MARRIAGE IN FASHION?
- TREND REVERSAL IN MARRIAGE FORMATION IN SWEDEN*

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Abstract

Sweden has seen a reversal in marriage trends, from mainly declining marriage rates since the 1960s to increasing rates from 1998 and onwards. By applying event-history techniques to Swedish register data, this study examines whether the trend reversal is related to compositional changes in various socio-economic and demographic characteristics of the population, with special focus on childbearing. Only first marriages of women are studied as these largely represent the general marriage trends. The results show that the trend reversal only partly can be ascribed to compositional changes, more specifically to changes in labor-market attachment and childbearing. Thus, there is evidence of a new marriage trend in Sweden that does not conform very well to that of generally declining marriage rates as is often depicted in demographic literature. Furthermore, there is evidence of pro-cyclical marriage and childbearing trends. These patterns are especially interesting because Sweden is a country that in many aspects has been a forerunner in the development of new trends in family-demographic behavior and a country where childbearing and marriage are not necessarily seen as very closely interrelated.

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Introduction

Sweden, as well as most other countries in the Western world, has seen dramatic changes in family-demographic behavior during the last decades, where the family as an institution has been weakened. Most scholars claim that a central part of this has been the fading role of marriage displayed in declining marriage rates parallel with increasing rates of unmarried cohabitation and childbearing out of wedlock. The changes in family-demographic behavior are seen as related to changes in ideals and values in general but especially regarding marriage and other aspects of family life. Couple relationships have become more seen as something that should be fulfilling to the individual and that could be exited once they do not live up to the individual's needs and expectations. Thus, life-long marriage is no longer the only option for couple relationships and in many countries, especially in Sweden, cohabitation is seen as an alternative to marriage (van de Kaa, 2002; Surkyn and Lesthaeghe, 2004).

Sweden was the leader in the decline of marriage, followed by the other Nordic countries and later also other parts of the Western world (Sobotka and Toulemon, 2008). However, somewhere around 1998 the marriage trends reversed in Sweden and have primarily been increasing ever since, shown by aggregate statistics such as crude marriage rates and female total first marriage rates (see Figure 1, p. 3). This is a new trend in Sweden that has not yet been studied in detail and that does not fit into the general picture of declining marriage rates. A marriage 'turnaround' might signal a shift in not only marriage practice but also ideals and could perhaps also have implications for other domains of family life.

The mentioned aggregate marriage rates are however very crude proxies for actual patterns of marriage behavior. They cannot reveal if there has been a real behavioral change regarding marriage formation or if the trend reversal is due to compositional change, other than for age and sex[1]. If the reversal in marriage trends is due to compositional change it would mean that it is merely due to changes across time in the share of people belonging to demographic or socio-economic groups that generally are more or less prone to marry. There are several socio-economic and demographic factors that have shown to be related to the propensity to

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[1] The only compositional factors that female total first marriage rates take into account are age and sex distribution in the population, and they display the marriage trends only for women who never have been married before. Crude marriage rates are even more crude, as they only take into account the size of the whole population.

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marry (see e.g. Andersson, 1998; Bracher and Santow, 1998), and that could be related to possible compositional changes underlying the marriage trends. This study will disentangle compositional from behavioral changes in marriage formation, something that is necessary to do in order to make any inferences about shifts in marriage ideals and practices.

Another and related subject is the relationship between marriage and childbearing. It is interesting to note that also the birth rates have been increasing in Sweden since 1999, quite in parallel with the increase in marriages. The marriage and fertility trends at the aggregate level seem to have followed each other quite closely, at least since the 1960s (see Figure 2, p. 7). Some research, however, implies that marriage formation and childbearing may be two not so closely related life-events in today's Sweden (for a discussion see e.g. Baizan *et.al.*, 2004). Nevertheless, marriage still continues to be quite popular in Sweden and is linked to childbearing (ibid.). One question that arises from this is if the recent marriage trend reversal could be related to the changing fertility rates, a second issue that this study will address.

In order to sort out the issues mentioned above, this study investigates in more detail what the trend reversal looks like and whether it may be due to fertility change or other compositional change. This is done by using event-history analysis where marriage propensities are related to childbearing and other demographic and socio-economic characteristics. This study focuses only on first marriages of women as these largely represent the general marriage trends in the population (see Figure 1 or Andersson, 2004).

The main question this study aims to answer is: *Can the recent reversal of marriage trends in Sweden be explained by changing childbearing trends or other compositional changes; either demographic or socio-economic?*

Marriage in Sweden

Recent marriage trends

During the latest decades, marriage rates, both total female first marriage rates as well as crude marriage rates, have fluctuated somewhat in Sweden (Figure 1). They have mostly been declining from the 1960s up until the late 1990s, except for clear peaks in 1974-1976 and in 1989 supposedly due to legislation changes (for discussion about the 1970s see Agell, 1985 and Statistics Sweden, 1999; for a discussion about 1989 see Hoem, 1991).

Figure 1. Crude marriage rates (CMR) in Sweden 1960-2008 and total female first marriage rates (TFMR) for women below age 50 in Sweden 1960-2004.
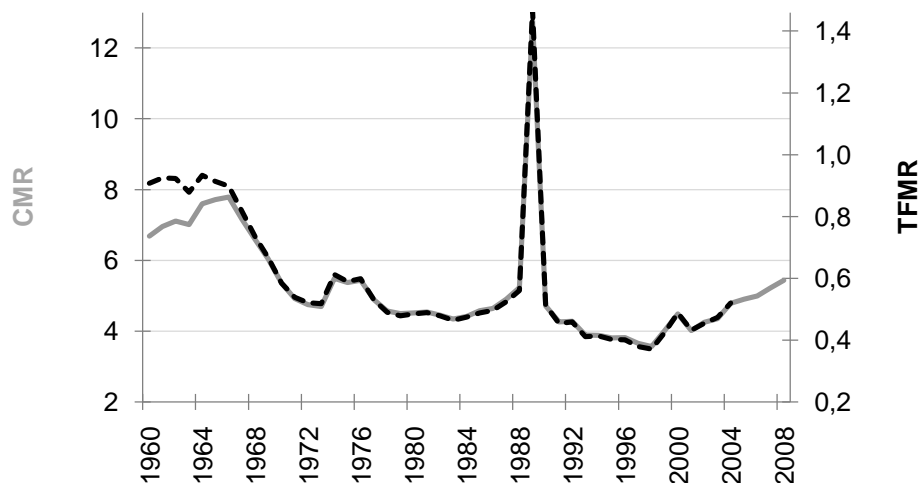
Sources: CMR from Statistics Sweden (2009a), and TFMR from Council of Europe (2006).

There was a sharp peak in the number of divorces in 1974 and 1975 (Statistics Sweden, 1999: p. 69) leading to many men and women re-entering the "marriage market". This has been seen as a consequence of changes in the divorce legislation that came into force in 1974 that mainly facilitated quick and easy divorces (Agell, 1985). In the same year there were also some changes in the marriage legislation that simplified the marital process. Agell (1985) argues that the liberalizations of the divorce legislation may furthermore have increased the popularity of marriage among the general public. The large number of marriages in 1989 has, by for example Hoem (1991), been ascribed to changes in the public widow's pension. It became known to the general public that the public widow's pension would be abolished in 1990 and that in order for a woman to automatically be entitled to her partner's pension after his death she had to be married to him before the end of 1989. This made large numbers of

cohabiting couples of all ages transit from cohabitation to marriage (Hoem, 1991), which clearly shows how lightly Swedish people take the choice between cohabitation and marriage. In 1990 the marriage rates were back at even slightly lower levels than in 1988.

After the marriage rates hit a new low in 1998 they have been increasing quite steadily up until at least 2004, however with a small additional peak in the year 2000 and slightly lower levels the year after. Andersson (2004), studying marriage risks with intensity regression models, speculates that an explanation of the increased propensity to marry in 2000 may be that the "turn of the millennium" caused an additional number of people to marry that year. It is possible that the pattern is partly a result of people choosing to marry in 2000 instead of the year before or the year after. When not taking the year 2000 into account there has been a clear increasing trend in the total female first marriage rates between 1998 and 2004. The crude marriage rates also indicate that the increasing marriage trend has continued up to 2008.

The declining marriage trends have been parallel with increasing rates of cohabitation outside marriage in many parts of the Western world, but especially in Nordic countries like Sweden (van de Kaa, 2002; Surkyn and Lesthaeghe, 2004). The share of the Swedish population cohabiting without being married has been increasing since the marriage trends started declining in the mid 1960s, which has been shown by nationally representative sample surveys (see e.g. Trost, 1978) as well as Swedish censuses of the total population (see e.g. Statistics Sweden, 1999 p. 65). Since then cohabitation has been a widespread living arrangement both as a prelude to and as an alternative to marriage. However, unmarried cohabitation was not a new phenomenon in Sweden, but had existed especially in the northern parts of the country for a long time (ibid.). It is also important to note that most Swedish men and women eventually marry sometime in their life (Andersson and Philipov, 2002: Table 7).

As cohabitation has become more prevalent in Sweden, the differences in rights and regulations for marriage and cohabitation have been minimized. Duvander (1999) state that for example in the event of dissolution, the same rules apply to married and cohabiting couples regarding splitting of shared assets and child custody rights. They also have the same maintenance liabilities toward each other. Sweden and other Scandinavian countries have the highest degree of disconnection between marriage and welfare-state schemes. In many other

countries, such as in continental Europe, marriage still is favored over cohabitation regarding social security, legal rights and economy. Some examples are health-care benefits and indirect tax-deductions that are available to married spouses but not to cohabitants (OECD, 2001). There are, however still some legal differences between marriage and cohabitation in Sweden, where marriage would be seen as more beneficial than cohabitation, such as inheritance at the event of the partner's death (Agell and Brattström, 2008).

When putting Swedish marriage trends in a wider perspective one can see that also the Nordic neighbors Finland and Denmark, and perhaps Norway, show signs of a marriage trend reversal at the aggregate level (see Figure 1 in Appendix A). In most other West-European countries marriage trends are still declining, although at slower rates than before (Council of Europe, 2006). This supports the idea that there is something going on with marriage trends in general, also outside of Sweden. The Nordic countries are usually seen as forerunners in family-demographic behavior and are known for having low marriage rates as compared to other Western countries and unmarried cohabitation being a more common alternative to marriage (van de Kaa, 2002). Sweden is in fact the country where marriage rates first started declining significantly, closely followed by the other Nordic countries and later other parts of Europe and the Western world (Sobotka and Toulemon, 2008). Therefore it is particularly interesting that a marriage trend reversal seems to be taking place in these countries and especially in Sweden.

In demographic literature, the theory of the second demographic transition (van de Kaa, 2002; Surkyn and Lesthaeghe, 2004) is a prominent and central theory for explaining declining marriage rates and other family-demographic changes that have been taking place in Western countries during the last decades. The theory is based on the idea that these changes are driven by general value changes in societies where traditions are becoming less important and secularization and individualization are spreading. Couple relationships have become seen more as means of "reciprocal emotional enrichment" and are supposed to be based on love and mutual attraction. The relationships are entered more freely and can be exited once the relationship, whether marital or not, does not live up to the needs and expectations of the individual (ibid; Giddens, 1992). Marriage has thus become something that reflects the individuals' ideals and preferences. Salles (2006) discusses an "instrumentalization" of marriage that emerges as marriage loses its ground. Whether to marry or not is something that is decided through pragmatic reasoning and marriage can more

easily be affected by factors that facilitate or obstruct marriage, such as public policies. An example of this would be the Swedish marriage peak in 1989.

Increasing divorce rates also indicate a changing view on marriage and divorce and that marriages can be excited more freely. Divorces have been increasing during the last decades in most parts of the Western world (Sobotka, 2008) even though there has been a slight dip after the turn of the millennium in Sweden (Andersson, 2004; Statistics Sweden, 2006). Surkyn and Lesthaeghe (2004) have found that life course choices such as family formation and living arrangements vary across different value orientations in a way that would be predicted by the theory of the second demographic transition. However, the causal direction is not clear because the data is cross-sectional. Nevertheless, this pattern is found at the individual level in several European countries at different stages of the transition.

The second demographic transition is seen as leading to the weakening of the family and marriage loosing its traditional role as a social institution (ibid.; van de Kaa, 2002). How the theoretical explanation of value change driving family-demographic change could be applied to a reversal of marriage trends is perhaps not as clear. If there is a new trend in marriage formation that cannot be ascribed to compositional change this may call for new theoretical discussions.

The relationship between marriage and childbearing

As previously stated the marriage and childbearing trends in Sweden at the aggregate level seem to have followed each other quite closely in the latest decades. There has been an increasing trend in birth rates since 1999 quite in parallel with the marriage trends as can be seen from Figure 2. One question that arises from this is if the parallel trends of marriage and fertility at the aggregate level are reflected in marriage propensities being related to childbearing behavior at the individual level.

Ever since cohabitation has become more widespread it has been increasingly common to have children outside of marriage, and instead have them within unmarried cohabitation, both in the Western world in general (however with some exceptions, e.g. Italy and Greece), but particularly in Sweden and other Nordic countries. Earlier the general pattern in Sweden was to have children after marriage, but has shifted into having children after starting a union,

whether unmarried cohabitation or marriage. If parents are not married at childbirth they may marry sometime later or remain unmarried (van de Kaa, 2002; Surkyn and Lesthaeghe, 2004).

Figure 2. Total Fertility Rate (TFR) in Sweden 1960-2008 and Total Female First Marriage Rates (TFMR) for women below age 50 in Sweden 1960-2004.
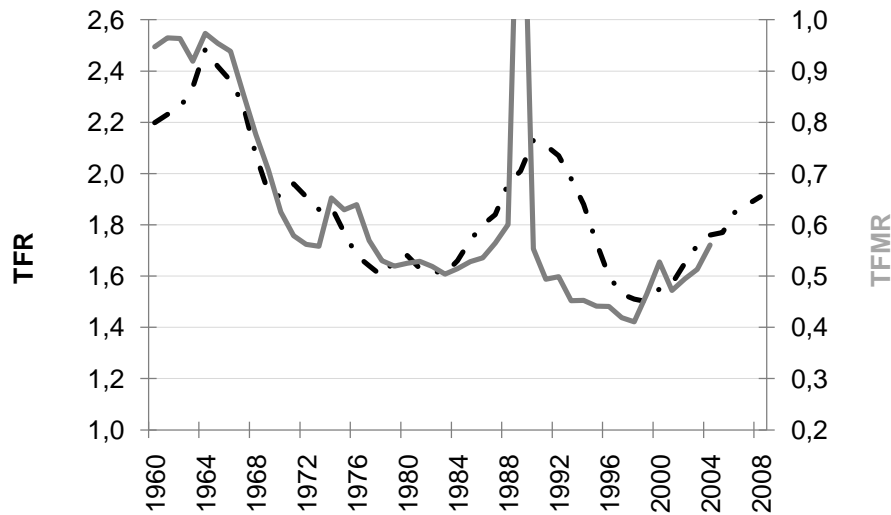
Sources: TFR from Statistics Sweden (2009a), and TFMR from Council of Europe (2006).

It may be argued that childbearing and marriage formation are not very closely connected life-events in today's Sweden, not to the same extent as in previous years or as in most other Western countries of today. When cohabitation is an accepted alternative to marriage as in Sweden, there is no strong normative pressure to marry before having children, or even after the children are born (for a discussion see e.g. Baizan *et.al.*, 2004). Baizan *et.al.* (2004) also argue that Swedish institutional systems related to welfare provision do not to the same extent as in many other European countries implicitly or explicitly promote certain types of families or parental relationships. Such institutional systems are for example "(1) the taxation system with respect to couples and children, (2) child benefits, (3) public child care, and (4) parental leave arrangements" (ibid.: p.534) According to the authors, the fact that there is less institutional incentive to marry in order to have children in Sweden should be another factor that makes marriage and childbearing more loosely connected to each other than in many other countries.

For Swedish female birth cohorts 1949-1971 there is a connection between first marriage and having a first child, as shown by Baizan *et.al.* (2004). Among both cohabiting and single

women the propensity to marry increases during pregnancy with first child and the year after having a first child. Conversely, the propensity of having a first child increases directly after marriage formation. In a comparison between Sweden and West Germany it becomes clear that it is more important in Germany to be married before having children than it is in Sweden, as marriage propensities increase more dramatically during pregnancy among German cohabitants than among Swedish. This is according to the authors related to the fact that there are smaller differences between marriage and cohabitation in Sweden and less institutional and normative incentives for marrying before having children. In Sweden it seems to be most important to be in any co-residential union, whether it is marriage or cohabitation.

Marriage formation is evidently still linked to childbearing in Sweden, even if maybe not to the same extent as before. This fact together with the picture of the quite parallel trends of childbearing and marriage at the aggregate level raises the question of whether the increases in childbearing might be a primary basis for the shift in marriage trends. There are two possible ways that this might be. One explanation would be that there is a larger pool of people under risk of marrying because they are in the stage of family formation, and have recently had children or are planning to have children in the near future. This would be a compositional change. The other explanation would be a behavioral change, that there has been a shift in the relationship between childbearing and marriage and that the two life-events are more closely interrelated than before the marriages started increasing.

Andersson (e.g. 1998 and 2004) has, by applying intensity regression models to Swedish register data, shown that first marriage propensities for women have varied in Sweden across age, civil status and parity (i.e. number of children born) as well as across calendar years over the period 1971-2002. The general pattern of the marriage propensities across calendar years calculated by Anderson (2004) is of course the same as for the previously shown marriage rates at the aggregate level, with a clear trend reversal around 1998. Furthermore, the trend reversal is evident among women of all parities. During the studied period, marriage propensities were highest for women who had at least one child. This could be interpreted as childbearing and marriage formation being interrelated life-events and childbearing being part of the explanation for the level of marriage propensities. Andersson (1998) state that these results may be due to the fact that having children can be an indicator of being in a cohabiting relationship, a relationship status that he had no possibility of controlling for in his

data. Extramarital cohabitation is not possible to measure in register data unless there is a shared child (see p. 16 in this paper for further discussion).

This study will present marriage propensities across calendar years in a manner similar to Andersson (1998; 2004), but with control for additional individual characteristics and aspects of childbearing and for slightly different years. Variables that measure childbearing will be parity, age of youngest child and pregnancy.

Marriage and individual characteristics

Apart from changes related to childbearing there may be other changes in the composition of the population that could account for the recent increase in marriage trends. A large body of research has shown that the propensity to marry varies across a range of individual characteristics (see e.g. Andersson 1998, 2004; Bracher and Santow, 1998). In order to investigate whether there may be some compositional change related to certain individual characteristics it is first necessary to identify which characteristics have shown to be related to marriage propensities in earlier studies and that are characteristics that may have become more or less prevalent in the population during the studied period.

A demographic factor that would be interesting to study is whether the fact that an increasingly larger share of the population is foreign-born (Statistics Sweden, 2004: Table 7.1., p. 26) could be a part of the explanation for the up-going marriage trends. Immigrants, at least from some regions, may be more prone to marry than are Swedish-born because they may in general have family values that are more pro-marriage than Swedish-born do. By international comparison Swedes are known for having exceptionally high acceptance of cohabitation as an alternative to marriage (van de Kaa, 2002; Surkyn and Lesthaeghe, 2004). On the other hand, it is possible that foreign-born immigrants quite rapidly conform to Swedish family-demographic behavior due to either value change or adjustment to the institutional context. Andersson and Scott (2005, 2007), focusing on the relationship between labor-market attachment and childbearing, have shown that immigrant women and men conform to Swedish *childbearing* patterns relatively quickly. They argue that this is due to the fact that immigrants and native-born have the same social rights and thus face the same institutional context.

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However, foreign-born women as a group give birth to more children on average than Swedish-born women do. In 2007 the Total Fertility Rate for Swedish-born women was 1.82 children per woman, while it was 2.21 for foreign-born women. Immigrant women born in Nordic countries, the EU-region and other highly developed[2] countries. Women born in other countries, and especially those born in the least developed countries, have had higher levels of childbearing (Statistics Sweden, 2008: p.20-21). The differential childbearing patterns of Swedish-born and foreign-born women could perhaps be a sign of slightly differential family ideals and practices that could also have implications for marriage formation.

Important to note here is that there will be no 'migration effects' on marriage formation in this study because all women in the study will have immigrated before age 15 and marriage can only be entered from age 18 (described in more detail on p.12). Migration effects mean that the marriage propensities would be elevated directly after immigration due to for example postponement of marriage until after migration. Because of the discrepancy in time between immigration and marriage, there will also hardly be any "marriage migrations", meaning that the woman has immigrated in order to marry someone living in Sweden. To control for a possible impact of an increasing share of foreign-born immigrants in the population, country of birth is included in the analysis.

Marriage propensities have also shown to vary across socio-economic characteristics like education, economic independence and labor-market attachment, as shown by for example Bracher and Santow (1998). The main conclusion from that study is that both men and women are more likely to marry if they have necessary resources and attractive traits such as a high degree of education and have a solid attachment to the labor-market and thus are economically independent. Women who are highly educated (have attained tertiary education) are generally more prone to marry than are other women (Bracher and Santow, 1998).

Because there have been large increments in the share of young women who attain tertiary education (see Figure 2 in Appendix A) it is possible that this may mean that there are also larger shares of women marrying. It is also likely that more young people in "marriage ages" are attached to the labor-market and are economically independent during the years of

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[2] According to United Nations' Human Development Index (United Nations, 2009).

marriage increase than in the years of decrease. During the 1990s there was an economic recession in Sweden and unemployment, especially among young men and women, increased during the first years of the decade and remained high up to 1998, where after it decreased again (Statistics Sweden, 2009b). For these reasons individual educational attainment and labor-market attachment are included as variables in the analysis. However, there might be effects of business cycles that are not captured by controlling for the individuals' own economic situations, such as a general optimism or pessimism in society affecting different behaviors.

When studying the relationship between marriage formation and childbearing it is important to keep in mind that these two family transitions may be related to the same underlying factors. Women's childbearing propensities have, in the same way as marriage propensities, shown to be related to the above mentioned socio-economic variables. Swedish men and women wait until after ending education and entering the labor-market before having children. This is displayed in very low childbearing among students (Duvander and Olsson, 2001) as well as childbearing being positively correlated to economic situation and labor-market attachment (Andersson, 2000).

Baizan *et.al.* (2004) studied the propensities to become a parent and enter first marriage in Sweden. The study shows that not only were these two life events affected by the same observed factors such as educational level and employment status, but also likely are affected by the same unobserved factors. The transitions to first birth and first marriage were modeled in such a way that enabled detecting that the unobserved heterogeneity in the two processes were highly and positively correlated, and therefore to a large extent may be capturing the same factors. The authors argue that such unobserved factors may be for example values and norms on the timing and sequencing of family transitions.

Data and methods

To investigate whether the reversal in marriage trends is due to increasing childbearing trends or other compositional changes in the population this study investigates first marriage propensities for women in Sweden during 1993-2003. This period comprises the five years before, respectively after, 1998, when the trend turned from declining to increasing marriage rates. For this study, data for later years than 2003 is not accessible. The trends of first

marriages of women follow the same pattern as the general marriage trends in the population (see Figure 1 or Andersson, 2004). Furthermore, there may be different mechanisms behind first and subsequent marriages and different characteristics connected to the marriage risks. Therefore, only including first marriages makes the analysis more straightforward both theoretically and methodologically.

Swedish register data and study population

The study uses register data derived from a database[3] at Statistics Sweden, containing information from various administrative registers. The data contains information on all residents in Sweden, all marriages registered during the studied period, as well as a large amount of longitudinal and individual-level socio-economic and demographic characteristics and demographic events. The factors that are included in the study are likely related to marriage propensities at the same time as they may have shifted in the population. The study population is never-married women who are 18-68 years old in any of the studied years 1993-2003. Age 18 is set as the lowest age as this is the minimum legal age for marriage[4]. The highest age for women in the study is 68 because women born before 1935 (i.e. age 68 in 2003) do not have as reliable recorded birth histories[5] as women of younger cohorts. Furthermore, only women who are born in Sweden or who immigrated to Sweden before age 15 are included. Age 15 is selected as a reasonable age limit because migrant women might already have had children or married before coming to Sweden without that information being recorded in Swedish registers.

There has been some data cleaning in order to include in the study only those women who were *never*-married and thus under risk of first marriage. In short, women for whom there was an indication of a previous marriage before January 1993 were dropped from the study population. There are two types of data for distinguishing civil status and civil status events in the registers and both were used in the data cleaning. First, for each year 1968[6]-2003 there

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[3] The STAR (Sweden in Time – Activities and Relations) database. The database is maintained by the Stockholm University Demography Unit (SUDA) and the Swedish Institute for Social Research (SOFI) at Stockholm University and is administered by Statistics Sweden.
[4] Although exceptions may be made in some cases.
[5] The coverage of births recorded to women was less than 98% before 1950, i.e. the year that women born in 1935 enter into childbearing ages.
[6] The year that registers were first computerized.

is data on civil status (never married, married, divorced, widowed, registered partner[7], separated from registered partnership) at the end of the year. Second, there is monthly data on vital events of civil status changes (marriage, divorce, becoming a widow, registering partnership, dissolving registered partnership) January 1968 - December 2003.

The first step was to exclude women who were registered as married, divorced or widowed at the end of 1992. After that exclusion there should theoretically be no women left in the data who had ever been married before 1993. However, there were still some cases in the registers due to inconsistencies in the data between the two types of data sources. Women who had had a marriage, divorce, entry into widowhood or registering/dissolution of partnership registered as a vital event any time between January 1968 and December 1992 were excluded (2.3% of the remaining women). Finally, to ensure the quality of civil-status information of women who were old enough to have married before 1968, some additional cases were dropped. These were women in the population of at least age 18 at the end of 1968 who were anything but never-married by the end of this year (0.3% of the remaining women). In total there are more than 1.3 million women and 123 million person-months of exposure in the study.

Variables

This study includes the most important individual characteristics that in previous research (discussed in previous sections) have been shown to be related to marriage propensities. Demographic and socio-economic factors that are included in the study are calendar year, age and parity as in Andersson (1998, 2004), but also pregnancy, age of youngest child, country of birth, educational attainment, income, labor-market attachment and region of residence. Country of birth is the only characteristic that is fixed and the rest are time-varying covariates. Age, pregnancy and age of youngest child are measured monthly and educational attainment, income, labor-market attachment and region of residence are updated yearly. The yearly variables will be measured a year before the marriage risk because this enables distinguishing the chronological order between the covariates and the marriage risk. Other previous studies (see e.g. Bracher and Santow, 1998; Andersson and Scott, 2007) where

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[7] Registering partnership has been a legal option for same-sex couples in Sweden since January 1995. Up until May 2009, marriage was only available for opposite-sex couples, where after it has become available also for same-sex couples.

event-history models are used with both yearly and monthly covariates, as in this study, also measure yearly variables the year before the studied risk.

Age is divided into six categories; *18-23, 24-28, 29-35, 36-40, 41-50* and *51-68* years. **Calendar year** is measured in single years 1993-2003. **Parity** is categorized as having *no children, one child, two children* or *three or more children*. **Age of youngest child** measures time since most recent birth and is categorized into *no children, up to a year old*, *two to three years, four to five years, six years or older*, or having *no children*. **Pregnancy** is created in such a way that a woman is categorized as pregnant during the seven months before she has a recorded live birth in the register. Thus, new pregnancies can only start up to May 2003, i.e. seven months before December 2003, the last calendar month that births are observed. Seven months before birth in most cases equals to two months after conception, a point in time when a woman is likely to know that she is pregnant.

Region of residence is included in the analysis mainly as a control variable and is measured at the end of the previous year. Sweden's 290 municipalities are grouped into nine categories according to structural characteristics such as population size and commercial and industrial structure. This is a classification created by the Swedish Association of Local Authorities and Regions (2009), intended for analyses and comparisons. The division is based on the municipalities' characteristics in 1999. The nine mutually exclusive categories are *metropolitan area (Stockholm, Gothenburg and Malmö), suburb (to a metropolitan area), big city, middle-sized city, industrial municipality, rural municipality, sparsely populated municipality, other large municipality* and *other small municipality.*

Education is measured in June the previous year and is divided into three groups by length of education; *low:* up to two years secondary education, *medium*: three years secondary to less than three years tertiary, and *high*: three years tertiary or more. The data on educational level used in this study is not quite equivalent to the International Standard Classification of Education (ISCED).

Labor-market attachment measures the main economic activity in the previous year and is divided into five categories based on earnings and student status. These are earnings before tax is deducted and they include income replacements. The earnings primarily come from wage incomes, entrepreneurial activities and income replacement due to illness,

rehabilitation, parental leave and benefits related to care for sick or disabled children. Cut-points for dividing women according to earnings are based on the income distribution among all women in the study sample between ages 18 and 65 in 1997 (as this is the middle year that labor-market attachment is studied). After excluding women with extremely low income (below 3000 SEK/month) three equally large income categories were created. Income is counted in prices of 1997, and adjusted for the effects of inflation in the other years.

Women are categorized as having a *low income* if earning between 3.000 and 11.000 SEK/month (the current value of one SEK is approximately 10 euro cent), *medium income* if earning between 11.000 and 15.400 SEK/month and *high income* if earning more than 15.400 SEK per month.

Women are categorized as being enrolled *students* if receiving student allowances of a level corresponding to a minimum of 50% of the available study grant during the year. The study grant is a non-repayable grant offered to for example all students at university or college level. Calculations are made for each year separately as the level of this grant is not adjusted for inflation but is based on another system. In 1997 the full grant was 1476 SEK/month. To be categorized as students the women may not earn more than low income and not receive more money from unemployment benefits than from student financial aid. The student allowance mainly includes grants and loans to those in university or college education, but also to for example immigrants who study Swedish or adults who want to add more primary or secondary education, and who are sometimes at the same time registered as unemployed. Furthermore, all women of age 18 are categorized as students. The large majority of these women are enrolled in high school but receive a study grant that is so low that it will not be captured by the measured used here. Finally, women who do not fall under any of the four categories above are categorized as *non-participants* in the labor-market. Non-participants are for example those who have earnings below 3000 SEK/month, are unemployed, retired or on social welfare.

Country of birth is divided into four categories; Swedish-born, born in another Nordic country, born in another European country, Australia or North America, and those born in any other country. For descriptive statistics on the distribution of exposures across categories of all variables see Table 1 in Appendix B.

A variable that could be informative to include in the analysis is **cohabitation**. Unfortunately Swedish register data do not contain any such information, except for couples who can be linked because they have shared children. In Sweden cohabitation is not only widespread in general, but is also a stage that almost everyone goes through before marriage, as it is very rare to enter marriage directly without cohabiting first (Andersson and Philipov, 2002). In this way, cohabitation is very much related to elevated marriage risks. Cohabitation is likely also related to many of the explanatory variables used in this study, and especially to childbearing. In Sweden most children are born into a union, whether cohabitation or marriage (Andersson, 2002), and most unmarried mothers are living in a cohabiting union. The presence of a child may in this way be an indicator of living in a cohabiting relationship, which will affect the marriage propensities for mothers.

This fact that cohabitation is related both to marriage risks and to explanatory variables in this study means that there is unobserved heterogeneity in the data, that will lead to greater variance in the estimated marriage propensities across different variable categories and to some bias in the estimations (also discussed in Andersson, 1998). The main focus here is not to study the marriage propensities across various characteristics per se but to study how standardizing for various individual characteristics affect marriage propensities across calendar years. Therefore the unobserved heterogeneity is only problematic if it varies greatly across time, in other words if the relationship between the individual characteristics and cohabitation has changed significantly over the studied time period and/or the relationship between cohabitation and marriage has changed significantly. It will be assumed in this study that the unobserved heterogeneity does not vary so considerably across time that it is problematic for interpretations of the results, but could be an issue to keep in mind.

Method of analysis

To maximally utilize the longitudinal and individual-level character of the data, event-history techniques are applied, or more specifically, piece-wise constant baseline intensity models. This statistical method is highly relevant when studying life-course data, because it takes the time that a person is under risk of experiencing a certain event into proper account. An individual's propensity, or risk, to marry is modeled as a function of her individual characteristics in a given month. A model with only main effects (no interaction effects),

where the marriage intensity, h(t), is affected by factors a, b and c, could be written in the following way:

$$h(t) = a_i b_j c_k$$

The marriage propensities are in this study presented by calendar year, where 1998 is used as a baseline year and the relative marriage risks in the other years are related to this reference level. Thus the first marriage risk is set to 1 in 1998 and a relative risk of 1.30 in another year means that the marriage risk was 30 percent higher in that specific year than in 1998. In this way time trends in marriage formation across calendar years are made visible. By adding the other variables to the calculations, the time-trends are standardized for the various individual-level demographic and socio-economic characteristics included in the study. The procedure allows controlling for the role of compositional change, including change related to childbearing. If for example the reversal would be completely smoothed out when standardizing for parity, pregnancy and age of youngest child, this would mean that the increasing marriage trends at the aggregate level are completely related to the changes in childbearing behavior.

The interaction effects between calendar year and the other independent variables are also studied to reveal whether the relationships between covariates and marriage propensities have changed over time. If marriage propensities have increased more strongly for some groups than for others, it is possible to trace how marriage trends possibly are related to true behavioral change in certain groups.

Each month that each person is under risk of first marriage, i.e. is never-married, comprises a unit of analysis. The unit of analysis is thus person-months and means that each single woman contributes with as many observations as the number of months she is under risk of marrying, i.e. is never-married and represented in the data. A woman is observed if she is not married at the end of the previous month and is followed until she marries or is censored.

Women are left-censored at January 1993 and right-censored at December 2003, emigration or death. Those who once have emigrated[8] are not included in further analysis even if re-entering the country, as they may have married abroad without registering it in Sweden.

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[8] In the register data emigrations only include those that are reported to the official authorities by the individual, meaning that emigrations are to some extent underreported.

Women are also right-censored when registering a partnership or at an unexpected and inaccurate civil status change, namely if going from never-married to either divorced, widowed or dissolving a registered partnership. It is possible that the women with unexpected civil status changes actually have been married without that marriage being recorded in the registers, due to e.g. marrying abroad or mistakes in the registration of the marriage. In total these are very few cases (together with women registering a partnership they are 0.6% of all remaining women) and will therefore not affect the results.

Results

In all results presented below marriage risks across calendar years are presented where 1998 is the baseline year and relative risks in other years are related to that baseline level. In Figure 3 the marriage risks across years are only standardized for age. The broken line displays the trend for women of ages 18-68. When the same analysis was done for all single-year age groups separately (not presented) it became clear that the reversal pattern in first marriage risks differs between women of different ages. More specifically, there are different patterns for women up to age 28 and those above that age. Therefore the marriage trends for these two age groups are displayed separately in Figure 3 as well as in later figures.

Figure 3. Relative risks of first marriage, standardized for age, by calendar year. 1998 as reference category within each group.
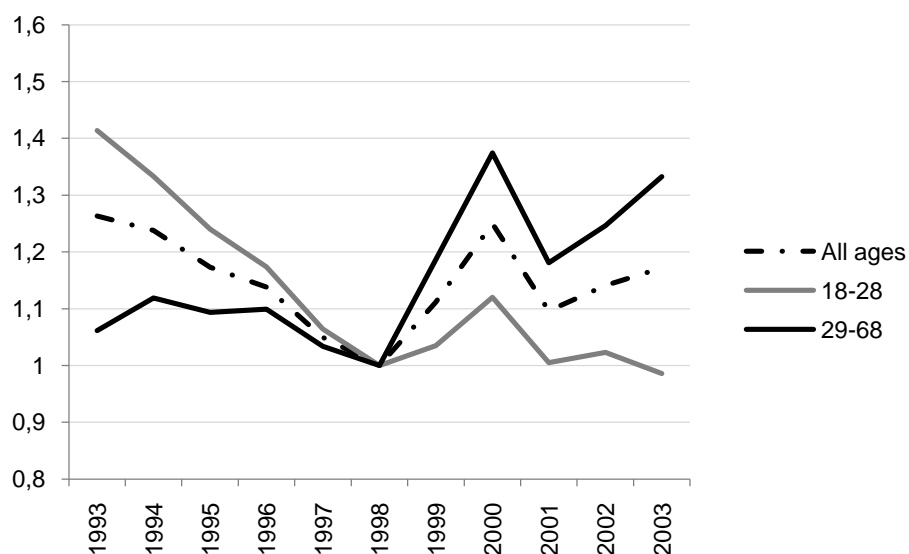
For women up to age 28 the reversal is from declining first marriage risks in 1993-1998 to a quite stable trend in 1998-2003. For women of ages 29-68 there is a quite stable trend up to 1998 that thereafter turns to a clear increase. These patterns reflect a trend reversal in first marriage risks among women of different ages as well as a general postponement of first marriage. The "millennium marriages" in 2000 are visible for both age groups.

Regarding the relationship between the trend reversal in marriage and changing childbearing trends, Figure 4 shows that there are pro-cyclical marriage and childbearing trends. First birth risks follow quite the same trends as first marriage risks; declining trends turning into stable for women of ages 18-28 and stable trends turning to increasing for women of ages 29-48. This pattern furthermore reflects a general postponement also of first birth. A main difference between the trends for first birth and first marriage is that there is no millennium effect on childbearing.

Figure 4. Relative risks of first birth[9] and first marriage for women ages 18-48, by calendar year, standardized for age[10]. 1998 as reference category within each group.
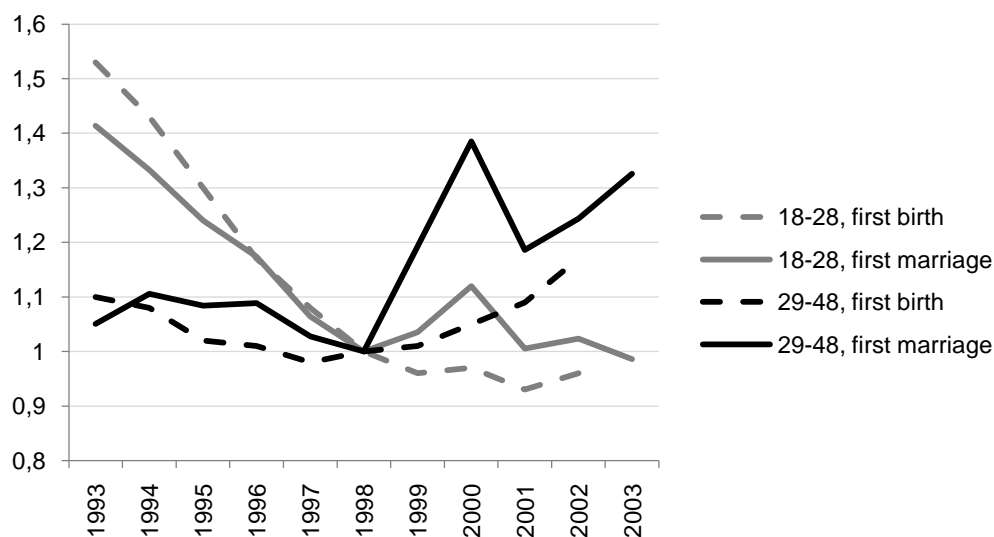
To the question of whether any demographic or socio-economic factors actually can *explain* the trend reversal in marriage, the answer is mixed. When controlling for demographic and socio-economic factors the trend reversal in marriage is still evident among women of ages 29-68, but not of ages 18-28 as can be seen from Figure 5. Data on pregnancy is not included

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[9] Data from Andersson, 2004. Also including women who immigrated between ages 15-35.
[10] Here age is measured in single years.

in the full model in Figure 5 below because additional analyses (not presented) show that including pregnancy in the full model does not affect the trend reversal pattern displayed in the figure. Furthermore, there is not complete information on pregnancy after May 2003, meaning that the full time-trends could not be presented if including this variable.

Figure 5. Relative risks of first marriage, by calendar year. Simple model standardized for age, Full model standardized for age, parity, age of youngest child, country of birth, region of residence and labor-market attachment. 1998 as reference category within each group.
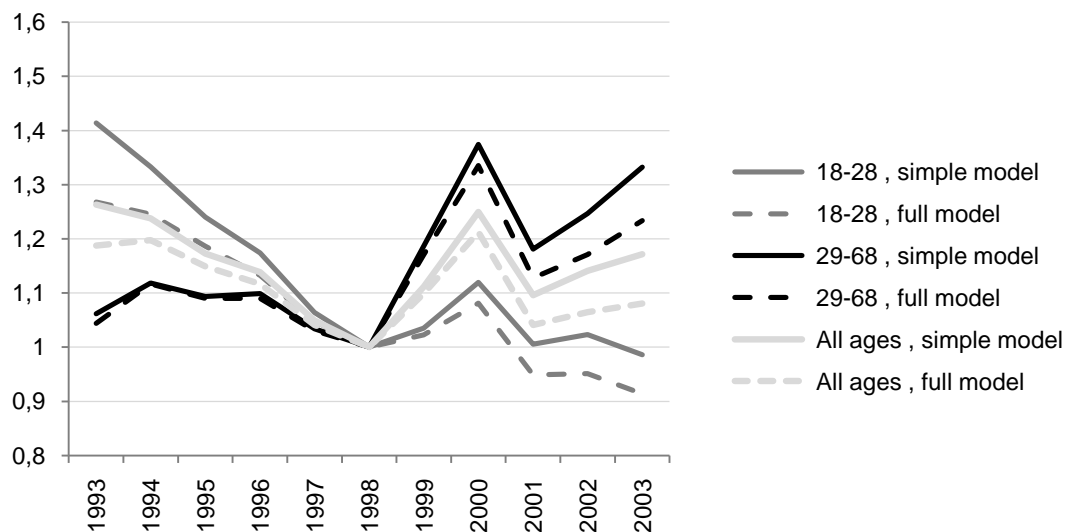
Data on educational attainment is not included in the analysis in Figure 5. There were changes in the registration practice of educational level between 1999 and 2000 in such a way that a significant share of persons were shifted from the low education category in 1999 to the medium education category in 2000 and some with medium education were shifted into high education – without having attained any additional education between those two years. Thus there were notable "artificial" compositional changes between those two years with many women seemingly becoming more highly educated between those two specific years (see Figure 3 in Appendix B). However, when ignoring the artificial compositional change, education hardly explains any of the trend reversal (additional results not presented). For relative first marriage risks across different categories of all variables, see Table 2 and Figure 4 in Appendix B.

When controlling for the effect that each factor has on the trend reversal separately (not presented), it becomes clear which factors are explaining part of the trend reversal in Figure 5. For the younger women the declining trends in 1993-1998 are partly explained by

compositional change in number and ages of children. The childbearing levels were relatively high among women of ages 18-28 in 1993 and strongly decreasing until 1998 (not presented), meaning that part of the relatively higher first marriage risks among the young women was likely related to a larger share of them giving birth and having young children in the early 1990s (as seen from Figure 4 above). Regarding the trends in 1998-2003, a part of the change in marriage trends in the model can rather be explained by improved economic conditions among the never-married women. Women of both age groups had increasingly high income levels and among the younger women a decreasing share was outside the labor-market, i.e. non-participants (not presented). This has positive effects on marriage formation.

Another finding worth noting is that even though parts of the trend reversal can be explained by compositional changes in childbearing and labor-market attachment, the trend reversal is evident among women of all parities, regardless of age of youngest child, and among women of all different labor-market situations. This is evident when making interaction models between the individual characteristics and calendar year (not presented). A separate, but very interesting finding is that there is a clear trend reversal also among women aged 50-68, which means that there is a trend reversal even past reproductive ages that clearly cannot be related to childbearing.

Different categorizations of variables age, parity, age of youngest child, education and country of birth have also been tested to see if using more detailed versions of these variables as possible would have a different effect on the estimated marriage trends, which they did not. In addition, smaller age groups have been studied, especially when exploring the effect of childbearing on marriage propensities across years. All analysis have also been carried out for women of ages 18-28 and 29-50 instead, but the results for ages 29-50 are almost identical to those for women of ages 29-68, even regarding the effect that controlling for childbearing has on the marriage trends.

Discussion and conclusions

This study shows that there is evidence of a trend reversal in marriage formation in Sweden, from decreasing trends in first marriage up to 1998 and increasing trends thereafter. Even when controlling for compositional changes across several relevant factors such as age,

country of birth, region of residence, educational attainment and labor-market attachment, as well as changing childbearing patterns, there is still a reversal in marriage trends. The trend reversal is only partly due to observable compositional changes in labor-market attachment and childbearing. The continuous decline in marriage propensities among younger women most likely reflects a general postponement of marriage formation. Between 1993 and 2003 the mean age at first marriage for women increased quite continuously, from 28.3 to 31.3 years (Statistics Sweden, 2006: Table 2.6.6.).

The relationship between marriage formation and childbearing is an important part of this study. At the aggregate level, this study shows that there are pro-cyclical marriage and childbearing trends, as first marriage and first birth risks follow quite the same patterns over the studied period. However, as already stated, most of the reversal in marriage trends cannot be explained by changing individual-level childbearing behavior in the models of this study. This is likely because the timing of marriage formation in relation to childbearing is so loose in Sweden. Marriage may occur when planning to have children and start a family or several years after becoming a parent. Evidently, the variables for measuring childbearing in this study cannot be used to study prospective childbearing plans, but only children that are already conceived. For this purpose one would need to have data on childbearing intentions, which is possible in for example panel-survey studies. Marriage formation and childbearing may be loosely connected in Sweden but are certainly not disconnected.

Furthermore, the fact that childbearing seems to explain part of the decrease in marriage propensities in this study and that labor-market attachment seems to explain part of the subsequent increase might not be as clear-cut as it first seems. It may very well be that this reflects that all three factors marriage formation, childbearing and labor-market attachment are intertwined. As previously mentioned, both marriage formation (Bracher and Santow, 1998) and childbearing (Andersson, 2000) have in previous research shown to be related to being established on the labor-market. The measure of labor-market attachment may thus be a proxy for childbearing intentions and vice versa.

Regarding future research on marriage formation trends a first step might be to provide further evidence of reversing marriage trends. One possible extension would be to expand on this study by adding a few more years to the analysis in order to investigate if the marriage trends are continuously increasing in Sweden also after 2003. A further extension would be to

see whether increasing marriage trends in the other Nordic countries are also reflecting real behavioral changes.

That there is evidence of a trend reversal in this study is interesting particularly because much research has focused on marriage declines and causes of it, but very little on trends in the opposite direction. As discussed earlier, a common explanation for the decreasing marriage trends has been value change. The declining marriage trends have been seen as driven by changes towards individualism, secularisation and weakening of traditions (van de Kaa 200; Surkyn and Lesthaege, 2004). What role value change may play in explaining the now increasing marriage trends is therefore intriguing. That there would be a reversal of such values is a possible, but maybe not the most likely, scenario. Instead, there may have been other value changes and especially changes in the meaning of marriage. As the meaning of marriage and couple relationships seems to have changed before, during the second demographic transition (ibid.), it could be that it has changed again, in new directions.

It might also be that at this late stage of the transition marriage is taken so lightly that completely different factors than value change now are affecting marriage trends. Salles' (2006) argument about marriage becoming more sensitive to factors that facilitate or obstruct marriage could possibly be applied here and perhaps even such things as pure "fashion" can affect the trends. These are however merely speculations. Now that this study provides evidence of a real new marriage trend in Sweden, one of the forerunner countries of the second demographic transition and the marriage decline, there might be need for new research and theoretical discussions on the role of values and other factors in recent marriage trends. Furthermore, the possible implications for other aspects of family life could be discussed.

References

Agell, A. (1985). *Samboende utan äktenskap. Rättsläge och rättspolitik*. Second edition. Liber förlag, Stockholm.

Agell, A and M. Brattström. (2008). *Äktenskap, samboskap, partnerskap*. Fourth edition. Iustus förlag, Uppsala.

Andersson, G. (2004). Demographic trends in Sweden: An update of childbearing and nuptiality up to 2002. *Demographic Research* 11: 95-110.

Andersson, G. (2000). The impact of labor-force participation on childbearing behavior: Pro-cyclical fertility in Sweden during the 1980s and the 1990s. *European Journal of Population* 16: 293–333.

Andersson, G. (1998). Trends in marriage formation in Sweden 1971-1993. *European Journal of Population* 14: 157-178.

Andersson, G. and D. Philipov (2002). Life-table representations of family dynamics in Sweden, Hungary, and 14 other FFS countries: A project of descriptions of demographic behavior. *Demographic Research* 7: 67-144.

Andersson, G. and K. Scott (2007). Childbearing dynamics of couples in a universalistic welfare state: The role of labor-market status, country of origin, and gender. *Demographic research* 17: 897-938.

Andersson, G. and K. Scott (2005). Labour-market status and first-time parenthood: The experience of immigrant women in Sweden, 1981-97. *Population Studies* 59(1): 21-38.

Baizan, P., A. Aassve and F.C. Billari (2004). The interrelations between cohabitation, marriage and first birth in Germany and Sweden. *Population and Environment* 25(6): 531-561.

Bracher, M. and G. Santow (1998). Economic independence and union formation in Sweden. *Population Studies* 52(3): 275-294.

Council of Europe (2006). *Recent demographic developments in Europe 2005*. Council of Europe Publishing, Strasbourg.

Duvander, A-Z. (1999). The transition from cohabitation to marriage. *Journal of Family Issues* 20(5): 698-717.

Duvander, A-Z. and S. Olsson (2001). *När har vi råd att skaffa barn?* RFV analyserar, 2001:8, National Social Insurance Board, Stockholm.

Giddens, A. (1992). *The Transformation of Intimacy: Sexuality, Love and Eroticism in Modern Societies*. Polity Press, Cambridge.

Hoem, J.M. (1991). To marry, just in case ...: The Swedish widow's-pension reform and the peak in marriages in December 1989. *Acta Sociologica* 34: 127-135.

OECD (2001). Balancing work and family life: Helping parents into paid employment. Chapter 4 in *Employment uutlook*. OECD, Paris.

Salles, A. (2006). The effects of family policy in the former GDR on nuptiality and births outside marriage. *Population* 61(1-2): 141–152.

Sobotka, T. and L. Toulemon (2008). Overview chapter 4: Changing family and partnership behaviour: Common trends and persistent diversity across Europe. *Demographic Research* Special Collection 7 (6): 85-138.

Statistics Sweden (2008). Barnafödande bland inrikes och utrikes födda. Demografiska rapporter 2008:2. Statistics Sweden, Örebro.

Statistics Sweden (2006). *Tabeller över Sveriges befolkning 2005*. Statistics Sweden, Örebro.

Statistics Sweden (2004). Efterkrigstidens invandring och utvandring. Demografiska rapporter 2004:5. Statistics Sweden, Örebro.

Statistics Sweden (1999). Familj. p. 63-79 in *Från folkbrist till en åldrande befolkning – glimtar ur en unik befolkningsstatistik under 250 år. Fakta inför 2000-talet.* Statistics Sweden, Örebro.

Surkyn, J. and R. Lesthaeghe (2004). Value orientations and the second demographic transition (SDT) in Northern, Western and Southern Europe: An update. *Demographic Research,* Special collection 3, article 3: 45-86.

Trost, J. (1978). Attitudes toward and occurrence of cohabitation without marriage. *Journal of Marriage and the Family* 40(2): 393-400.

van de Kaa, D.J. (2002). The idea of a second demographic transition in industrialized countries. Paper presented at the Sixth Welfare Policy Seminar of the National Institute of Population and Social Security, Tokyo, 29 January.

Internet references

Statistics Sweden (2009a). Statistical database, http://www.ssd.scb.se (2009-01-24).

Statistics Sweden (2009b). Sweden's official statistics, statistical information. Labour Force Surveys. http://www.scb.se/statistik/AM/AM0401/2004M02/AM0401_2004M02_SM_AM12SM0401.pdf (2009-05-29).

Swedish Association of Local Authorities and Regions (2009), Classification of Sweden's municipalities. http://gap.skl.se/artikel.asp?A=1646&C=445 (2009-03-20).

United Nations (2009). Human Development Index. http://hdr.undp.org/en/statistics/ (2009-07-02).

Appendix A – Additional background data

Figure 1. Total Female First Marriage Rates (TFMR) for women below age 50 in the Nordic countries, 1960-2004.
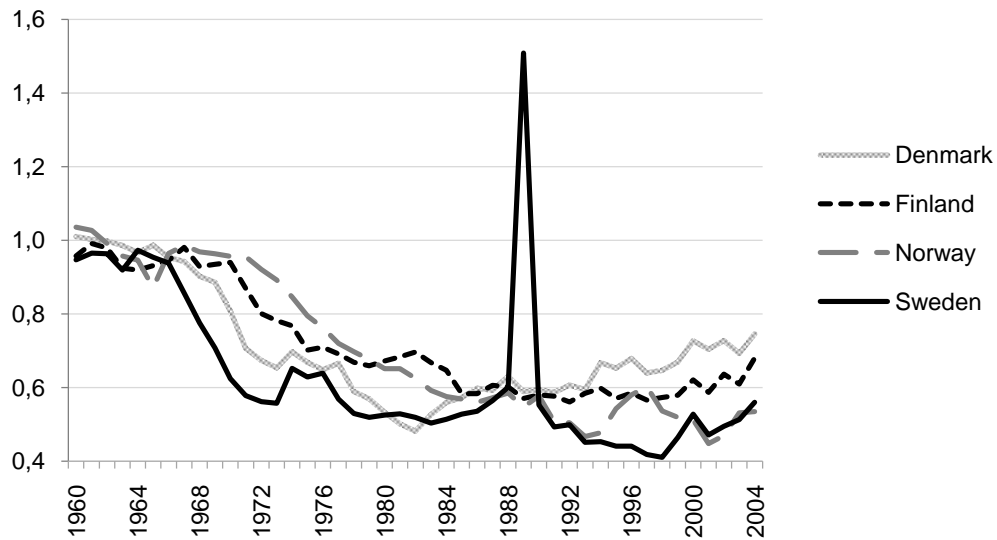
Source: Council of Europe (2006).

Figure 2. Percent of women of ages 20-40 who have attained any post-secondary education, 1992-2002.

Source: Statistics Sweden (2009). Own calculations.

Appendix B – Additional results

Table 1. Distribution of months of exposure across different categories of the variables, for women of ages 18-28 and 29-68 separately, 1993-2003. Percent within each category.

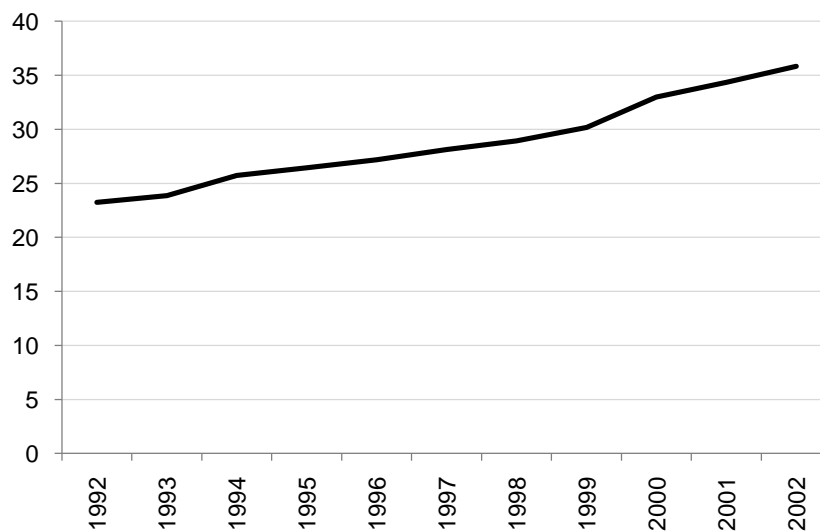|		18-28 years		29-68 years	
Calendar year	1993	9.39		6.70	
	1994	9.35		7.21	
	1995	9.28		7.71	
	1996	9.18		8.22	
	1997	9.12		8.70	
	1998	9.11		9.16	
	1999	9.08		9.60	
	2000	8.99		10.03	
	2001	8.89		10.45	
	2002	8.82		10.90	
	2003	8.78		11.33	
Age	18-23	57.83			
	24-28	42.17			
	29-35			44.54	
	36-40			19.78	
	41-50			23.48	
	51-68			12.21	
Children = Parity x age of youngest child	no children	85.24		42.45	
	parity 1. age 0-1	5.44		3.80	
	parity 2. age 0-1	2.57		3.96	
	parity 3+. age 0-1	0.40		1.67	
	parity 1. age 2-3	2.53		2.73	
	parity 2. age 2-3	1.30		3.93	
	parity 3+. age 2-3	0.15		1.51	
	parity 1. age 4-5	1.05		1.95	
	parity 2. age 4-5	0.50		3.66	
	parity 3+. age 4-5	0.04		1.33	
	parity 1. age 6+	0.64		13.69	
	parity 2. age 6+	0.14		14.54	
	parity 3+. age 6+	0.01		4.79	
Pregnancy[11]	Not pregnant	97.25	(97.15)	97.79	(97.71)
	Pregnant	2.75	(2.85)	2.21	(2.29)
Country of birth	Swedish-born	94.55		97.67	
	Other Nordic	0.75		1.34	
	Other European etc.	1.27		0.53	
	Other countries	3.43		0.46	
	Missing data	0.00		0.00	

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[11] Distribution of women across pregnancy status for the years 1993-2002 in parenthesis.

Region of residence	Metropolitan area	18.49	21.44
	Suburb	13.19	12.81
	Big city	29.87	26.62
	Middle-sized city	12.26	12.66
	Industrial municipality	6.52	6.50
	Rural municipality	3.26	3.61
	Sparcely populated m.	2.07	2.75
	Other large m.	5.92	6.28
	Other small m.	3.64	3.88
Labor-market attachment	Student	35.54	5.91
	Low income	20.43	18.43
	Medium income	16.34	27.64
	High income	7.29	31.43
	Non-participant	20.38	16.59
Education	Low	43.76	55.25
	Medium	49.79	29.98
	High	5.52	14.20
	Missing data	0.92	0.56
Total number of exposures		65547263	57670668
Number of events		132892	135988

Figure 3. Percent of women in the different educational categories[12].

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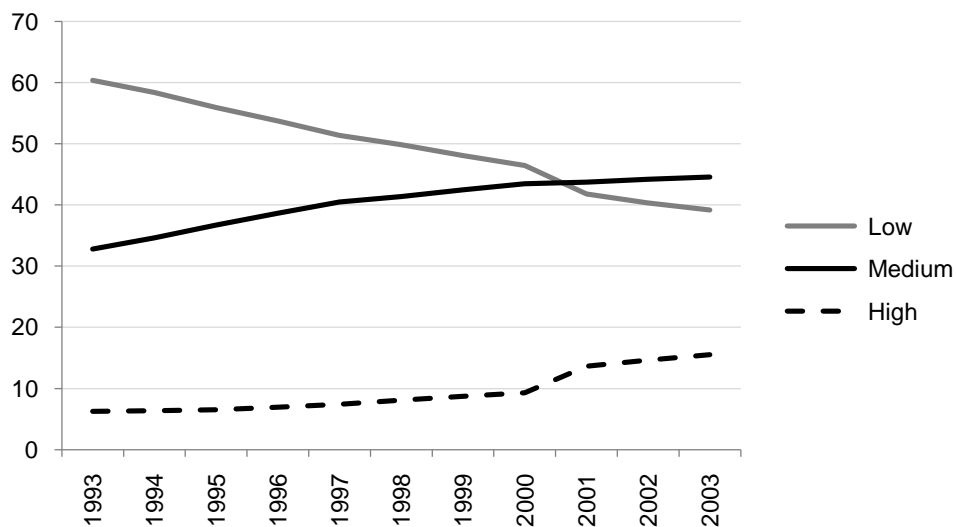
[12] Note that there is a one year lag in the educational data. Thus 1993 refers to education measured in 1992 and 2003 to education in 2002. Only women who are included in this study.

Table 2. Relative risks of first marriage for women of ages 18-28 and 29-68 separately. Model 1 includes calendar year and age. Model 2 includes calendar year, age, children (combination between parity and age of youngest child) [13], country of birth, region of residence and labor-market attachment. Model 3 is the same as model 2 but also includes education.

		18-28 years			29-68 years		
		Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Calendar year	1993	1.41	1.27	1.33	1.06	1.04	1.05
	1994	1.33	1.25	1.30	1.12	1.12	1.12
	1995	1.24	1.19	1.23	1.09	1.09	1.09
	1996	1.17	1.13	1.16	1.10	1.09	1.09
	1997	1.06	1.05	1.06	1.03	1.03	1.03
	1998	1	1	1	1	1	1
	1999	1.04	1.02	1.01	1.19	1.17	1.17
	2000	1.12	1.08	1.05	1.37	1.34	1.34
	2001	1.01	0.95	0.87	1.18	1.13	1.10
	2002	1.02	0.95	0.86	1.25	1.17	1.13
	2003	0.99	0.91	0.82	1.33	1.23	1.17
Age	18-23	1	1	1			
	24-28	3.88	2.68	2.43			
	29-35				11.95	1.70	1.71
	36-40				6.22	0.51	0.51
	41-50				2.81	0.19	0.20
	51-68				1	1	1
Children = Parity x	no children		0.38	0.36		0.46	0.48
age of youngest child	parity 1. age 0-1		1	1		1	1
	parity 2. age 0-1		1.09	1.00		0.92	0.95
	parity 3+. age 0-1		1.17	1.32		1.04	1.14
	parity 1. age 2-3		0.66	0.70		0.61	0.63
	parity 2. age 2-3		0.77	0.86		0.70	0.75
	parity 3+. age 2-3		0.72	0.82		0.63	0.71
	parity 1. age 4-5		0.39	0.44		0.38	0.41
	parity 2. age 4-5		0.57	0.67		0.55	0.62
	parity 3+. age 4-5		0.50	0.59		0.50	0.57
	parity 1. age 6+		0.35	0.40		0.35	0.40
	parity 2. age 6+		0.50	0.59		0.41	0.47
	parity 3+. age 6+		0.25	0.30		0.42	0.49
Country of birth	Swedish-born		1	1		1	1
	Other Nordic		0.97	1.00		0.90	0.95
	Other European etc.		2.11	2.17		1.03	1.03
	Other countries		1.77	1.84		1.07	1.09
	Missing data		8.93	9.23		0.00	0.00

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[13] For results of a combination between parity, age of youngest child and pregnancy, see Figure 4. However, only results for 1993-2002.

Region of residence	Metropolitan area	1	1	1	1
	Suburb	1.03	1.07	1.09	1.15
	Big city	0.97	0.98	0.91	0.94
	Middle-sized city	0.94	0.98	0.86	0.93
	Industrial municipality	1.00	1.06	0.82	0.91
	Rural municipality	0.91	0.96	0.85	0.92
	Sparsely populated m.	0.67	0.69	0.68	0.74
	Other large m.	0.91	0.96	0.85	0.92
	Other small m.	0.90	0.95	0.85	0.93
Labor-market attachment	Student	1	1	1	1
	Low income	1.33	1.37	1.05	1.12
	Medium income	1.59	1.59	1.13	1.18
	High income	2.21	1.96	1.46	1.35
	Non-participant	1.01	1.08	0.75	0.84
Education	Low		1		1
	Medium		1.28		1.36
	High		2.31		1.87
	Missing data		1.17		0.28

Figure 4. Relative risks of first marriage by parity, age of youngest child and pregnancy[14] for women of ages 18-68, 1993-2002. Standardized for calendar year, age, country of birth, region and labor-market attachment. Women of parity one with a child aged 0-1 years as reference category.

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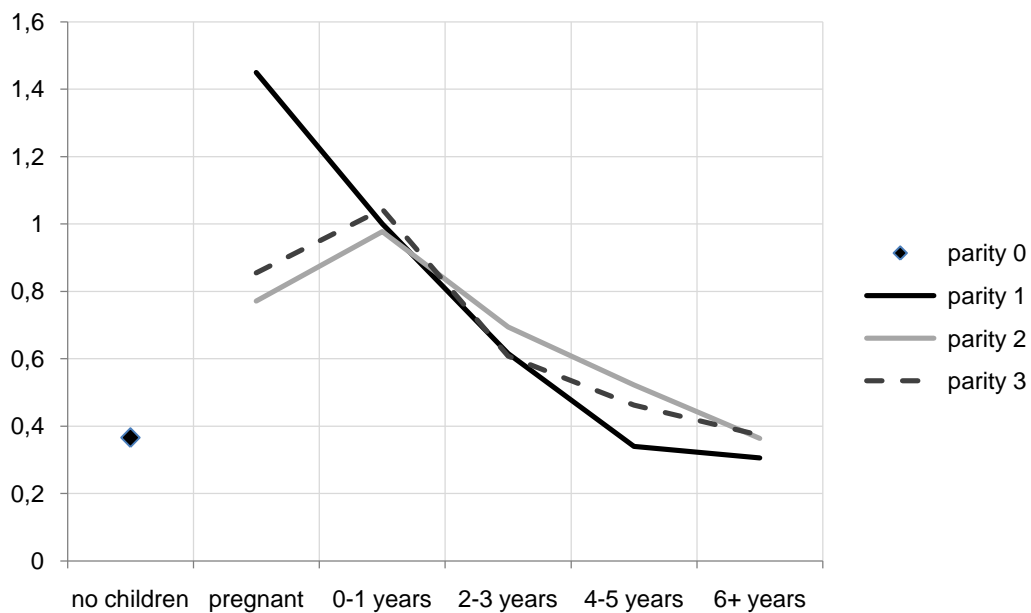
[14] Pregnant women are assigned to the parity they will have after giving birth. For example, women who are pregnant with their first child are assigned to parity 1.