Education and labor market effects on becoming a parent: the experience of young men and women in post-war Sweden

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Abstract

This paper analyzes the effects of changes in the socioeconomic position of young men and women on the transition to parenthood, applying hazard regressions to data made up by annual aggregate time series as well as longitudinal micro-data from the 1992/93 *Swedish Family Survey*. We investigate the effects of indicators, such as education and labor market attachment as well as civil status and family of upbringing, on becoming a parent, in Sweden since the mid-1960s. Economic theory is applied and so is a gender perspective as both men and women are included in the sample. Our results indicate a general tendency over time to delay the transition to parenthood among men as well as women. When it comes to the determinants of conception leading to first birth, there are clear gender differences both when it comes to individual characteristics and aggregate-level factors. Education and labor market attachment are key factors determining the transition to parenthood for women as well as for men, even though the effects are gendered.

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Introduction

The sharp decline in fertility in the early 1990s and the all-time-low fertility rates, which were recorded throughout the 1990s in Sweden, caused concern and raised several questions about the determinants of fertility dynamics both among demographers and politicians. Since the Swedish economy experienced severe economic crisis, which affected the labor market as well as the welfare state, during the 1990s, it is very plausible that competition in the labor market and new working conditions as well as a less generous welfare state affected the demographic behavior of both men and women. As the economic structural crisis deepened, the economic standing of young men and women deteriorated and they faced increasing difficulties establishing a career and an independent adult life. However, the trends toward declining fertility and fertility at increasingly older ages were established in Sweden, as in many other developed countries, for decades before the 1990s.[1]

The increasing age at which women give birth to their first child is the main explanatory variable for the fertility decline in recent decennia. In Sweden, a shift in childbearing to later ages, from 1955 and onwards, is obvious (for further detail and international comparison, see Bosveld, 1996). This change is due as much to rapidly declining fertility rates among the younger age groups, as to increasing fertility rates among the older age groups.[2]

In order to understand the development of period fertility rates and the postponement transition it is crucial to understand the determinants of the decision to become a parent and have a first child (i. e. age at first birth). Research on the determinants of becoming a parent suggests several factors that make late childbearing a rational response to socioeconomic change. These factors include increased incentives to invest in higher education and labor market experience, 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. The major part of research has focused on women, their socioeconomic standing and the way this is likely to affect their fertility decisions (see e. g.

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[1] In brief, the secular fertility decline is most notable among older women (i.e. age groups 35-49) whereas cyclical variations are most notable among younger women (20-29).

[2] Fertility rates of older age groups show an upward-going trend since the late 1970s with the exception of the downturn in the early 1990s.

Bledsoe, Lerner & Guyer, 2000; Goldscheider & Kaufman, 1996, for a discussion and review). Males are usually seen as exogenous factors (Macunovich, 1996) or part of a couple (Morgan, 1985; Sorenson, 1989; Thomson, 1983; Toulemon & Lapierre-Adamcyk, 2000). In some cases, the focus is on men only (e. g. Powell & Beck, 2004; Tölke & Diewald, 2003). With the increasing significance of gender in the study of fertility and socioeconomic change we want to include both men and women in the analysis, as actors in their own right (cf. Michael & Tuma, 1985).[3] This is in line with the process of individualization that is an important aspect of the so called 'second demographic transition' (van de Kaa,1987:5). Couples are no longer treated as an unproblematic single entity, but as two individuals with personal preferences and opinions, planning their life from the point of view of their own personal utility and well-being. Thus, in this paper, we investigate the determinants of the decision to become a parent among young men and women in post-war Sweden and whether there are differences in the postponement process according to gender.

We look at the experience of three cohorts (born 1949, 1959 and 1964) included in the 1992/93 *Swedish Family Survey*. Since the survey was undertaken in a period when the Swedish economy just had begun to soar, it does not cover the entire crisis-struck 1990s but it covers the period 1966-1992, which is a limited period, but nevertheless, of interest since it includes a significant amount of economic and institutional change. To some degree we utilize a wider time frame as we analyze the effects of economic change in general and change in education and labor market attachment in particular. We also use aggregate macro economic indicators to study their impact on the transition to parenthood for males and females in different time periods.

Background and theoretical considerations

There is an extensive and growing research literature that addresses the causes and correlates of delayed childbearing. The major part of this literature deals with women only and why are women delaying childbearing longer now than in the past? Demographers have stressed the importance of change when it comes to other demographic behaviors that have accompanied the postponement of fertility, and notably first births, such as later age at marriage, greater frequency of cohabitation on account of marriage rates, and easy and socially accepted access to reliable contraceptive techniques and abortion, which allows women to time their

[3] Britta Hoem undertook a study of the likelihood of having a first birth before age 25, making use of the *Swedish Family Survey*. This study included both men and women, but is very different from this study when it comes to design, sample, statistical method and theoretical foundation. See Statistics Sweden, 1995.

pregnancies more precisely. The relationship between union formation and fertility is strong, complex and documented positive. Since union formation, especially marriage, and childbearing are related processes there is a vivid debate on what risk groups to focus on (Kravdal, 1994), whether union formation is determining first childbirth or the other way around (Blossfeld & Huinink, 1991; Michael & Tuma, 1985), or, due to this simultaneity, whether marital status should be included at all in the model (Rindfuss, Morgan & Swicegood, 1988). In a study on modern Sweden, both marriages and consensual unions should be taken account of as the latter has become increasingly common since the late 1960s and become an accepted frame for childbearing and childrearing and there is little to distinguish between cohabiting or married parents.

Economists have stressed the importance of women's economic standing and the change in women's economic roles relative to that of men (for a review, see Gustafsson, 2001). For example, both Walker (1995) and Ward and Butz (1980), stress the increase in female labor force participation as they argue that modern deferment of childbirth to a high degree is due to higher labor force participation and wage rates for women. 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, 1998:100) and Oppenheimer (1994, 2003) have both stressed that the answer does not entirely have to do with women but also with the fact that poor employment options and increasing marginalization for 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 that stress 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).

Among sociological explanations we find those who lend support to van de Kaa's (1987) hypothesis of the 'second demographic transition' and its implication for delayed childbearing and increasing individualization among young women and men. This line of thought stresses the importance of ideational change and the fact that normative changes have occurred at a societal level together with modernization, which have altered women's roles and expanded both the arena for women's actions beyond the home and increased women's choices when it comes to life course events (Leete, 1999; Lesthaeghe, 1983). It is noteworthy that there has, in most societies, also been changes that has altered

men's roles (Coltrane, 1996; Folbre, 1983; Hood, 1993) and the perceptions of different aspects of masculinity, for example fatherhood (Bergman & Hobson, 2002; Connell, 1995). Today, motherhood is more of a choice than an obligation and it is socially accepted to mother/father a child in alternative ways and within alternative family structures than heterosexual marriage (cf. Marsiglio, 1995, 1998).

In order to understand the complex of postponement of fertility, it is necessary to bring a variety of explanations to bear on the question. But it is also necessary to pay attention to the different correlates that operate at the individual level. In the literature on delayed childbearing and childlessness, the most important explanation is the increased involvement of women in education and the increased opportunities for women to pursue a career (see e. g. Blossfeld, 1995). One of the most investigated relationships is that between educational attainment or educational enrolment and the timing of childbearing. Numerous studies have shown that educational enrolment has a negative effect on fertility and so have educational attainment and thus women with higher education postpone first births longer and have fewer children than less educated women (e. g. Blackburn, Bloom & Neumark, 1993; Blossfeld & Huinink, 1991; Gustafsson & Wetzels, 2000; Happel, Hill & Low, 1984; Kravdal, 1994; Marini 1984; Rindfuss, Morgan & Swicegood, 1988; Rindfuss & St. John 1983). Studies on the contemporary situation in the United States as well as in a number of European countries show that women with higher education are more likely to remain childless than women with lower educational attainment (e. g. Bloom & Trussell, 1983; Spain & Bianchi, 1996).

It is obvious that education operates to delay childbearing in several ways. In accordance with the theories of New Home Economics (i.e. Becker 1991; Willis, 1973; but also see Happel, Hill & Low, 1984) fertility decisions are made rationally as costs of childbearing are weighed against benefits. Thus, low education is associated with higher fertility at younger ages because less educated women specialize early in home production and the rearing of a family. 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[4]. Hence, the delay in childbearing, especially the deferment of first births, among women with higher education is also in line with this hypothesis. However,

[4] 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. There is, of course, also a possibility that attitudes toward childbearing and family formation change while in education (cf. Simon, 1983:23).

other reasons should be added to the human capital approach and by doing so the theory will hold more explanatory power for men also.

Traditionally, educational attainment or enrolment has been seen as incompatible with reproduction for women, which, for instance, is indicated by the negative effects of early childbearing on educational attainment found in some studies (e.g. Card & Wise 1978; Hofferth & Moore 1979; Marini 1984; Moore & Waite 1977; Trussel 1976).[5] Educational attainment seems to be 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). Whereas women with higher education have somewhat lower fertility and are more likely to stay childless than are other women (see e. g. Blackburn, Bloom & Neumark, 1993), men with higher education have higher fertility and are less likely to stay childless than are less educated men. Nevertheless, educational enrolment may pose the same problem for young men and women and thus education, as a current activity, may be seen as incompatible with reproduction, irrespective of gender, and decrease the probability of conception. 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. Moreover, in Sweden, students are not so dependent on their parents, but instead 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 (cf. Blossfeld & Huinink, 1991; Kravdal, 1994; Statistics Sweden, 1998). Only if it is much easier for men than for women to combine educational enrolment with being a parent, the effect of enrolment on men's fertility will be small.[6]

With more women participating in higher education in the 1970s, first births were delayed and period fertility was depressed as a whole. However, the Swedish economy also experienced a severe structural crisis in the mid-to-late-1970s with little or even negative economic growth, high inflation and rising unemployment rates. Studies have documented that well-educated women respond strongly and postpone fertility the most when economic conditions are difficult (Rindfuss, Morgan & Swicegood, 1988; Statistics Sweden, 1998). In

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[5] Other studies show no, or only a very limited, effect of early childbearing on educational attainment (e.g. Rindfuss & St. John 1983; Upchurch & McCarthy 1990), which has spurred some debate over how to interpret results in different studies, and which theoretical models and statistical methods to use (see Anderson 1993; Hofferth 1984; Rindfuss, St. John & Bumpass 1984; Upchurch, McCarthy & Fergusson 1993).

[6] Cf. London (1992), who shows that aggregate changes in fertility are not associated with changes in the education of males.

the 1990s, the delay in first births was probably, to a high degree, caused by a combination of unfavorable economic conditions, that is, increased unemployment and economic insecurity, and an increase in the share of women in education.[7]

Labor force participation, especially for women, is another factor that is often associated with low fertility and delayed childbearing. It is hypothesized that the general trend toward later childbearing is most pronounced among the better-educated and most career-oriented women, because they see childbearing as 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 1960, 1985, 1991; Goldin 1995). Fertility decline can thus be seen as a response to the net effect of increasing costs and decreasing benefits of having another child. There is a direct cost of a child, but the major cost of a child is the opportunity cost of the mother's time. As long as fathers are not expected to give up too much of their time (i. e. work hours) for child care, male labor force participation will not conflict in the same way or to the same extent as female labor force participation does, and the higher earnings of working men would even be expected to have a positive effect on fertility (e. g. Butz & Ward, 1979). With an increase in women's investment in education and labor force participation, added to increasing women's wages compared to men's, the cost of children increases and thus economically rational individuals are induced to have fewer children. Economic incentives as well as institutional and social arrangements of relevance for the cost-benefit analysis, such as compulsory education, day care availability and social and tax policy vary greatly with time. Thus, people change their childbearing behavior, for example, by advancing or postponing childbirth and/or by shortening or lengthening birth intervals as a response to changing contemporaneous factors and incentives.

According to the New Home Economics, the key to fertility decision-making is mainly to be found in educational investments of women and the relative labor market situation of women, that is, in their prospects of finding a job, their relative wages and their entitlement to social benefits (Becker, 1991). Hence, it can be anticipated that higher education is associated with low, and delayed, fertility, and that low education is associated with higher fertility and earlier childbearing. In a similar way, career orientation, as well as high or non-traditional occupational status, should be associated with lower fertility and later

[7] Between 1989 and 1996, female income deteriorated and the share of women dependent on unemployment insurance or student loans increased from 2.2 to 17.5 and from 13.3 to 31.8 (age 21-24) respectively and from 2.2 to 15.6 and 8.2 to 12.9 (age 25-28) respectively (Statistics Sweden, 1998).

childbearing. It could also be expected, in accordance with theory, that a favorable labor market situation for women is an important contemporaneous factor and associated with periods of declining fertility, and that a less favorable labor market for women is associated with periods of increasing fertility, at least as long as institutional factors do not affect and complicate the cost-benefit analysis. However, in Sweden there has been, since the early 1970s, a number of institutional factors that seem to affect the decisions about fertility and labor force participation. Moreover, fathers have increasingly come to undertake a larger share of the caring for children.[8] However, career and childbearing are not as compatible in all countries, and thus the cost of children still has detrimental effects on career planning and affects fertility and especially the timing of first births heavily (Dankmeyer, 1996; Joshi, 1998; Waite & Stolzenberg, 1976).

Swedish women have, more than men, changed their productive as well as reproductive behavior and, with increasing involvement in education and 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 & Hoem 1996; 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. 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 women as well as for men to work before the birth of the first child. The introduction of an extensive institutional framework and a comprehensive family policy made it possible to combine work and family. However, as the focus of policy and public programs mainly has been on facilitating women's double roles, men have often been left out of the analysis, and thus gender differences remain when it comes to behavior and effects of decision-making.

[8] Mother, however, take the lion's share of caring responsibilities and parental leave. In 2003, fathers' share of parental leave was 17 per cent.

Macro-level studies of fertility variations suggest the importance of changing economic conditions both when it comes to the study of the determinants of overall fertility levels (e. g. Butz & Ward, 1979; Devaney, 1983) and the timing of first births (Rindfuss, Morgan & Swicegood, 1988; Santow & 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.[9]

According to the literature on long waves and structural cycles, it has been hypothesized that the economic development of an industrialized nation, like Sweden, follows a cyclical pattern. Research has thoroughly documented investments, financial markets, the interplay between different economic sectors and the role of institutions over the business cycle (Schön, 1998). Less attention has been given to demographic effects of cyclical fluctuations in economic activity. However, a positive association between income and fertility has been empirically 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 & 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, Morgan and Swicegood, 1988).

From the end of World War II until the early 1970s, the Swedish economy experienced an average annual growth rate of about three percent in GDP/capita. The oil shock in 1974 hit the Swedish economy hard and the economy stagnated in the late 1970s. Well into the mid-1980s, economic growth was modest and for some periods absent. During the economic boom of the 1980s, the Swedish economy never caught up with the favorable growth rates of the 'golden years' of the 1960s. In 1991, economic structural crisis, again, hit the Swedish economy hard. The general economic trend is reflected in the level of real wages. The annual rate of growth in real wages, show a positive annual rate of growth until 1977, and then a decline during the late 1970s, followed by modest growth after 1985. During the first

[9] For example, unemployment may promote delayed childbearing for young individuals in general, even though only a small proportion actually is unemployed. Unemployment serves as an indicator of harsh economic conditions and installs a sense of economic insecurity (see e. g. Murphy, 1992).

half of the 1990, real wages declined again.[10] Unemployment was low in Sweden during the post-war 'golden years' and although the Swedish economy was badly hit by structural crisis and stagflation in the 1970s, unemployment stayed low due to massive policy measures. Not until crisis again hit the Swedish economy in the 1990s, was there a shift in labor market policy that allowed unemployment to rise rapidly.

Similarly to the argument of Easterlin's relative income theory, that young men evaluate their current circumstances against those prevailing in the parental home during their formative years, we argue that young men and women judge current economic conditions and assess them in relation to not only their parents' socioeconomic standing, but also the situation experienced in previous years. Previous experiences may serve as a filter as young individuals plan their transition to parenthood to, if not an optimal point in time, at least a period in which they can properly provide for a child. Thus, in periods unfavorable to family formation, young men and women respond to economic forces by adjusting (i. e. delaying) the timing of parenthood, whereas in periods conducive to family formation, people are allowed to become parents sooner or catch up with previously postponed childbearing. In Sweden, there has definitely been a catching-up process among women who delayed their first birth (Bosveld, 1996) and later childbearing is thus not necessarily connected with lower completed fertility or increased childlessness.

Data and method

The main data source for the empirical analysis is the *Swedish Family Survey*, a retrospective survey made by Statistics Sweden in 1992/93, including a large number of questions related to demographic and social aspects of household and family behavior. 6406 persons were first sampled and 4983 persons participated and were successfully interviewed.[11] Since this study investigates the determinants of becoming a parent for both men and women, we use the three birth cohorts for which both men and women were included (1949, 1959 and 1964). This sample consists of a total of 3664 individuals, 1663 males and 2001 females.[12]

Figures 1 and 2 show the Kaplan-Meier estimates of the proportion childless by age and cohort for males and females separately, and in table 1 the proportions childless at

10 For further information, see for example Stanfors, 2003: chapter 3.

11 For a fuller description of the survey and its design and an analysis of the attrition process, see Statistics Sweden 1996:1.

12 Six individuals had to be excluded due to missing information.

different ages are displayed.[13] The first thing to note is the delayed age at first birth in later cohorts. This 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 it seems as if 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.

- Figure 1 here
- Figure 2 here
- Table 1 here

We study 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, and thus the values of the covariates will better reflect the conditions governing the decision. For example, the labor force participation of particularly 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.

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 each respondent is documented from the year in which he or she turned 17. We therefore limit the multivariate analysis to individuals childless at 17 and follow them until age 28, the age of the respondents in the youngest cohort at the time of the interview. Thus, we use the same age window for all three cohorts. Due to delayed childbearing in later cohorts the proportion childless at 28 differs substantially between the cohorts, as shown in table 1. In the oldest cohort 43 percent of the men and 27

[13] The Kaplan-Meier estimate is a standard method to estimate the survivor function (in this surviving as childless) using the hazards of conception leading to a first birth (see e.g. Therneau and Grambsch 2000:13-17).

percent of the women were still childless at 28, while the corresponding figures in the youngest cohort are 61 percent and 40 percent for males and females, respectively.

We estimate the impact of three different types of covariates on the risk of conception leading to a first birth: time-invariant (e.g. cohort), time varying (e.g. civil status) and aggregate, or external, covariates (aggregate economic performance). We use the Cox proportional hazards model to estimate the effects of these covariates. The Cox model, compared 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. The model can be written as:

$$ln\ h_i(a) = ln\ h_0(a) + \beta \mathbf{x}_i + \gamma z(t)$$

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, β is the vector of parameters for the individual covariates x_i, and γ is the parameter for the external covariate z(t), where t is calendar time.[14] Since we deal with first births only, and since the individuals were randomly selected, there is no problem of multiple events for the same individual or unobserved relationships between the individuals in the sample (for example family relationships), and therefore it makes little sense to use a frailty model (see e.g. Therneau and Grambsch 2000: chapter 9).

The model estimated contains a set of explanatory variables (covariates). Some covariates, such as education, employment and partnership vary with time, whereas other covariates such as a respondent's year of birth and indicators of social background and family of upbringing are fixed.

Education (time varying) indicates the highest educational degree attained and is divided into four different categories: basic (secondary school or less, and one year post-secondary vocational training), high school, university, and other (post-high school vocational training and foreign education that cannot be included in the other categories).

Civil status (time varying) is divided into never married/cohabiting, currently married, currently cohabiting, and previously married or cohabiting. Thus, it enables us not only to study the impact of being legally married on the propensity to conceive a first birth,

[14] For details on estimation procedures see any standard textbook on survival analysis (e.g. Therneau & Grambsch 2000). The estimations were made using the 'eha' package in R, developed by Göran Broström at the Department of Statistics, Umeå University, specifically designed to estimate this kind of combined time-series and individual survival model (see http://cran.at.r-project.org/).

which has been done in numerous other studies, but also to see if there are differences between married and cohabiting individuals, which is of considerable importance given the great importance of non-marital cohabitation, especially before the first birth.

Cohort (1949, 1959 and 1964) is 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. *Current activity* is time varying and shows what kind of professional activity the individual is engaged in. It is divided into non-university education, university education, full-time employment in the private sector, full-time employment in the public sector, part-time employment, other activity (military service, house work, unemployed, etc) and no reported activity during the time of consideration. *Previous work experience* is also time varying and indicates whether the individual have worked previously (full-time or part-time), and refers to the latest work experience.

Business cycles are measured by the transformed (natural logarithm) deviations from linear trend in vacancies for Sweden as a whole between 1965 and 1993 (see figure 3).[15] The reason for making this kind of transformation is that the number of vacancies in Sweden declined steadily between 1965 and 1983, and thereafter increased for much of the 1980s, and then declined rapidly in the early 1990s. As is clear from figure 3, the transformation is not fully successful. Although the long-term trend is eliminated, the variance in the series is not constant over time, but increases 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 is entered as an external covariate, as described above, and is thus identical to all individuals in the sample at specific points in calendar time.

- Figure 3 here

We also control for a number of factors describing the context of upbringing for the individuals in the sample. They are all time-invariant and indicate the conditions in childhood (before age 16) as reported in the interviews. *Place of upbringing* is divided into four categories: rural (population less than 500), small town (population 500-10 000), medium

[15] Vacancies are a good indicator of general economic conditions and change over the business cycle. Here, vacancies are defined as the number of vacant positions registered at public employment offices. Although the number of vacancies is far from perfect, the shortcomings of this indicator should be compared to the shortcomings of alternative measures. One alternative measure is unemployment. The empirical basis for the construction of a consistent time series of unemployment is no better than that for vacancies. Vacancies can actually be considered to be more gender neutral and consistent than unemployment. Vacancies are here used as a measure of the business cycle and the aggregate demand for labor.

town (population 10 000-150 000), and big city (population 150 000 and more). *Family context* indicates whether or not the child had experienced a divorce or the loss of a parent before age 16. It also indicates if the divorce happened before age 13 or between ages 13 and 16. *Father's occupation* is divided into blue-collar worker, white-collar worker, self-employed with less than 10 employees, self-employed with 10 or more employees, farmer or other occupation. *Mother's occupation* is divided into work at home (housewife), blue-collar worker, white-collar worker, and other occupation. Finally the *number of siblings* and *family religiousness* is also controlled for in the model.

Empirical results

Table 2 displays the Cox regression estimates of the likelihood of conception leading to a first birth for young men and women. The effects of cohort are statistically significant for both men and women, and clearly show the trend toward delayed childbearing as 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 is between the cohort of 1949 on the one hand, and the two younger cohorts on the other.

- Table 2 here

The fact that both men and women have postponed their entry into parenthood leads us to look at the effects of the other variables and see if they differ between young men and women. Civil status renders statistically significant effects for both men and women and we see that being, or even having been, in a relationship has a strong direct effect on conception and increases the likelihood of experiencing a conception at a younger age than never having been married or cohabiting. Generally, the coefficients of civil status are stronger for males than for females. The results show an extremely large positive effect of both marriage and cohabitation on the risk of conception. Married men are about 12 times more likely to experience a conception leading to a first birth than are never married men, and cohabiting men are six times more likely than never married men. For women the corresponding effects are similar (7.3 and 4.5, respectively) and married as well as cohabiting women seem to have their first child earlier than women who never have been married or cohabiting. It is interesting to note that even having been married or cohabiting previously makes people experience conception and first birth at a younger age. Santow and Bracher

(2001) report similar effects, for women only, but adds the insight that the pregnancy rates varied with the duration of the union, pregnancy rates being highest at the shortest marriage durations and lowest at longer durations (i. e. when it was more likely that the marriage included a period of prior cohabitation). In this model, we do not control for union duration.

Turning to the effect of place of upbringing, men raised in small towns seem to father children earlier than men raised in rural areas whereas women growing up in big cities postpone childbearing compared to other women. This is in line with the expectation that rural women are more traditional and more family oriented and urban women are more independent and take longer time to establish a career as well as a family. Part of the difference between rural and big city women probably emanates from different education and career opportunities together with differences when it comes to the transition to adulthood. In a previous study we showed that rural women leave the parental home at earlier ages than urban women, probably due to difficulties finding a job or going to school at a close enough distance for them to remain at home (Dribe and Stanfors, 2005). Thus, the fact that rural women make the transition to adulthood earlier than urban women may partially explain why they also become mothers earlier than urban 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 increases the likelihood of having a first birth, for both males and females, compared to those who grow up with both their parents. However, it seems to matter when the divorce happens since women are affected if the divorce happens when a teenager (between 13 and 16) and men are affected if it happens at a younger age. Men who experience the death of a parent also become fathers at an earlier age. It may be that the experience of a divorce as a teenager contributes to an earlier transition to adulthood, an early entry into the labor market and thus earlier family formation. A broken home might increase the opportunities for earlier independence and transitions to adulthood. The experience of divorce or parental death may also have emotional and psychological aspects that make young adults more inclined to start a family earlier. Either they try to compensate and get the family they never had or lost or, in a more dystopian way, they do not care too much about failing and bailing out on family members since they have already had that experience themselves. The fact that parental death has a similar effect as divorce may be seen as support to the former rather than the latter interpretation.

Another indicator of the family situation that proved to be significant is the number of siblings. Siblings have a positive effect on the propensity to start a family on one's

own. Women and men with more siblings have their first child earlier than those who grew up as an only child (cf. Michael & Tuma, 1985). There is a gender difference in that for men there is only a statistically significant effect of three or more siblings, while for women there is an effect already of having one sibling. 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.

Women raised in actively religious homes are more likely to postpone their first birth than non-religious women, while there is no similar effect for men. The effect of religiousness is in line with the hypotheses inferred from previous studies. Women with a religious background seem to have a more traditional outlook on life and are more prone to adopt a traditional female role with greater home attachment and less work orientation. But as they are more likely to equal family formation with marriage and not cohabitation, they may have a slower start and thus postpone their first birth, indirectly through the mechanism of union formation.

Much previous research has stressed the role of parental income or parental social status as a determinant of an individual's family orientation, which implies that father's and mother's occupation, by serving as proxies, may be important for the timing of different life course events such as first conception and childbirth. In the case before us, the effects seem to be less influential and less consistent. For men, there is no effect at all of father's occupation, while women whose fathers were farmers start childbearing later than other women, net of other factors. There is no effect of mother's employment for women, whereas men whose mothers were blue-collar workers start childbearing somewhat earlier than those with a full-time home-making mother. Even though the coefficient is not statistically significant having a mother employed as a white-collar worker delayed the transition to parenthood. Thus, it seems as if not only labor force participation *per se* matter but also the kind of occupation. One hypothesis might be that white-collar mothers provide their sons with different attitudes and values, which in turn affect their childbearing behavior.

It is somewhat surprising that there is no statistically significant effect of mother's employment for women since it would be expected that an employed mother serve as a role model and bring about more emancipated manners, leading to a postponed first birth, in particular among daughters. Probably, this is a result of the fact that female labor force participation has become increasingly common over time and thus affects different cohorts differently. Whereas more than every second woman born in 1949 had a domestic mother, the

experience of having a full-time homemaking mother has become less common over time. Among women born in 1964, only about 30 percent had a domestic mother whereas the rest had employed mothers. The lack of significance of mother's employment indicates that several other factors also matter.[16]

When we look at the effects of education and employment, we see that the expectation of a negative effect of educational attainment is confirmed but only for women. Women with more education are postponing family formation and are older than women with only basic education when they conceive their first child. For men, educational attainment has no bearing on the timing of first birth. On the other hand, if we look at the effects of educational enrolment, we see strong effects for both men and women. Women in the labor force show more than two times higher risks of conceiving a first birth compared to women in basic education, and the difference is even larger if compared with women enrolled in a university program. The effect is somewhat weaker for men although the same pattern of postponement is evident for men in higher education (cf. Powell and Beck, 2004). The sector of employment (private or public) does not affect the likelihood of becoming a parent, neither for men nor for women. For women part-time employment increases the risk of conceiving a first birth even further, while no such effect is visible for males. It should, however, be noted that part-time work is a rather marginal phenomenon prior to first birth for both sexes. Most childless part-timers work part-time because they only have a temporary job, looking for other more permanent employment, or they combine work with other activities such as education.

Thus, for both men and women, being a university student reduces the risk of conceiving a first birth whereas being employed increases the risk. For men, previous work experience also increases the risk of conceiving a first birth and men with experience of full-time work have their first child earlier than those with no previous work experience. 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, in modern Sweden, has become increasingly important to have some kind of labor market experience before making use of welfare benefits such as parental leave. This is to a large extent due to the design of social and parental leave benefits that are income-based, currently established at 80 percent of the gross pay for most people. The income-based

[16] As we also control for educational attainment and enrolment, the effects of factors related to the family situation during adolescence, to some degree, will be internalized by education covariates, since social status and family to a high degree determine an individual's educational choice.

benefits are much more generous than the flat rate benefit that is given to people with insufficient work experience.

Education, as well as employment and other activities, strongly affect an individual's socioeconomic standing but so does general economic conditions as shown by the positive effect of vacancies for both males and females – an increase in the number of vacancies make, as expected, young 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. Enrolment in higher education imposes the strongest negative effect for women born in 1949, while, for men, the strongest effect is found in later cohorts. For women born in 1959, there is no difference between enrolment 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 gets less compatible with family formation and first births over time for men, but more compatible for women. This probably has to do with the fact that breadwinner qualities still play a decisive role in family formation and that income security and stability are important for all individuals but relatively more important for men than for women. Even after the establishment of the two-earner household in the early 1970s, men more than women take on a role of family provider.

- Table 3 about here

The strong effect of labor force participation identified previously is, for men, getting somewhat weaker over time, especially between cohorts 1949 and 1959, while the effect gets stronger for women over time. Regarding the interaction effects between cohort and current activity, there is no difference between private and public employment for men. For women, the effect is somewhat weaker for public employment in the cohort of 1949, but then it gets stronger for later cohorts. Over time, public sector employment for women becomes increasingly connected to higher risk of childbearing both relative to being in education (which is 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). This is line with the presupposed higher compatibility between public sector work and family.

Previous work experience is, for women, connected to later first births in the 1949 cohort, but to earlier first births in the later cohorts. The effects are similar for part-time and full-time work. For men, there are no similar changes over time in the effects of previous full-time work experience. Previous work experience is related to earlier first births.

For men, there are no big differences between the cohorts regarding the effect of educational attainment since there is actually not much effect in any of the cohorts. There is a weak tendency towards lower risks of conception leading to first births for those with higher education, but the effects are not significant. For women, the effect of a university degree disappears between the 1949 and 1959 cohorts, but then returns in the 1964 cohort. The negative effect of having a high school degree disappears 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) shows that the strongest effect is found among women and men born in 1949, the effect being somewhat stronger for women than for men. Business cyclical variations render weaker effects for the later cohorts, but it should be noted that vacancies fluctuate much more violently in the later part of the period (see figure 3), 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 here

Interacting current activity with vacancies, we find the strongest effect for males enrolled in higher education, while for women the strongest effect is found among those engaged in non-university education. Thus, those who are not in the labor force at the time of conception seem to be 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. 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 they, however, tend to defer

childbearing, especially if they are outside the labor market but it is quite clear from table 4 that bad times also affects those who have a job.

The sector of employment does not seem to matter for the importance of business cycle fluctuations on the timing of first births, and, generally speaking, the same is true for educational attainment and previous work experience.

Concluding discussion

Our results clearly show a 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 is between the cohort of 1949, on the one hand, and the two younger ones on the other. When it comes to the determinants of conception leading to first birth, there are clear gender differences both when it comes to individual characteristics and aggregate-level factors.

As expected, education and labor market attachment are key factors determining the transition to parenthood for both men and women; although there are also differences in the effects according to gender. Educational attainment is important only for women. This indicates a conflict between higher education and childbearing, which is often a result of asymmetric changes in gender roles. Educational enrolment, on the other hand, affects women and men in a similar, delaying, way, and becomes increasingly incompatible with childbearing for men over time. Enrolment in higher education imposes the strongest negative effect for women born in 1949 whereas the strongest effect for men is found for later cohorts. This is in accordance with the observed temporal pattern of delayed first births and reflects the different experiences and socioeconomic 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 are 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 and delaying family formation. For those who were employed, the situation was more secure although not fully secure. This is supported by the fact that, for the cohorts studied, labor force participation is highly conducive to childbearing for both men and women, irrespective of sector. There is also a

strong positive association between aggregate economic conditions and the transition to parenthood for both young men and women in post-war Sweden.

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. Nevertheless, men still seem to play the role of primary provider. Several of the differentials we observe 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. 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. It is therefore 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.

Current employment leads to faster transition to parenthood and the effect of employment is stronger for women than for men. Surprisingly, the effect of employment is generated regardless of sector. Previous work experience is also important and generates similar effects for men and women. As expected, full-time employment is the kind of work experience that increases the propensity to have a first birth the most.

When it comes to the effect of aggregate economic conditions, the effects are similar for men as well as for women. Women are even affected somewhat more than men. Good economic times and a positive outlook on life and future opportunities lead to earlier first births. This is probably a consequence of the modern two-earner family that was established in the early 1970s, and encompasses all the cohorts under study here.

Among the family-related factors that determine the transition to parenthood, own civil status, i.e. being in a stable relationship, proves much more important than factors related to the family of upbringing. Being married or cohabiting is a common prerequisite for stability and a responsible parenthood. Overall, as expected, the transition to parenthood is faster among those who are in a relationship than among those who are not, and it seems to be somewhat more important for men than for women.

Social status and family background render effects that show both similarities and differences according to gender. In general, social background indicators have weak effects but nevertheless affect the transition to adulthood/parenthood. Apparently, other factors are important in the rather equal and homogeneous society we study. The loss of a parent or the experience of a divorce makes a man's transition to parenthood faster. For women, the experience of a divorce as a teenager makes the transition to parenthood happen faster. It seems as if young men and women try to compensate for difficulties experienced when young, but nevertheless still have faith in family and intimate relationships as they try to complete their own family through an earlier start. The positive effect of siblings on the propensity to start one's own family also shows persistent family orientation among young men and women as they seem to adopt the family orientation of their parents.

Despite the increasingly strong economic role of women and the establishment of the two-earner family men still have more of a family provider role to fulfill. For example, education as a current activity becomes increasingly difficult to combine with a family for men over time. Moreover, having previous work experience and being full-time employed both increases the chance of becoming a parent. For both men and women, labor force participation as the onset of a career and a stable income, and as a way to become entitled to social security benefits, increases in importance over time. Becoming a parent is a complex decision that fundamentally alters an individual's status. At one and the same time it reflects changed economic and social circumstances and the individual's choice to change circumstances.

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Table 1. Proportion childless at different ages (percent).

	Males			Females		
Age	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.

Table 2. Cox regression estimates of conception leading to a first birth.

	Males			Females		
	Mean	Rel. risk	Wald p	Mean	Rel. risk	Wald p
Education						
Basic education	0.479	1.000	(ref. cat.)	0.466	1.000	(ref.cat.)
High school	0.394	0.935	0.413	0.361	0.824	0.007
University	0.049	0.946	0.702	0.065	0.744	0.012
Other	0.078	0.985	0.897	0.108	1.025	0.781
Civil status						
Never married	0.782	1.000	(ref.cat.)	0.685	1.000	(ref.cat.)
Currently married	0.030	12.282	0.000	0.061	7.336	0.000
Currently cohabiting	0.115	6.015	0.000	0.168	4.487	0.000
Previously marr/coh.	0.074	1.899	0.000	0.086	1.405	0.007
Cohort						
1949	0.357	1.000	(ref.cat.)	0.289	1.000	(ref.cat.)
1959	0.242	0.675	0.000	0.358	0.788	0.001
1964	0.401	0.540	0.000	0.353	0.732	0.000
Place of upbringing						
Rural	0.225	1.000	(ref.cat.)	0.187	1.000	(ref.cat.)
Small town	0.244	1.184	0.111	0.263	0.953	0.568
Medium town	0.346	0.992	0.937	0.365	0.904	0.225
Big city	0.185	0.965	0.774	0.185	0.785	0.014
Family context						
Both parents	0.850	1.000	(ref.cat.)	0.828	1.000	(ref.cat.)
Divorce <13	0.081	1.308	0.052	0.092	1.086	0.462
Divorce >13	0.019	1.193	0.491	0.021	1.675	0.003
One parent dead	0.024	1.450	0.094	0.029	0.960	0.816
Other	0.027	1.287	0.261	0.030	0.784	0.188
Father's occupation						
Blue-collar	0.396	1.000	(ref.cat.)	0.380	1.000	(ref.cat.)
White-collar	0.308	0.974	0.775	0.301	0.973	0.722
Self-empl (0-10)	0.133	0.983	0.873	0.142	0.889	0.196
Self-empl (10+)	0.016	0.986	0.957	0.023	0.964	0.873
Farmer	0.081	0.931	0.633	0.067	0.726	0.014
Other	0.065	0.848	0.339	0.086	1.027	0.828
Mother’s occupation						
Home	0.447	1.000	(ref.cat.)	0.401	1.000	(ref.cat.)
Blue-collar	0.272	1.192	0.038	0.290	1.073	0.320
White-collar	0.190	0.851	0.160	0.216	0.907	0.259
Other	0.091	0.877	0.329	0.093	1.112	0.309
No. of siblings						
No siblings	0.081	1.000	(ref.cat.)	0.090	1.000	(ref.cat.)
1 sibling	0.331	1.029	0.845	0.321	1.492	0.001
2 siblings	0.278	1.211	0.192	0.281	1.462	0.002
3 siblings	0.143	1.388	0.037	0.144	1.646	0.000
4+ siblings	0.167	1.446	0.016	0.163	1.669	0.000

Family religiousness						
Non-religious	0.826	1.000	(ref.cat.)	0.836	1.000	(ref.cat.)
Religious	0.174	1.021	0.828	0.164	0.838	0.032
Current activity						
Non-univ. education	0.156	1.000	(ref.cat.)	0.190	1.000	(ref.cat.)
University education	0.056	0.521	0.027	0.063	0.628	0.041
Full-time private sect.	0.387	1.597	0.009	0.253	2.066	0.000
Full-time public sect.	0.083	1.596	0.022	0.225	2.082	0.000
Part-time employed	0.015	1.094	0.819	0.060	2.444	0.000
Other activity	0.149	1.386	0.113	0.096	2.106	0.000
No registered activity	0.154	1.906	0.001	0.113	0.79	0.164
Previous work exper.						
No previous work	0.413	1.000	(ref.cat.)	0.390	1.000	(ref.cat.)
Part-time	0.035	1.189	0.440	0.092	1.120	0.344
Full-time	0.552	1.293	0.026	0.518	1.114	0.207
Vacancies	0.005	1.921	0.001	-0.006	2.617	0.000
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 p-value	0.000			0.000		

Source: See table 1.

Table 3. Net effects of current activity, previous work experience and education in different cohorts.

a. Males

	1949		1959		1964	
	Rel. risk	Wald p	Rel. risk	Wald p	Rel. risk	Wald p
Current activity						
Non-university education	1.000	(ref.cat.)	1.000	(ref.cat.)	1.000	(ref.cat.)
University education	0.752	0.489	0.367	0.304	0.387	0.395
Full-time private sector	1.988	0.015	1.062	0.118	1.829	0.853
Full-time public sector	1.973	0.030	1.129	0.223	1.758	0.819
Part-time employed	1.249	0.735	1.381	0.907	0.689	0.558
Other activity	2.054	0.022	0.803	0.048	1.341	0.399
No registered activity	2.263	0.009	1.202	0.149	2.261	0.998
Previous work experience						
No previous work	1.000	(ref.cat.)	1.000	(ref.cat.)	1.000	(ref.cat.)
Part-time	0.736	0.488	1.980	0.077	1.108	0.456
Full-time	1.285	0.100	1.348	0.848	1.271	0.961
Education						
Basic education	1.000	(ref.cat.)	1.000	(ref.cat.)	1.000	(ref.cat.)
High school	0.974	0.823	0.717	0.133	1.063	0.643
University	0.990	0.957	0.970	0.954	0.885	0.730
Other	0.971	0.866	1.282	0.323	0.828	0.574

b. Females

	1949		1959		1964	
	Rel. risk	Wald p	Rel. risk	Wald p	Rel. risk	Wald p
Current activity						
Non-university education	1.000	(ref.cat.)	1.000	(ref.cat.)	1.000	(ref.cat.)
University education	0.359	0.024	0.901	0.102	0.635	0.347
Full-time private sector	1.902	0.001	1.853	0.929	2.326	0.496
Full-time public sector	1.555	0.034	2.202	0.230	2.665	0.072
Part-time employed	1.810	0.025	2.925	0.170	2.577	0.332
Other activity	1.790	0.017	2.150	0.600	2.402	0.402
No registered activity	0.608	0.152	1.151	0.153	0.771	0.582
Previous work experience						
No previous work	1.000	(ref.cat.)	1.000	(ref.cat.)	1.000	(ref.cat.)
Part-time	0.647	0.073	1.425	0.007	1.267	0.013
Full-time	0.893	0.340	1.350	0.039	1.333	0.024
Education						
Basic education	1.000	(ref.cat.)	1.000	(ref.cat.)	1.000	(ref.cat.)
High school	0.725	0.022	0.771	0.730	0.992	0.091
University	0.616	0.009	0.933	0.089	0.710	0.633
Other	1.058	0.685	1.033	0.904	1.045	0.953

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.
Source: See table 1.

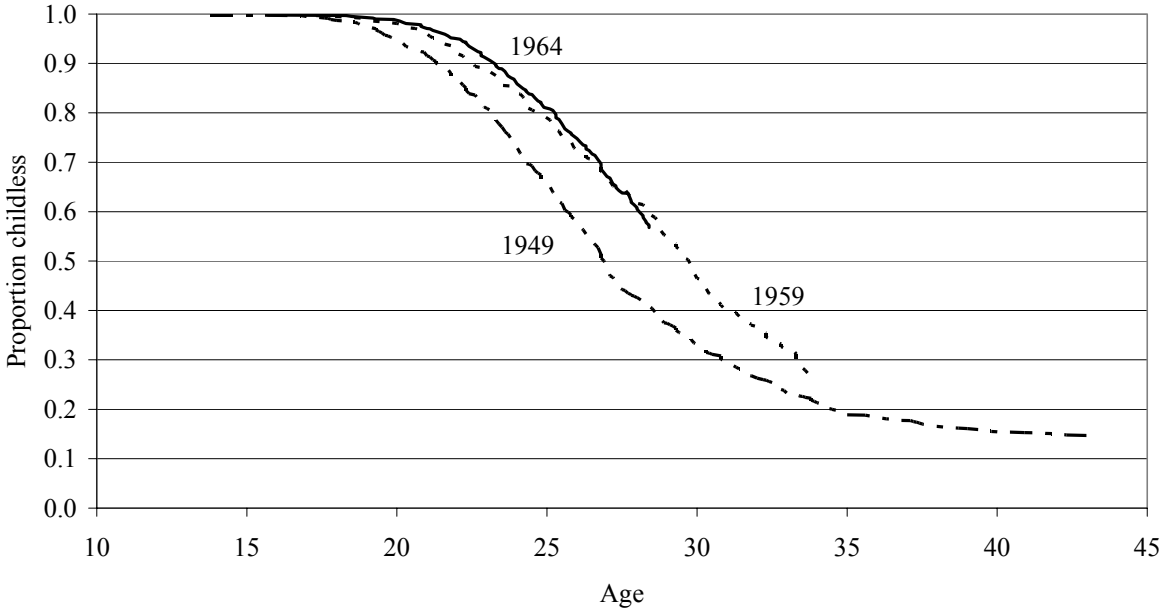
Table 4. Percentage change in risk of conception of 10 percent more vacancies in different groups.

	Males		Females	
		Wald p		Wald p
Cohort				
1949 (ref.cat.)	17.8	0.052	18.8	0.015
1959	9.4	0.411	11.5	0.397
1964	4.5	0.176	8.0	0.209
Current activity				
Non-university education (ref.cat.)	5.9	0.484	18.9	0.001
University education	11.4	0.694	10.8	0.446
Full-time private sector	6.3	0.961	9.0	0.109
Full-time public sector	5.0	0.935	9.3	0.120
Part-time employed	-6.6	0.493	11.1	0.281
Other activity	0.2	0.577	4.4	0.049
No registered activity	8.5	0.776	9.4	0.195
Education				
Basic education (ref. cat.)	5.4	0.068	9.3	0.000
High school	7.5	0.560	10.8	0.660
University	1.6	0.536	9.4	0.987
Other	7.9	0.621	8.0	0.735
Previous work experience				
No previous work (ref. cat.)	2.7	0.570	11.0	0.002
Part-time	9.0	0.490	7.4	0.492
Full-time	6.9	0.422	9.7	0.745

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 ten percent change in vacancies using the formula: $100\,(e^{\,b\,\log(1.1)}-1)$. See Campbell, Lee and Bengtsson, 2004.

Source: See table 1.

Figure 1. Kaplan-Meier estimates of the proportion childless at different ages by cohort. Males.

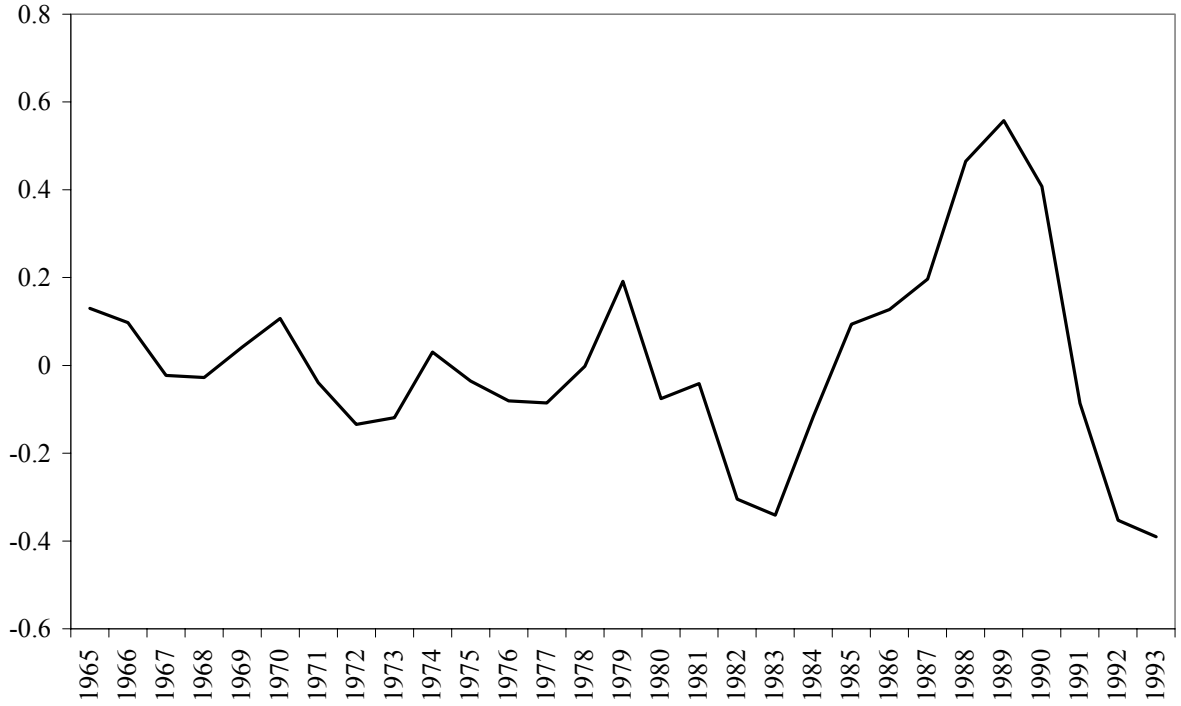


Source: See table 1.

Figure 2. Kaplan-Meier estimates of the proportion childless at different ages by cohort. Females.

Source: See table 1.

Figure 3. Business cycle indicator: deviations in ln vacancies from long term linear trend.



Source: Stanfors, 2003:56.