

# Education, Work and Parenthood: Comparing the Experience of Young Men and Women in Sweden

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**Abstract** This article analyzes the determinants of young men and women's entry into parenthood, applying hazard regressions to a combination of longitudinal micro-data from the 1992/1993 *Swedish Family Survey* and aggregate time-series data. We study the impact of education, labor market attachment and macro-economic change on becoming a parent for both men and women in Sweden since the mid-1960s. Our results show clear gender differences both when it comes to individual characteristics and aggregate-level factors. Even though the effects sometimes differed according to gender, education and labor market attachment were key factors determining the transition to parenthood. Over time the pattern grew increasingly similar for men and women.

**Keywords** Education · Fertility · Gender · Hazard regressions · Parenthood

## Introduction

The sharp decline in total fertility, and the all-time-low fertility rates all over Europe in the last decades, has caused serious concern among both demographers and politicians and has raised questions about the determinants of fertility dynamics. One of the main explanations for the decline in total fertility is the increasing age at childbearing (e.g., Bongaarts and Feeney 1998; Kohler et al. 2002;

Lesthaeghe and Willems 1999). In order to understand the development of period fertility and the postponement of childbearing it is crucial to study the determinants of the decision to become a parent and have a first child.

Research on the determinants of becoming a parent suggests several factors that make late childbearing a rational response to socio-economic change. These factors include increased incentives to invest in higher education and labor market experience, especially for women, chances of establishing a career as well as a lasting relationship with a partner, and the role of economic uncertainty that may be particularly acute in early adulthood (e.g., Kohler et al. 2002).

The major part of research has focused on women, their socio-economic standing and the way this is likely to affect their fertility decisions (e.g., Bledsoe et al. 2000; Goldscheider and Kaufman 1996; for a discussion and review). Men are usually seen as exogenous factors (Macunovich 1996) or part of a couple (Morgan 1985; Sorenson 1989; Thomson 1983; Toulemon and Lapierre-Adamcyk 2000). In a few cases, the focus has been on men only (Powell and Beck 2004; Tölke and Diewald 2003). With the increasing significance of gender in the study of fertility and socio-economic change, both men and women should be included in the analysis as actors in their own right (cf., Joshi 1998; Michael and Tuma 1985).

In this article, we compare the determinants of men and women's entry into parenthood in post-war Sweden—a country which is often seen as a forerunner when it comes to new trends in family formation as well as in gender relations. We look at the experience of three birth cohorts (1949, 1959 and 1964) included in the 1992/1993 *Swedish Family Survey*. In the analysis of the determinants of entry into parenthood, longitudinal individual level data on family background, labor force participation, and education are combined with aggregate macro-economic indicators.

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## Theoretical Considerations and Previous Findings

There is an extensive literature that addresses the causes of delayed childbearing. The major part of this literature deals with women only and why they are delaying childbearing longer now than in the past. Much of the literature has stressed the increased involvement of women in education and the increased opportunities for women to pursue a career as the most important explanations (see, e.g., Gustafsson 2001 for a review of economic research). Numerous studies have shown that both educational enrollment and attainment have negative effects on fertility and, thus, women with higher education postpone first births longer and have fewer children than less educated women (e.g., Andersson 2000; Blackburn et al. 1993; Blossfeld and Huinink 1991; Gustafsson and Wetzels 2000; Happel et al. 1984; Kravdal 1994; Marini 1984; Rindfuss et al. 1988; Rindfuss and St. John 1983). Studies on the contemporary situation in the United States as well as in a number of European countries have shown that women with higher education are more likely to remain childless than women with lower educational attainment (e.g., Bloom and Trussell 1984; Spain and Bianchi 1996).

In economic theories of fertility, low education is associated with higher fertility at a younger age because less educated women specialize early in home production and the rearing of a family (Becker 1991; Willis 1973; see also Happel et al. 1984). Higher education is associated with low fertility at increasingly older ages, as these women are more career-oriented, have better job prospects and, thus, specialize in market work. It may also be an issue of self-selection, i.e., that women who invest in higher education have little family orientation and do not want children, or that attitudes toward childbearing and family formation change while in education (cf., Simon 1983, p. 23).

Educational attainment or enrollment has usually been seen as incompatible with reproduction for women, which is indicated by the negative effects of early childbearing on educational attainment found in some studies (e.g., Card and Wise 1978; Hofferth and Moore 1979; Jones et al. 1999; Marini 1984; Trussell 1976; Waite and Moore 1978). Educational attainment has been less of a problem for men as there actually seems to be a positive association between education and fertility, probably working through higher income and relative attractiveness in the marriage market for more educated men (Gray 1997). Women with higher education have somewhat lower fertility and are more likely to stay childless than less educated women (e.g., Blackburn et al. 1993), men with higher education have higher fertility and are less likely to stay childless than are less educated men. Nevertheless, educational enrollment may pose the same problem for young men as for young

women and thus education, as a current activity, is expected to be seen as incompatible with reproduction, irrespective of gender, and decrease the probability of becoming a parent. Education is a time-intensive investment and it affects the ability to live an *adult* independent life and have a family of one's own. In Sweden, students are highly dependent on government student loans and thus indebted. Higher education is also challenging and demanding. Thus, finishing higher education and starting a career may be a prerequisite for childbearing. Only if it is much easier for men than for women to combine educational enrollment with being a parent will the effect of enrollment on men's fertility be small.

Well-educated women also seem to respond most, postponing fertility the longest when economic conditions worsen (Rindfuss et al. 1988). The delay in first births in Sweden in the 1990s, for instance, was to a high degree caused by a combination of unfavorable economic conditions with increased unemployment and economic insecurity, and an increase in the share of women in education (Hoem 2000).

Labor force participation, for women, has often been associated with low fertility and delayed childbearing. For example, Walker (1995) and Ward and Butz (1980) argued that modern deferment of childbirth to a high degree is due to higher labor force participation and wages for women (see also Bernhardt 1993). As women have gained a stronger foothold in the labor market and with the establishment of the dual breadwinner family, childbearing has been postponed due to increasing opportunity costs. On the other hand, Easterlin (1980, but see also Macunovich 1998; Oppenheimer 1994, 2003) has stressed the fact that poor employment opportunities and increasing marginalization of young men have influenced the timing of births, both directly through increased difficulties in achieving stable labor market attachment and income, and indirectly through women's relatively stronger economic position and earnings potential. There is also economic research stressing the role of aggregate economic conditions, business cyclical variation and the change in economic incentives for people of childbearing ages, for example through social policy and the design of the welfare state (e.g., Stanfors 2003).

It could be hypothesized that the general trend toward later childbearing is most pronounced among the better-educated and more career-oriented women, because for them childbearing is a costly interruption in their careers. This hypothesis is based on theoretically anticipated relationships between education and fertility as well as the interrelationship of career orientation and labor force participation and fertility (Becker 1991; Goldin 1997; Kingsbury and Greenwood 1992). There is a direct cost of a child, but the major cost of having children is the

opportunity cost of the mother's time. As long as fathers are not expected to give up too much of their working time for child care, male labor force participation will not conflict to the same extent as female labor force participation, and the higher earnings of working men can even be expected to have a positive effect on fertility since they are considered good providers for their families (e.g., Butz and Ward 1979). With an increase in women's investment in education and labor force participation, added to increasing female relative wages, the cost of children increases and thus economically rational individuals are induced to have fewer children.

The link between female labor force participation and fertility, however, is to a large extent dependent on the degree of compatibility of work and family for women, which differs a great deal between countries (e.g., Brewster and Rindfuss 2000; Kingsbury and Greenwood 1992; Rindfuss and Brewster 1996). Since the early 1970s Swedish fathers have increasingly come to undertake a larger share of the caring for children, although mothers still take the largest responsibility for home and children. Swedish women have, more than men, changed their productive as well as reproductive behavior and, with increasing involvement in the labor market, postponed childbearing and reduced the intervals between births. They have also responded to changing economic conditions and public policy initiatives (Hoem 1990; Hoem and Hoem 1996; Stanfors 2003; Sundström and Stafford 1992; Walker 1995). In the late 1960s, the Swedish government adopted a policy with the aim of giving women and men equal standings in economic and social life by emphasizing equality in the labor market as well as in the household. Since then, efforts have been made to create equality between men and women through direct political measures, institutional change and universal public sector programs. Examples of direct political measures are the legislation to make marriage an equal partnership and the abolition of joint income tax for spouses. The expansion of highly subsidized childcare of good quality was an important institutional change (cf., Folbre 1994; Herbst and Barnow 2008; Herd 2005). With universal public sector programs, all gender differences in public aid and benefits were removed. The parental leave scheme of 1974 had benefits allotted in proportion to foregone earnings. Thus, in line with the rest of the social insurance system, there were strong incentives for both men and women to work before the birth of the first child. The introduction of an extensive institutional framework and a comprehensive family policy made it increasingly possible for women to combine work and family (Haas 1996; Hoem 1993). This, in turn, has changed the impact of female labor force participation and female relative wages on childbearing from being a hindrance to almost becoming a prerequisite (Andersson 2000;

Stanfors 2003). Women have gradually adapted a behavior over the life course more similar to that of men. Similar developments have also taken place in other developed countries, although some disagreement remains concerning how large this change has been (Ahn and Mira 2002; Billari and Kohler 2004; Brewster and Rindfuss 2000; Engelhardt et al. 2004; Kögel 2004; Rindfuss et al. 2003).

Macro-level studies of fertility variations have suggested the importance of changing macro-economic conditions both when it comes to the determinants of overall fertility levels (e.g., Butz and Ward 1979; Devaney 1983) and the timing of first births (Rindfuss et al. 1988; Santow and Bracher 2001). Aggregate determinants operating at the macro-level may well promote the deferment of first births as the fertility behavior of individuals may not only be conditioned on his, or her, own life situation and background, but also on the perceived economic well-being in society as a whole. For example, unemployment may promote delayed childbearing for young individuals in general, even though only a small proportion actually is unemployed, by serving as an indicator of harsh economic conditions and creating a sense of economic insecurity (e.g., Murphy 1992).

A positive association between income and fertility has also been observed over the business cycle. As good times imply increasing wages and a sense of economic and social security, fertility increases. Good times also stimulate welfare state expansion and new policy concerns, and thus affect fertility and family aspirations, mainly through reduced costs of children thanks to growth in transfer payments (cf., Becker and Barro 1988). Stagnation and depression, on the other hand, imply a sense of insecurity with stagnant wages and a potential threat of unemployment and reduced generosity and smaller benefits. Due to insecurity and increased costs of children, fertility decreases due to a deferment of births, but family aspirations may stay the same (cf., Easterlin 1975; Rindfuss et al. 1988).

In the following study we compared the importance of education and labor force participation for the transition to parenthood for men and women in post-war Sweden, controlling for family context and background characteristics. In light of the preceding discussion we expected indicators of economic activity, such as labor force attachment and enrolment in education to be important for the timing of parenthood. We also anticipated certain gender differences in these effects, but also that these differences diminish over time along with educational expansion, and increased emphasis on employment as the key to economic independence irrespective of gender. We expected aggregate economic conditions to be important for childbearing decisions for both men and women since they have both a direct influence, i.e., an income effect through employment opportunities and the generosity of

different social policies and transfers, and an indirect influence through the way people perceive future opportunities.

**Data and Method**

In the empirical analysis we used the *Swedish Family Survey*, a retrospective survey made by Statistics Sweden in 1992/1993, including a large number of questions related to demographic and social aspects of household and family behavior. For the data set, 6,406 persons were first sampled and 4,983 persons participated in the survey interview (Statistics Sweden 1995, 1996). We used the three birth cohorts in the sample, which include both men and women (1949, 1959, and 1964). This sub-sample consists of a total of 3,664 individuals—1,663 males and 2,001 females.

Table 1 shows the Kaplan–Meier estimates of the proportion childless by age and cohort for males and females. The pattern of delayed childbearing is much the same for males and females. The difference between the 1959 and 1964 cohorts is not so great, although the 1959 cohort started childbearing somewhat earlier than the 1964 cohort. The median ages at first births in the 1949 cohort was 27.0 years for males and 24.1 for females, while the corresponding figures for the 1959 cohort was 29.8 for males and 26.8 for females. Thus, median ages at first birth increased by 2.8 years for males and 2.7 years for females between these two cohorts.

We studied the transition to parenthood by focusing on the time to conception leading to a first birth, which is defined as the time of birth minus nine months. The reason for using conception rather than birth is that this is closer in time to the actual decision to have a child, and thus the values of the covariates will better reflect the conditions governing the decision. For example, the labor force participation of women is likely to decline in many cases before the actual birth of the child, which will affect the estimated effects of this variable on the transition to parenthood.

**Table 1** Proportion childless at different ages (%)

Age	Males			Females		
	1949	1959	1964	1949	1959	1964
20	95	98	99	81	89	93
22	87	92	95	67	79	84
24	73	84	86	50	66	70
26	58	72	75	37	55	55
28	43	62	61	27	42	40

Note: Kaplan–Meier estimates of proportion childless

Source: The Swedish Family Survey

The *Swedish Family Survey* contains individual-specific information on the family of origin and indicators of social and economic background of the respondents. The survey also provides information on civil status and number of children of the interviewees and dates of childbirths and transitions from one civil status to another. On a month-to-month basis, the education and employment history of the respondents were documented from the year they turned 17. Therefore, we limited the multivariate analysis to individuals childless at 17 and followed them until age 28, the age of the respondents in the youngest cohort at the time of the interview. Thus, we used the same age window for all three cohorts. Due to delayed childbearing in later cohorts the proportions childless at 28 differs substantially between the cohorts, as shown in Table 1. In the oldest cohort 43% of the men and 27% of the women were still childless at 28, while the corresponding figures in the youngest cohort are 61% and 40% for males and females, respectively.

We estimated the impact of three different types of covariates on the risk of conception leading to a first birth: (a) time-invariant (e.g., cohort), (b) time varying (e.g., civil status), and (c) aggregate, or external, covariates (i.e., aggregate economic performance). We used the Cox proportional hazards model to estimate the effects of these covariates (see Table 2 for means of these covariates). The Cox model, in contrast to other proportional hazards models, does not require any specification of the baseline hazard, which implies that there is no need to make any assumptions concerning the shape of this underlying hazard function (e.g., Therneau and Grambsch 2000). The model can be written as:

$$\ln h_i(a) = \ln h_0(a) + \beta x_i + \gamma z(t)$$

where  $h_i(a)$  is the individual hazard of conception that leads to childbirth for the first time for the  $i$ th individual as a function of age,  $h_0(a)$  is the baseline hazard,  $\beta$  is the vector of parameters for the individual covariates  $x_i$ , and  $\gamma$  is the parameter for the external covariate  $z(t)$ , where  $t$  is calendar time. The estimations were made using the *eha* package in R (R Development Core Team 2004). Since we dealt with first births only, and since the individuals were randomly selected, there was no problem of multiple events for the same individual or unobserved relationships between the individuals in the sample (for example, family relationships), and, therefore, there was no need to use a frailty model (e.g., Therneau and Grambsch 2000, ch. 9).

Our main concern was the interplay between education, labor force participation, and economic change in determining the transition to parenthood for men and women, and how this evolved over time. Education (time varying) measured the highest educational degree attained and was divided into four different categories: (a) basic (secondary

school or less, and one year post-secondary vocational training), (b) high school, (c) university, and (d) other (post-high school vocational training and foreign education that could not be included in the other categories). Current activity (time varying) measured what kind of professional activity the individual was engaged in. It was divided into (a) non-university education, (b) university education, (c) full-time employment in the private sector, (d) full-time employment in the public sector, (e) part-time employment, (f) other activity (military service, housework, unemployed, etc.) and (g) no reported activity during the time of consideration. Previous work experience (time varying) indicated whether the individual had worked previously (full-time or part-time), and referred to the latest work experience. Business cycles were measured by the transformed (natural logarithm) deviations from linear trend in vacancies for Sweden as a whole between 1965 and 1993 (see Stanfors 2003, ch. 3 for a detailed discussion on different business cycle indicators). Although the long-term trend was eliminated, the variance in the series was not constant over time, but increased substantially in the final third of the period, due to the very dramatic business cycles during the boom of the 1980s followed by the severe crisis of the early 1990s. It was entered as an external covariate, as described above, and was thus identical to all individuals in the sample at specific points in calendar time. Cohort (1949, 1959 and 1964) was a crucial variable in looking at the potential changes over time in the timing of first births and the impact of other determinants on the risk of conception.

We also controlled for a number of factors describing the context of upbringing for the individuals in the sample. They were all time-invariant and indicate the conditions in childhood (before age 16) as reported in the interviews: (a) place of upbringing, (b) father's occupation, (c) mother's occupation, (d) number of siblings and (e) family religiousness. Civil status (time varying) was divided into (a) never married/cohabiting, (b) currently married, (c) currently cohabiting, and (d) previously married or cohabiting. Thus, it enabled us not only to study the impact of being legally married on the propensity to conceive a first birth, which has been done in numerous other studies, but also to see if there were differences between married and cohabiting individuals, which is of considerable importance given the great importance of non-marital cohabitation, especially before the first birth.

## Empirical Findings

Table 2 displays the Cox regression estimates (relative risks) of the likelihood of conception leading to a first birth.

**Table 2** Cox regression estimates (relative risks, RR) of conception leading to a first birth

	Males		Females	
	Mean	RR	Mean	RR
<b>Education</b>				
Basic education	0.48	1.00	0.47	1.00
High school	0.39	0.94	0.36	0.82***
University	0.05	0.95	0.06	0.74***
Other	0.08	0.98	0.11	1.02
<b>Civil status</b>				
Never married	0.78	1.00	0.68	1.00
Currently married	0.03	12.28***	0.06	7.34***
Currently cohabiting	0.12	6.02***	0.17	4.49***
Previously marr/coh.	0.07	1.90***	0.09	1.40***
<b>Cohort</b>				
1949	0.36	1.00	0.29	1.00
1959	0.24	0.68***	0.36	0.79***
1964	0.40	0.54***	0.35	0.73***
<b>Place of upbringing</b>				
Rural	0.22	1.00	0.19	1.00
Small town	0.24	1.18	0.26	0.95
Medium town	0.35	0.99	0.36	0.90
Big city	0.18	0.96	0.18	0.78***
<b>Family context</b>				
Both parents	0.85	1.00	0.83	1.00
Divorce < 13	0.08	1.31**	0.09	1.09
Divorce > 13	0.02	1.19	0.02	1.68***
One parent dead	0.02	1.45*	0.03	0.96
Other	0.03	1.29	0.03	0.78
<b>Father's occupation</b>				
Blue-collar	0.40	1.00	0.38	1.00
White-collar	0.31	0.97	0.30	0.97
Self-empl (0–10)	0.13	0.98	0.14	0.90
Self-empl (10+)	0.02	0.99	0.02	0.96
Farmer	0.08	0.93	0.07	0.73***
Other	0.06	0.85	0.09	1.03
<b>Mother's occupation</b>				
Home	0.45	1.00	0.40	1.00
Blue-collar	0.27	1.19**	0.29	1.07
White-collar	0.19	0.85	0.22	0.91
Other	0.09	0.88	0.09	1.11
<b>Number of siblings</b>				
No siblings	0.08	1.00	0.09	1.00
1 sibling	0.33	1.03	0.32	1.49***
2 siblings	0.28	1.21	0.28	1.46***
3 siblings	0.14	1.39**	0.14	1.65***
4+ siblings	0.17	1.45**	0.16	1.67***
<b>Family religiousness</b>				
Non-religious	0.83	1.00	0.84	1.00
Religious	0.17	1.02	0.16	0.84**

**Table 2** continued

	Males		Females	
	Mean	RR	Mean	RR
<b>Current activity</b>				
Non-univ. education	0.16	1.00	0.19	1.00
University education	0.06	0.52**	0.06	0.63**
Full-time private sect.	0.39	1.60***	0.25	2.07***
Full-time public sect.	0.08	1.60**	0.22	2.08***
Part-time employed	0.02	1.09	0.06	2.44***
Other activity	0.15	1.39	0.10	2.11***
No registered activity	0.15	1.91***	0.11	0.79
<b>Previous work experience</b>				
No previous work	0.41	1.00	0.39	1.00
Part-time	0.04	1.19	0.09	1.12
Full-time	0.55	1.29**	0.52	1.11
Vacancies	0.00	1.92***	-0.01	2.62***
Events	867		1306	
Total time at risk	15270		15066	
Max. log. likelihood	-5644		-8630	
LR test statistic	929		1224	
Degrees of freedom	37		37	
Overall <i>p</i> -value	0.00		0.00	

Note: \*  $p < 0.10$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Source: The Swedish Family Survey

The effects of cohort were statistically significant for both men and women, and clearly show the trend toward delayed childbearing already mentioned. Men generally seem to have postponed their first birth more than women. Men also show more of a difference between the two youngest cohorts, while for women most of the difference was found between the cohort of 1949 on the one hand, and the two younger cohorts on the other.

Looking first at the background variables it is clear that men raised in small towns fathered children earlier than men raised in rural areas; whereas, women growing up in big cities postponed childbearing compared to other women.

The family situation during the formative years of childhood and adolescence, before age 16, seems to affect both men and women, but not in the same way. Experiencing a divorce increased the likelihood of having a first birth, for both men and women, compared to those who grew up with both their parents, which has also been found in other countries (Kiernan 1992; Eldar-Avidan et al. 2008). However, it seems to matter when the divorce happened since women were affected if the divorce happened when a teenager (between 13 and 16) and men were affected if it happened at a younger age. Men who experienced the death of a parent also became fathers at an earlier age.

Women and men with more siblings had their first child earlier than those who grew up as an only child. The effects were generally stronger for women than for men. Women raised in actively religious homes were more likely to postpone their first birth than non-religious women, while there was no similar effect for men. There was no effect for men of father's occupation, while women whose fathers were farmers started childbearing later than other women, net of other factors. There was no effect of mother's employment for women; whereas, men whose mothers were blue-collar workers started childbearing somewhat earlier than those with a full-time home-making mother.

As expected, civil status renders statistically significant effects for both men and women and we see that being in a relationship had a strong direct effect on conception and increased the likelihood of experiencing a conception at a younger age than never having been married or cohabiting. The effects for civil status were stronger for males than for females, and stronger for marriage than for cohabitation. The latter is, at least partly, due to the frequent simultaneity of marriage and conception leading to first birth (cf., Rindfuss et al. 1988). The results showed an extremely large positive effect of both marriage and cohabitation on the risk of conception. It is interesting to note that even having been married or cohabiting makes people experience conception and first birth at a younger age.

Turning to our main focus, we see that the expectation of a negative effect of educational attainment was confirmed, but only for women. Women with more education were postponing family formation and were older than women with only basic education when they conceived their first child. For men, educational attainment had no effect on timing of first birth. On the other hand, if we look at the effects of educational enrollment, we see strong effects for both men and women. Women in the labor force showed more than two times higher risks of conceiving a first birth compared to women in basic education, and the difference was even larger if compared with women enrolled in a university program. The effect was somewhat weaker for men although the same pattern of postponement was evident for men in higher education. The sector of employment (private or public) did not affect the likelihood of becoming a parent, neither for men nor for women. For women part-time employment increased the risk of conceiving a first birth even further, while no such effect was visible for men. It should, however, be noted that part-time work was a rather marginal phenomenon prior to first birth for both sexes (2% of the men in the sample and 6% of the women).

For men, previous work experience increased the risk of conceiving a first birth and men with experience of full-time work had their first child earlier than those with no previous work experience. And, as expected, macro-

economic conditions affected the transition to parenthood as shown by the positive effect of vacancies for both males and females—an increase in vacancies made men and women conceive their first birth at younger ages. In addition to the pure income effect of an economic boom, general economic conditions most likely affect an individual's outlook on life and the perceived opportunities to start a family.

In order to delve deeper into the mechanisms behind the delayed fertility in recent decades we have estimated a series of interaction models. Table 3 reports the effects of current activity, previous work experience and educational attainment in the different cohorts controlling for the same covariates as in Table 2. Enrollment in higher education imposed the strongest negative effect for women born in 1949; while, for men, the strongest effect was found in later cohorts. For women born in 1959, there was no difference between enrollment in basic education and university education on the likelihood of conception leading to a first birth. Thus, it seems as if being a university student was less compatible with family formation and first births over time for men, but more compatible for women.

The strong effect of labor force participation identified previously was somewhat weaker over time for men,

especially between cohorts 1949 and 1959, while it was stronger over time for women. Regarding the interaction effects between cohort and current activity, there was no difference between private and public employment for men. For women, the effect was somewhat weaker for public employment in the cohort of 1949, but then it was stronger for later cohorts. Over time, public sector employment for women became increasingly connected to higher chances of childbearing both relative to being in education (true for all kinds of non-educational activity) and in relation to other forms of employment (i.e., full-time private employment and part-time work).

Among women, previous work experience was connected to later first births in the 1949 cohort, but to earlier first births in the later cohorts. The effects were similar for part-time and full-time work. For men, there were no similar changes over time in the effects of previous full-time work experience—it was related to earlier first births in all cohorts.

For men, there was not much of an effect of educational attainment in any of the cohorts. There was a weak tendency toward lower risks of conception leading to first births for those with higher education, but the effects are not statistically significant. For women, the effect of a

**Table 3** Net effects (relative risks) of current activity, previous work experience and education in different cohorts

	1949		1959		1964	
	Males	Females	Males	Females	Males	Females
<b>Current activity</b>						
Non-university education	1.00	1.00	1.00	1.00	1.00	1.00
University education	0.75	0.36**	0.37	0.90*	0.39	0.64
Full-time private sector	1.99**	1.90***	1.06	1.85	1.83	2.33
Full-time public sector	1.97**	1.56**	1.13	2.20	1.76	2.66*
Part-time employed	1.25	1.81**	1.38	2.92	0.69	2.58
Other activity	2.05**	1.80**	0.80**	2.15	1.34	2.40
No registered activity	2.26***	0.61	1.20	1.15	2.26	0.77
<b>Previous work experience</b>						
No previous work	1.00	1.00	1.00	1.00	1.00	1.00
Part-time	0.74	0.65*	1.98*	1.42***	1.11	1.27***
Full-time	1.28*	0.89	1.35	1.35**	1.27	1.33**
<b>Education</b>						
Basic education	1.00	1.00	1.00	1.00	1.00	1.00
High school	0.97	0.72**	0.72	0.77	1.06	0.99*
University	0.99	0.62***	0.97	0.93*	0.88	0.71
Other	0.97	1.06	1.28	1.03	0.83	1.04

*Note:* Based on estimations of interaction effects controlling for the same set of covariates as in Table 2. Cohort 1949 is the reference category and *p*-values refer to base effects of current activity, previous work experience and education in the regression models. For cohorts 1959 and 1964, *p*-values refer to interaction effects and thus the test of the hypothesis that the effect is different from the base effect in the reference category

\*  $p < 0.10$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

*Source:* The Swedish Family Survey

university degree disappeared between the 1949 and 1959 cohorts, but then returned in the 1964 cohort. The negative effect of having a high school degree disappeared between the cohorts 1959 and 1964, which reflects changes in the educational system and educational expansion rendering an increasingly large share of the population with a high school degree as their lowest educational attainment.

The interaction between cohort and the business cycle indicator (see Table 4) showed that the strongest effect was found among women and men born in 1949, the effect being somewhat stronger for women than for men. Business cyclical variations rendered weaker effects for the later cohorts, but it should be noted that vacancies fluctuated more violently in the later part of the period, which implies that the effect on the risk of conception of business cycle peaks and troughs in the 1980s and early 1990s need not be smaller than in the 1960s.

**Table 4** Percentage change in risk of conception of 10% more vacancies in different groups

	Males	Females
<b>Education</b>		
Basic education (ref. cat.)	5.4*	9.3***
High school	7.5	10.8
University	1.6	9.4
Other	7.9	8.0
<b>Cohort</b>		
1949 (ref. cat.)	17.8**	18.8**
1959	9.4	11.5
1964	4.5	8.0
<b>Current activity</b>		
Non-university education (ref. cat.)	5.9	18.9***
University education	11.4	10.8
Full-time private sector	6.3	9.0
Full-time public sector	5.0	9.3
Part-time employed	-6.6	11.1
Other activity	0.2	4.4**
No registered activity	8.5	9.4
<b>Previous work experience</b>		
No previous work (ref. cat.)	2.7	11.0***
Part-time	9.0	7.4
Full-time	6.9	9.7

*Note:* Based on estimations of interaction effects controlling for the same set of covariates as in Table 2. *p*-values for the reference categories refer to base effects of vacancies, while *p*-values in other categories refer to interaction effects and, thus, the test of the hypothesis that the effect is different from the base effect in the reference category. The estimated coefficients *b*, expressing the ln relative risk of a one unit change in ln vacancies, were transformed to effects of a 10% change in vacancies using the formula:  $100 (e^{b \log(1.1)} - 1)$

\* *p* < 0.10; \*\* *p* < 0.05; \*\*\* *p* < 0.01

Source: The Swedish Family Survey

Interacting current activity with vacancies, we found the strongest effect for males enrolled in higher education, while for women the strongest effect was found among those engaged in non-university education. Thus, those who were not in the labor force at the time of conception were affected the most by business cycles, which seems to indicate that business cycles are important in their own right and not mainly as a proxy for individual unemployment.

## Discussion

Our results clearly confirm the general tendency over time to delay the transition to parenthood among both men and women. It has become increasingly uncommon to have a first birth before age 28 and, correspondingly, there is an increasingly larger share of childless individuals at that age. Men have generally postponed their first birth more than women and also continued the postponement in all three cohorts under study while for women most of the difference was between the cohort of 1949, on the one hand, and the two younger cohorts on the other. When it comes to the determinants of conception leading to first birth, there were gender differences both when it comes to individual characteristics and aggregate-level factors. Over time, the relationship between education, work and parenthood became increasingly similar for men and women.

As expected, education and labor market attachment were key factors determining the transition to parenthood for both men and women but there were differences in the effects according to gender. The fact that educational attainment delays the entry into parenthood only for women indicates a conflict between higher education and childbearing, which is most acute for women and often a result of asymmetric changes in gender roles. Educational enrollment, on the other hand, affects women and men in a similar, delaying, way, and becomes increasingly incompatible with childbearing for men over time. Enrollment in higher education imposed the strongest negative effect for women born in 1949; whereas, the strongest effect for men was found for later cohorts. This is in accordance with the observed temporal pattern of delayed first births and reflects the different experiences and socio-economic standings of different cohorts during their late teens and twenties. The cohort of 1949 experienced favorable economic conditions during most of the time under which they were observed in this study. The two younger cohorts, on the other hand, mostly experienced recession or slow economic growth. Both young men and women responded to their experience of harsh economic times by enrolling in education as one way of improving their chances in the labor market, but which also led to delayed family



formation. For those who were employed, the situation was more, although not fully, secure. This is supported by the fact that labor force participation is highly conducive to childbearing for both men and women. The positive effect of current (and previous) employment probably operates through the higher incomes associated with being employed and through the important association with the welfare system since it, as was previously discussed, has become increasingly important to have some kind of labor market experience before making use of welfare benefits such as parental leave (cf., Herd 2005). The positive effect of employment was found for women and men, irrespective of which sector they work in. Public sector employment becomes, however, increasingly connected to higher chances of childbearing, for women, in relation to other forms of employment, which is in line with the presupposed higher compatibility between work and family in the public sector.

There was also a strong positive association between aggregate economic conditions and the transition to parenthood for young men and women. Business cycles reflect the degree of confidence in the future course of the economy, and peaks testify that times are good and people become parents and start families even though they do not have work. In less prosperous times, however, they tend to defer childbearing, especially if they are outside the labor market, but our results clearly indicated that bad times also affect those who have a job, regardless of level of educational attainment, previous work experience or in which sector they are employed.

It is obvious that breadwinner qualities play a decisive role in the decision to become a parent. In Sweden, income security and stability are important prerequisites to start childbearing for all individuals. This is to a large extent due to the design of social and parental leave benefits that are income-based, currently established at 80% of the gross pay for most people. The income-based benefits are much more generous than the flat rate benefit that is given to people with insufficient work experience. Nevertheless, men still seem to play the role of primary provider despite the two-earner norm. Over time, gender differences are, however, mediated. Several of the differentials we observed between men and women are rooted in the gender-specific division of labor. Even though women have increased their participation in education and wage labor, men have not to the same extent increased their participation in traditional female activities such as caring and childrearing although men's interest in parenthood has increased since the 1970s. During the period under study, the Swedish government adopted a policy with the aim of giving women and men an equal standing in economic and social life by emphasizing equality in the labor market as

well as in the household. Economic incentives changed, and it became more important and rewarding to work and establish a career before starting a family, irrespective of gender. However, both economic incentives and social norms encouraged women to change their behavior and take on male pursuits much more than they supported men to engage in traditionally female activities. Therefore, it is interesting to note that women, to a higher degree than men, have changed their childbearing behavior in response to changes in the economy and the labor market.

Our results clearly show the importance of including both men and women in the analysis of fertility decision-making. Over time, changing economic and social circumstances have fundamentally changed the context of young people's life course transitions, of which entry into parenthood is one of the most important. These changes have, in several respects, differently affected men and women. For example, gender differences according to place of upbringing is in line with the expectation that rural women are more traditional and more family-oriented, while urban women are more independent and take longer time to establish a career as well as a family. Similar differences between rural and urban women have also been found for another life course transition—leaving the parental home (Dribe and Stanfors 2005). This is related to the positive effects of siblings—effects that are generally stronger for women than for men. It is understandable that a crowded home can lead to earlier nest-leaving and independent household formation, but having one or more siblings can also be of importance in that it becomes natural and desirable to have a larger family and one way of achieving this is to start childbearing earlier.

The increasingly positive relationship between employment and childbearing and the less negative relationship between education and childbearing among women indicate that, over time, it became easier to combine work, studies and *motherhood*; whereas, the results indicate less change over time for men. At the same time, the trend toward gender equality in labor force participation, wages, and, to a lesser extent, in childrearing and housework, has increased the uniformity in the pattern of entry into parenthood for men and women. Until now, women have gradually adopted a behavior and way of life similar to that of men but tendencies show that fathers' involvement in parenting is increasing. The question remains whether this development may contribute to facilitate the combination of work and family for *both* men and women and, thereby, encourage, rather than discourage, the transition to parenthood.

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