than non-eligible mothers during the first three years after the first birth. But the time of returning to work was delayed when the leave was extended. On the other hand, however, an

extended parental leave may facilitate the return to work of women who prefer to stay home longer with the new baby and otherwise have to leave the labour market.

A woman's decision to go back to work may be constrained by her family situation, in particular by the extent of the other family member's sharing of the task of child-caring in the first year of childbirth because the Swedish day-care centres in general do not accept children under age one. Aiming at promoting female labour-force participation and facilitate gender equality in the family, the Swedish parental leave system encourages the father to share the leave with the mother. We may expect that the more the father shares the parental leave, the more likely the mother returns to work. The causal links between the father's share of parental leave and the mother's working outcome after childbirth may be complicated. In any case, however, father's taking of parental leave makes it easier for the mother to return to work.

A new mother's labour-force participation may be influenced by her age at first birth. International studies come to varying results in regard to this issue. Kenjoh (2004) found a strong effect of age on work resumption behavior for Sweden for the period 1980-1998 but not for the Netherlands. In France age reduces return to work (Gutiérrez-Domènech, 2002). While in Spain and Great Britain older mothers return sooner than younger mothers after the first birth (Saurel-Cubizolles et al, 1999). The age at first birth may affect a woman's decision to go back to work in a complicated way. On one hand, it may be negatively associated with the likelihood of going back to work after birth, because younger women may have a longer work period ahead and thus may lose more in the future from work interruption. On the other hand, however, both childbearing and labour force participation are life-course events. Women in their early twenties may be more likely to engage into activities such as studying, and *vice versa* for women who started their childbearing at later ages. In addition, the age at first birth may be seen as a proxy for the total time spent in the labour market, and thus be related to the amount of cumulative human capital. From this perspective, women who bore their first birth at later ages may be more likely than younger mothers to go to work after the childbirth.

A new mother's decision to work may also be constrained by the overall opportunities of the labour market. It is natural to expect in general women's rate of re-entry into the employment to be higher during upturns and lower during downturns of the business cycle. However, the constraints of the labour market may differ by the experience of working prior to the birth. For currently employed women, the risk of being laid off is low during good

years and high during bad years. Thus, among women who worked prior to the birth, those who gave first birth in bad years may return to work faster than those who gave birth in good years. In addition, women are more likely to work before first birth in good years in order to be entitled to the earning replacement maternity leave. Women who did not work before the first birth may be more tempted to work after the birth because they are more likely to face after-birth financial difficulties than the others as the maternity benefit is directly related to the earnings before the birth. But their job opportunities are in general more constrained than the others by the labour-market circumstances.

Data and the methods

The analysis will be conducted at individual level based on a longitudinal data set from the latest two waves of a long-time running panel survey of “The Swedish Level-of-Living survey” (LNU), which was first carried out in 1968. The latest two waves of the survey were conducted in 1991 and 2000 based on a random sample of 1/1000 of the Swedish population between 18 and 75 years of age. The survey recorded a complete history of individual’s activities of more than one month’s duration, starting with the first job that lasted for at least six months. Job episodes contain information on position, occupation, number of employees of the company and sector (public or private) of the company. In the 2000 survey, information about if the job was full-time or part-time and the type of contract (permanent or time limited) is also available. The data contain also rich information about the history of education, childbearing as well as other background information.

We restrict our analysis to women who have at least one biological birth, and the first child was born after the January of 1980 as our main purpose is to investigate the changes of women’s returning to work after first birth during the last two decades. We consider only the first birth and exclude women whose first birth is twins because the decision of returning to the labour market may be influenced by parity. We have excluded women who had never had a job that lasted at least six months by the time of interview of the 2000 survey, whose first birth came before age 18, as well as some cases of inconsistent or incomplete information. We have also excluded women who had more than 15 job episodes by the time of interview of 1991 survey because the 1991 survey recorded only their main occupations instead of a complete history of activities.

We employ the methods of event-history analysis, i.e. life-tables and piece-wise constant proportional hazard regression models. These methods can solve the problem of right censoring of duration data. Life-tables will be used to describe the patterns and the changes over time in the process of women's return to the labour market after the birth of the first child. Hazard regression models will be used to investigate the factors that influence the timing and the likelihood of women's return to the labour market. It takes both the frequency and the timing of return to work into consideration. The new mothers are followed, from the time of first birth, until they made their first transition to paid work. The cases are right censored at the time of second birth (about 14 percent of the respondents) or the time of interview of the 2000 survey, whichever came first.

The variables

As mentioned above, the factors that may influence women's labour force participation after childbirth may fall into three categories: labour market position, family situation, as well as public policy and the overall unemployment level of the society. A woman's position in the labour market prior to first birth may be measured through two aspects: her own human capital endowment and the characteristics of the employment. A woman's human capital endowment may depend on her level of education, the type of activity before first birth (as an indicator of her attachment to the labour market prior to the first birth), as well as the job position. The characteristics of the employment may be viewed through the occupation, the sector (public or private) and the industry of the employment, as well as the size of the company.

The *level of education* is based on the highest level of education a woman had ever received by the time of the first birth and grouped into four levels (see Table 1). The *type of activity before first birth* is constructed based on the activity prior to the first birth. For women who started the maternity leave before the birth, it is based on her latest activity before the leave. This variable is grouped into the following categories: worked (including employed, self-employed and farmer), studied or unemployed, housework or other, and never worked before first birth. As many people went back to study after being unemployed in the 1990s, we grouped studied and unemployed together. As shown in table 1, the vast majority of Swedish women (80 percent) worked prior to the first birth, in contrast to only 7 percent of

women who never worked before first birth. *Job position* is divided into four groups: white collar at high level (managerial and professional occupations), white-collar at middle and lower levels (clerical and technicians), manual workers (skilled and non-skilled), and missing or unknown.

The *sector of employment* and the *size of the company* are grouped as shown in Table 1. The variables about the occupation and the industry of the employment are not shown in Table 1 because they do not show any systematic patterns associated with the risk of returning to work after birth in a set of preliminary models and thus will not be included in the model analysis of the current study. In addition, the impact of the type (full-time or part-time) of the job prior to the first birth as well as the type of the contract (permanent or time-limited) will not be measured in this study, because these data are not available in the 1991 survey.

Since 1974 when the parental leave system was introduced, the entitlement period has been prolonged step-wise. To pick up the effects of policy changes on women's returning to work, the variable of *period* is grouped into three intervals based on the policy changes in terms of the length and the payment compensation of the parental leave (Sundström and Duvander, 1999). (1) 1980-1988, the length of the parental leave was extended to twelve months in 1980, with nine months of earning replacement based on previous earnings and three months of flat rate replacement. (2) 1989-1995, the length of the parental leave was further extended in 1989 to fifteen months, with the last three months being replaced by the flat rate level. (3) 1995-2000, each parent reserves one of the fifteen months that can not be transferred to each other, and the replacement level was reduced in steps to 75 percent in the first three years and was raised back to 80 percent in 1998. We may expect that women postpone their return to work when the length of parental leave is extended.

To catch the influences of the macro-level economic circumstances on women's returning to work, we categorized the years of the first birth into three levels according to the annual rate of unemployment of the country. The unemployment rates of the years 1980-81 and 1985-90 were below 3%, and were between 3-4.9% during 1982-84 and in 1991 and 2000. During 1992-99 the rates were higher than 5% due to the economic crisis. We expect to find a higher likelihood of return to work in the years when the unemployment rates were high.

Table 1. Percentage distribution of all women and women employed before first birth.

| | All | Employed | | All | Employed |
|---------------------------------------|------------|------------|---|------|----------|
| Total number | 705 | 536 | | | |
| Activity prior to first birth | | | Job position before 1st birth | | |
| Worked | 79.6 | | White collar. high | | 10.1 |
| Study or unemployed | 7.5 | | White collar. low & mid | | 33.4 |
| Housework or others | 5.8 | | Manual worker | | 53.2 |
| Never worked before 1st birth | 7.1 | | Unknown or missing | | 3.4 |
| Education prior to first birth | | | Sector of employ. before 1st birth | | |
| 9 year compulsory education | 17.7 | 16.4 | Public | | 48.7 |
| Upper secondary | 48.7 | 49.8 | Private | | 44.2 |
| Post-secondary | 33.6 | 33.8 | Not clear or unknown | | 7.1 |
| On maternity leave | | | Size of company before 1st birth | | |
| No | 17.7 | 8.0 | 1-19 employees | | 31.3 |
| Yes | 82.3 | 92.0 | 20-99 employees | | 29.9 |
| Parental leave of father | | | 100+ employees | | 30.8 |
| None | 21.1 | 17.9 | Unknown or missing | | 8.0 |
| Within 30 days | 48.5 | 52.2 | National unemployment rate | | |
| 31-90 days | 10.8 | 12.3 | <=2.9% | 40.0 | 41.8 |
| > 90 days | 7.7 | 7.3 | 3% - 4.9% | 20.6 | 21.1 |
| Unknown or missing | 11.9 | 10.3 | >=5% | 39.4 | 37.1 |
| Age at first birth | | | Periods (policy changes) | | |
| <=23 | 23.3 | 20.7 | 1980-88 | 39.7 | 40.5 |
| 24-28 | 32.9 | 34.5 | 1989-94 | 36.2 | 36.4 |
| >=29 | 43.8 | 44.8 | 1995-2000 | 24.1 | 23.1 |

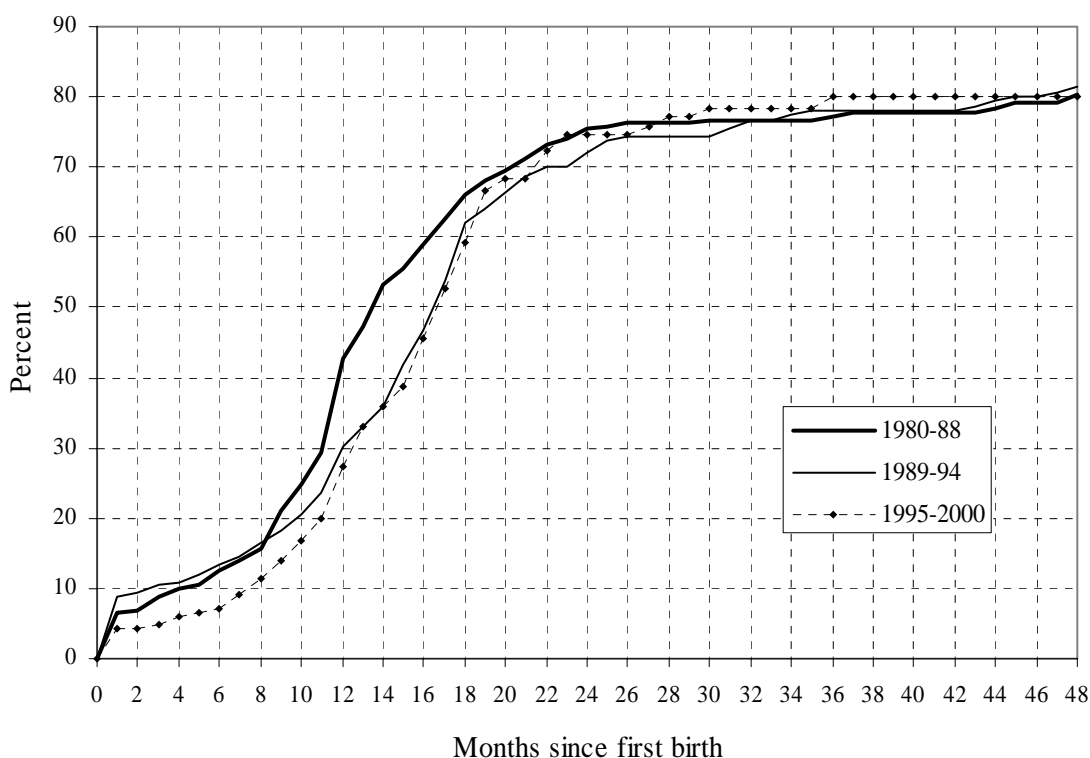
The dummy variable *on maternity leave* is based on whether a woman takes parental leave or not at the time of first birth, which is regarded as an indicator whether she is entitled to a paid leave. The eligibility of maternity leave is found to influence the overall employment entry rate during the first three years following birth in Sweden (Ronsen and Sundström, 2002). The variable of the *parental leave of father* is constructed to measure the extent the father shares the task of childrearing. A limitation of this variable is that we know only the total days of the leave of father but not the timing from the survey. The longer the father takes parental leave, the more likely the mother is expected to go back to work. Another ideal variable to measure the family situation is the civil status (single, cohabited or married) of the women at the time of first birth. Unfortunately the data set about the union history of the respondent was not ready to use by the time the paper was written. We have to leave the analysis of the influence of civil status on women's return to work for future studies.

The basic profiles of the process of returning to work

We constructed a series of life tables to describe the processes of returning to work after first birth of Swedish mothers in order to have a basic knowledge of how the processes changed during the two decades and across different groups of women.

Figure 1 presents the results of the life-table analyses about cumulative proportions of women having ever returned to work since the first birth by the year of first birth. The years are divided into three groups according to the regulations regarding the length and benefit of the parental leave. It shows that the return to work is generally slower for women with first births in the 1990s than for those who had their first birth in the 1980s. The proportion returning to work for women who had the first birth in 1980-88 is systematically higher than for women whose first birth came in later periods between 9 and 18 months since the first birth. The peak months of returning for the 1980-88 period are the 12th and the follow months. While the peak months of returning for the later periods are the 15th and the follow months, which resulted in a convergence of the three lines after 18 months of duration. This is generally consistent with the changes in the length of parental leave. However, the return to work in 1995-2000 is slower than that in 1989-94 during the 12 months of first birth. This is hard to explain in terms of family policies. The overall proportions of women returning to work for the three periods reach about 80% after three years, and level off thereafter. About 20% of women are still outside the labour market after four years since the first birth. The results of other life-tables by age at first birth and by activities before first birth, respectively, show (figures are not shown in this paper) that women who stayed still outside the labour market after four years since first birth are more likely to be those who had their first birth before age 24 and who did not work prior to the first birth. There seems to be no sign of convergence between these women and the others in the future. These women may be more likely to be students, or less attached to the labour market and with less endowment of human capital in terms of educational level, job experiences and job positions. For these women, their job opportunities may be more constrained than the others. We will examine this in the later section with the hazard regression models.

Figure 1. Cumulative proportion of Swedish women ever returned to work after first birth, by year of first birth



Results of the hazard regression models

Table 2 presents the results of the hazard regression models. The results of the models are given as relative risks (or intensities). A relative risk of one indicates that the estimated intensity of working is the same as that of the reference group; greater than one implies a higher risk of working than that of the reference group, and *vice versa*.

We ran the hazard regression models separately for all the women and for women who worked prior to first birth, because the processes of returning to work are significantly different whether the new mother worked or not during the pregnancy (see figure 3). Also, the Swedish parental leave benefits are based mainly on the earnings prior to the birth. And furthermore, we believe that it is appropriate to distinguish women's labour market experiences immediately prior to the birth with the experiences of women whose last jobs were months or even years ago.

Models based on all women

Model 1 to model 3 are based on all women, working and not working before the first birth. The models were built up by steps to observe the possible connections between the effects of different variables.

Model 1 shows that whether a woman worked or not before her first birth is a strong predictor of her work out-comes after the childbirth. The risk of return to work after childbirth for women who worked before the childbirth is more than double the risks of the other women, while the differences between the other groups of women are not significant. This pattern remained when the other factors about personal and family characteristics as well as the changes in family policy and macro-level labour market opportunities have been controlled in model 3. This may suggest that the constraints or opportunities for returning to work after childbirth are highly related to the work experience prior to the birth. It is also possible that it was the health or other problems that kept many women who did not work before first birth out from labour market, and these problems remained after childbirth.

Neither model 1 nor model 3 shows any strong impact of women's education on their return to work after first birth. To examine if the effects of women's educational attainment have been picked up by the effects of the activities before the childbirth, as these two may be highly correlated, we ran model 3 again but excluded the variable of the activities before the childbirth. The result indicates (not shown in the table) that the impact of education still remain insignificant when the variable of the activities before the childbirth has been dropped out.

The risks of returning to work after first birth increase significantly but not linearly with the amount of parental leave shared by the father. Compared to the baseline group where the child's father did not take any parental leave, father's sharing of the parental leave over one month increases significantly the probability of mother's returning to work after childbirth. The highest risk (about 80% higher than the baseline group) is found among women whose child's father took parental leave between 30 and 90 days. But a further extension of the parental leave of father beyond 90 days does not contribute additionally to the likelihood of mother's return to work. Although the risk of women whose child's father took a leave within one month is higher than the baseline group, the difference is not statistically significant. It may be because this one-month parental leave is restricted only to the father and is not exchangeable between the parents. Most fathers take this one-month parental leave in Sweden.

Table 2. Relative risks of return to work after first birth, for all women and women employed before first birth.

| Variables | <u>All women</u> | | | <u>Employed before 1st birth</u> | |
|---|------------------|----------|----------|----------------------------------|----------|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
| Activity prior to first birth | | | | | |
| Worked | 1 | | 1 | | |
| Study or unemployed | 0.38*** | | 0.31*** | | |
| Housework or others | 0.41*** | | 0.33*** | | |
| Never worked before 1st birth | 0.30*** | | 0.20*** | | |
| Education prior to first birth | | | | | |
| 9 year compulsory education | 1 | | 1 | 1 | 1 |
| Upper secondary | 1.14 | | 1.14 | 1.03 | 1.18 |
| Post-secondary | 1.17 | | 1.00 | 1.01 | 0.99 |
| Position of job prior to 1st birth | | | | | |
| White collar, high | | | | 1 | 1 |
| White collar, low & mid | | | | 0.67** | 0.63*** |
| Manual worker | | | | 0.63** | 0.68** |
| Unknown or missing | | | | 1.52 | 3.21*** |
| Sector of employ. prior to 1st birth | | | | | |
| Public | | | | 1 | 1 |
| Private | | | | 0.96 | 0.97 |
| Not clear | | | | 1.57 | 1.36 |
| Size of company prior to 1st birth | | | | | |
| 1-19 employees | | | | 1 | 1 |
| 20-99 employees | | | | 1.11 | 1.06 |
| 100+ employees | | | | 1.23* | 1.23* |
| Unknown or missing | | | | 0.60 | 0.62 |
| On maternity leave at birth | | | | | |
| No | | 1 | 1 | | 1 |
| Yes | | 1.66*** | 0.64*** | | 0.46*** |
| Parental leave of father | | | | | |
| None | | 1 | 1 | | 1 |
| Within 30 days | | 1.21* | 1.16 | | 1.21 |
| 31-90 days | | 1.81*** | 1.84*** | | 1.90*** |
| >90 days | | 1.78*** | 1.83** | | 1.83*** |
| Unknown or missing | | 1.26 | 1.41** | | 1.62** |
| Age at first birth | | | | | |
| <=23 | | 1 | 1 | | 1 |
| 24-28 | | 1.41*** | 1.46*** | | 1.70*** |
| >=29 | | 1.34** | 1.26* | | 1.47** |
| National unemployment rate | | | | | |
| <=2.9% | | 1 | 1 | | 1 |
| 3% - 4.9% | | 1.01 | 0.97 | | 1.06 |
| >=5% | | 1.19 | 1.48*** | | 1.70*** |
| Periods (policy changes) | | | | | |
| 1980-88 | | 1 | 1 | | 1 |
| 1989-94 | | 0.80* | 0.73*** | | 0.59*** |
| 1995-2000 | | 0.83 | 0.81 | | 0.71* |
| Model statistics | | | | | |
| Number of model parameters | 15 | 21 | 26 | 20 | 31 |
| Final Log Likelihood | -2023.26 | -2040.93 | -1998.36 | -1535.7 | -1506.39 |

* Significant at 10%; ** at 5%; and *** at 1%.

Women's age at first birth is found to be positively associated with the risk of return to work after the childbirth. But the risk increases nonlinearly with the rise of women's age at first birth. The risk is the highest for women who bore their first birth between ages 24-29, then declines for older mothers. One possible explanation is that, as Swedish legislation emphasizes seniority, the new mothers at ages 24-29 in general have less security with their employment than the older new mothers, thus are more likely to go back to work than women starting childbearing later.

We do not find strong impacts of the business cycle on women's re-entry into the labour force after first birth until the activities prior to the first birth were controlled for (model 2 and 3). In model 3 where the variable of the activities prior to first birth is included, women who gave first birth in years with high unemployment rate are found to be much faster to return to work than those who bore their first child in better years. It suggests an interaction between the activity before first birth and the macro-economic conditions. We will further analyse this later.

Consistent with our expectation, women whose first birth came after 1988 stayed longer at home than did women bearing the first birth in earlier years. But the effects in relation to this factor are in general not statistically significant in model 2. In model 3, the pattern remains but the differences between the three periods are enlarged. It may be because the influences of the policy related time-trends focus mainly on women who worked prior to the first birth.

Models based on women employed prior to first birth

The above analysis has suggested that the variations in women's labour market outcomes after first birth, as well as the effects of some influencing factors, depend largely on their employment experiences prior to the birth. Thus we conduct further investigations focusing solely on women who were employed prior to the first birth, i.e. during pregnancy. Women who were not employed before first birth and who were self-employed or farmers are excluded from the analyses of model 4 to 6 of table 2.

A highly significant influence of job position prior to the first birth is found for women who worked during the pregnancy. Women with high white-collar positions are the fastest returnees. Women with low or middle level white collar positions and female manual workers have similar risks of returning to work, which are about one-third of that of women

with high white collar positions. This pattern is not altered when the other influencing factors are introduced to the model (model 5). It is in accordance with our expectations based on the economic theories of human capital. The job position is closely related to wage rate. Although the Swedish parental leave benefit pays a large proportion of forgone earnings for women staying at home to take care of the new child, the cost may still be high for women with very high salaries because the paid replacement has a ceiling. In addition, women with high white-collar positions may receive higher pressures from job as their positions are less replaceable than lower positions. They may also be more career-orientated than the others through a process of self-selection. Hemström (1998) has found that, even among professionals in Sweden, women to a large extent voluntarily choose less demanding jobs that are more compatible with childrearing.

Similar to the findings for all women, there is no significant difference in relation to educational level in the rate of returning to work for women employed prior to the birth. And the impact of education does not turn to be significant when the variable of job position prior to the first birth has been excluded from model 5 (Results are not shown in the table). The sector (public or private) of employment does not show impact either. The size of the company shows a weak positive relationship with the intensity of return. These findings may suggest a convergence in the likelihood of returning to work across educational level, sector of employment and the size of company for women employed before first birth. This may be due mainly to the fact that, in Sweden, job protection and social benefits in connection with childbirth are universal, regardless of the characteristics of the company and the sector or industry of the employment. Women's earning penalties associated with time out of work from parental leave are generally small in Sweden (Albrecht et al. 1999).

The impacts of the other factors controlled in model 5 hold similar patterns to the results of model 3, but with greater variations between the categories. Women who had the first birth in years when the national unemployment rates were 5% or more were about 70% more likely to return to work than women who bore the first birth in years with 3% or lower unemployment rate. The results of maternity leave in model 5 confirm that taking maternity leave is associated with a lower probability of returning to work for women employed prior to first birth. Marshall (2001) has a similar finding in Canada where the probability of the mother's return to work by the end of the first month was remarkably higher when she did not receive maternity leave benefits. However, Canadian women who returned to work by the end of the first month after childbirth were more likely than others to work part

time. We may also expect that Swedish women who did not take maternity leave at first birth are more likely to return to work part time. However, we cannot prove this expectation in this study because of the incompleteness of the data about full-time and part-time work. It is also possible that some women took sick leaves or vacations for the first couple of months following the childbirth, which were recorded as a part of the job episode in the LNU survey. For these reasons, we should be cautious to explain this result.

Changes over periods

One of the main purposes of the current study is to investigate the changes of women's timing of return to work in the 1990s in comparison to the 1980s. We have described the changes in the process of returning to work by applying the life-table technique. Now we will examine if the effects of the influencing factors on women's labour-market outcome after first birth also differed in the 1980s and 1990s.

We examined the interactive terms between the year of first birth and the variables of maternity leave, father's take-up of parental leave, mother's age at first birth, respectively, based on model 3 for all women. We collapsed the categories of the variable of father's take-up of parental leave from 5 to 4 in order to have a better view of the changes. The results (table 3) shows that the delay of the job return since the end of the 1980s was restricted mainly to women who took maternity leave at the time of first birth, who were 24-28 years old at first birth, and whose child's father took a parental leave within one month. The risks of returning for women who had the first birth either before age 24 or after age 28, and whose child's father did not take any parental leave or took leave over one month, did not change much over the periods of study. As a result, the magnitude of the differences in the risk of return to work between different ages at first birth narrowed. The risk of returning for women who did not take maternity leave was found to be increasing over these periods. One possible reason may be that most of the self-employed women or farmers may fall into the group of not taking maternity leave. These women had to work harder in the 1990s during downturns of the business cycle. As the number of respondents with this category in each period is relatively small, however, we can not draw conclusions with any great degree of certainty based on this finding.

Table 3. Changes of the effects of maternity leave, age at first birth and father's take-up of parental leave over time periods, for all women.

| Year of first birth | <u>Maternity leave</u> | | <u>Age at first birth</u> | | | <u>Parental leave of father</u> | | | |
|-------------------------|------------------------|------|---------------------------|-------|------|---------------------------------|----------|---------|---------|
| | No | Yes | <=23 | 24-28 | >=29 | No | <=1month | >1month | unknown |
| 1980-88 | 1 | 1.50 | 1 | 1.91 | 1.12 | 1 | 1.63 | 1.93 | 1.98 |
| 1989-94 | 2.66 | 0.84 | 0.90 | 1.10 | 1.16 | 1.07 | 0.93 | 1.86 | 0.93 |
| 1995-2000 | 3.54 | 0.94 | 1.17 | 1.12 | 1.26 | 1.08 | 1.04 | 1.77 | 1.88 |
| <i>Log likelihood</i> | -1978.59 | | -1992.9 | | | -1995.47 | | | |
| <i>Model parameters</i> | 27 | | 29 | | | 30 | | | |

We also examined based on model 5 if the effects of job position and other job situations changed over the periods of study for women who were employed prior to the first birth. The interaction between the periods and job position turned out to significantly improve the model. The results (Table 4) show that the risk of return was about the same for women with different job positions in the 1980s, and then diversified remarkably in the later years. Women with a job of high white-collar returned to work faster in the late 1990s than in the previous periods, while the others postponed their return in later periods. As a result, the class differentials in terms of job position in women's after-birth labour-force participation seemed to be enlarged in the 1990s in comparison with the 1980s. A possible explanation of this change is that the Swedish economy has become more market oriented since the beginning of the 1990s.

Table 4. Changes of the effects of job position over time periods, for women employed before first birth.

| Year of first birth | Job position | | |
|---------------------------------|-------------------|-----------------------------|---------------|
| | High white-collar | Low & middle white-collar | Manual worker |
| 1980-88 | 1 | 0.97 | 1.03 |
| 1989-94 | 0.92 | 0.73 | 0.69 |
| 1995-2000 | 1.63 | 0.64 | 0.88 |
| <i>Log likelihood: -1467.96</i> | | <i>Model parameters: 27</i> | |

Conclusions and discussions

This paper has investigated the changes in the timing of women's return to work after first birth in the 1980s and 1990s and the driving forces behind the decisions, namely the incentives and the constraints of work after childbirth. The work patterns for the majority of new mothers in the 1990s were still characterised by continuity as in the 1980s.

A general picture that we may draw for the latest decade of the last century may be that Swedish women delayed their time of return to paid work after the first birth in the 1990s, due largely to the extension of parental leave. But the overall proportion of labour-force participation of the new mothers after two years of childbirth did not change much during the 1980s and 1990s. The effect of the extended parental leave may to some extent be offset by the economic crisis in the 1990s. According to the finding of this study, employed women who bore their first child in years with high unemployment rate returned faster than women with first birth in "good" years. The postponement in return to work since the end of the 1980s was restricted largely to women who took parental leave at the time of first birth, whose child's father took a parental leave within one month, who were 24-28 years old at first birth, and who worked as a manual worker or medium or low white-collar prior to the first birth.

Swedish women's return to work after first birth is strongly influenced by their personal and family background. Generally young mothers in their early twenties are least likely to work after first birth. Employed mothers who were entitled to have parental leave returned later than the others, due perhaps to the facts that their economic situation and jobs are better protected than the others by the parental leave system. Father's share of parental leave beyond the un-exchangeable one month facilitated the mother's labour-force participation. But it does not show a linear positive relationship with the timing of mother's return to work. This study is not able to clarify the casual links between women's return to work and the father's take of parental leave because of the limitations of the data set.

Although a strong legitimacy of women's right to work is a distinctive feature of the Scandinavian countries (European Commission, 1998), the after-birth labour-force participation of Swedish women is strongly related to their work experience prior to the first birth. This may imply a more difficult situation for young mothers in the 1990s when the drops in employment focused more on young people, particularly among young entrants into the labour market. For women who worked before childbirth, however, the differences in their

return to work is associated with the sector (public or private) of employment and whether the size of the company are small. There also seems to be a convergence among women with different level of education, either they worked before first birth or not. This contrasts to the findings of many studies referring to earlier periods in Sweden (for example, Rösen and Sundström, 1996), but is consistent with the finding based on more recent data of Sweden (Kenjoh, 2004). On the other hand, however, our study seems to suggest that the differences between high-white collars and the others in the work resumption behaviours of women enlarged in the 1990s in comparison to the previous decade. Do these findings suggest general changes in the latest decades in women's labour market outcomes after childbirth, which may imply new sources of social class differences in the following years? The current study may provide a hint for further studies on these issues based on larger scale data set.

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