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Abstract: The aim of this study is to examine how the sex composition of the work environment is related to the transition to parenthood for men and women. The existence of such an association has been suggested by previous research, but rarely studied directly. The sex composition of the work environment is expected to shape conditions that influence employees' childbearing. This study focuses on the workplace because that is where daily social interaction occurs and where work culture, norms, and working conditions are shaped. Multilevel event-history analyses are applied to register data covering nearly all employed and childless men and women of childbearing ages in Sweden in 2002-2006. The main analyses cover workplaces with 5-150 employees because social interaction within larger workplaces is expected to occur in smaller subunits. First-birth risks increase with the share of employees of the individual's own sex, net of factors such as own earnings, public or private sector employment, occupation, and industry. The role of working in a family-friendly environment is a probable explanation for the finding for women. The possibilities to engage in gender-role socialization or to find a partner at work are also discussed as potential mechanisms for both men and women.

1. Introduction

The relationship between paid work and childbearing behavior has received much interest in demography and related disciplines. These dimensions make up two interrelated aspects of individuals' everyday life and may be seen as issues for the social and economic sustainability of industrialized countries (e.g., European Commission 2004, 2007, McDonald 2006). A growing body of research has unveiled a rather complex relationship between work and childbearing for men and women. Not only having employment and good income seems to matter, but also the type of occupation (Begall & Mills 2012, Ohlsson-Wijk 2015, Stanfors 2014, Dribe & Stanfors 2010) and working conditions (Kaufman & Bernhardt 2012, Fahlén 2012, Begall & Mills 2011) are related to childbearing behavior.

The labor markets in many Western countries are to a large degree horizontally sex segregated, meaning that men and women work in different segments, such as occupations, industries, organizations, and workplaces (see e.g., Charles & Grusky 2004, Halldén 2014, Kumlin 2007). Both theory and previous empirical research imply that such horizontal sex segregation may matter for childbearing behavior, although this has not yet been directly investigated in detail and disentangled from other factors. The sex composition of the workplace may be related to several aspects of the social environment, norms or working conditions that are of importance for childbearing behavior. For example, female-dominated segments of the labor market are often seen as more family-friendly work environments than male-dominated, at least for female employees (e.g., Hoem, Neyer & Andersson 2006a,b, Martín-García 2010, Tesching 2012, Cook & Minnotte 2008) and therefore more conducive to childbearing. In addition, it is argued in this study that also other factors related to the sex composition of the work environment could affect employees' childbearing. For example, the gender structure of the work environment may shape the potential to engage in gender-role socialization as well as the possibility to find a partner at the workplace, which both are factors that can affect childbearing behavior.

The aim of this study is to examine how one aspect of horizontal labor-market sex segregation, the sex composition of the workplace, is related to the transition to parenthood for men and women. The workplace or the organization is where everyday social interaction occurs and where work culture, norms, and working conditions can be shaped (Peper *et al.* 2014, Hobson 2014, Allard, Haas & Hwang 2011, Hobson, Fahlén & Takács 2014, Fahlén 2012). The main focus is to examine the actual association in detail.

The relationship between workplace sex composition and fertility seems to be unexplored, possibly because of data limitations. The data should link individuals to information about their workplaces in a longitudinal manner. Preferably, the data would also contain information about the sector, occupation, and industry that the individual works in because these factors may shape the sex composition of the workplace and affect the association that is studied. The Swedish register data used in the present study fulfill these criteria for nearly all employed and childless individuals of childbearing age in the population.

These large and rich data offer a rare possibility to go into the studied associations in detail and account for relevant underlying or mediating factors in a very precise manner. Ideally, when controlling for other factors related to workplace sex composition, what remains is a more clean measure of the sex composition of the employees. This composition may shape the social environment or working conditions in the workplace that in turn can be related to childbearing behavior.

Multilevel event-history analysis is applied to analyze the transition to parenthood. The multilevel approach takes into account that individuals are grouped within workplaces and that there can be unobserved factors at the workplace level that are related to the association studied. Becoming a parent may be seen as the most life-altering fertility transition and the transition that is most affected by external factors, at least in Sweden where there is a strong two-child norm with short and standardized birth intervals (Andersson 2000, Andersson & Scott 2007).

Both men and women are included in this study and gender differences and similarities receive specific attention. Altogether, the study provides additional insights

into how structures and conditions in the labor market are related to family-life and what role gender plays in these associations. Findings from this study are interesting beyond the Swedish context because the (in)compatibility between work and family life is an issue of general concern in Western countries and labor markets in such countries are often quite sex segregated (Charles & Grusky 2004, Halldén 2014).

2. Background

In the second half of the 1900's, when women in many Western countries started entering the labor-market to a large extent, they often entered jobs in the public sector and occupations oriented towards caring or teaching. There was a growing demand of labor in those segments of the labor market and those occupations also fit well with stereotypically female roles. In many cases women were also openly and systematically denied access to certain segments of the labor market, for example higher positions and specific occupations. Gradually, when institutional obstacles decreased and the educational level of both men and women increased, women also started entering more highly qualified male domains of the labor market (Löfström 2004). The horizontal sex-segregation in the labor market still persists to a large extent in many industrialized and relatively gender equal societies, such as Sweden (Charles & Grusky 2004, Halldén 2014, Nermo 1996), which is the setting for the present study.

A key argument in this study is that the sex composition of a workplace may shape the social environment and working conditions (e.g., Cook & Minnotte 2008, Hoem *et al.* 2006a,b), which in turn are important for childbearing behavior (e.g., Hoem *et al.* 2006a,b, Begall & Mills 2012). The workplace is particularly interesting because this is the environment where daily social interaction with coworkers and supervisors, and sometimes also employers, occurs and where workplace culture and working conditions are shaped. Individuals probably also self-select into workplaces and jobs that seem to fit with their potential childbearing plans (Begall & Mills 2011). Although causality is not addressed methodologically in this study, it is considered in the discussion.

Previous empirical research has found relatively high completed childbearing or high birth rates among women in typically female-dominated educational fields and occupations (e.g., Hoem *et al*. 2006a,b Martín-García 2010, Tesching 2012, Van Bavel 2010, Lappegård & Rønsen 2005, Begall & Mills 2012, Ohlsson-Wijk 2015, Martín-García 2010). Central arguments for high childbearing levels among these groups are that female-dominated work environments offer more family-friendly working conditions, and also might offer a certain social setting that encourages childbearing.

How these types of explanations would apply to men's childbearing has only been discussed or investigated in a few studies. Men in female-dominated fields display lower first-birth rates compared to other men in the Spanish context (Martín-García 2009). The picture is mixed in more gender egalitarian contexts such as the Nordic countries. Men in caring or teaching oriented fields, which are typically female-dominated, have high first-birth rates or completed fertility in Sweden and Norway. This is, however, also the case for very male-dominated fields such as those in protection work (Ohlsson-Wijk 2015, Lappegård, Rønsen & Skrede 2011). In the Danish context, the share of women in the industry is positively associated with childbearing risks for women, but negatively for men (Andersson & Neyer 2012). That study suggested that family-friendly working conditions may not be generally conducive to childbearing as such, but instead being in a gender homogeneous environment is.

Nevertheless, in many of the studies that discuss educational or occupational sex composition and childbearing, actual sex composition was not directly measured (exceptions are Van Bavel 2010, Begall & Mills 2012, Ohlsson-Wijk 2015, Andersson & Neyer 2012). This was either because that was not a specific aim or because of data limitations. As discussed in many of these studies, the findings may to a certain degree reflect differences in childbearing that are due to the type of work that is being performed or the sector of employment rather than the actual sex composition. In particular, high childbearing risks in female-dominated environments may partly reflect high fertility for those in caring or teaching oriented work or public sector employment. Female-dominated educational fields and occupations are often oriented towards caring or

teaching work and usually lead to employment in the public sector (see e.g., Löfström 2004). Because sex composition is so interrelated with these other factors it is somewhat unclear what has actually been measured in much of the previous research. Bringing clarity to that issue would facilitate the interpretation of what may explain any association between sex composition of the work environment and childbearing.

A recent study (Ohlsson-Wijk 2015) underlines the need for disentangling these factors and that it is difficult to completely evaluate the role of sex composition if it is measured at the educational or occupational level. In the present study, the sex composition of the workplace is studied while controlling for potentially mediating or underlying factors like earnings, sector of employment, occupation, and industry. This is a methodologically sound way to disentangle actual sex composition from such factors. There is substantial variation in workplace sex composition even within many occupations, as well as across the public and the private sector (Burchell 1996). This study can by measuring sex composition in the workplace for both men and women more directly and precisely than in previous research bring clarity to how horizontal sex segregation in the labor market really may be related to fertility.

Some mechanisms that relate sex composition to fertility may be expected to work in the same direction for men and women while others are expected to work in opposite directions. Including both men and women in the same study therefore facilitates the evaluation of what mechanisms are at play. In a Swedish study, the importance of occupational sex composition for both men's and women's childbearing became apparent only when directly comparing first-birth risks across occupations for men and women (Ohlsson-Wijk 2015). Then it became clear that the largest gender differences in childbearing were found for very gender-skewed occupations. Birth risks were relatively much higher for the overrepresented sex in the occupation. That study demonstrated that horizontal labor-market sex segregation, in that case across occupations, is important for gender differences in childbearing behavior. Those findings could be related to the gender-typical contents of the work in such occupations and not the sex composition per se. The present study instead looks into the role of gender

structures in the actual social work environment. Potential gender differences and similarities in the association between workplace sex composition and childbearing are interesting for understanding how gender might interact with the association between work and family life.

3. Workplace sex composition and fertility

A few potential mechanisms that link workplace sex composition to childbearing behavior are discussed in this section as well as relevant previous findings. These mechanisms are not mutually exclusive, but probably exist in parallel. Potential underlying or mediating factors are also discussed as well as the vertical dimension of sex segregation in the workplace, the organization level, and the role of societal context.

3.1 Family-friendliness as a potential mechanism

Family-friendliness in the workplace environment is often mentioned in the literature when discussing how sex composition of one's educational field or occupation is related to childbearing behavior. It is probably also the most established explanation in the literature because the degree of family-friendliness is both linked to labor-market sex segregation and to fertility. First, sex composition in specific labor-market segments (e.g., occupations and industries) has been linked to the degree of perceived family-friendliness of the job (Cook & Minnotte 2008). Second, family-friendly work arrangements have been linked to higher childbearing rates (Fahlén 2012, Kaufman & Bernhardt 2012).

I start with discussing the first link in the association, namely how sex composition relates to family-friendliness in terms of working conditions, the culture, or social environment. The workplace or organization is an important mediator and implementer of policies that are decided at the national level (Hobson 2014, Fahlén 2012). Organizations or workplaces often also have their own additional set of policies (ibid., Fagan & Walthery 2014). Such policies can be, for example, flexible work hours or the possibility to work from home or reducing work-hours (e.g., part-time work, less

overtime), or beneficial arrangements for parental leave (e.g., additional parental leave benefits) (Hobson *et al.* 2014, Kaufman & Bernhardt 2012, Hoem *et al.* 2006a, Fahlén 2012).

Beyond actual policies and rights, also the culture and norms in the work environment are important for whether or not employees feel entitled to claim those rights as well as how they perceive potential consequences of using them (e.g., Minnotte, Cook, & Minnotte 2010). Support from managers, supervisors, and coworkers are important for the degree of work-family conflict perceived by employees, and not the least at the work-group level (Allard *et al.* 2011).

Female work environments are assumed to be family friendly because the employers, supervisors, and managers are more accustomed to parents' caring needs, because mothers in general take more time off from work in order to care for their children. One example is that in Sweden, mothers take more parental leave, work more part time, and take more days off to care for sick children than fathers do (Swedish Social Insurance Agency 2012, 2013, Statistics Sweden 2015). Employers and supervisors therefore have to adjust to these needs. This line of reasoning may also be extended to coworkers (Cook & Minnotte 2008, Allard *et al.* 2011). Coworkers can, for example, express different attitudes towards those who leave early to pick up their children at daycare or who are not willing to work overtime because they want to have dinner with their family. Employees in male-dominated workplaces might refrain from making claims for family arrangements. Such environments are probably more shaped by a traditional male work norm where there are higher expectations on work commitment and high loyalty towards the employer and coworkers and where family responsibilities come second (ibid.). The high visibility of parenthood in female-dominated work environments may alo have a direct positive influence on the childbearing among the employees (Hensvik & Nilsson 2010).

It could be argued that female-dominated environments should provide an equally high degree of family-friendliness in the work culture and working conditions for men as for women. The fact that fathers in Sweden take longer parental leave if they work in a

female-dominated workplace (Bygren & Duvander 2006) could indicate a high degree of family-friendliness also for men in female environments. In line with this, another study (Minnotte *et al.* 2010) has shown that men and women are in general more likely to use flexible scheduling possibilities that are offered if they are in a female-dominated occupation or industry compared to a male-dominated.

On the other hand, it may be argued that for both men and women, being of the underrepresented sex should be negative for how family friendly and supportive the work environment is perceived to be (Cook and Minnotte 2008). For example, Kanter's (1977) work suggests that belonging to a heavily underrepresented sex is negative. Such employees may be scrutinized, constantly watched, and often excluded from social networks. In contrast, other research (Williams 1992, Hultin 2003) shows that belonging to the underrepresented sex in an occupation can actually carry advantages in terms of privileges and promotion chances, especially for men.

Cook and Minnotte (2008) find that family-friendliness at work is perceived to be higher in female-dominated environments (industries and occupations) by female employees, but lower or similar to male-dominated work environments by male employees, depending on the exact measure. They make a direct comparison of men's and women's subjective perception of family-friendliness, which may not capture true gender differences in the objective working conditions. It is likely that women are more perceptive to such issues and have higher demands for family-friendly circumstances, to the extent that they more often than men have to balance paid work with child care responsibilities. Furthermore, men's possibilities to make claims for care rights may be limited by traditional ideas about masculinity and norms in the workplace (Peper *et al.* 2014), although this may be becoming less salient for modern fathers (Hobson *et al*. 2014).

It has also been argued that female-dominated occupations are not necessarily family friendly (Glass 1990). For example, those in the typically female domains of service and health care often have inflexible schedules and work during evenings and weekends. Nevertheless, such conditions probably relate specifically to the nature and

restrictions of the actual work that is being performed and should not relate to the sex composition per se, which is the focus of the present study. All in all, I expect female-dominated workplaces to provide a more family-friendly environment not only for women, but also for men in the Swedish setting.

Regarding the second step of the association – the link between family-friendliness and fertility – family friendliness may be of different importance for men's and women's childbearing behavior. Family friendliness is probably less important for male than for female childbearing because mothers usually perform most of the child rearing, also in Sweden (Bekkengen 2002). In line with this, low childbearing risks found for Danish men in female-dominated industries may signal that family-friendly working conditions are not important for men's childbearing decisions (Andersson & Neyer 2012). Furthermore, the very existence of horizontal sex segregation in the labor market is by some scholars argued to partly be an outcome of the fact that mothers often have heavier responsibilities for their children than fathers do and therefore women, in contrast to men, choose jobs that offer good possibilities to combine work and family life instead of those that yield the most income (for discussion see e.g., Anker 2001, Okamoto & England 1999).

Nevertheless, Sweden's social policies are strongly oriented towards an earner-carer model (Gornick & Meyers 2008, Ferrarini & Duvander 2010) and mothers as well as fathers are expected to both work and provide care for their children (Evertsson 2014). The majority of Swedish men also value family-friendly conditions at work (Fahlén 2012). Furthermore, Swedish studies show that family-friendly working conditions are related to elevated childbearing both for women and men (ibid.), even if the association for men might be weaker (Kaufman & Bernhardt 2012).

When summarizing previous knowledge and applying it to the Swedish case, I expect that female-dominated workplaces are more family friendly both for male and female employees, although women may take such conditions more into account when making workplace or childbearing choices than men do. This leads to the following expectation:

A high share of women in the workplace is related to higher first-birth risks, and more so for women than for men.

It should be noted that individuals to some degree may self-select into workplaces that offer conditions that are compatible with potential childbearing plans. This could be illustrated by the fact that in a number of European countries, a majority of men and women see work-family compatibility as an important factor when choosing a job (Fahlén 2012). This is also the case for childless women, and especially so if they intend to have a child within three years time (Begall & Mills 2011). This indicates that family-friendliness is an important factor for childbearing, even if the association is not always causal in a strict sense, but due to individuals planning ahead.

3.2 Other potential mechanisms

Other potential mechanisms may imply a more clearly causal relationship between workplace sex composition and childbearing. First, it has been claimed that in gender homogeneous environments there might be **socialization into gender-typical roles** among those belonging to the overrepresented sex. This type of social interaction has commonly been proposed as a partial explanation for finding higher birth-risks or overall fertility among women in typically female occupations (Begall & Mills 2012), as well as among men and women educated in gender typical fields (e.g., Hoem *et al.* 2006a, Lappegård *et al*. 2011). The argument is that in an environment with many individuals of one's own sex the tendency of "doing gender" and to socialize into more gender typical roles is larger (see West and Zimmerman 1987 for concept). Such stereotypical roles could include motherhood and fatherhood (as argued by Hoem *et al.* 2006a, Begall &

Mills 2012, Lappegård *et al*. 2011), which should affect childbearing positively.[1] Based on such arguments, it would be expected that:

A high share of women in the workplace is related to higher first-birth risks for women, but lower for men.

It is quite common to find a partner at the workplace in Sweden (Åberg 2003) and other Western countries, although the workplace is only one of many partner-markets (Lampard 2007, Laumann *et al*. 1994). Possibilities to find a partner at work may play a role in the relationship between workplace sex composition and fertility. Belonging to the underrepresented sex should enhance such possibilities. In parallel with this argument, a Swedish study (Åberg 2003) found that the proportion of coworkers of the opposite sex increased the risk of divorce for men and women. This was the case if those coworkers were of "suitable" age, suggesting that a potential attraction to any of those coworkers was an underlying cause for divorce. It is, however, possible that matchmaking between coworkers is more common in the workplace culture in workplaces with a relatively mixed composition of men and women. There would in that case not be an entirely linear association. Nevertheless, it is expected that:

A high share of women in the workplace is related to lower first-birth risks for women, but higher for men.

To sum up, two mechanisms (family-friendliness and gender-role socialization) suggest that the share of women in the workplace should be positively related to women's childbearing while it is the opposite regarding the potential to find a partner at work. For men, the family-friendliness mechanism suggests a weak positive association between the

[1] Another part of this argument is that gender-traditional roles may be fostered in environments where work tasks are very gender-typical. Such an argument is relevant if the focus is on occupation, but not when examining the specific role of workplace sex composition as in this study.

share of women and fertility. The potential to find a partner suggests a positive association and gender role socialization suggests a negative one. The relative importance of the various potential mechanisms may differ across gender and for example family-friendliness may play a larger role in the association between workplace sex composition and fertility for women than for men.

3.3 Underlying or mediating factors

There are several potential factors that could underlie or mediate the association between workplace sex composition and fertility that will be taken into account in the analyses. These factors are earnings, employment in the public or private sector, type of occupation, and industry.

Earnings levels are generally higher in male-dominated segments of the labor market (Ekberg 2014) and higher earnings are related to higher first-birth risks in Sweden and the other Nordic countries (Silva 2014, Duvander & Olsson 2001, Thalberg 2011, Andersson *et al*. 2014). For that reason, the level of own earnings will be controlled for in the analyses.

Female-dominated workplaces are more often than male-dominated found in the **public sector**. This sector is often seen as providing better employment security, a less competitive environment and more family-friendly working conditions (e.g., Hoem *et al*. 2006a,b, Lappegård & Rønsen 2005, Van Bavel 2010) and should thus be conducive to childbearing. Empirical findings go in line with such predictions (ibid., Martín-García & Castro-Martín 2013, Dribe & Stanfors 2010, Stanfors 2014) although this may in some cases partly be driven by the type of occupation (Ohlsson-Wijk 2015). Nevertheless, because sector of employment and workplace sex composition are so interrelated, the sector that the workplace is located in will be controlled for in the analyses.

The role of **occupation** is central to take into account. This is partly done when accounting for earnings levels and employment in the public or private sector, but there are also other aspects such as sex composition of the occupation and contents of the work

performed that could be important. Gender skewed workplaces are more likely to comprise many employees in gender skewed occupations (Bygren & Kumlin 2005). Working in a gender-typical occupation is related to higher fertility compared to working in a gender-atypical occupation as shown for Swedish men and women, (Ohlsson-Wijk 2015) as well as indicated for women in the Netherlands (Begall & Mills 2012). In fact, one of the commonly discussed potential causes for the existence and perseverance of the sex segregation in the labor market is that men and women choose occupations that fit well with what is seen as gender-appropriate behavior (for discussion see e.g., Anker 2001, Okamoto & England 1999). Working in a gender-atypical occupation means violating gender expectations, which may be responded to with prejudice (Williams 1992), and may even be seen as unattractive in a potential partner (Pfost & Fiore 1990). In this study the type of occupation is controlled for, which means that the association between sex composition of the workplace and fertility should not be affected by such gender-typing of occupations.

Certain female-dominated occupations, those related to caring or teaching roles and especially if working with children, are related to increased fertility among women and partly also among men in Sweden (Ohlsson-Wijk 2015). Higher completed childbearing and higher birth rates have also been found for women who are educated in fields related to caring and teaching (Hoem *et al*. 2006a,b, Tesching 2012, Martín-García & Baizán 2006). This is argued to partly be because individuals who are interested in social relationships or nurturing roles choose these occupations and at the same time are more fertility-prone. Furthermore, it is also argued that this association may in part be due to specific family-friendly cultures or norms in these occupations. Such potential effects of selection, culture, or norms within specific occupations should not play a role in the association between workplace sex composition and fertility when accounting for type of occupation as in the present study.

The **industry** that the workplace is situated in is also controlled for in this study, because it may shape the work environment in a way that is important for childbearing behavior (Neyer & Andersson 2012) also beyond the factors already mentioned. For

example, janitors or kitchen staff working in an elementary school are in an environment with many children and coworkers in a teaching occupation. Such a context may create a certain environment that is conducive to childbearing, although their own occupation is typically not linked to such environments. The occupation and the industry may also capture possible differences in earnings potential or earnings trajectory, which previously have been linked to differences in the timing of motherhood (Van Bavel 2010).

3.4 The vertical dimension

The individual employee's vertical position in the workplace is not studied here although it may also matter for childbearing because men and women may aim to get properly established in a job before having children. Furthermore, being properly established most likely increases the possibilities and sense of entitlement to make claims for family-friendly work arrangements. The sex composition of the workplace may be related to how men and women are structured vertically. The role of occupational sex composition may, for example, matter in different ways for promotion chances for men and women, although findings are somewhat mixed (e.g., Williams 1992, Hultin 2003). The occupational code used in this study distinguishes top managerial from other positions, and the role of being in such an occupation is investigated. Managers and supervisors at the low or intermediate level are not categorized as managers in this occupational code. In the current data, male managers are overrepresented in quite gender-mixed workplaces (30-70% women) and female managers are over-represented in male-dominated and gender-mixed workplaces. Furthermore, when controlling for earnings level the role of vertical position is probably controlled for to some extent.

3.5 The organization level

Working conditions, norms, and culture might also be related to the sex composition at the organization (employer) level. The workplace and the organization that an individual

is employed in are often quite overlapping, also in this study. In the register data used here workplaces are nested under organizations and each organization can contain several workplaces. In the private sector, the organizations mostly consist of one workplace, while organizations are much larger in the public sector and usually consist of many workplaces. For example, everyone employed by a municipality belongs to the same organization (the municipality) although they are often spread out over many workplaces and different lines of work and can comprise tens of thousands of employees. The sex composition of such large organizations is most likely not of importance for shaping the work environment. In large organizations, social interaction is likely to occur in smaller subunits. The sex composition of such subunits may differ substantially from the organization as a whole. Therefore the analyses should not include too large work environments. Restricting the analyses to relatively small or medium sized organizations would exclude a large proportion of public-sector workplaces. Many women work in that sector and the remaining women would thus be a relatively select group. Therefore, the sex composition of the organization is not investigated here, although it should be acknowledged that the organization in many cases may be important for shaping the work environment.

3.6 The role of societal context

The potential for finding a partner at work should be related to workplace sex composition in quite the same way across various contexts. Similarly, the possibilities for gender role socialization in gender homogeneous environments may work the same way in Sweden as well as in other Western countries. It is possible, however, that because gender egalitarian norms are relatively well spread in Sweden (Fahlén 2013, Evertsson 2014), this gender socialization is less salient compared to in other contexts.

Regarding the role of family-friendly work environments, the policy and labor-market context should be considered. Swedish family and labor-market policies aim to reduce opportunity costs of having children and enable both mothers and fathers to

combine work and family life and thereby also increase gender equality (Neyer & Andersson 2008, Gornick & Meyers 2008, Ferrarini & Duvander 2010, Hoem 2005, Hoem 1993a). Examples are individual taxation, accessible, affordable and high-quality child care, and not the least the gender-neutral, long, and generous parental leave based on income-replacement. In contexts where such policies are not as prevalent or strong, the conditions in the workplace may be even more important for childbearing. When there is a lack of family-friendly policies at the governmental level, there may be room for more variation across workplaces in working conditions, norms, and culture, meaning that negotiations at the company or workplace level are more important. The Swedish labor market is also relatively regulated and labor unions have traditionally been strong (Björklund *et al*. 2006), which further indicates that conditions should vary more across workplaces in other contexts than in the Swedish. Furthermore, in contexts where the division of paid work and childcare is less gender equal, gender differences in claims for more family-friendly conditions are possibly larger (i.e., women make such claims but not men).

On the other hand, in contexts where women more often are forced to choose between work and childrearing, the association between workplace sex composition and childbearing decisions may be weaker. There is hardly any selection based on childbearing plans into our out of the labor market in Sweden, because the large majority of both men and women are active on the labor market, also after becoming parents. Mothers of small children above age two are employed to the same extent as other women of age 25-59 in Sweden, which is in contrast to many other European countries outside the Nordic region (Fahlén 2012). Rather, there may instead be a somewhat larger selection across the labor market in Sweden where those who plan to have children prefer a family-friendly environment because both partners will keep working after the child is born. This could make workplace conditions somewhat more important for childbearing decisions in this context. On the whole, there are reasons to expect both a stronger and weaker role of workplace sex composition for childbearing in other contexts than the Swedish one.

4. Data and method

4.1 Data selection

The data are drawn from Swedish population registers gathered at Statistics Sweden. They are of a longitudinal character and contain numerous demographic and socio-economic characteristics at the individual level as well as life-events. At the end of each year all employed individuals are connected to an organization and those who have a physical workplace are linked to their current workplace. A workplace is in the data defined as a building or complex of nearby buildings within the same organization. The workplace is thus the actual physical environment where colleagues interact.

For this specific study, a selection of individuals has been made. Starting with the entire population residing in Sweden at any time between January 2002 and December 2006, all childless men and women between ages 18[2] and 49 were selected. Those who are below age 18 do not have any occupational information registered, which is a key factor in the analysis. Then all foreign-born who immigrated to Sweden after age 15 were excluded to make sure that all individuals were childless when entering the study. Some parents do not bring their children at immigration and these children would therefore not be registered in Sweden. The next step was to exclude all students[3] and the few percent of men and women that did not have an employment with any occupation or work-related income recorded in the specific year. This was because only those who primarily engage in paid work were of interest for this study. The self-employed do not have an occupation registered and were therefore not included in the study.

Out of the remaining individuals, a few percent did not have any registered physical workplace and were therefore excluded. These either have mobile workplaces (e.g., drivers, street cleaners) or move between different workplaces (e.g., certain types of service workers, those in home care services, substitute teachers etc.). Then only those at

[2] Those who have had a child before age 18 were not included in the study. Teenage childbearing is, however, extremely low in Sweden (Statistics Sweden 2010; Table 2.2.4.).

workplaces with 5-150 employees were included in the main analyses which excluded almost half of those who had remained up to that point. In total 474,841 men and 336,063 women remained in the data.

The reason for excluding the smallest workplaces was that very small workplaces are naturally more often either very male- or very female-dominated. Workplaces with more than 150 employees were excluded because large workplaces are often subdivided into smaller units or groups that might have very different sex compositions compared to the workplace as a whole. There might be quite little social interaction between those subgroups.

The workplaces with 5-150 employees differed from those of other size in a few ways. First, the share of men and women were about the same as well as the share of employees in the private versus the public sector, when comparing the selected to the excluded cases. The age distribution was somewhat younger and there were slightly fewer top-earners among the selected workplaces. Other groups that were marginally overrepresented were Swedish-born, those in sparsely populated regions, and those with secondary or tertiary education. There was a larger share of both male- and female-dominated workplaces, and certain occupations were over- or under-represented. Those in the armed forces, teachers in tertiary education, certain medical professionals (doctors, nurses etc.), and police officers and detectives were underrepresented, because they often work in large workplaces. Other teachers, social work professionals and leaders and managers were overrepresented. Organizations with 5-150 employees were nearly fully covered, while less than half of organizations with more than 150 employees were covered and no organization with less than five employees was included. Additional analyses were performed also for workplaces of other size and discussed in the results section.

[3] Those who are registered as receiving student financial aid, which are mainly those undertaking secondary or tertiary education.

4.2 Main independent variables

The main independent variables are measured at the end of the year before the childbearing risk in order to attain a correct chronological order of the events. Childbearing risks are measured annually 2002-2006 and the main independent variables are measured annually 2001-2005. The **share of women in the workplace** is the main independent variable based on annually updated information. It is a categorical variable consisting of nine groups, *0-10, 10-20, 20-30, 30-40, 40-60, 60-70, 70-80, 80-90,* and *90-100* percent women. By using a categorical variable it is possible to see if the relationship between sex composition and fertility seems to be linear or has some other shape. The shape of the association is interesting in itself and might also give better clues to what mechanisms are at play. **Workplace size** consists of the categories *5-14, 15-49, 50-99* and *100-150* employees. Workplace sex composition most likely varies depending on workplace size, which previously has been positively linked to the length of employees' parental leave (Bygren & Duvander 2006), possibly indicating better possibilities of combining work and parenthood in large workplaces.

Earnings are measured at the individual level and are divided into ten categories based on year-specific earnings deciles for the individuals in the data. **Sector of employment** is based on information about whether the workplace is located in the public or the private sector. **Type of occupation** contains 42 categories, based on job contents and skill level (see Ohlsson-Wijk 2015 for more detail). These categories have been created from 113 original categories in the data which are based on the International Standard Classification of Occupations (ISCO-88) (International Labour Organization 1990). **Industry** of the workplace contains almost 60 categories based on the Swedish Standard Industrial Classification from 1992 (SNI 1992) (Statistics Sweden 2003).

4.3 Other variables

The duration variable in the event-history analysis described below is **age**. Based on preliminary bivariate analysis of childbearing risks across age it was divided into seven internally quite homogeneous categories in terms of first-birth risks, and consists of the groups *18-23, 24-27, 28-29, 30-33, 34-36, 37-40,* and *41-49*.

The remaining variables are included as basic controls in the models because workplace sex composition and first-birth risks, or the association between them, may vary across these factors. **Calendar year**[4] consists of one category for each single year 2002-2006. **Country of birth** consists of the categories 1) *Swedish-born*, 2) born in another Nordic country, 3) *born in another European country, Australia or North America*, and 4) *born in any other country*. **Type of settlement** has six categories that cover the country's nearly 300 municipalities (see The Swedish Association of Local Authorities and Regions 2010) and is measured at the end of the previous year. 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** measures the highest educational level attained in the middle of the previous year and is divided into the 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.*

4.4 Methods

Event-history analysis is used, which is a suitable and standard method for longitudinal individual-level data (Blossfeld *et al*. 2007, Hoem 1993, Allison 1984). The time is discrete and divided into yearly units because all data vary annually apart from the

[4] Additional models where birth cohort is used instead of calendar year yield practically identical findings.

duration variable and the event which are available at a monthly level. Multilevel models are applied with random intercepts at the workplace level, which means that the baseline level of first-birth risks is allowed to vary across workplaces. This type of model takes into account that individuals are clustered within workplaces and thereby may share a common baseline risk. It accounts for the intra-workplace correlation that is not captured by sex composition. Unobserved characteristics that are shared within the workplace, such as culture, working conditions or similar, can be reflected by the random intercepts (Rabe-Hesketh & Skrondal 2012).

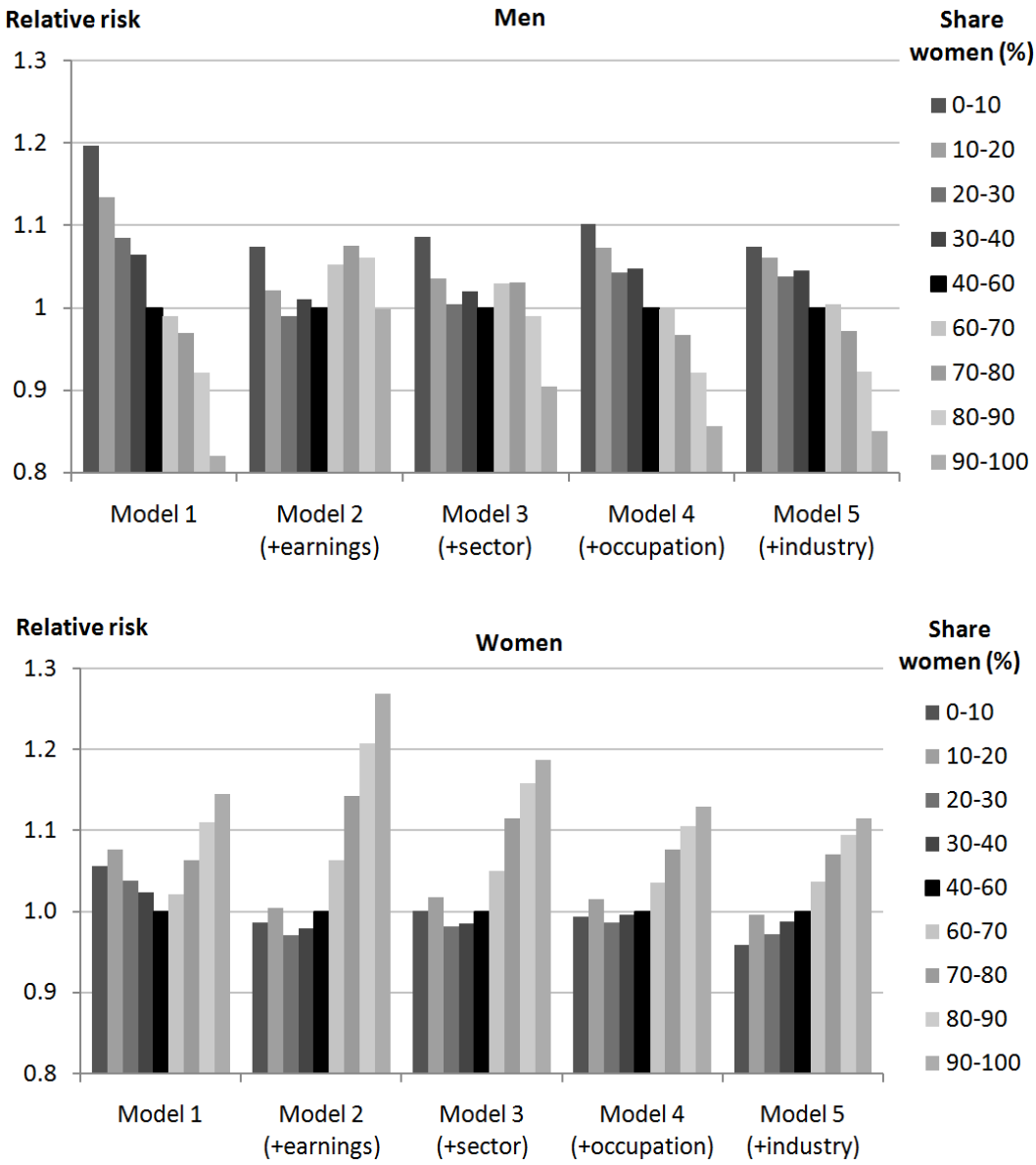
Although the term used here is "first-birth risk", the event studied is the conception (nine months before a registered live birth) of a first, biological child. The risk of becoming a parent is modeled as affected by the workplace sex composition, as well as by a set of the other variables mentioned. An individual is seen as coming under risk of experiencing first birth from age 18. Some of the key variables are not available before 2001 and thus cannot be modeled as affecting childbearing risks until 2002. The window of observation therefore opens at January 2002 at the earliest, but not before turning 18. 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 December 2006.

5. Findings

5.1 Main analysis

The findings from stepwise multilevel event-history modeling are presented in Figure 1 below. They show how workplace sex composition relates to first-birth risks, for men and women separately. Additional model information is presented in Table A2 in the appendix. Model 1 contains the basic control variables as well as the sex composition and size of the workplace. In this model, there is a clear negative gradient for men in the association between the share of women in the workplace and first-birth risks. For women, the pattern is J-shaped. To see whether these patterns are related to own

Figure 1. Relative first-birth risks by share of women in the workplace (percent) for men and women separately, from multilevel event-history analysis (workplaces with 5-150 employees). Risks relative to gender neutral workplaces (40-60 percent women).



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

Note: The basic model (Model 1) includes year, country of birth, type of settlement, education, workplace sex composition, and workplace size. Earnings (Model 2), sector of employment (Model 3), type of occupation (Model 4), and industry (Model 5) are added stepwise. For additional variable estimates and model information, see Table A2 in the appendix.

earnings, sector of employment (public or private), type of occupation, or industry, these factors are added stepwise to the model.

When adding earnings (Model 2) it is taken into account that individuals in female workplaces usually earn less money and that earnings are positively related to first-birth risks (see Table A2 in the appendix). The first-birth risks for both men and women decrease for male workplaces and increase for female workplaces as expected. This leads to what seems like a non-association for men, although there still is a difference between those in the most male-dominated and those in the most female-dominated workplaces. An interpretation of this could be that the negative gradient found in the basic model was merely due to the fact that the share of women is negatively related to earnings. For women, when adding earnings level, there is no longer any difference among those in male and gender-mixed workplaces but an even larger gradual increase of first-birth risks with the share of women among those in female-dominated workplaces.

Sector of employment is added in the next step (Model 3). The public sector is usually seen as providing more stable employments, family-friendly conditions, and a less competitive environment, as mentioned earlier. In this model (see Table A2 in the appendix) it is clear that public sector employment is positively related to first-birth risks for both men and women. The more women in the workplace, the more likely it is that the employees work in the public sector. Thus, when accounting for these aspects, taking sector of employment into account for both men and women, the first-birth risks decrease somewhat in comparison to the previous model the more women there are in the workplace.

In the next step, the type of occupation that the individual works in is added to the model (Model 4, findings for this variable are not displayed because of too much detail). Beyond the factors already controlled for in the model, occupation may capture such factors as occupational sex composition and job contents. When the share of women in the workplace increases, so does the representation of female-dominated occupations and occupations oriented towards caring or teaching, which have been linked to higher female fertility in the literature as mentioned above. When adding occupation, in comparison to

the previous model, the first-birth risks decrease for men and women in female-dominated workplaces and the more female-dominated the workplace is, the larger the decrease as expected. Furthermore, there is a relative increase in first-birth risks for men in male-dominated workplaces. Men in the most male-dominated workplaces have on average a lower skilled occupation (as seen from more detailed inspection of this data), which previously has been linked to lower first-birth risks (e.g., Ohlsson-Wijk 2015). Controlling for occupation may take away part of this negative effect for men in these workplaces. Overall, the negative gradient in first-birth risks across the share of women in the workplace reappears for men, while the positive association among women remains but is weakened even more.

In the last step, when the workplace industry is added to the model (Model 5), the birth risks for both men and women decrease slightly for those in the most male-dominated workplaces. For women there is also a small decrease for those in the most female-dominated workplaces. These changes may partly be explained by controlling for higher first-birth risks in industries with many individuals of one's own sex and controlling for better earnings potential in male-dominated industries. When having controlled for the other factors in the model, much of the potential role of industry is already accounted for.

At this point, after controlling for important underlying or mediating factors, there is a clear and quite linear negative association between the share of women in the workplace and first-birth risks for men. There is a less linear and positive association among women. More specifically, there are small differences between male and gender-mixed workplaces. Here it could be mentioned that additional models (estimates not displayed) including an even more detailed categorization of industry that makes finer distinctions of industries in health care and education further lowers women's birth-risks in male-dominated workplaces, so that the patterns seems quite linear also for women.[5] The findings go in different directions for men and women, but this could also be phrased

[5] Using a more detailed categorization of occupation (113 categories) did not alter the findings.

as a similarity: First-birth risks increase with the share of employees of the individual's own sex.

It should be noted that the differences across workplace sex composition are quite modest, although not negligible, and especially so for women. Women in a workplace with at least 90 percent of their own sex have 16 percent higher first-birth risks than those in workplaces with less than 10 percent of their own sex. Corresponding figure for men is 26 percent.

5.2 Additional analyses

The role of occupation was further examined because the type of occupation and workplace sex composition are quite interrelated. It is unlikely to find great variation in workplace sex composition among highly gender skewed occupations. For example, the likelihood of finding a fire-fighter in a female-dominated workplace or a pre-school teacher in a male-dominated workplace is extremely low. For that reason, the full model including all control variables presented above was also estimated only for the men and women who work in occupations where there is at least 20 percent of each sex (estimates not displayed). The association between workplace sex composition and first-birth risks remained almost identical after the exclusion of these occupations, which corroborates that the findings are not driven by the occupation of the employee.

In order to investigate if the individual's vertical position plays a role in the studied association, separate analyses were performed for those in managerial and those in non-managerial occupations (estimates not displayed). Overall, these analyses reproduced the main findings already presented. In the analyses that only included managers, the patterns were somewhat less stable due to small number of cases in some sex-composition categories and especially so for women. These analyses indicate that the general first-birth patterns across sex composition are not driven by how men and women are structured vertically, although intermediate or lower level managerial or supervisory positions cannot be singled out in this data.

In order to see if the findings may be generalized to the entire labor market and to better understand what mechanisms are at play, analyses were performed also for workplaces of other size. The full model with all controls was estimated for all workplaces with more than 150 employees (see Figure A1 in the appendix). In these large workplaces, the interaction between coworkers is more likely to take place within smaller subunits which may have quite different sex compositions compared to the workplace as a whole. Therefore, the mechanisms discussed in this study are not expected to be reflected by the sex composition of such large workplaces. The only mechanism discussed that is expected to operate also in large workplaces is the family-friendliness, because it may also be set in the workplace or company culture and policies and exist beyond the regular interactions with coworkers. Family-friendliness was expected to have a clear positive impact on women's childbearing but a weak positive one on men's, which is principally in line with the findings for large workplaces. For men there is, however, a non-association between the share of women and childbearing in large workplaces. For women there is an even more positive association than found in smaller workplaces (see Figure A1 in the appendix). It should be kept in mind that the composition of occupations and industries differs slightly from workplaces with up to 150 employees[6].

Workplaces with 15-50 employees are also analyzed separately (see Figure A1 in the appendix). In workplaces of this size, interaction is less likely to be fractionalized. The analyses may thus even better capture the sex composition of individuals with whom daily interaction occurs. Excluding the smallest workplaces ensures that sex composition is less due to random processes where the composition changes drastically if one or two employees enter or leave. The drawback of analyzing workplaces of 15-50 employees is that this leaves a much smaller and highly select group of individuals in terms of, for example, occupation, and industry of employment. The patterns are consequently less smooth, but are nevertheless much the same as for those in workplaces with 5-150

[6] Nevertheless, the findings for large workplaces are the same if excluding the most gender-segregated occupations (with less than 20% of either men or women) and when using the most detailed version of industry (not displayed).

employees for men. For women, first-birth risks are higher in female-dominated than in male-dominated or gender-mixed workplaces. Overall, the findings from smaller workplaces confirm the findings in the main analyses. This indicates that the workplaces in the main analyses (5-150 employees) are not too large to capture the sex composition of the coworkers with whom individuals interact.

6. Discussion and conclusions

This study is, to the best of my knowledge, the first to investigate directly how childbearing varies by sex composition of the workplace, an important measure of horizontal sex segregation in the labor market. Such an association has been assumed to be an important underlying factor in, for example, the relationship between educational field or occupation and childbearing. Nonetheless, the association between sex composition of the work environment and childbearing has not previously been investigated in detail and disentangled from other factors. It is interesting to see that within the group of employed, who normally have higher birth risks than those without employment (e.g., Andersson 2000, Duvander & Olsson 2001), there is variation in childbearing depending on workplace sex composition.

In short, first-birth risks are positively related to the share of coworkers of one's own sex. Similar findings have previously been made for men and women when directly examining the sex composition of occupations (Ohlsson-Wijk 2015) and industries (Andersson & Neyer 2012) in relation to childbearing. Nevertheless, other factors such as the contents and gender-stereotyping of the individual's occupation may play a role for such an association in those studies. Furthermore, the association in the present study exists beyond factors such as own earnings, sector of employment, occupation, and industry. This illustrates that the gendered workplace context where daily social interaction occurs influences men's and women's childbearing behavior.

Relating the findings to the expectations formulated earlier, I start with the main analyses (workplaces with 5-150 employees) for women. The positive association between the share of women in the workplace and first-birth risks was anticipated based

on the assumption that the degree of family-friendliness of the work environment is a central mechanism. Female-dominated workplaces are assumed to provide a more family-friendly environment which is encouraging to childbearing.

This finding is also anticipated if assuming that gender-role socialization that is conducive to childbearing is more common in gender homogeneous environments. The possibility to find a partner at work is lower for women in female-dominated environments and is thus expected to work in the other direction. It cannot be ruled out, however, that this mechanism is also operating and depresses what would otherwise be a more positive association. Unfortunately, the role of union formation was not possible to examine. Cohabitation was not recorded in Swedish registers until 2011 and could only be detected if a couple was married or had a common child. Marriage is, however, not an appropriate indicator of having a partner in this study because more than half of all births occur to non-married parents in Sweden (Thomson & Eriksson 2013, Statistics Sweden 2010) and the association between marriage and childbearing varies across socio-economic groups (Holland 2013).

For men, there was a negative and quite linear association between the share of women in the workplace and first-birth risks. The only mechanism suggesting such a direction is socialization into gender-typical roles and fatherhood among men in gender homogeneous environments. It is possible that this mechanism plays a more central role than expected for men. If the possibility of finding a partner had been the main mechanism, there would be higher fertility in female environments and if the degree of family-friendliness would be the key factor the association was expected to be slightly positive.

With the approach applied in this study it is not possible to fully evaluate the contribution of each mechanism, but the findings provide suggestive evidence. It is informative that there was an even stronger positive association between the share of women and childbearing for women in large workplaces (at least 150 employees) compared to in smaller workplaces, and a non-association for men. At these large workplaces, family-friendliness was the only mechanism that was expected to be fully

operative. This further corroborates the importance of family-friendliness as a mechanism in the association for women and unimportance for men.

Although family-friendly conditions do not seem to be essential for men's childbearing in this study, such conditions may affect their use of family-friendly policies after potentially having become fathers (Bygren & Duvander 2006). This is in line with research stating that fathers' involvement as caregivers seems to be more negotiable than mothers' (Bekkengen 2002). Men are less inclined than women to adjust their work situation to their family-life and to see these two life spheres as conflicting with each other (ibid.). Mothers usually take more time off from work to care for their children than fathers do, in the form of parental leave, part-time work, and temporary care of sick children (Swedish Social Insurance Agency 2012, 2013, Statistics Sweden 2015). It is possible that there are also other mechanisms that have not been discussed here.

It should be noted that not only may employees want to be in a family-friendly workplace before conceiving their first child, but they may also change workplace while they are expecting the child or soon after becoming parents. Therefore, this study probably only finds part of the association between sex composition and childbearing. This could mean that the importance of a family-friendly work environment for childbearing may be underestimated. It is possible that such an underestimation is especially the case for the men in this study because, as Bekkengen (2002) has found, men are more willing than women to change jobs while expecting a child or recently having become a parent.

The findings of this study not only illustrate the association between workplace sex composition and childbearing but also the crucial role of a number of underlying or mediating factors. These are own earnings, sector of employment (public or private), occupation, and industry. This detailed and precise investigation of the studied association is possible because of the data size and richness. The conclusions drawn about the association between workplace sex composition and fertility could have been quite different if failing to control for some of these underlying or mediating factors.

What is left, ideally, is a more pure association between the actual number of men versus women in the work environment and childbearing.

This study provides additional insights into what the horizontal sex segregation of the labor market might entail. This segregation is not only related to economic or labor-market outcomes for individuals, such as career development (e.g., Hultin 2003, Williams 2002). Apparently, horizontal sex segregation in the labor market is also related to childbearing behavior.

The differences, or similarities, found between men and women are probably the most interesting outcome. They reveal the gendered nature of the relationship between work and family-life in a relatively gender egalitarian society like Sweden. Remaining differences in mothers' and fathers' roles, as well as the salience of gender in social interaction in the workplace, shape the association between work and childbearing in a gendered way.

The gender structure of the workplace apparently shapes the work environment in such a way that it may affect the childbearing decisions of the employees. This may illustrate how individuals' decisions are embedded in the workplace context (Hobson 2014, Fahlén 2012). Not the least, this study indicates that childbearing may be affected in different ways for male and female employees in the same workplace. Further research could investigate in more detail exactly how the sex composition of employees affects the work environment and what the implications may be for family-life and childbearing for men and women.

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Appendix

Table A1. Distribution of observations in the data selected for the main analyses (workplaces with 5-150 employees), across workplaces with different sex composition, for men and women separately. Percent belonging to each category.

	Men	Women
Share women (%)		
0-10	25.06	0.99
10-20	18.85	3.39
20-30	13.98	5.64
30-40	10.09	7.19
40-60	16.19	21.53
60-70	6.82	15.43
70-80	4.90	15.58
80-90	2.99	16.69
90-100	1.12	13.56
Total number of observations	1,352,616	821,852

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

Table A2. Relative first-birth risks by share of women in the workplace (percent) for men and women separately, from multilevel event-history analysis (workplaces with 5-150 employees).

	Men					Women				
	M1	**M2**	**M3**	**M4**	**M5**	**M1**	**M2**	**M3**	**M4**	**M5**
Age										
18-23	0.46	0.54	0.54	0.55	0.55	0.59	0.69	0.69	0.69	0.70
24-27	1	1	1	1	1	1	1	1	1	1
28-29	1.43	1.32	1.32	1.31	1.31	1.26	1.16	1.16	1.15	1.15
30-33	1.55	1.34	1.33	1.31	1.31	1.25	1.09	1.09	1.07	1.07
34-36	1.20	1.00	1.00	0.97	0.97	0.83	0.70	0.69	0.68	0.68
37-40	0.67	0.55	0.55	0.53	0.53	0.37	0.30	0.30	0.29	0.29
41-49	0.16	0.13	0.13	0.12	0.12	0.03	0.02	0.02	0.02	0.02
Calendar year										
2002	0.99	0.98	0.98	0.98	0.98	1.01	1.01	1.01	1.00	1.00
2003	1.00	1.00	1.00	0.99	0.99	1.03	1.03	1.03	1.02	1.02
2004	1	1	1	1	1	1	1	1	1	1
2005	1.05	1.06	1.06	1.07	1.06	1.05	1.05	1.06	1.06	1.06
2006	1.09	1.07	1.07	1.08	1.08	1.07	1.05	1.06	1.07	1.07
Country of birth										
Sweden	1	1	1	1	1	1	1	1	1	1
Other Nordic	0.84	0.86	0.87	0.88	0.88	1.00	1.02	1.02	1.02	1.02
Other European etc.	0.99	1.05	1.05	1.06	1.06	1.02	1.05	1.05	1.05	1.05
Other country	0.85	0.93	0.93	0.93	0.94	0.83	0.87	0.87	0.87	0.87
Type of settlement										
Metropolitan	1	1	1	1	1	1	1	1	1	1
Suburb	1.14	1.14	1.14	1.14	1.14	1.23	1.23	1.22	1.22	1.21
Industrial	1.05	1.12	1.11	1.13	1.13	1.36	1.47	1.44	1.45	1.45
Sparsely populated	0.96	1.11	1.09	1.12	1.13	1.23	1.38	1.34	1.35	1.34
Rural/other small	1.10	1.20	1.19	1.20	1.20	1.37	1.51	1.48	1.49	1.49
Big/middle-sized city or other large	1.08	1.17	1.16	1.17	1.17	1.19	1.29	1.27	1.28	1.28
Educational level										
<9 years primary	0.61	0.79	0.79	0.85	0.85	0.67	0.82	0.82	0.86	0.86
9 years primary	0.91	1.02	1.02	1.04	1.04	0.98	1.08	1.08	1.10	1.10
1-2years secondary	1.03	1.10	1.10	1.12	1.12	0.95	1.01	1.00	1.02	1.02
3 years secondary	1	1	1	1	1	1	1	1	1	1
<3 years tertiary	1.22	1.14	1.13	1.11	1.11	1.14	1.08	1.07	1.00	1.01
>=3 years tertiary	1.47	1.26	1.23	1.18	1.18	1.51	1.30	1.26	1.13	1.13
Postgraduate	1.96	1.63	1.55	1.62	1.63	2.16	1.78	1.69	1.68	1.71
Missing	0.86	1.01	1.02	1.07	1.07	1.09	1.26	1.26	1.32	1.32
Share women (%)										
0-10	1.20	1.07	1.09	1.10	1.07	1.06	0.99	1.00	0.99	0.96
10-20	1.13	1.02	1.04	1.07	1.06	1.08	1.00	1.02	1.02	1.00
20-30	1.09	0.99	1.00	1.04	1.04	1.04	0.97	0.98	0.99	0.97
30-40	1.06	1.01	1.02	1.05	1.05	1.02	0.98	0.98	1.00	0.99
40-60	1	1	1	1	1	1	1	1	1	1
60-70	0.99	1.05	1.03	1.00	1.00	1.02	1.06	1.05	1.04	1.04
70-80	0.97	1.08	1.03	0.97	0.97	1.06	1.14	1.12	1.08	1.07
80-90	0.92	1.06	0.99	0.92	0.92	1.11	1.21	1.16	1.11	1.09
90-100	0.82	1.00	0.90	0.86	0.85	1.15	1.27	1.19	1.13	1.12

Table A2. (Continued.)

	Men					Women				
	M1	**M2**	**M3**	**M4**	**M5**	**M1**	**M2**	**M3**	**M4**	**M5**
Workplace size										
5-14	1.03	1.09	1.10	1.07	1.07	0.98	1.00	1.02	1.02	1.03
15-49	1	1	1	1	1	1	1	1	1	1
50-99	0.98	0.96	0.95	0.97	0.97	1.01	1.00	0.99	0.99	0.98
100-150	1.13	1.11	1.09	1.13	1.14	0.99	0.98	0.96	0.97	0.96
Earnings decile										
1 (lowest)		0.51	0.51	0.53	0.54		0.48	0.48	0.51	0.51
2		0.58	0.58	0.60	0.60		0.58	0.58	0.62	0.62
3		0.67	0.67	0.70	0.70		0.72	0.72	0.76	0.76
4		0.79	0.79	0.81	0.82		0.88	0.88	0.91	0.91
5		0.90	0.90	0.92	0.92		0.95	0.95	0.96	0.96
6		1	1	1	1		1	1	1	1
7		1.10	1.10	1.09	1.08		1.09	1.09	1.09	1.09
8		1.15	1.16	1.13	1.13		1.17	1.19	1.18	1.18
9		1.25	1.26	1.23	1.23		1.29	1.32	1.33	1.32
10 (highest)		1.64	1.67	1.59	1.59		1.63	1.68	1.66	1.65
Sector										
Private			1	1	1			1	1	1
Public			1.18	1.03	0.96			1.13	1.02	1.00
Occupation				*n.d.^*	*n.d.^*				*n.d.^*	*n.d.^*
Industry					*n.d.^*					*n.d.^*
N observations			1,352,616					821,852		
Individuals			474,841					336,063		
Workplaces			121,618					91,091		
Events			86,976					75,461		
Intraclass correlation[¤]	0.018	0.016	0.016	0.013	0.013	0.015	0.014	0.013	0.011	0.010
Log likelihood	-306947	-304058	-303993	-303163	-303030	-254360	-252174	-252099	-251687	-251594

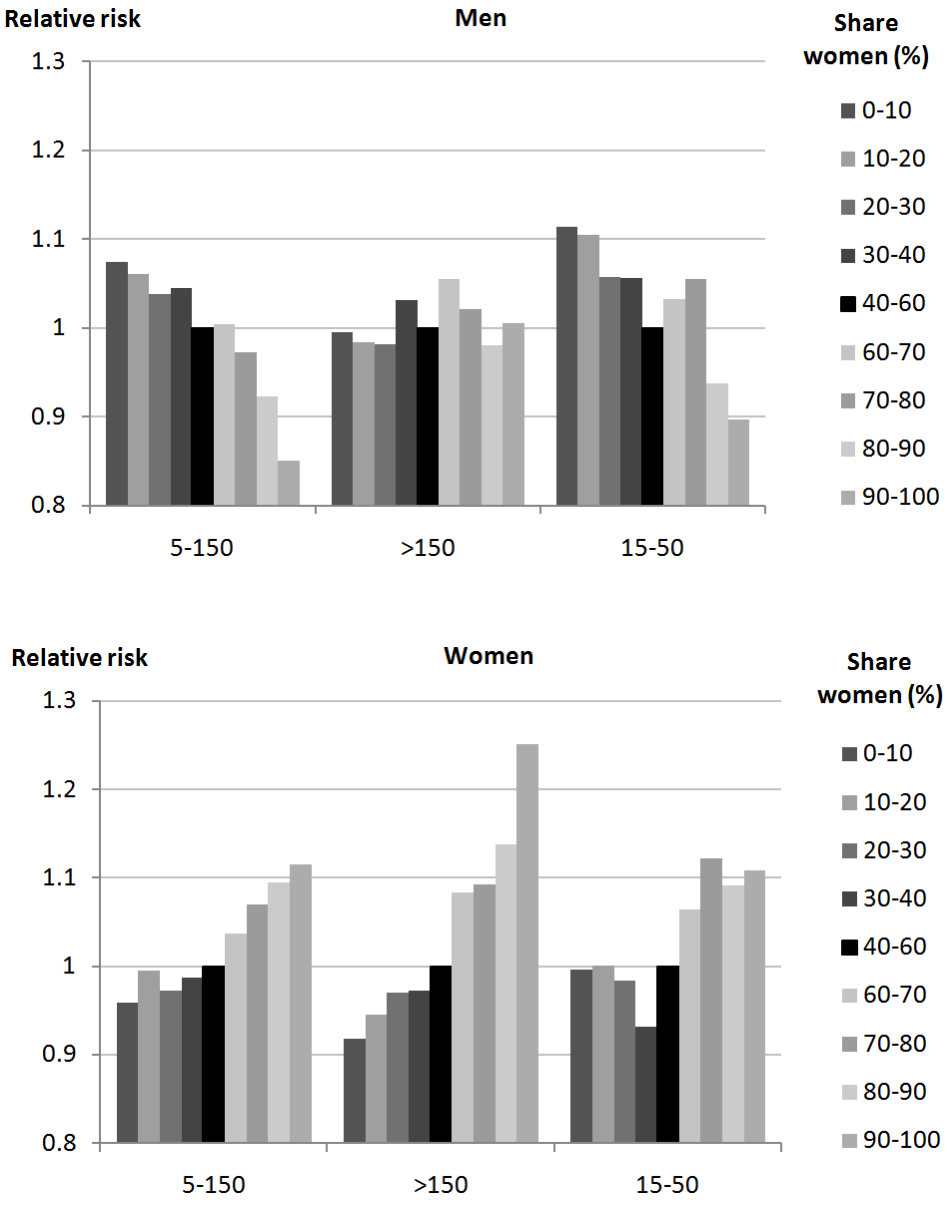
Source: Swedish population registers; author's own calculations.

Note: The basic model (Model 1) includes year, country of birth, type of settlement, education, workplace sex composition and workplace size. Earnings (Model 2), sector of employment (Model 3), type of occupation (Model 4), and industry (Model 5) are added stepwise. Age is the duration variable and is also presented here.

^ Estimates not displayed, because of too much detail. For relative risks across occupations in a similar dataset, see Ohlsson-Wijk (2015).

¤ Significantly different from zero in all models. The intraclass correlation measures how much of the variation in first-birth risks that is explained by unobserved factors (i.e. not in the model) at the workplace level.

Figure A1. Relative first-birth risks by share of women in the workplace (percent) for men and women separately, from multilevel event-history analysis. Separate analyses for workplaces of different sizes. Risks relative to gender neutral workplaces (40-60 percent women).



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

Note: The model (Model 5) includes year, country of birth, type of settlement, education, workplace sex composition, workplace size, earnings, sector of employment, type of occupation, and industry. Other variable estimates and model information not displayed.