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# Type of Occupation and the Transition to Parenthood in Sweden

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Working Paper 2015: 6

# Type of Occupation and the Transition to Parenthood in Sweden

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**Abstract:** Recent research points to the importance of studying differences in fertility across the labor market. The possibility to combine work and parenthood may, for example, differ across occupations. In the present study, the transition to parenthood is examined for Swedish men and women in 42 different occupational groups covering the entire labor market. Event-history analyses are applied to register data covering 1.3 million individuals in 2002-2007. First-birth risks vary considerably across occupations, also beyond associations related to educational level and earnings. Earnings are positively related to first-birth risks, and seem to be more important for explaining childbearing differences across occupations for men than for women. Factors such as sector, sex composition, and caring and teaching orientation of the occupation are disentangled, which enables an unusually precise depiction of the relationship between work and childbearing. Those in caring or teaching occupations have relatively high first-birth risks, although for men this is only the case when controlling for the relatively low earnings levels in these occupations. Gender differences in fertility are most pronounced in strongly sex-segregated occupations. Differences in possibilities for economic and practical parenting, gendered social interaction, and self-selection are potential explanations for the fertility differentials across occupations.

## **1. Introduction**

In many industrialized countries, attaining sufficiently high levels of both fertility and labor-force participation is seen as a prerequisite for a demographically and economically sustainable society (for discussion see e.g., European Commission 2004, 2007, McDonald 2006). Work and family are also two important parts of life for many men and women and they are often seen as conflicting with each other in the form of time demands, especially for women. At the same time income from work is usually considered a prerequisite for having children (e.g., Becker 1993, Bernhardt 1993, Hoem 1993a, Silva 2014, Duvander & Olsson 2001), and in many industrialized countries the transition to parenthood is often delayed until finishing education and getting established in the labor market (Marini 1985, Thalberg 2011, Tesching 2012, Andersson 2000, Kravdal 1994). It is apparently important to understand how these two aspects of everyday life relate to each other at the individual level, which is reflected in the large body of research on the topic.

The aim of this study is to explore how the transition to parenthood varies across occupations for men and women in Sweden. It builds on recent research that examine how educational field matters for childbearing for women (e.g., Lappegård 2002, Hoem, Neyer & Andersson 2006a,b, Lappegård & Rønsen 2005, Tesching 2012, Van Bavel 2010, Bagavos 2010, Neyer & Hoem 2008, Martín-García & Baizán 2006) as well as for men (Martín-García 2009, Lappegård, Rønsen & Skrede 2011). Those studies extended the research on education and fertility that previously focused on educational level. Many of the differences in childbearing found across educational fields are argued to be reflections of the individual's labor-market opportunities and experiences. Different occupations might offer very diverse working conditions and social settings that affect the possibility of combining work and family life. Men and women might also self-select into different types of occupations based on individual characteristics and what kind of future they want for themselves. This selection might be related to childbearing preferences and behavior.

Educational field may largely be seen as a proxy for occupation and labor-market opportunities. Most educational fields do not lead to one specific occupation, but a more or less wide selection of possible occupations. Occupation may therefore better reflect current circumstances and conditions for everyday life among the employed. Studies on the relationship between specific occupations and childbearing are still very few and most of them use quite wide occupational groups (e.g., Begall & Mills 2012, Martín-García 2010, Martín-García & Castro-Martín 2013, Strand, Wergeland & Bjerkedal 1996) or risk having very few individuals in some categories. Other studies focus on specific groups covering a small section of the labor market (Cooney & Uhlenberg 1989, Dribe & Stanfors 2010, Stanfors 2014).

In this study, I use occupation data which contains high level of detail and reflects each individual's location in the labor market. The data are drawn from Swedish population registers and cover nearly all employed and childless individuals in the population of childbearing ages in the years 2002-2007. In total, 42 occupational groups are defined, which allows the detection of general patterns in childbearing across occupations, as well as existing deviations from such patterns. The analysis is therefore both broad and detailed at the same time and can provide a good overview of where important differences in childbearing appear and identify critical dividing lines between occupations. Event-history analysis is applied to analyze the transition to parenthood. This method takes into account that individuals may actually change occupation as well as other characteristics, and it measures the occupation before the potential birth of any child.

Both men and women are included in the present study, which is in contrast to other related studies (exceptions are Dribe & Stanfors 2010, Stanfors 2014, Andersson & Neyer 2012). It is valuable to be able to make direct comparisons across gender. Some occupational characteristics are expected to be of different importance to men and women. For example, based on the traditional gendered division of paid and unpaid work it can be expected that family-friendly work environments are more important for women than for men. There may also be other expected or unexpected differences or similarities

across gender that can inform about the nature of the interconnectedness between work and childbearing.

## **2. The relationship between occupation and becoming a parent**

Previous research on childbearing differentials across educational fields or occupations has discussed a number of different mechanisms behind the relationship between occupation and childbearing behavior. The most commonly discussed mechanisms are presented thematically in this section, emanating in a number of expectations for what this study may find. This study may also identify other possible patterns or deviations that previous research has not been able to find because of less detailed data<sup>1</sup>, especially when it comes to possible gender differences and similarities. For this more exploratory part of the study no specific expectations are formulated.

It should be noted that the methods approach applied in the present study provides estimates of first-birth risks (see data and method section) which do not distinguish between delaying or foregoing parenthood. Nevertheless, these are two quite related outcomes because childlessness is sometimes an unintended consequence of postponement of childbearing beyond the upper biological limit for conceiving (Miettinen *et al.* 2015). The mechanisms discussed in this section have in previous research been used to explain transitions to first or subsequent births or completed childbearing. These mechanisms can of course exist in parallel and in interaction with each other. As in most related research, causality is not directly detected or examined in the present study but it is discussed in relation to the mechanisms.

Starting with the possible ways that occupation may directly affect childbearing behavior, there are several potential mechanisms. Two main factors often presented in the literature are, using the terminology of Lappegård and colleagues (2011), the possibilities for economic and practical parenting. **Economic parenting** relates to the possibility to provide an economically secure basis for one's family and two important aspects are earnings and employment security. Higher earnings are indeed positively related to first-birth risks in Sweden as well as the other Nordic countries (Silva 2014, Duvander &

Olsson 2001, Thalberg 2011, Andersson, Kreyenfeld & Mika 2014). Phrased very simply, higher earnings alleviate the direct costs of childbearing (e.g., Schultz 1969, Becker 1993). Higher employment security has in many studies (e.g., Hoem *et al.* 2006 a,b, Tesching 2012, Martín-García & Baizán 2006) been mentioned as one reason for finding higher female fertility (either higher completed fertility or higher parity transition rates) among those who most likely work in the public sector. The private sector is more sensitive to fluctuations in the business cycle and is a more competitive environment, and employment security is therefore considered to be lower.

On the other hand, earnings are generally higher in male-dominated occupations (Ekberg 2014), and these are more often found in the private sector (Löfström 2004). Nevertheless, net of earnings the public sector should be more conducive to childbearing due to the expected higher employment security. Possibilities for economic parenting are probably more important for men than women to the extent that men may have somewhat heavier breadwinning burden (Lappegård *et al.* 2011). The ability to support a family has traditionally been closely connected to the father role (Nolan 2005). This may be less salient in contexts like the Swedish where both mothers and fathers are active in the labor market and are expected to provide economically for their families (ref). Nevertheless, men in general take less parental leave and work less part time when having young children than women do even in Sweden (Swedish Social Insurance Agency 2012, Statistics Sweden 2015), indicating that the division of labor within couples is still somewhat traditional. Furthermore, men on average have higher wages than women (Statistics Sweden 2015) and the gender wage gap is larger among parents than among childless individuals (Boye, Halldén & Magnusson 2014).

Compared to most of the related studies on educational field or occupation and fertility, the possibility for economic parenting is more directly measured in this study in the manner of recorded earnings and sector of employment. In line with the arguments above it is expected that:

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<sup>1</sup> Hoem *et al.* (2006a,b) and Lappegård (2002) had very detailed data for women's educational field and childbearing.

*First-birth risks are higher in occupations that provide better possibilities for economic parenting (high earnings and public sector employment). This is slightly more apparent among men than among women.*

**Practical parenting** relates to performing care for one's children. Working conditions that give good possibilities for practical parenting are often labeled "family friendly". Family-friendly conditions can for example be flexible work hours or work arrangements (e.g., working from home), beneficial arrangements for parental leave (e.g., taking in a temporary replacement, extra parental leave benefits paid by the employer that reduce income loss), and possibilities for reducing work-hours (e.g., part-time work, less overtime) (Hobson, Fahlén & Takács 2014, Kaufman & Bernhardt 2012, Hoem *et al.* 2006a, Fahlén 2012). Such aspects are not only regulated by laws or policies at the governmental level, but organizations can have more or less generous arrangements and norms and work culture may vary across workplaces (Fahlén 2012, Hobson 2014, Cook & Minnotte 2008).

Higher childbearing has been found for women in female-dominated fields, caring and teaching oriented fields, or educational fields that often lead to employment in the public sector (e.g., Lappegård 2002, Hoem *et al.* 2006a,b, Martín García 2010, Tesching 2012, Lappegård & Rønsen 2005, Van Bavel 2010, Andersson & Neyer 2012), although it often not entirely clear which of these aspects is actually being measured because they are so intertwined. These findings are to a large extent ascribed to the assumed family-friendly conditions in these environments. Employers in female work environments could be more accustomed to their employees needs when it comes to caring for children and therefore have more family-friendly attitudes and arrangements (Hoem *et al.* 2006a,b, Cook & Minnotte 2008). The public sector is a less competitive environment than the private and might therefore be more generous when it comes to working and parental leave arrangements (Hoem *et al.* 2006a,b, Begall & Mills 2012, Tesching 2012, Hobson *et al.* 2014). Those working in female-dominated environments in the public sector are mostly in caring or teaching occupations and these are commonly claimed to be family friendly (e.g., *ibid.*). Nevertheless, female-dominated occupations are not necessarily

always more family friendly (Glass 1990). For example, those in the typically female domains of service and health care often work during evenings and weekends, which means that the other parent may need to provide care during those hours.

Family-friendly working conditions are indeed related to higher fertility among women (Fahlén 2012, Kaufman & Bernhardt 2012). Although most of the research mentioned here has focused on women, family-friendly environments could be positive for men's childbearing in the same way as for women. For example, men in typically female occupations (National Social Insurance Board 1993) and men working in the public sector or female-dominated workplaces (Bygren & Duvander 2006) take longer parental leave than other men. Among university educated men in Norway, those oriented toward teaching, health and welfare have relatively low levels of childlessness (Lappegård *et al.* 2011).

Possibilities for practical parenting are most likely more important for women than men to the extent that women still have heavier caring responsibilities. In line with this, a Danish study (Andersson & Neyer 2012) found higher childbearing risks for women in female-dominated industries, but higher risks for men in male-dominated ones. Kaufman and Bernhardt (2012) found that in Sweden, the likelihood of a man intending to have a first child is much higher if his female partner has a family-friendly job that facilitates parental leave and part-time work. The family-friendliness of his own job was also important, but did not seem to matter quite as much. Nevertheless, the majority of both men and women in Sweden report that work-family compatibility is important to them when choosing a job (Fahlén 2012). On average, possibilities for practical parenting are expected to be somewhat more important for women than for men and it is anticipated that:

*First-birth risks are higher in occupations that provide better possibilities for practical parenting (female dominated, public sector, caring or teaching oriented occupations). This is especially apparent among women than men.*

Certain aspects of **social interaction** at the work place or during education have been mentioned as a probable partial explanation for the higher fertility that has been found among women in typically female educational fields (e.g., Hoem *et al.* 2006a) or occupations (Begall & Mills 2012). The argument is that gender stereotypical attitudes or roles, such as motherhood, are fostered in environments with many women, leading to more family-centered values and higher or earlier childbearing.<sup>2</sup> This may especially be the case if the contents of the work is related to gender stereotypical roles where typically female or motherly traits are in focus as for example in caring and teaching occupations. When there are many individuals of one's own sex there may be larger possibilities of "doing gender" (see West and Zimmerman 1987 for concept) and to socialize into more typically feminine roles as for example motherhood (e.g., Hoem *et al.* 2006a, Begall & Mills 2012).

The same kind of arguments should also be valid for men, but instead of working in caring or teaching occupations the typical or stereotypical masculine occupations relate more to other types of work, for example in sports, transport and protection (Lappegård *et al.* 2011). Norwegian men educated towards these types of occupations have among the lowest levels of childlessness (*ibid.*). In sum, it may be assumed that:

*First-birth risks are higher for individuals in occupations with a larger share of one's own sex and especially if the work relates to gender-(stereo)typical roles.*

Differences in childbearing behavior between individuals belonging to different occupational groups could to some extent be due to **self-selection** (see e.g., Goldman 2001 for concept). Both choice of occupation and childbearing behavior could be affected by the same specific underlying preferences (Hakim 2000, 2003), personal traits, social background, or aspirations, which are often unobserved factors in quantitative data.

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<sup>2</sup> Related to this, Van Bavel (2010) found that women who were educated in fields where attitudes toward gender family roles were quite traditional (e.g., that a woman should prioritize her family over paid work and that men are more entitled to paid work than women are) were less likely than others to postpone motherhood. These traditional attitudes were not most prevalent in female-dominated lines however, probably due to the fact that the measure for such attitudes was based on both men's and women's responses and men with traditional gender attitudes are probably more likely to be educated in male-dominated fields.

Higher fertility transition rates among women educated to work with health care or education in some cases seem to partly be due to selection processes in for example Sweden (Tesching 2012) and Spain (Martín-García & Baizán 2006), as suggested by statistical modeling where underlying unobserved factors are positively related to both getting educated in these fields and experiencing a fertility transition. The same has not been found for Spanish men (Martín-García 2009). Gender differences are, however, probably smaller in Sweden and such selection may exist also for men.

Nevertheless, it seems likely that the nature of these self-selection processes differ across gender. Among childless students in tertiary education in Sweden, women seem to be more aware of how social policies may be used to alleviate the direct and opportunity costs of childbearing and take such factors more into account in their plans regarding childbearing, studies, and labor-market activity (Thalberg 2013). This may indicate that labor-market choices and childbearing plans are more interrelated for women than for men. Family-oriented men might choose occupations that to a larger extent enable provider ability, which is more in line with traditional fatherhood ideals.

Selection in the present study could be seen as having different parts. First, family oriented persons might be extra likely to choose occupations that give good possibilities for parenting and at the same time have high fertility, in line with arguments made by some scholars (Martín-García and Baizán 2006, Hoem *et al.* 2006a, Hakim 2000, 2003). Here, virtually the same mechanisms are at work as if there would be a causal relationship from occupational characteristics to fertility behavior, assuming that the individual has a somewhat realistic idea of which occupations provide good opportunities for economic or practical parenting. The choices made are only inversely ordered in time, due to the individual's own planning ahead. It has, however, been contested to what degree there is an awareness of such issues when choosing educational or occupational track (e.g., Okamoto & England 1999). A cross-national study of 23 European countries showed that childless women see work-family compatibility as an important factor when choosing a job, especially if they intend to have a child within three years time (Begall & Mills 2011). This type of selection feeds into and strengthens the expectations that are made based on the arguments above about economic and practical parenting.

The other part of selection is that more general factors, such as values, attitudes, personality traits or preferences that are not directly related to parenting possibilities might both affect an individual's choice of occupation and childbearing behavior. For example, some scholars (e.g., Hoem *et al.* 2006a,b, Tesching 2012) have argued that a person who is particularly interested in social relationships or caring in general might be likely to choose an occupation with that kind of orientation and for the same reason have higher completed fertility or quicker fertility transitions. The arguments about this aspect of selection that is not directly related to parenting possibilities lead to the expectation that:

*First-birth risks are higher for those in occupations oriented towards caring or teaching.*

To conclude this section, the mechanisms discussed here are central in the literature connecting field of education or occupation to childbearing. The key dimensions of occupations often discussed are earnings, public or private sector employment, caring and teaching orientation, and sex composition. The mechanisms cannot be directly measured or operationalized by these dimensions, but by examining childbearing across occupations it is possible to get closer to an answer and to raise new questions. Of course, there may be more mechanisms and aspects of occupations that are related to childbearing differentials than those mentioned here.

The many and detailed occupational categories in this study enable the detection of general patterns but also possible deviations that could give additional clues to how occupation and childbearing are related apart from the mechanisms suggested above. Not the least, the detailed specification of occupations allows searching for any interesting gender differences in fertility within specific occupations, which could inform about the possibly gendered nature of the relationship in general between occupation and becoming a parent.

### **3. Work, parenthood, and gender equality in Sweden**

Certain aspects of the Swedish context might shape the relationship between occupation and childbearing differently than in other countries, not the least when it comes to possible gender differences and similarities. Some key aspects are discussed in this section.

In Sweden, high labor-market participation is coupled with relatively high fertility (e.g., Billari & Kohler 2004) which has generally been ascribed to an extensive set of national-level policies that facilitate the combination of work and family life, encourage parent's labor-market attachment and promote gender equality (Neyer & Andersson 2008, Gornick & Meyers 2008, Ferrarini & Duvander 2010, Hoem 2005, Hoem 1993a). Main examples are the extensive parental leave and temporary leave to care for sick children which both are based on income-replacement, as well as individual taxation and the highly subsidized and high quality child care and right to work part time when the children are young. This set of policies that apply to all parents might be expected to diminish childbearing differentials across the labor market as they reduce the opportunity costs of taking time off from work, ensure the right and possibility to return after the leave, and minimize the time conflict between work and family life.

In addition, the Swedish labor market is relatively regulated in terms of for example work hours, working conditions, and salaries compared to many other industrialized countries (Björklund *et al.* 2006). This should also mean that possibilities for providing economically for a family and having time to care for children differ less across occupations than in many other contexts.

In many industrialized countries women often have to choose between motherhood and paid employment when the children are young. In Sweden, where virtually all parents work and mothers do not drop out of the labor-market at childbirth, there is no such selection based on childbearing into or out of the labor market. Mothers of small children above age two are not employed to a lower extent than other women in Sweden, which is in contrast to many other European countries outside the Nordic region (Fahlén 2012). There might instead be selection within the labor market, where some occupations are seen as providing better possibilities for parenting than others. Apart from having

family-friendly working conditions in general, one option to opting out of the labor market is to work part time. Working long part time is quite common among mothers in Sweden (Statistics Sweden 2015, Wennemo & Sundström 2014), and although it is a statutory right for all parents to reduce work hours when having young children and then return to full-time, the attitudes and barriers to part time work probably differ significantly across occupations.

The degree of occupational sex segregation is quite high in Sweden, at least if only taking into account those who are engaged in paid work (Charles & Grusky 2004, Halldén 2014). This sex segregation is sometimes seen as a consequence of women opting for occupations and workplaces that enable them to provide care for their children (for discussion see e.g., Anker 2001, Okamoto & England 1999). Such a selection on the labor market, especially for women, means that there should be important differences in childbearing behavior across the labor market and between occupations in Sweden and other countries with a sex segregated labor market. To summarize, there are arguments for why there could be both smaller and larger differences in childbearing across occupations in Sweden compared to other contexts.

There are also reasons to believe that gender differences are smaller in Sweden than in many other contexts, because it is a relatively gender egalitarian country. Gender egalitarian attitudes are generally well spread and there is for example a common belief that men and women are equally suited to take care of children and that both men and women should work and take care of their children (Evertsson 2014, Fahlén 2013). Sweden has been labeled an “earner-carer model” (Gornick & Meyers 2008, Ferrarini & Duvander 2010), where both partners provide for the family economically and are expected to share the caring of the children. This should mean that both men’s and women’s occupations should matter for childbearing behavior. Nevertheless, Swedish parents on average do not share the care for children and paid work entirely equally. Although policies are gender neutral and enable both parents’ equal share in the care for their children, Swedish mothers take about 75 percent of the parental leave (Swedish Social Insurance Agency 2012). They also reduce their work hours when children are

young, and take leave when their children are ill to a larger extent than fathers do (Statistics Sweden 2015, Swedish Social Insurance Agency 2013).

Altogether, the relationship between occupation and childbearing might be different for men and women. Aspects relating to provider possibilities may have somewhat heavier weight for men and aspects relating to caring possibilities probably have heavier weight for women. These gender differences are most likely smaller in Sweden than in other contexts because of the relatively high gender equality on the labor market and in the care of children.

## **4. Data and method**

### *4.1 Data selection*

All analyses are based on Swedish population data from administrative registers, gathered at Statistics Sweden. The data are longitudinal and at the individual level, covering family-demographic histories and a large amount of socio-economic and background data for the entire Swedish population. The specific data selected for this study covers all childless men and women between ages 18 and 49 in Sweden with relevant occupational information registered and work-related income for any of the years 2001-2006, apart from two restrictions. These restrictions are related to migration and the exclusion of students as described below. Childbearing outcomes are studied for the years 2002-2007. In total, 746,439 men and 547,525 women of birth cohorts 1952-1988 are included in the study.

In order to assure that men and women are correctly defined as childless, two restrictions are applied in the data selection. Only children who have ever lived in Sweden may be linked to their parents in the registers. Therefore; 1) Men and women who are born outside of Sweden are only included in the data if they first immigrated to Sweden before the age of 15. At this age they are likely to still be childless, while at older ages it is possible that some have children but do not bring them at immigration for various reasons. 2) Both Swedish-born and foreign-born are excluded from the dataset from the time of registered emigration if they have ever emigrated from Sweden, even if

returning later. Students enrolled in education<sup>3</sup> are excluded from the selected data because only those who primarily engage in paid work are of interest.

The available data on occupation cover employees between ages 18-64 and come from The Swedish Occupational Register (“Yrkesregistret”). The information on occupation is collected annually through employer’s reports and the occupational data is recorded by single years in the registers. For companies with less than 500 employees in the private sector, Statistics Sweden collect occupational data also from other registers (about 15 percent of the cases in this study) and the data for this group are not always from the current year, but imputed from adjacent years<sup>4</sup>, based on a number of relevant parameters and assumptions. The occupational data are nevertheless of high quality (Statistics Sweden 2012, 2011) although of slightly higher quality for the public sector, and large enterprises in the private sector.

Self-employed, those in companies with only one employed, unemployed, and those outside the labor market for other reasons are not covered by these data. Some are not defined as regular employees and are therefore not included in the original data, e.g.: 1) unpaid internships, 2) temporary employments funded by unemployment allowances, 3) employments overseas or abroad, 4) owner/ part owner/ family members and employments with unknown working hours such as piece-work contracts and project contracts with unknown agreed-on or real work time.

In total, about two percent of those working in the public sector and eight to nine percent in the private sector, lack occupation data each year. Many of these individuals, especially those in the private sector, should actually not be counted as having missing data because they belong to the groups falling outside Statistics Sweden’s definition of regular employees, are below age 18, or are working in companies with only one employee.

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<sup>3</sup> Those who receive any amount of student allowances during the previous year are categorized as students. Such allowances are primarily grants and loans given to those enrolled in tertiary education, but also include payments to immigrants who study Swedish or adults who undertake additional primary or secondary education.

<sup>4</sup> This is almost exclusively an issue for the smaller companies in the private sector and in most cases the occupation data is from the previous year. Additional analyses only including those where the data is from the correct year yield virtually identical results to those presented in this study.

## *4.2 Occupational data*

The occupational data are classified according to The Swedish Standard Classification of Occupations 1996 (SSYK 96) (Statistics Sweden 2012), which is based on the International Standard Classification of Occupations from 1988 (ISCO-88) (International Labour Organization 1990). The data combine information on type of work usually performed and skill level generally required for those in the occupation.

The occupations are classified at different levels of detail, where the most detailed specification that is available for all individuals contains 113 different occupational groups and the second most detailed level of specification contains 27 groups. For the present study, 42 different categories were created in a compromise between creating as many and as homogeneous categories as possible from the unusually large dataset, but not so many that results become difficult to overview or grasp.

For the creation of the 42 occupational groups, preliminary models of the original 113 occupational categories were analyzed without other covariates. In the process of narrowing down the number of categories the aim was to create as homogeneous groups as possible with regard to tasks performed and skill level, i.e. to stay close to the 27 ISCO-88 categories, but only put occupations in the same category if they did not differ substantially from each other in first-birth risks. See Table A1 in the appendix for how the created occupational categories relate to the categories in the original data.

There is of course some variation in the type of job performed and working conditions even within each of the 42 occupational categories created here. There might also be particular gender differences. Even if men and women belong to the same occupational category in this classification, the specific type of work performed and the position within a workplace might differ somewhat across sex. Another gender difference is that the categorization of occupations in the original data in some cases is more detailed for typically male occupations than for female occupations when using the highest level of detail that is available. For example, stationary-plant and machine operators (6.0 percent of the men's exposure time in this data) can be further sub-categorized into 16 different groups, while personal care and related workers (18.2 percent of the women's exposure time in this data) are categorized as one group although

consisting of such different occupations as childcare workers and dental nurses. This problem partly diminishes as I create fewer occupational categories from the original 113. See Table A2 in the appendix for the distribution of men and women across the 42 occupations.

Table A3 in the appendix offers descriptive statistics on the percent of employees within each occupation who work in the public sector and how many percent who are women. These descriptives are derived from own calculations based on men and women of ages 18-64 with occupational data in the years 2001-2006, whether or not included in the study population of childless men and women. Table A3 also denotes which occupations are categorized as caring or teaching oriented and the skill level of each occupation.

The skill level is derived from ISCO-88 (International Labour Organization 1990) and incorporates both the degree of complexity of tasks usually performed and whether theoretical specialist competence is required to perform the tasks. The skill level is quite correlated with the employees' educational level but is wider as it also captures personal competence and skills that can be acquired through working experience or on-the-job training. Furthermore, a person's educational level does not always match the skill level of their actual occupation (Korpi & Tåhlin 2009). The four skill levels are described in terms of what level of education or corresponding training or acquired experience that is generally required for performing the occupation: 1) No education, 2) Secondary education, 3) Extended secondary or short tertiary education (up to 3 years), and 4) longer tertiary education (at least 3-4 years and an academic degree).

#### *4.3 Other factors*

**Age** is the duration variable in the event-history setup and is measured with the accuracy of a month. It is divided into seven internally relatively homogeneous categories in terms of risk level, based on preliminary bivariate analysis of childbearing risks across age. It consists of the groups *18-23*, *24-27*, *28-29*, *30-33*, *34-36*, *37-40*, and *41-49*.

Both the occupational composition and first-birth risks are expected to vary across calendar years<sup>5</sup>, country of birth, type of settlement, and educational level. Therefore these factors are included as controls in the models. **Calendar year** consists of one category for each calendar year 2002-2007. **Country of birth** is divided into the four categories 1) *Swedish-born*, 2) *born in another Nordic country*, 3) *born in another European country or Australia or North America*, and 4) *born in any other country*.

**Type of settlement** is measured at the end of the previous year. The country's nearly 300 municipalities are divided into six categories (The Swedish Association of Local Authorities and Regions 2010). The categories are 1) *metropolitan municipality* (Stockholm, Gothenburg, and Malmö), 2) *suburb to a metropolitan area*, 3) *big/middle-sized city or other large municipality*, 4) *industrial municipality*, 5) *rural or other small municipality*, and 6) *sparsely populated municipality*. **Educational level** is the highest level attained, measured in the middle of the previous year and is divided into seven categories; 1) *less than nine years primary*, 2) *nine years primary*, 3) *up to two years secondary*, 4) *three years secondary*, 5) *less than three years tertiary*, 6) *three years tertiary or more*, and 7) *postgraduate education*.

**Earnings** is an independent variable of main interest for the analysis. These are annually registered taxable work-related earnings of the previous year (salary, income from business activity, travel compensation, temporary sick leave and similar) before tax, and is divided into year-specific earnings deciles for the individuals in the data.

#### 4.4 Event-history analysis

To maximally utilize the longitudinal character of the demographic and socio-economic data, I use a standard method for this kind of data, event-history analysis (Allison 1984, Hoem 1993b). More specifically, I use piece-wise constant baseline intensity models (also called piece-wise exponential intensity, see Blossfeld, Golsch & Rohwer 2007). The event studied is the conception (nine months before a registered live birth) of a first, biological child, although the term used here is “first-birth risk”. Childbearing is covered

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<sup>5</sup> The analyses have also been run using birth cohort instead of calendar year, but yielded practically identical results for the occupation variable.

with the accuracy of a month in the data. The risk of becoming a parent is modeled as affected by the type of occupation, as well as by a set of the other mentioned variables. An individual is seen as coming under risk of experiencing first birth from the month he or she turns 18<sup>6</sup>.

The data are left censored because individuals are not observed until they first have a registered occupation. This means that some individuals are observed already from age 18 while others may not hold an employment until several years later. The window of observation thus opens at time of first having an occupation recorded in the registers for the previous year, but at January 2002 at the earliest. The window closes at whatever comes first of; first conception (nine months before birth), nine months before emigrating, nine months before death, age 50, or March 2007<sup>7</sup>.

Event-history analysis uses information about the duration that an individual spends under risk, i.e. from becoming under risk until the time of experiencing the event or being censored. This has some specific implications for how to interpret the findings in this study. Because occupations that require longer education or training, are often entered at higher ages than other occupations, a shorter time may be spent in those occupations before becoming a parent. These occupations will therefore display higher first-birth risks compared to others. A related discussion has been presented about the relationship between educational level and the transition to motherhood by some scholars (e.g., Kantorová 2004, Lappegård & Rønsen 2005).

To consider such aspects, the results are in some figures presented by the age at which the occupation on average is first entered. This measure is calculated based on all men and women with occupational data 2001-2006, irrespective of being included in the study or not. It measures the median age of the youngest decile in the occupation and is calculated for men and women separately. This measure is created as a proxy for the age individuals first enter any specific occupation, because such data at the individual level is not available for most men and women in the present study.

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<sup>6</sup> Age 18 is chosen because occupation data is not available for younger ages. Those who have had a child before age 18 are not included in the study. Teenage childbearing is extremely low in Sweden (Statistics Sweden 2010; Table 2.2.4.).

<sup>7</sup> The last live births are recorded in December 2007. Therefore the last possible month for conception is nine months earlier, March 2007.

## 5. Findings

The figures in this section display relative first-birth risks across the 42 types of occupations specified. Before turning to the specific findings in the figures, a few things need to be mentioned. A first model (Model 1), which is only presented in Table A4 in the appendix, includes age, calendar year, country of birth, type of settlement, educational level, and occupation. The full model (Model 2) includes all those variables and also the earnings level in a given calendar year. This model is presented in Table A4 in the appendix and is also used as the basis for the figures below. All variables add to the model fit, which means for example that the type of occupation adds to the explanation of differences in the transition to parenthood among the employed beyond such factors as educational level and earnings.

Starting with the role of economic parenting, there is a strong and clear positive gradient in relative first-birth risks by level of earnings as expected, even when controlled for educational level and occupation (as seen in Table A4 in the appendix). With every increase in earnings decile, first-births risks increase for both men and women and the risk for the highest earnings decile is more than twice as high compared to the lowest decile. This pattern also remains when running separate models for the four skill levels and also when removing occupation from the model. Such a finding indicates that possibilities for economic parenting are important for both men's and women's transition to parenthood.

Turning to the results in the figures below, Figure 1-4 are scatter plots where all occupations are plotted. Because the occupational data is so detailed, the occupations are displayed along selected dimensions to identify general patterns in childbearing across occupations, as well as existing deviations from such patterns. The x-axis and the type of symbol represent selected characteristics of the occupation. These characteristics are skill level, general age at first entering the occupation, share working in the public sector, and sex composition in the occupation. These characteristics are not entered into the models as macro variables<sup>8</sup> but are used to create the scale for the x-axis and illustrate the

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<sup>8</sup> In additional analyses, such macro variables have been created and put into the models instead of the 42 occupation categories (not displayed), yielding findings in line with those presented here. Those estimates

findings. Figure 1-4 are based on the full model where the results are controlled for earnings, because the clear and strong impact of earnings has already been seen. The next step is to see what other factors of an occupation, net of earnings, that are related to childbearing. Still, findings from what is revealed when not controlling for level of earnings are discussed in relation to each figure to get a better understanding of the role of economic parenting. In Figure 5, the first-birth risks for women in a given occupation are instead plotted against the corresponding risks for men to get a closer look at gender differences and similarities. All figures (1-5) include a trend line that describes a linear relationship between the x-axis and y-axis in order to facilitate interpretation.

### *5.1 Skill level and age at entering the occupation*

The first figure displays first-birth risks across skill level of the occupation and general age at entering the occupation, before going into more explanatory dimensions of occupation. This provides an introductory overview of how occupations relate to first birth risks when taking into account the age at entering the occupation and skill level, which as discussed potentially reflect the method used rather than anything else. A first apparent finding from Figure 1 is that there is considerable variation in first-birth risks across occupations even when educational level and earnings are accounted for.

The relative risks for women range from 0.61 (Armed forces) to 1.45 (Pre-primary education teachers) and for men from 0.78 (Library, filing, mail carriers and sorting clerks) to 1.87 (Police officers and detectives). The scale of the y-axis (the relative risks) in all figures is different for men and women, although the variance in first-birth risks seem to be quite equal for men and women when controlling for earnings<sup>9</sup>. The reference category is “Office clerks, secretaries” because it is one of the largest categories for both men and women.

There is an underlying positive association between skill level and childbearing which seems to be explained by the fact that highly skilled occupations are generally

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conceal information about what specific occupations that are driving the findings and are therefore less illuminating than the figures presented here.

<sup>9</sup> Those in the occupation with the highest risk have about 2.4 times as high risk level compared to the occupation with the lowest risk.

entered at higher ages. For both men and women first-birth risks are, as expected, clearly positively associated to the general earliest age of entering an occupation. This is kept in mind when interpreting the succeeding findings below.

**Figure 1.** Relative first-birth risks for men and women separately, full model. First-birth risks (y-axis) plotted against the general age at first entering an occupation (x-axis), by skill level of the occupation. Risks relative to “Office clerks, secretaries”.



Source: Swedish population registers; author’s own calculations.

The same conclusions about skill level and starting age can be drawn when not including earnings in the model. Some highly skilled occupations, however, display higher first-birth risks when not taking into account that these provide higher earnings. Especially senior officials and managers at large enterprises display among the highest risks for both men and women, even when taking into account that these occupations are generally first entered at around age 30<sup>10</sup>.

When removing earnings from the model, the span of relative first-birth risks across occupations increase for men (range from 0.78 to 2.25), but not for women. This could, in line with the expectations, indicate that the level of earnings explains more of the variation in first-birth fertility across occupations for men and that possibilities for economic parenting are somewhat more central for differences in childbearing across occupations for men than for women.

There are a few outliers from the general pattern in Figure 1. For both men and women, “Librarians and archivists” display much lower childbearing risks than those in occupations with similar age at first entry. Hoem *et al.* (2006a,b) also found low completed childbearing and high childlessness among Swedish women educated to be librarians. They speculate that it could be due to relatively low earnings in this group compared to those with equally high education or due to other factors such as specific preferences or norms in this group. The findings here are standardized for earnings, so the latter explanation, that there is some self-selection process or something in the social environment behind this low fertility, seems more likely. For men also those working as filing, mail sorting, and library clerks have unexpectedly low first birth risks. This occupational category may contain many men and women who pass through this occupation in their young years before moving on to studies or other occupations.

Male “Police officers and detectives” have very high first-birth risks, while their female counterparts do not. Women in the armed forces and those in protection work have very low first-birth risks, while their male colleagues display quite average risks. Childbearing for men and women in the police force, armed forces and protection work is further discussed below in relation to gender differences in specific occupations. Female

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<sup>10</sup> The mean age at first birth for these years (2002-2007) was 28.6-29.0 for women and 31.0-31.5 for men

“Garbage collectors and related workers” display unexpectedly high risks, but because they are a small category with relatively large internal variation, this finding is not discussed further. Occupations oriented toward caring or teaching display relatively high risks, apart from those teaching in tertiary education, which is further discussed below.

## *5.2 Caring and teaching orientation*

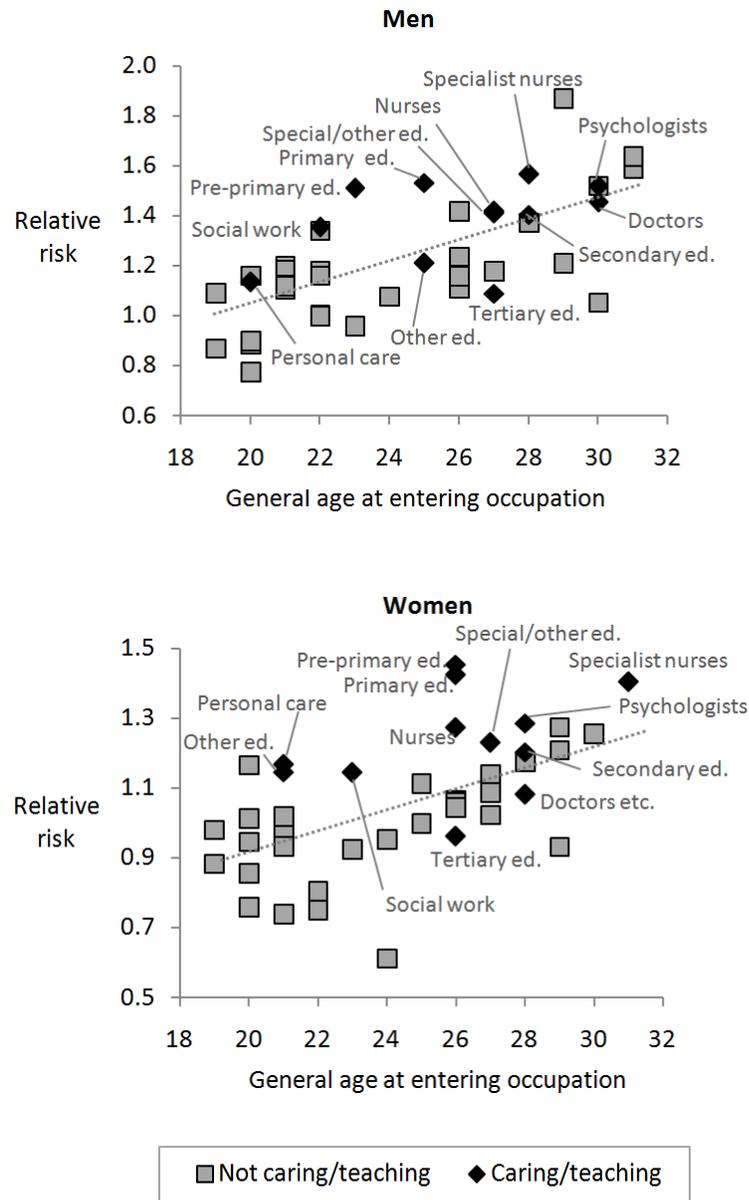
In Figure 2 the caring and teaching oriented occupations are specifically plotted with a different type of symbol than other occupations. For women, we can see that for any given value along the x-axis, the birth risks are higher for women in occupations oriented towards caring or teaching, than other occupations. There are two exceptions: teachers in tertiary education and the category of medical doctors, dentists, pharmacists and similar occupations. Men in caring or teaching occupations do not display as strikingly high childbearing risks, but generally higher levels than men in other types of occupations on average. Men in these occupations have risks above the trend-line, apart from those who teach in tertiary education and the “Other education associate professionals”.

These exceptions are logical. Teachers in tertiary education might actually not primarily be teaching but rather conduct research. “Other education associate professionals” is a mixed category of those who work as instructors or teachers to children or adults outside the regular schooling system, such as driving instructors or acting class teachers, and men and women might belong to very different sub-categories. The category including medical doctors also consists of a large share of dentists, pharmacists, and similar groups whose work is not as involved with close care. For this category the risk is, however, much higher when not controlling for earnings.

These findings are expected. They indicate that there is either something in the caring and teaching occupations that is conducive to childbearing (family-friendly working conditions, culture, socialization etc.) or that men and women who are likely to have children or to do so at earlier age are more selected into these occupations. When not controlling for earnings, the positive association with caring or teaching orientation is only slightly weaker for women. For men it disappears, which indicates that the relatively

low wages in these occupations outweigh the positive association of being in a caring or teaching occupation as such.

**Figure 2.** Relative first-birth risks for men and women separately, full model. First-birth risks (y-axis) plotted against the general age at first entering an occupation (x-axis), by caring/teaching orientation. Risks relative to “Office clerks, secretaries”.



Source: Swedish population registers; author’s own calculations.

Another finding is that men and women who work with children, as teachers in pre-primary or primary education, have even higher risks than those in other caring and teaching occupations, also when taking the general age at first entering the occupation into account. For women this is also the case for specialist nurses, of whom many are midwives. This difference within caring and teaching occupations remains when not controlling for earnings but for men it is quite small. It could be due to specifically beneficial working conditions. For example, teachers in primary and pre-primary education might have work schedules and holidays that fit well with those of one's own potential children. Such an explanation, however, does not go in line with the fact that secondary education teachers who should have similar conditions have much lower first-birth risks. A more likely explanation is that there is selection based on interest in children. The interest for working with children might be related to the interest of having own children. There could also be aspects of the culture, socialization or norms in these occupations that make the employed less likely to remain childless. For example it might be seen as deviating to remain childless in these occupations after a certain age. It is also possible that those who remain childless for a long time may opt out of these occupations.

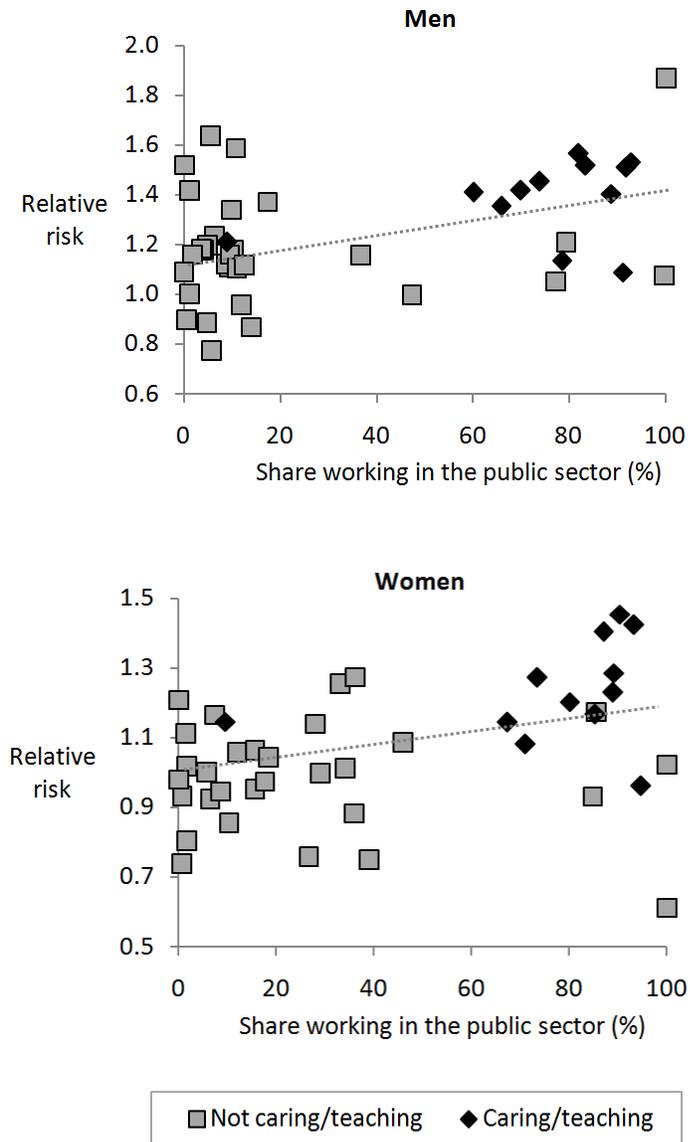
Caring and teaching oriented occupations are often female-dominated and in the public sector. These factors will therefore be partly disentangled below. In Figure 3 and 4 caring and teaching occupations are represented by another symbol than other occupations, while the x-axis now is the share in the occupation working in the public sector (Figure 3) or share of women in the occupation (Figure 4).

### *5.3 Public and private sector*

For both men and women, there is a positive association between the share of people in an occupation who work in the public sector and first-birth risks (Figure 3), but it seems to be driven by the higher first-birth risks among those in caring and teaching occupations. This conclusion remains when not controlling for earnings.

To look closer at this unexpected finding that public sector employment is not necessarily related to higher first-birth risks, some additional analyses (not displayed) were performed with information about what sector each individual is actually employed

**Figure 3.** Relative first-birth risks for men and women separately, full model. First-birth risks (y-axis) plotted against the share working in the public sector in an occupation<sup>11</sup> (x-axis), by caring/teaching orientation. Risks relative to “Office clerks, secretaries”.



Source: Swedish population registers; author’s own calculations.

<sup>11</sup> Based on all men and women aged 18-64 in the occupational data 2001-2006, irrespective of being in the present study or not. See Table A3 in the appendix for more detail.

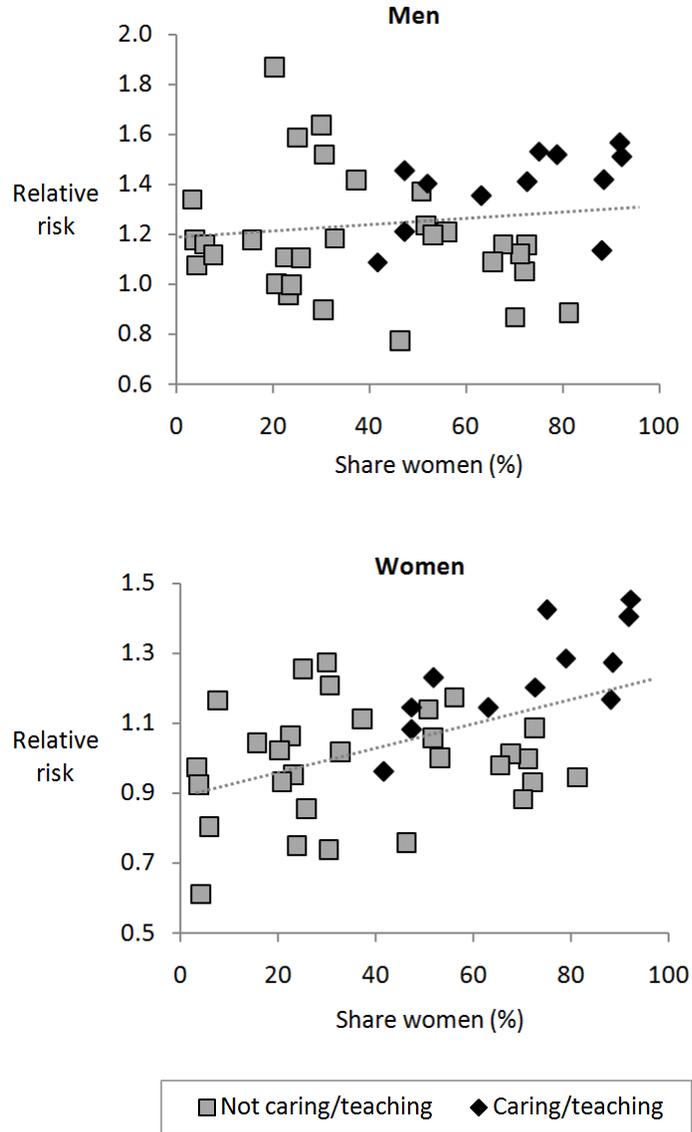
in. When adding a dummy variable for sector of employment to the full model there was no association between public sector employment and first-birth risks for women, but a slight negative one for men. If then removing earnings and occupation from the model there was a weak positive association for women and a weak negative for men. In line with this, additional analyses where occupation was interacted with sector of employment showed no noteworthy difference between working in the public or the private sector within occupations for women (with and without control for earnings), but a slight negative association between first-birth risks and public sector employment in a handful of occupations for men.

Overall, sector of employment does not show a strong association with the transition to parenthood, although going in somewhat different directions for men and women. It seems as if the caring–teaching dimension matters for fertility but not the type of sector. This may be surprising because the public sector was expected to provide better possibilities both for economic parenting through more secure employments and for practical parenting through more family-friendly work environments. This is further discussed in the concluding section of the paper.

#### *5.4 Occupational sex composition*

In Figure 4, where all occupations have been arranged according to the share of women in the occupation, there is no clear overall association between occupational sex composition and first-birth risks for men, but a negative one among those who do not work with caring or teaching. Overall there might actually be a negative association with the share of women, which is counterbalanced by the high birth risks among those in caring and teaching occupations. For women there is a positive association with female dominance in the occupation, but this is possibly be driven by the high birth risks and positive trend among those employed in education, health and welfare. The positive trend within this group of women may be related to the fact that the most female dominated of these occupations are those oriented towards working with small children and the one with the least women are those teaching in tertiary education.

**Figure 4.** Relative first-birth risks for men and women separately, full model. First-birth risks (y-axis) plotted against the share of women in an occupation<sup>12</sup> (x-axis), by caring/teaching orientation. Risks relative to “Office clerks, secretaries”.



Source: Swedish population registers; author’s own calculations.

<sup>12</sup> Based on all men and women aged 18-64 in the occupational data 2001-2006, irrespective of being in the present study or not. See Table A3 in the appendix for more detail.

A possible, but not certain, interpretation is that caring or teaching orientation is conducive to childbearing, while a larger share of women in the occupation as such is not. This is in contrast to the expectations for women but not for men. Female-dominated occupations were assumed to provide more family-friendly work environments, which were expected to be more important for women's than men's childbearing decisions. Furthermore, having a large share of coworkers of one's own sex was expected to be related to higher first-birth risks because of the increased possibility of fostering gender-typical ideals and roles such as motherhood and fatherhood. Nevertheless, comparing the findings for men and women there is a clear gender difference in that the share of women seems more positive for women's childbearing than for men's, which was expected. The findings remain when not controlling for earnings although the positive association for women is slightly weakened.

### *5.5 Gender differences within specific occupations*

From the findings presented this far, a few gender differences and similarities have appeared. Another way to look at such patterns is to plot the first-birth risks for women against those for men, as in Figure 5. The results come from the model that is not standardized for earnings. Overall, there is a striking similarity across sex in how specific occupations relate to first-birth risks, but there are also essential gender differences for specific occupations.

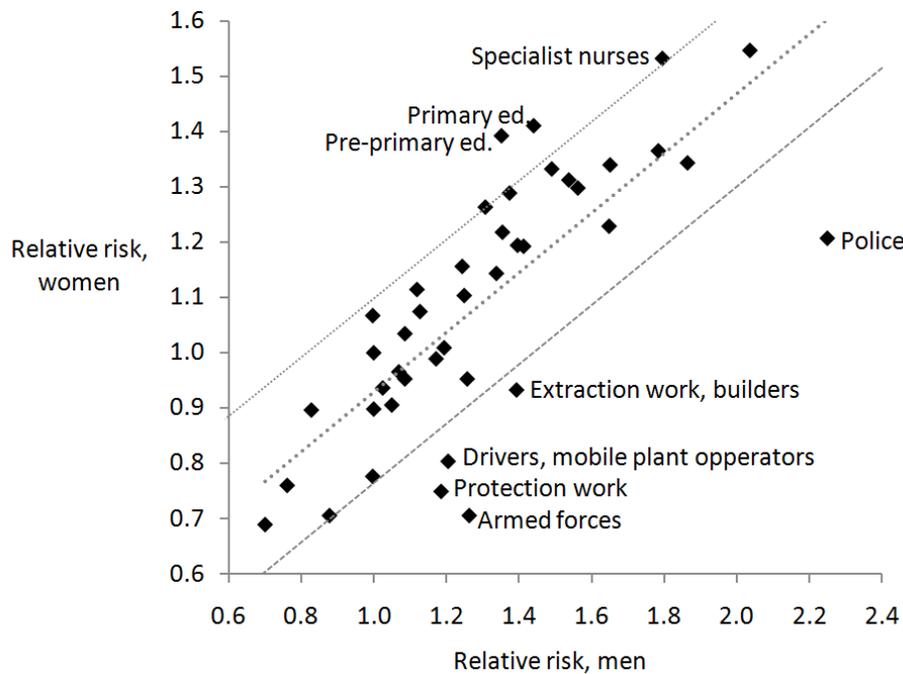
Occupations displaying unexpectedly higher first-birth risk for men compared to women are "Armed forces", "Police officers and detectives" and "Protection workers" (the latter consisting of fire-fighters, security/prison guards, and patrolmen), followed by "Drivers and mobile-plant operators" and "Building and extraction trade workers". The common denominator is that these are all male-dominated occupations, with less than six percent women (apart from the police and protection workers where 20 percent are women). In addition, these occupations are heavily associated with typically masculine traits.

The occupations where women have relatively higher first-birth risks than men are all female-dominated and related to caring or teaching work involving small children.

“Pre-primary-education teachers” and “Specialist nurses” have about 92 percent women, although “Primary education teachers” consist of just 75 percent women. Female specialist nurses more often belong to the subgroup of midwives than their male counterparts do. Men in these occupations actually have quite high birth risks as well, as has been shown above, but the women have relatively much higher levels, especially when not controlling for earnings.

The patterns found here are not due to gender differences in age at starting the occupation or the share working in the public sector. The findings remain when adding control for own earnings. In line with the expectations, these findings indicate that working in a gender-typical, or even gender stereotypical, occupation is related to higher childbearing risks and that working in a gender-atypical occupation is related to lower levels.

**Figure 5.** Relative first-birth risks for women by the relative first-birth risks for men, not controlled for earnings. Risks relative to “Office clerks, secretaries”.



Source: Swedish population registers; author’s own calculations.

### *5.6 Sensitivity analysis*

Analyses have also been performed 1) only including Swedish-born, 2) also including foreign-born who immigrated to Sweden between age 15 and 30, 3) with birth instead of conception as the event, 4) also including a variable measuring the individual's age at first entering the window of observation (to get an indication of whether the left censoring affects the results presented), and 5) excluding those in the lowest income decile (to ensure that the findings are not driven by those who worked very few hours, e.g., students who were working extra but not receiving any student grants or loans). None of these analyses yielded results that differ in essence from those presented here.

To see whether the findings are the same when covering a longer study period, the analyses were also performed on data from a register called "Lönestrukturstatistiken" (Statistics Sweden 2011, 2012) that covers five additional years, and ranges from 1997-2007. This data was not used for the main analysis because there is no complete coverage for firms in the private sector with less than 500 employees, but instead a sample where the likelihood of being surveyed decreases with firm-size. Nevertheless, those analyses yielded results fully in line with those presented here.

## **6. Conclusions and discussion**

This study provides an overview of the variation in the transition to parenthood for employed men and women in different segments of the labor-market, namely across occupations, which reflect individuals' locations in the labor market. Even after controlling for demographic and socio-economic individual characteristics and statuses, there are large differences in first-birth risks across occupations. The findings reveal a number of critical dividing lines between occupations as well as interesting gender differences and gender similarities.

In line with, or even beyond, the expectations caring or teaching orientation is a clear and important dividing line between different occupations when it comes to women's first-birth risks and also men's when taking away the negative impact of

relatively low earnings for these occupations<sup>13</sup>. What is really driving the positive association between these occupations and childbearing is not possible to determine with this type of data. This could either be explained by more family-friendly working conditions, although that could be contested for those in health care who often have unsocial work hours, or a certain type of socialization or culture that promotes parenting roles in these types of occupations. It might also be explained by self-selection of men and women with certain backgrounds, interests or personality traits into these occupations and into higher childbearing.

The fact that the women, and to some extent also men, in health care and teaching who work with children have higher first-birth risks than those who work with adolescents or adults indicate the presence of self-selection or a specific culture or norms within these occupations that is conducive to childbearing. Furthermore, working with children in this way may be related to practicing actual parenting behavior, perhaps especially for women who may be more comfortable in forming close relationships with the children (Hansen & Mulholland 2005). Previous studies on educational field or occupation and fertility have not been able to differentiate in this way between different caring and teaching occupations so this is a novel finding. Hoem *et al.* (2006a) and (Lappegård 2002) make similar findings, although in less detail, when studying women's completed fertility across educational fields. Nevertheless they do not emphasize or discuss those particular findings.

In contrast to earlier research on educational field or occupation, public sector work does not seem to be related to higher childbearing risks, beyond the positive association between caring or teaching orientation and first-birth risks. This is not in line with the expectation that the public sector in general provides better employment security and family-friendly working conditions that are conducive to childbearing. This does not necessarily mean that such factors are unimportant for childbearing. Differences between

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<sup>13</sup> The fact that occupational categories are wider for female-dominated occupations than male-dominated is not expected to have any substantial impact on the findings of this study. One exception is that the positive association between caring and teaching orientation and first-birth risks might have been even clearer if it would have been possible to make finer distinctions of certain female dominated occupations and separate between groups such as midwives and other specialist nurses or between childcare workers and dental nurses.

the private and the public sector might actually be smaller in Sweden than in other countries, due to relatively strong regulations of the labor market regarding for example work hours, salaries, and employment security (Björklund *et al.* 2006). Furthermore, the Swedish labor unions are relatively strong (*ibid.*), meaning that occupation could matter more than sector and that conditions that apply in an occupation in one sector affects conditions in the other. Another reason why the findings here differ from previous studies is probably that sector of employment is measured more directly here, and can be disentangled from the role of the caring and teaching dimension of occupations as well as sex composition.

The relationship between occupational sex composition and fertility is not entirely straightforward in this study. For women there is at first glance a positive association between the share of women in an occupation and first-birth risks, but it may be driven by the high first-birth risks among those working in education, health care and welfare. For men these occupations seem to outweigh what is possibly otherwise a negative relationship with the share of women in an occupation. This is an important finding that illustrates the need for continued research to disentangle sex composition and caring and teaching orientation of the occupation even further, for example by measuring sex composition at another level such as the workplace. Either way, the share of women in an occupation is apparently more positive for women's than for men's first-birth risks.

In line with this, occupational sex segregation comes out as a key factor for explaining the gender differences found when making a direct comparison in how specific occupations relate to first-birth risks for men versus women. Women's first-birth risks are relatively much higher than their male counterparts' in some typically female occupations that are oriented towards caring for or teaching children. They are also relatively much lower than their male colleagues' risks in some typically male occupations, especially those that involve working with protection and security. The type of nurturing roles performed when practicing caring and teaching professions, especially when children are involved, is quite related to stereotypical feminine and also motherly traits. Protecting people or property is related to stereotypical masculine roles and might also fit well within a traditional view of fatherhood.

Apparently, working in a gender typical, or gender stereotypical, occupation is more positive for fertility than working in a gender-atypical occupation, as also suggested by Andersson & Neyer (2012). This may, as expected, indicate that in gender homogeneous environments there is an important degree of socialization into gender typical roles and into parenthood, especially if the actual content of the work is in line with gender-typical roles. The opposite could then be true for those in gender-atypical environments. Furthermore, it could be argued that those who make these very gender-atypical occupational choices might be extra inclined to lead less conventional lives also in the private sphere and not conform to traditional gender roles or family formation patterns. Another aspect that could add to the explanation of very low first-birth risks for women in protective or security work is that such work may not be seen as fitting with the mother role. These interesting gendered patterns would not be found if studying only men or only women separately.

Last but not least, another clear finding is that the possibilities for economic parenting seem important for fertility for both men and women as indicated by the robust, large and positive association with own earnings<sup>14</sup>. As expected, it might be an even more important dividing line across occupations for men than for women because the differences in first-birth risks across occupations change more for men than for women when standardizing for level of own earnings. The relative importance of possibilities for economic versus practical parenting seems to differ somewhat across sex, although probably to a lower extent than in less gender egalitarian countries. When not controlling for earnings, caring and teaching orientation is associated with higher first-birth risks for women but not for men. That could mean that for women but not for men, the negative impact of the low earnings in these occupations is outweighed by for example the family-

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<sup>14</sup> Beyond current earnings, having a good future earnings potential has been suggested as either delaying or speeding up the transition to parenthood (for discussion and findings see e.g., Kravdal 1994, Van Bavel 2010). In the present study, there seems to be no clear association between earnings potential and first birth risks, beyond one's current earnings level. This can be seen from the fact that occupational groups that display both much lower and much higher birth rates than expected (in relation to the general age at entering the occupation) are occupations with typically flat wage trajectories. Occupational prestige is another dimension related to earnings and earnings potential. Additional analyses reveal that first-birth risks in this study do not show any clear association with prestige as measured through the Standard International Occupational Prestige Scale (SIOPS) (Treiman 1977, Ganzeboom & Treiman 1996), net of current earnings and the general age at entering the occupation.

friendly environment. These findings are anticipated due to different expectations on mothers versus fathers, for example mothers' larger responsibility for the care of children and fathers' focus on work (Bekkengen 2002). It is important to keep in mind, however, that the overall patterns across occupations are very similar for men and women.

The key dimensions for explaining childbearing differentials across occupations and gender found in this study are caring or teaching orientation, occupational sex composition, and own earnings. Furthermore, by using specifically detailed data, this study allows detecting also other factors, but no other dimension stands out as apparent – apart from the low birth risks among librarians and archivists and the filing, mail, and library clerks. It cannot be ruled out, however, that also other dimensions are important for understanding childbearing differentials across occupations and across gender or that there are other relevant mechanisms than those mentioned here.

One other, and perhaps unexpected, finding could be mentioned. Gender differences in first-birth risks were not found for typical career occupations, but on the contrary gender differences are small for the highly skilled occupations overall. Both men and women working as “Senior officials, legislators, managers” have among the highest first-birth risks also compared to other occupations that are generally entered at equally high ages. These men and women have, perhaps as part of a career plan, postponed parenthood until reaching these high positions. This could indicate that in Sweden such occupations are not necessarily more of an obstacle for childbearing for women than for men. Nevertheless, the gender wage gap is larger among parents than among childless and this is especially the case for those in highly skilled occupations (Boye *et al.* 2014). In addition, women in such leading positions more often work in smaller companies and in the public sector than their male counterparts do (as seen from the data used here). It should be noted, however, that it is not possible to fully evaluate any overall role of skill level for the transition to parenthood because it is so interrelated with the age at entering the occupation.

In the present study only the transition to having the first child is studied. This is, however, the most life-altering parity transition. The timing of the first child seems to be more sensitive to external factors than the timing of subsequent children, at least in

Sweden where there is a strong two-child norm and most parents proceed to having the second child within a quite standardized and short time frame (Andersson 2000, Andersson & Scott 2007). Previous Swedish research has shown that women who are educated in fields oriented towards caring and teaching and in female-dominated fields also have lower levels of childlessness and higher completed fertility (Hoem *et al.* 2006a,b), as well as higher transition rates for higher-order births (Tesching 2012). This indicates that the relatively high first-birth risks found for these groups in the present study might translate into higher total childbearing and not just a quicker transition to parenthood.

Although the data is very rich a key factor is missing, that is partner information. Only if someone is married or has a child it is possible to detect any (cohabiting) partner in the register data. Marriage is not an appropriate measure of being partnered because more than half of all children are born outside of marriage in Sweden (Statistics Sweden 2010; Table 2.2.13). Therefore, some of the childbearing differentials might partly be explained by differences in relationship status. For example, some occupations might be more attractive to a potential partner than others, and this probably differs by gender. Especially those who make gender-atypical occupational choices may be perceived as less attractive as potential partners (Pfof & Fiore 1990). Furthermore, the childbearing plans within a couple are likely affected by both partners' occupation. There may also be considerable occupational homogamy, or other matching of occupations, within couples. To get an even clearer picture about how occupation and childbearing are related, and especially how gender plays into it all, future research could include couples.

Nevertheless, the data in the present study is unusually rich, large and of high quality, which enables the analysis to be more detailed and precise compared to most of the related earlier research. In previous research it is often unclear which of the factors sector, sex composition, or caring and teaching orientation that is actually measured. A major contribution is that this study comes much further in disentangling these factors. If the data allow, coming research should continue such efforts in order to better understand the mechanisms behind the relationship between occupation and childbearing. Not the least, this study illustrates the value of including both men and women in the analysis to

extend our knowledge about work and family life and the central role gender plays in the connection between these two life spheres.

### **Acknowledgements**

I am grateful to Gunnar Andersson and Ann-Zofie Duvander for valuable advice on my work with this study. Elizabeth Thomson, Trude Lappegård, Gerda Neyer, and Jan Hoem have provided helpful suggestions. This study has also benefited from comments at presentations within the Linnaeus Center on Social Policy and Family Dynamics in Europe (SPaDE) network and at Stockholm University Demography Unit (SUDA). Not the least Marie Evertsson, Katharina Wesolowski, Susanne Fahlén, Helen Eriksson, and Sunnee Billingsley contributed at such occasions. I am grateful for financial support from the Swedish Research Council for Health, Working Life and Welfare (FORTE): grant 2008-0782 for the project Welfare, Labor-market Status and Family Dynamics, and the Swedish Research Council (Vetenskapsrådet) via the Swedish Initiative for research on Microdata in the Social and Medical Sciences (SIMSAM): Register-based Research in Nordic Demography, grant 839-2008-7495.

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## Appendix

**Table A1.** Comparison between occupational groups in the present study and in the original register data. Skill level of the occupation and the SSYK-96 code (based on ISCO88) also presented.

Type of occupation (created category)	Skill level <sup>A</sup>	Occupation (sub-categories in original data)	SSYK-96
<b>Armed forces</b>	3 (-)	Armed forces	110
<b>Senior officials, legislators, managers</b>	4 (3+4)	Legislators and senior government officials	111
		Senior officials of special-interest organizations	112
		Directors and chief executives	121
		Production and operations managers	122
		Other specialist managers	123
<b>Managers of small enterprises</b>	4 (3+4)	Managers of small enterprises	131
<b>Natural science professionals</b>	4	Physicists, chemists and related professionals	211
		Mathematicians and statisticians	212
		Computing professionals	213
		Architects, engineers and related professionals	214
		Life science professionals	221
<b>Doctors, dentists, pharmacists etc.</b>	4	Health professionals (except nursing)	222
<b>Specialist nurses and midwives</b>	4	Nursing and midwifery professionals	223
<b>Tertiary education teaching professionals</b>	4	College, university and higher education teaching professionals	231
<b>Secondary education teaching professionals</b>	4	Secondary education teaching professionals	232
<b>Primary education teaching professionals</b>	4	Primary education teaching professionals	233
<b>Special education and other teaching professionals</b>	4	Special education teaching professionals	234
		Other teaching professionals	235
<b>Business, legal, social science, linguistic professionals</b>	4	Business professionals	241
		Legal professionals	242
		Social science and linguistics professionals (except social work professionals)	244
<b>Librarians, archivists etc.</b>	4	Archivists, librarians and related information professionals	243
<b>Writers and creative or performing artists</b>	4	Writers and creative or performing artists	245
<b>Administrative professionals</b>	4	Public service administrative professionals	247
		Administrative professionals of special-interest organizations	248
<b>Psychologists, social workers etc.</b>	4	Psychologists, social work and related professionals	249

**Table A1. (Continued)**

Type of occupation (created category)	Skill level <sup>Λ</sup>	Occupation (sub-categories in original data)	SSYK -96
<b>Physical, engineering associate professionals</b>	3	Physical and engineering science technicians	311
		Ship and aircraft controllers and technicians	314
		Safety and quality inspectors	315
<b>Computer/optical/ electric equipment operators</b>	3	Computer associate professionals	312
		Optical and electronic equipment operators	313
<b>Nurses, physiotherapists, opticians etc.</b>	3	Health associate professionals (except nursing)	322
		Nursing associate professionals	323
<b>Pre-primary education teaching associate professionals</b>	3	Pre-primary education teaching associate professionals	331
<b>Other teaching associate professionals</b>	3	Other teaching associate professionals	332
<b>Social work associate professionals</b>	3	Social work associate professionals	346
<b>Finance and sales associate professionals</b>	3	Finance and sales associate professionals	341
<b>Other associate professionals</b>	3	Agronomy and forestry technicians	321
		Life science technicians	324
		Business services agents and trade brokers	342
		Administrative associate professionals	343
		Customs, tax and related government associate professionals	344
<b>Police officers and detectives</b>	3	Police officers and detectives	345
<b>Pastors, reverends, clergymen</b>	4 (4)	Religious professionals	246
	(3)	Religious associate professionals	348
<b>Artistic, entertainment and sports associate professionals</b>	3	Artistic, entertainment and sports associate professionals	347
<b>Office clerks, secretaries</b>	2	Office secretaries and data entry operators	411
		Numerical clerks	412
		Stores and transport clerks	413
		Other office clerks	419
<b>Library, filing, mail (carriers and sorting) clerks</b>	2	Library and filing clerks	414
		Mail carriers and sorting clerks	415
<b>Cashiers, customer service clerks</b>	2	Cashiers, tellers and related clerks	421
		Client information clerks	422
<b>Housekeeping, travel and service workers</b>	2	Travel attendants and related workers	511
		Housekeeping and restaurant services workers	512
		Other personal services workers	514
<b>Personal care and related workers</b>	2	Personal care and related workers	513
<b>Fire-fighters, security/prison guards, patrolmen</b>	2	Protective services workers	515

**Table A1. (Continued)**

Type of occupation (created category)	Skill level <sup>Λ</sup>	Occupation (sub-categories in original data)	SSYK -96
<b>Shop and stall salespersons etc.</b>	2	Fashion and other models	521
		Shop and stall salespersons and demonstrators	522
<b>Skilled agricultural and fishery workers</b>	2	Market gardeners and crop growers	611
		Animal producers and related workers	612
		Crop and animal producers	613
		Forestry and related workers	614
		Fishery workers, hunters and trappers	615
<b>Building and extraction trade workers</b>	2	Miners, shot firers, stonecutters and carvers	711
		Building frame and related trades workers	712
		Building finishers and related trades workers	713
		Painters, building structure cleaners and related trades workers	714
<b>Metal, machinery and related workers</b>	2	Metal molders, welders, sheet-metal workers, structural-metal preparers and related trades workers	721
		Blacksmiths, tool-makers and related trades workers	722
		Machinery mechanics and fitters	723
		Electrical and electronic equipment mechanics and fitters	724
<b>Craft and related trades workers</b>	2	Precision workers in metal and related materials	731
		Potters, glass-makers and related trades workers	732
		Handicraft workers in wood, textile, leather and related materials	733
		Craft printing and related trades workers	734
		Food processing and related trades workers	741
		Wood treaters, cabinet-makers and related trades workers	742
		Garment and related trades workers	743
		Pelt, leather and shoemaking trades workers	744
<b>Stationary-plant and machine operators</b>	2	Mineral-processing-plant operators	811
		Metal-processing-plant operators	812
		Glass, ceramics and related plant operators	813
		Wood-processing- and papermaking-plant operators	814
		Chemical-processing-plant operators	815
		Power-production and related plant operators	816
		Industrial-robot operators	817
		Metal- and mineral-products machine operators	821
		Chemical-products machine operators	822
		Rubber- and plastic-products machine operators	823

**Table A1. (Continued)**

Type of occupation (created category)	Skill level <sup>^</sup>	Occupation (sub-categories in original data)	SSYK -96
		Wood-products machine operators	824
		Printing-, binding- and paper-products machine operators	825
		Textile-, fur- and leather-products machine operators	826
		Food and related products machine operators	827
		Assemblers	828
		Other machine operators and assemblers	829
<b>Drivers and mobile-plant operators</b>	2	Locomotive-engine drivers and related worker	831
		Motor-vehicle drivers	832
		Agricultural and other mobile-plant operators	833
		Ships' deck crews and related workers	834
<b>Sales and services elementary occupations</b>	1	Street vendors and market salespersons	911
		Helpers and cleaners	912
		Helpers in restaurants	913
		Doorkeepers, newspaper and package deliverers and related workers	914
		Other sales and services elementary occupations	919
<b>Garbage collectors and related laborers</b>	1	Garbage collectors and related laborers	915
<b>Manufacturing, mining, transport laborers</b>	1	Agricultural, fishery and related laborers	921
		Mining and construction laborers	931
		Manufacturing laborers	932
		Transport laborers and freight handlers	933

<sup>^</sup> Skill level in the original data within parenthesis, if different from the skill level ascribed in the present study.

**Table A2.** Distribution of months of exposure in the data selected for the study, across type of occupation, for men and women separately. Percent belonging to each category.

Type of occupation	Men	Women
Armed forces	0.82	0.09
Senior officials, legislators, managers	1.74	1.43
Managers of small enterprises	1.07	0.78
Natural science professionals	6.94	3.07
Doctors, dentists, pharmacists etc.	0.40	0.83
Specialist nurses and midwives	0.08	0.72
Tertiary education teaching professionals	0.92	0.92
Secondary education teaching professionals	0.85	1.26
Primary education teaching professionals	0.94	3.11
Special education and other teaching professionals	0.24	0.50
Business, legal, social science, linguistic professionals	2.12	3.54
Librarians, archivists etc.	0.12	0.41
Writers and creative or performing artists	1.03	1.63
Administrative professionals	0.68	1.39
Psychologists, social workers etc.	0.18	1.12
Physical, engineering associate professionals	5.08	1.64
Computer/optical/ electric equipment operators	2.75	0.96
Nurses, physiotherapists, opticians etc.	0.43	3.67
Pre-primary education teaching associate professionals	0.34	2.79
Other teaching associate professionals	0.14	0.17
Social work associate professionals	0.64	1.06
Finance and sales associate professionals	4.15	4.16
Other associate professionals	1.47	4.07
Police officers and detectives	0.25	0.24
Pastors, reverends, clergymen	0.06	0.09
Artistic, entertainment and sports associate professionals	0.61	0.66
Office clerks, secretaries	5.47	8.81
Library, filing, mail (carriers and sorting) clerks	1.20	1.05
Cashiers, customer service clerks	1.08	4.50
Housekeeping, travel and service workers	1.84	3.53
Personal care and related workers	3.92	18.16
Fire-fighters, security/prison guards, patrolmen	1.46	0.76
Shop and stall salespersons etc.	5.20	9.24
Skilled agricultural and fishery workers	1.55	0.80
Building and extraction trade workers	1.07	0.68
Metal, machinery and related workers	9.36	0.39
Craft and related trades workers	7.21	0.34
Stationary-plant and machine operators	6.03	0.55
Drivers and mobile-plant operators	13.69	3.45
Sales and services elementary occupations	3.68	6.34
Garbage collectors and related laborers	0.45	0.04
Manufacturing, mining, transport laborers	2.74	1.03
<b>Total number of person-months</b>	<b>28,575,330</b>	<b>17,792,784</b>

Source: Swedish population registers; author's own calculations.

**Table A3.** Characteristics of each occupation. Calculations for the share of women and working in the public sector as well as the earliest age at entry from calculations based on men and women of ages 18-64 in Sweden 2002-2007. Share working in the public sector and earliest age at entering occupation calculated and presented for men and women separately. For more description see the Data and methods section.

Occupation	Skill level	Caring/teaching	Share women (%)	Share in public sector (%)		General age at entry^	
				Men	Women	Men	Women
Armed forces	3	No	4.1	99.7*	100.0	24	24
Senior officials, legislators, managers	4	No	25.0	10.8	33.0	31	30
Managers of small enterprises	4	No	29.9	5.5	36.1	31	29
Natural science professionals	4	No	22.4	9.3	15.6	26	26
Doctors, dentists, pharmacists etc.	4	Yes	47.3	73.9	71.1	30	28
Specialist nurses and midwives	4	Yes	91.9	81.9	87.1	28	31
Tertiary education teaching professionals	4	Yes	41.6	91.1	94.7	27	26
Secondary education teaching professionals	4	Yes	51.9	88.7	89.0	28	27
Primary education teaching professionals	4	Yes	75.0	92.7	93.3	25	26
Special education and other teaching professionals	4	Yes	72.6	60.1	80.1	27	28
Business, legal, social science, linguistic prof.	4	No	50.7	17.4	27.9	28	27
Librarians, archivists etc.	4	No	72.1	77.2	84.8	30	29
Writers and creative or performing artists	4	No	51.6	6.3	11.9	26	26
Administrative professionals	4	No	56.0	79.3	85.6	29	28
Psychologists, social workers etc.	4	Yes	78.9	83.3	89.2	30	28
Physical, engineering associate professionals	3	No	15.6	10.3	18.3	27	26
Computer/optical/ electric equipment operators	3	No	23.1	11.9	15.6	23	24
Nurses, physiotherapists, opticians etc.	3	Yes	88.5	69.9	73.5	27	26
Pre-primary education teaching associate prof.	3	Yes	92.2	91.8	90.5	23	26
Other teaching associate professionals	3	Yes	47.3	9.0	9.6	25	21
Social work associate professionals	3	Yes	63.1	65.9	67.4	22	23

**Table A3. (Continued)**

Occupation	Skill level	Caring/teaching	Share women (%)	Share in public sector (%)		General age at entry <sup>^</sup>	
				Men	Women	Men	Women
Finance and sales associate professionals	3	No	37.2	1.2	1.4	26	25
Other associate professionals	3	No	72.4	36.7	45.9	26	27
Police officers and detectives	3	No	20.2	100.0	100.0	29	27
Pastors, reverends, clergymen	3	No	30.5	0.1	0.0	30	29
Artistic, entertainment and sports associate prof.	3	No	53.0	4.9	5.7	21	21
Office clerks, secretaries	2	No	71.1	8.7	29.0	21	25
Library, filing, mail (carriers and sorting) clerks	2	No	46.2	5.7	26.6	20	20
Housekeeping, travel and service workers	2	No	67.6	9.5	34.0	20	20
Personal care and related workers	2	Yes	88.1	78.5	85.3	20	21
Fire-fighters, security/prison guards, patrolmen	2	No	23.8	47.3	39.0	22	22
Shop and stall salespersons etc.	2	No	65.4	0.0	0.0	19	19
Skilled agricultural and fishery workers	2	No	25.7	11.0	10.3	21	20
Building and extraction trade workers	2	No	3.2	9.8	17.6	22	21
Metal, machinery and related workers	2	No	3.7	4.1	6.4	22	23
Craft and related trades workers	2	No	32.7	3.7	1.6	21	21
Stationary-plant and machine operators	2	No	20.7	1.1	0.7	22	21
Drivers and mobile-plant operators	2	No	5.8	1.8	1.6	22	22
Sales and services elementary occupations	1	No	70.1	13.9	35.9	19	19
Garbage collectors and related laborers	1	No	7.5	12.5	7.3	21	20
Manufacturing, mining, transport laborers	1	No	30.3	0.5	0.5	20	21

Source: Swedish population registers; author's own calculations.

<sup>^</sup> The median age of the youngest decile in the occupation.

\* The 0.03 percent coded as working in the private sector have an erroneous occupational or sector code.

**Table A4.** Relative first-birth risks for men and women separately. Model 1 includes age, calendar year, type of settlement, country of birth, educational level, and occupation. Model 2 includes the same variables as well as earnings.

	Men				Women			
	Model 1		Model 2		Model 1		Model 2	
	Relative risk	SE						
<b>Age</b>								
18-23	0.43	0.00	0.47	0.01	0.57	0.01	0.62	0.01
24-27	1		1		1		1	
28-29	1.44	0.01	1.39	0.01	1.33	0.01	1.28	0.01
30-33	1.63	0.01	1.52	0.01	1.38	0.01	1.29	0.01
34-36	1.27	0.01	1.16	0.01	0.93	0.01	0.86	0.01
37-40	0.74	0.01	0.67	0.01	0.42	0.01	0.38	0.01
41-49	0.19	0.00	0.17	0.00	0.03	0.00	0.03	0.00
<b>Calendar year</b>								
2002	0.99	0.01	0.98	0.01	1.00	0.01	1.01	0.01
2003	1.00	0.01	1.00	0.01	1.02	0.01	1.02	0.01
2004	1		1		1		1	
2005	1.05	0.01	1.06	0.01	1.05	0.01	1.05	0.01
2006	1.06	0.01	1.06	0.01	1.05	0.01	1.05	0.01
2007	0.89	0.01	0.89	0.01	0.98	0.01	0.97	0.01
<b>Type of settlement</b>								
Metropolitan municipality	1		1		1		1	
Suburb	1.16	0.01	1.15	0.01	1.23	0.01	1.23	0.01
Industrial municipality	1.09	0.01	1.12	0.01	1.36	0.02	1.41	0.02
Sparsely populated municipality	1.00	0.02	1.09	0.02	1.24	0.03	1.32	0.03
Rural or other small municipality	1.16	0.01	1.20	0.01	1.38	0.02	1.45	0.02
Big/middle-sized city or other large municipality	1.11	0.01	1.14	0.01	1.20	0.01	1.25	0.01
<b>Country of birth</b>								
Sweden	1		1		1		1	
Other Nordic	0.81	0.03	0.81	0.03	0.97	0.03	0.98	0.04
Other European etc.	1.08	0.03	1.12	0.03	1.03	0.03	1.05	0.03
Other country	0.92	0.02	0.97	0.02	0.89	0.01	0.92	0.02
<b>Educational level</b>								
<9 years primary	0.69	0.06	0.80	0.07	0.85	0.12	0.94	0.14
9 years primary	0.93	0.01	0.98	0.01	1.02	0.01	1.07	0.01
1-2 years secondary	0.93	0.01	0.95	0.01	0.86	0.01	0.88	0.01
3 years secondary	1		1		1		1	
<3 years tertiary	0.98	0.01	0.97	0.01	0.94	0.01	0.94	0.01
>=3 years tertiary	1.10	0.01	1.06	0.01	1.09	0.01	1.05	0.01
Postgraduate	1.40	0.04	1.29	0.04	1.39	0.05	1.32	0.05
Missing	0.99	0.09	1.08	0.09	1.23	0.13	1.33	0.14

**Table A4. (Continued.)**

	Men				Women			
	Model 1		Model 2		Model 1		Model 2	
	Relative risk	SE						
<b>Occupation</b>								
Armed forces	1.26	0.04	1.08	0.03	0.71	0.07	0.61	0.06
Senior officials, legislators, managers	2.04	0.04	1.59	0.03	1.55	0.04	1.26	0.03
Managers of small enterprises	1.78	0.04	1.64	0.04	1.36	0.04	1.27	0.04
Natural science professionals	1.37	0.02	1.11	0.02	1.29	0.02	1.07	0.02
Doctors, dentists, pharmacists etc.	1.86	0.06	1.46	0.05	1.34	0.04	1.08	0.03
Specialist nurses and midwives	1.80	0.13	1.57	0.11	1.53	0.05	1.40	0.04
Tertiary education teaching professionals	1.09	0.03	1.09	0.03	0.95	0.03	0.96	0.03
Secondary education teaching professionals	1.36	0.04	1.40	0.04	1.22	0.03	1.23	0.03
Primary education teaching professionals	1.44	0.04	1.53	0.04	1.41	0.02	1.42	0.02
Special education and other teaching prof.	1.41	0.07	1.41	0.07	1.19	0.05	1.20	0.05
Business, legal, social science, linguistic prof.	1.65	0.03	1.37	0.03	1.34	0.02	1.14	0.02
Librarians, archivists etc.	1.00	0.08	1.05	0.09	0.90	0.04	0.93	0.04
Writers and creative or performing artists	1.34	0.03	1.24	0.03	1.14	0.03	1.06	0.02
Administrative professionals	1.31	0.04	1.21	0.04	1.26	0.03	1.17	0.03
Psychologists, social workers etc.	1.54	0.08	1.52	0.08	1.31	0.03	1.29	0.03
Physical, engineering associate professionals	1.40	0.02	1.18	0.02	1.19	0.03	1.05	0.02
Computer/optical/ electric equipment operators	1.09	0.02	0.96	0.02	1.03	0.03	0.95	0.03
Nurses, physiotherapists, opticians etc.	1.49	0.05	1.42	0.05	1.33	0.02	1.27	0.02
Pre-primary education teaching associate prof.	1.35	0.06	1.51	0.06	1.39	0.02	1.45	0.03
Other teaching associate professionals	1.13	0.08	1.21	0.09	1.07	0.07	1.15	0.08
Social work associate professionals	1.25	0.04	1.36	0.05	1.10	0.03	1.15	0.03
Finance and sales associate professionals	1.65	0.03	1.42	0.02	1.23	0.02	1.11	0.02
Other associate professionals	1.24	0.03	1.16	0.03	1.16	0.02	1.09	0.02
Police officers and detectives	2.25	0.09	1.87	0.07	1.21	0.07	1.02	0.06
Pastors, reverends, clergymen	1.56	0.14	1.52	0.14	1.30	0.11	1.21	0.11
Artistic, entertainment and sports asso. prof.	1.17	0.04	1.20	0.04	0.99	0.03	1.00	0.03
Office clerks, secretaries	1		1		1		1	
Library, filing, mail (carriers and sorting) clerks	0.70	0.03	0.78	0.03	0.69	0.02	0.76	0.03

**Table A4.** (Continued.)

	Men				Women			
	Model 1		Model 2		Model 1		Model 2	
	Relative risk	SE						
Cashiers, customer service clerks	0.83	0.03	0.89	0.03	0.90	0.02	0.95	0.02
Housekeeping, travel and service workers	1.03	0.02	1.13	0.03	0.94	0.02	1.01	0.02
Personal care and related workers	1.00	0.02	1.12	0.02	1.07	0.01	1.17	0.01
Fire-fighters, security/prison guards, patrolmen	1.19	0.03	1.16	0.03	0.75	0.03	0.75	0.03
Shop and stall salespersons etc.	1.05	0.02	1.09	0.02	0.91	0.01	0.98	0.01
Skilled agricultural and fishery workers	1.00	0.03	1.11	0.03	0.78	0.03	0.86	0.03
Building and extraction trade workers	1.39	0.02	1.34	0.02	0.93	0.05	0.97	0.05
Metal, machinery and related workers	1.26	0.02	1.18	0.02	0.95	0.05	0.92	0.05
Craft and related trades workers	1.20	0.03	1.19	0.03	1.01	0.04	1.02	0.04
Stationary-plant and machine operators	1.07	0.02	1.00	0.01	0.97	0.02	0.93	0.02
Drivers and mobile-plant operators	1.21	0.02	1.16	0.02	0.80	0.04	0.81	0.04
Sales and services elementary occupations	0.76	0.02	0.87	0.02	0.76	0.01	0.88	0.02
Garbage collectors and related laborers	1.12	0.05	1.12	0.05	1.12	0.14	1.17	0.15
Manufacturing, mining, transport laborers	0.88	0.02	0.90	0.02	0.71	0.03	0.74	0.03
<b>Earnings</b>								
1 (lowest decile)			0.63	0.01			0.59	0.01
2			0.71	0.01			0.71	0.01
3			0.78	0.01			0.84	0.01
4			0.87	0.01			0.95	0.01
5			0.94	0.01			0.98	0.01
6			1				1	
7			1.06	0.01			1.05	0.01
8			1.10	0.01			1.10	0.01
9			1.15	0.01			1.20	0.02
10 (highest decile)			1.44	0.02			1.44	0.02
<b>Total exposure time</b>	28,575,330		28,575,330		17,792,784		17,792,784	
<b>Number of individuals</b>	746,439		746,439		547,525		547,525	
<b>Number of events</b>	156,054		156,054		140,713		140,713	
<b>Log likelihood</b>	-124971.0		-122348.8		-70511.8		-68460.9	

Source: Swedish population registers; author's own calculations.