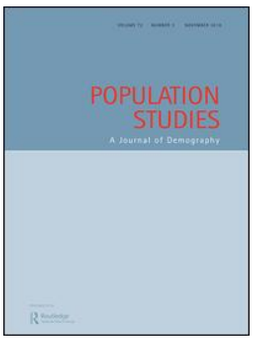

Routledge
Taylor & Francis Group

Population Studies
A Journal of Demography

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rpst20

Social class and fertility: A long-run analysis of Southern Sweden, 1922–2015

Martin Dribe & Christopher D. Smith

To cite this article: Martin Dribe & Christopher D. Smith (2020): Social class and fertility: A long-run analysis of Southern Sweden, 1922–2015, Population Studies, DOI: 10.1080/00324728.2020.1810746

To link to this article: https://doi.org/10.1080/00324728.2020.1810746

Published online: 10 Sep 2020.

Population Studies, 2020
https://doi.org/10.1080/00324728.2020.1810746

Social class and fertility: A long-run analysis of Southern Sweden, 1922–2015

Martin Dribe and Christopher D. Smith
Lund University

This paper examines social class differences in fertility, using longitudinal micro-level data for a regional sample in Sweden, 1922–2015. Using discrete-time event history models, we estimated the association between social class and parity-specific duration to next birth, adjusting for household income in separate models. Social class was associated with fertility quite independently from income and the association was both parity-dependent and sex-specific. For transitions to parenthood, higher class position was associated with higher fertility for men and lower fertility for women before 1970, but then converged into a positive association for both sexes after 1990. For continued childbearing, a weak U-shaped relationship before 1947 turned into a positive relationship for second births and a negative relationship for higher-order births in the period after 1990. These patterns likely reflect broader changes in work–family compatibility and are connected to profound shifts in labour markets and institutional arrangements in twentieth-century Sweden.

Keywords: social class; SES; income; fertility; marital fertility; parity-specific fertility; Sweden; event history analysis; population registers

[Submitted February 2020; Final version accepted July 2020]

Introduction

The study of socio-economic status and fertility has a long tradition in both economics and demography. Theories have been developed to explain both positive and negative associations between socio-economic status and fertility, and how these have changed from before the demographic transition to present times. Most of the research based on micro-level data in Western countries has dealt with fertility differentials either during the first demographic transition (around the turn of the twentieth century) or in the relatively recent past (after the 1970s). Few studies have looked at how fertility has been associated with socio-economic status during the period in between. This has created a knowledge gap in important fertility determinants during a critical period when women attended school and university in increasing numbers and married women entered the labour force en masse (e.g. Stanfors 2003, 2007, 2014; Goldin 2006; Stanfors and Goldscheider 2017). During this period there were also major changes in both marriage patterns and fertility levels in Sweden, as well as other Western countries (Stanfors 2003; Olah and Bernhardt 2008; Sandström 2014).

Many of the theories surrounding the association between socio-economic status and fertility are predicated on the growing importance of women in the labour market. This shift is theorized to influence fertility behaviour due to increased couple income and the increased opportunity costs of children that face women when entering the labour force. Most of the research on socio-economic fertility differentials in contemporary Western societies has focused on education, and especially the role of higher education (e.g. Hoem et al. 2006; Kravdal and Rindfuss 2008, Dribe and Stanfors 2009a, 2010; Tesching 2012; Nisén et al. 2014, 2018; Esping-Andersen and Billari 2015; Trimarchi and Van Bavel 2017; Van Bavel et al. 2018; Jalovaara et al. 2019), although there is also research looking at income–fertility associations at the micro level (e.g. Freedman and Thornton 1982; for Sweden see Edin and Hutchinson 1935; Bernhardt 1972; Silva 2014). Social class and other occupation-based measures have not received as much attention in research on contemporary fertility patterns, but have been studied extensively before

and during the fertility transition (e.g. Haines 1989; Jones and Tertilt 2008; Bengtsson and Dribe 2014; Breschi et al. 2014; Dribe et al. 2014, Dribe and Scalone 2014; Maloney et al. 2014; Vézina et al. 2014; Molitoris and Dribe 2016; Dribe et al. 2017). In a recent study, Sandström and Marklund (2019) also included the occupation of women before entry into parenthood in their analysis of parity-specific fertility during the post-transition baby boom in Sweden.

Research on social stratification and mobility has increasingly stressed the independent roles played by income and class in creating advantage or disadvantage (Erikson and Goldthorpe 2010; Blanden 2013; Breen et al. 2016; Mood 2017). Social class is related to income, but not perfectly so: some lower-class individuals may well out-earn some individuals in higher classes. Similarly, some high earners have only basic education while some with academic degrees receive only medium earnings, and high social class is not necessarily a function of high education.

We analysed the association between social class and fertility using a unique regional sample of longitudinal Swedish population register data, spanning the entire period from 1922 to 2015. We examined transitions to parenthood (first birth), second birth, and higher-order births in separate analyses. For transitions to first birth we considered men and women separately with respect to their class position. For continued childbearing (transitions to second and higher-order births) we measured class by the higher of the two class positions within the couple. In separate models we also adjusted for individual or household income when estimating the associations between social class and fertility. The focus was on charting the empirical patterns and analysing the changes over time in the association between social class and fertility, not on estimating causal effects. The main contribution lies in examining differentials in parity-specific fertility from a long-term perspective, for both men and women.

Theory and previous research

It has been argued that higher social status (usually referring to the husband's status) was associated with high fertility before the fertility decline, but that this pattern reversed during, or even well before, the transition began (e.g. Livi-Bacci 1986; Skirbekk 2008; Clark and Cummins 2015). This change has been explained by the higher social groups acting as forerunners in the decline (e.g. Haines 1989). A recent study looking at class differences in marital fertility for five historical Western populations, including two from Sweden, offered both confirmation and refutation of these views. Higher-class families led the fertility decline in all five populations, but their marital fertility was not universally higher to begin with. Furthermore, families headed by farmers and unskilled labourers were generally laggards in the decline (Dribe et al. 2017). Research using full-count micro-level census data for Sweden and indirect estimation of net marital fertility came to similar conclusions (Dribe and Scalone 2014). There was no clear class–fertility relationship immediately before the transition. Class differences in marital fertility were fairly small, but widened as the upper and upper-middle classes spearheaded the fertility decline, while the working class and farmers lagged behind. A spatial analysis using the same data confirmed that social class was important in structuring the fertility transition as it was linked to innovation diffusion (Klüsener et al. 2019).

Economic theories of fertility

Research on the long-term relationship between occupation-based lifetime income scores of husbands and number of children ever born to married women in the United States (US) has indicated a stable negative relationship from the mid-nineteenth century until the mid-twentieth century (Jones and Tertilt 2008; Jones et al. 2011). From an economic theory point of view this is surprising if children are viewed as a normal good for which more resources would be expected to increase demand (Becker 1960; Willis 1973). Only if children were inferior goods would standard economic theory predict a negative relationship. However, an important part of the cost of children is parental time, and this cost will be higher, the higher the earnings or potential earnings, which implies a negative relationship between parents' earning capacity and fertility. Women's earnings in particular are expected to be important in this respect, as women have often been responsible for childcare (Mincer 1963; see also Willis 1973). Child-rearing is a time-intensive activity that usually falls mainly on mothers, even though fathers have increased the time allocated to childcare and other domestic work (see Neilson and Stanfors 2014; Stanfors and Goldscheider 2017). For a woman who has invested years in developing her human capital, leaving the labour force to be a mother, even temporarily, can reduce her long-term income trajectory (e.g. Waldfogel 1998; Budig and

England 2001). Once women started entering higher education in greater numbers, they began delaying their entry into parenthood, or foregoing it altogether, to take better advantage of that investment (e.g. Goldin 2006).

Higher socio-economic status can also be expected to be related to a higher demand for child quality, which requires more parental investment in, for example, education, sports, cultural activities, and travel experiences (Becker 1991). According to this theory, parents face a quantity–quality trade-off that may lead them to invest their time and resources in fewer high-quality children. This decision might originate from an income or a price effect. If income or the cost of children (e.g. time, childcare, schooling, etc.) goes up or down, then the calculations in this trade-off change. Similarly, if the demand for quality increases, for example as a consequence of higher returns to education, it will raise the price of quantity. This more resource-intensive approach to parenting makes larger families more expensive and therefore less appealing than before. It would also lead to a negative relationship between income and fertility, if higher income were related to a higher relative demand for quality.

Hence, greater economic resources enable families to have more children, but both opportunity costs and the quantity–quality trade-off imply counterweighing effects, contributing to reduced demand for children. In economic analyses of fertility, social class has not been an important variable, mainly being used as a proxy for income, or potential income, in a similar way to education. Hence, higher social class is expected to be associated with higher earning potential and the predictions are similar to those for higher income. However, higher class position could also be expected to be associated with higher opportunity costs in contexts where married women normally work when they have children. Middle-class families in particular could also be expected to face a particularly strong quantity–quality trade-off, due to high aspirations for their children but fairly strong income restrictions.

Preferences could also vary by social class, as seems to have been the case during the fertility transition, when the smaller family ideal came earlier to the higher classes and also diffused faster (see Klüsener et al. 2019). In contemporary Europe, there appears to be a positive association between education and fertility intentions, at least up to the two-child norm (Testa and Stephany 2017).

Gender, institutions, and policy

The theoretical predictions on the association between socio-economic status and fertility are highly dependent on contextual factors related to gender relations, institutions, and policy. McDonald (2013), for example, has argued that one important cause of the low fertility in parts of contemporary Europe is the inequity between men and women in household work as more women are active in the labour force. Similarly, Goldscheider et al. (2015) argued that there is an ongoing 'gender revolution' as Western societies move from a predominance of male-breadwinner households to dual-earner households. The first step of this revolution is when women begin to leave the private sphere and enter the labour market. As most of the household work still falls on women, they begin marrying later, delaying entry into parenthood and having fewer children, as a way to maximize their earnings potential and investment in their individual human capital (see also Goldin 2006).

The second step of the gender revolution concerns the institutional responses to women's entry into the labour force and men's increasing involvement in the private sphere (see also Olah and Bernhardt 2008; Stanfors and Goldscheider 2017 for the Swedish context). Although the first step is universal in the Western world, this second step is not as universally developed. This development often leads to a U-shaped pattern of fertility as women's labour force participation increases, where fertility declines to very low levels when family–work compatibility is low due to high degrees of gender inequity and high labour force participation by women, and then increases as equity grows and compatibility improves, allowing women to partake in both work and family (see also Stanfors 2007).

Married women's labour force participation is thus crucial to understanding the association between socio-economic status and fertility. Goldin (2006) discussed the dramatic shifts in women's labour force participation in the US that took place in the twentieth century, and identified four distinct periods. In the first period, from the end of the nineteenth century to the 1920s, most female workers were young and unmarried, and they often worked in services or manufacturing. Working women were normally seen as of lower status than non-working women, and there was a social stigma attached to married women's work. Most women left the labour force upon marriage.

In the second period, between 1930 and the 1950s, the labour force participation of married women increased, mainly as a result of a higher demand for office and clerical work, together with innovations in household technology. This development was also connected to increased high school completion rates, and implies that more women obtained white-collar jobs before marriage, but many still left the labour force upon marriage. In the third period, the 1960s and 1970s, married women's labour force participation further increased as did women's educational investments. Nevertheless, married women's work was still largely a supplementary activity, and men were the main breadwinners.

From the 1980s what Goldin (2006) labelled as the 'quiet revolution' started. Based on the gradual changes in the preceding decades, the rate of change accelerated, both in terms of labour force participation and a shrinking pay gap between men and women. Work and career now became important parts of women's identities. Investments in education were made with the aim of pursuing a lifelong career, not just to get a job to supplement the husband's earnings. There were dramatic changes in women's expectations about future employment, which coincided with increased educational investments and postponement of marriage and childbearing.

Even though the periodization was not exactly the same as in the US, Sweden went through the same basic phases. These structural and institutional changes are crucial to understanding the long-term development of social class differences in fertility, as not all groups were affected by these changes at the same time. In the next section, we first discuss the Swedish context in a bit more detail, and then make a periodization based on the development of work–family regimes and discuss implications for class differences in fertility over the twentieth century.

The Swedish context

Sweden has been a forerunner in the process towards gender equality, both in the labour market and in the home (Olah and Bernhardt 2008; Evertsson 2014; Stanfors 2014; Stanfors and Goldscheider 2017). Sweden has also experienced comparatively high fertility in recent decades, which has, at least partly, been connected to a relatively high degree of compatibility between family and work, thanks to gender-equal attitudes and also to institutions and policy which have promoted gender equality and the combination of work and family (e.g. Hoem 1990; Duvander and Andersson 2006; Stanfors 2007; Olah and Bernhardt 2008). Among these, the establishment of near-universal high-quality and inexpensive childcare reduced the opportunity costs associated with childbearing (Stanfors 2007; Olah and Bernhardt 2008; Stanfors and Goldscheider 2017). From the early 1970s to the late 1990s, the enrolment of preschool children in public childcare increased dramatically in Sweden (Andersson et al. 2006). In 2001 the fees were also reduced significantly when a fee cap was introduced, lowering costs especially for those with higher incomes. Today the vast majority of children aged 1–6 are enrolled in a preschool. This near-universal provision of well-functioning and inexpensive childcare is an important aspect of the institutional set-up promoting high family–work compatibility in Sweden. It should be noted, however, that this development mainly took place after 1970 and especially after 1980.

The expansion of parental leave also had important ramifications for fertility. In 1937, twelve weeks of unpaid maternity leave was granted to mothers. Over time, this leave was extended and benefits were also introduced. In 1974 Sweden became the first country in the world to introduce a parental leave system with equal rights for mothers and fathers, including six months of earnings-replacement benefits (up to 90 per cent of earnings). The time period has been gradually extended since then, but there have also been some cutbacks in compensation levels (see Appendix 2 of Stanfors 2003). A special 'daddy month', which could not be transferred to the mother (or more formally both mothers and fathers were given one month which could not be transferred to the other parent), was introduced in 1995 and was later extended to two months. Fathers' use of parental leave has been shown to promote continued childbearing, at least up to moderate levels (Duvander and Andersson 2006). There were also changes in the rules on how to calculate compensation, creating a 'speed premium' incentivizing parents to have another birth within 24 months (later extended to 30 months), which also had the effect of shortening birth intervals and increasing fertility (Hoem 1990, 1993; Andersson 1999). There does not appear to have been any large difference in the effect of the policy change by educational level (Andersson et al. 2006).

Work–family regimes and class differences in fertility in twentieth-century Sweden

Based on the preceding discussion we identify four periods connected to different regimes in terms of work–family relationships: male-breadwinner (until about 1945), early transformation (1950s and

1960s), late transformation (1970s and 1980s), and dual-earner (1990s until today). The exact periodization is of course a bit arbitrary, but the periods indicate the process from a male-breadwinner model, when married women's market work was rare and of a clearly supplementary nature, to the present-day dual-earner model, where the time allocation and earnings of men and women are becoming increasingly uniform, even though the final step towards gender equality in the labour market and the home is yet to be taken (see Goldin 2014 for a discussion of this 'last chapter' of convergence between men and women in the US context).

In the male-breadwinner regime, most married women exited the labour force on marriage and there was a sharp trade-off for women between family and work. The few women who invested in a labour market career (e.g. as teachers or nurses) usually abstained from marriage and children. There were some steps taken to improve family and welfare policy in this period but no dramatic changes. In this regime, we expect socio-economic status to have been positively associated with family formation for men, but negatively associated for women. Men in higher-status occupations, with higher earnings or higher non-economic status, would more easily have found a spouse and set up an independent household. Within marriage, we expect the lowest fertility to be seen among the middle class, as they faced the strongest quantity–quality trade-off. They had comparatively high aspirations for their children in terms of education and career but rather limited economic means. Together with the upper class they led the fertility decline and had started to limit family size earlier than the blue-collar workers (e.g. Dribe and Scalone 2014).

The 1950s and 1960s was a period of rapid economic growth and societal change (e.g. Schön 2010). Most married women with children still did not work in this period, even though labour force participation for married women in general started to increase rapidly (Stanfors 2014). Gender roles remained largely traditional, with limited involvement of men in domestic work and childcare, and the limited institutional support for childcare led to a continuing sharp trade-off for most women between career and family. This period constituted the beginning of the gender revolution (Goldscheider et al. 2015) when increased women's labour force participation started to coincide with lower fertility as a result of the low family–work compatibility and sharp trade-offs facing women.

From the 1970s, the Swedish welfare state rapidly developed and expanded, with a range of new reforms affecting family life and gender relations. At the same time, higher education continued to expand, with a convergence between men and women in length of schooling as well as in labour force participation. This development has continued to present times, with increasing involvement of married women in paid labour and increasing involvement of fathers in domestic tasks, including child-rearing. Even though there is still a pronounced gender-based division of labour in Sweden, parenthood does not imply the same return to traditional gender roles as it did two decades ago (Dribe and Stanfors 2009b). Most of the institutional change regarding work–family compatibility, women's labour force participation, and educational expansion was in place by the early 1990s.

Sweden has now made a full transition from the male-breadwinner model to a dual-earner model, where the earnings of both men and women are of crucial importance for household income and living standards (Stanfors and Goldscheider 2017). Working during the years when children are small is now common for both men and women, and much less class-specific than it once was. This period coincides with the second phase of the gender revolution, where men's increasing involvement in the private sphere as well as the institutional setting contribute to make family and work compatible for both men and women. We might expect new gender-equal attitudes among men to emerge earlier in the white-collar (more educated) classes (see Svallfors 2004; Goldscheider et al. 2015), which would imply greater compatibility in these classes and thus a positive association between class and fertility (see Goldscheider et al. 2010).

Figure 1 shows total fertility in Sweden since 1910. The fertility decline (that started around 1880) ended in the 1930s, when Sweden hit its lowest fertility level so far in 1935 (Total Fertility Rate (TFR) = 1.7). Soon after, it started to increase again, peaking in 1945 (TFR = 2.6) and staying above 2.0 children per woman during the entire 1950s and 1960s, but started to decline after 1965. In the early 1980s the TFR was around 1.6 and then increased to 2.1 in 1990, followed by a new decline to an all-time low in 1999 (1.5). Since then fertility has again recuperated, staying slightly under 2.0 in the first decades of the 2000s. This 'roller-coaster' fertility has attracted much attention in the literature and has been linked to economic fluctuations related to the labour market and housing (Stanfors 2003; Olah and Bernhardt 2008).

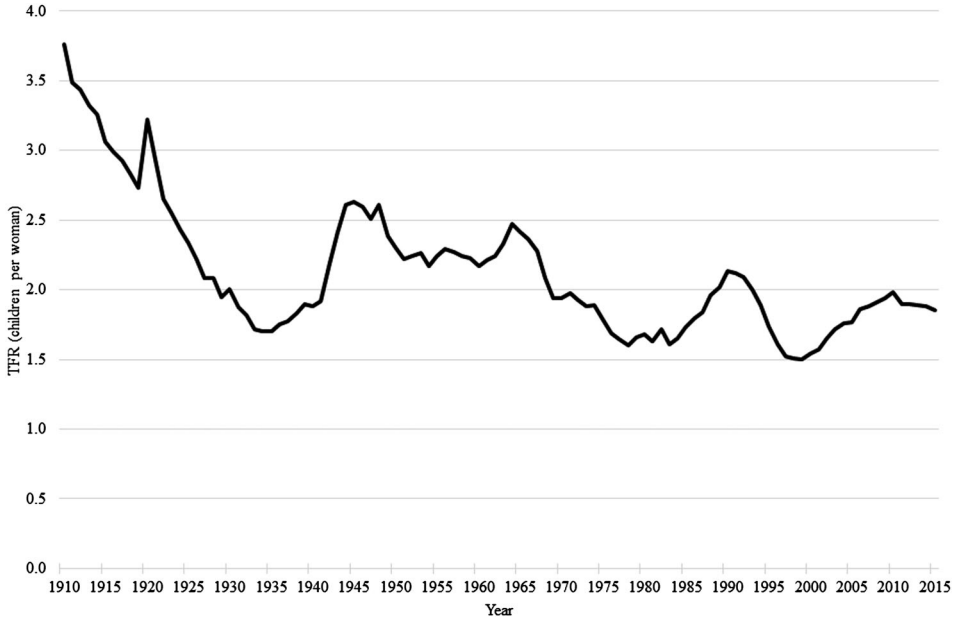

Figure 1 Total fertility (TFR) in Sweden, 1910–2015
Source: Statistics Sweden 1999, SOS (Sveriges officiella statistik), www.scb.se.

Data and variables

We used data from the Scanian Economic Demographic Database (SEDD), developed at the Centre for Economic Demography, Lund University (Bengtsson et al. 2018). SEDD consists of longitudinal individual-level information on demography and socio-economic attainment for individuals originating in a region with five parishes (Halmstad, Hög, Kågeröd, Kävlinge, and Sireköpinge) and the city of Landskrona from 1922 to 2015 (see map in Figure 2). Data for the period 1922–67 came from various data sources (parish-level registers of population, births, marriages, deaths, and income and taxation), while data from 1968 to 2015 came from Statistics Sweden and covered the entire country. Individuals present in the older data were identified and linked to the contemporary data by Statistics Sweden, using unique personal identifiers for all individuals present from 1947 onwards. For this analysis, we sampled men and women aged 16–39 at risk of first births and women aged 16–54 in couples for continued childbearing. In a sensitivity analysis we also estimated the first-birth models for the age range 16–49, which gave almost identical estimates (see Appendix Table A1). To keep a homogeneous study population, the main analysis was conducted on the regional sample (five parishes and the city of Landskrona) for the entire study period, but we also examined the entire population living in the whole of Sweden after 1967 as a robustness check. The study population is not a random sample of Sweden, but is broadly representative by reflecting conditions shared by populations in similar areas during the time studied (see, e.g. Dribe et al. 2015; Dribe and Helgertz 2016; Bengtsson et al. 2020).

We analysed the duration to next birth by parity or parity group. Transition to first birth was examined for men and women separately, following each individual from age 16 until first birth or age 40. For continued childbearing we analysed couples (married, or cohabiting with children in common) and considered second births and higher-order births separately. We also examined third births separately, and the patterns were similar to the patterns for all higher-order births combined (see Appendix Table A2). Couples were censored at divorce (or break-up of cohabitation with children in common), death of the partner, end of period, or after eight years since last birth. We chose couples as the unit of analysis as the focus was on the association between social class and continued childbearing. Studying men and women separately would have made interpretations more difficult, especially during periods when married women with children seldom worked and class positions were largely determined by husbands' occupations.

We used social class to measure advantage through access to resources, material well-being, and status. Class captures the similar life chances afforded to different classes and was expected to be a more

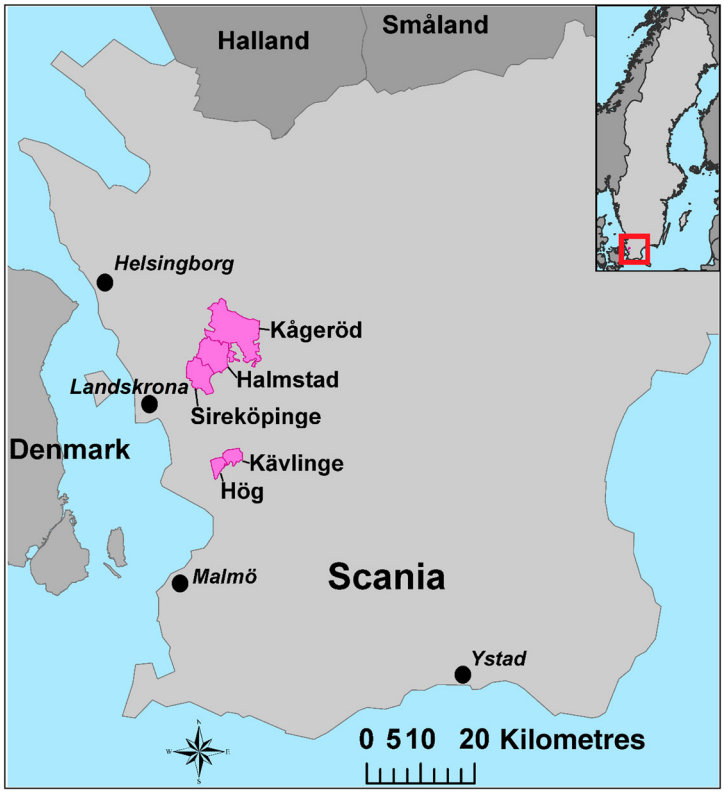

Figure 2 Map of the study area
Source: Map produced by Finn Hedefalk, Lund University.

stable measure of socio-economic status over the life course than income and to reflect not only economic resources, but cultural resources and attitudes as well (see, e.g. Breen and Jonsson 2005; Erikson and Goldthorpe 2010). We measured social class based on the occupation of the individual or their spouse or partner (higher class within the union for the currently married or cohabiting). Before 1968 occupational information was collected from the population registers (usually updated on entry and when starting a new ledger, about every five years), event registers, and annually in the income and taxation registers from 1947 onwards. From 1968 occupation was reported in the 1970, 1975, 1980, 1985, and 1990 Censuses (*Folk- och bostadsräkning*) and in the occupation registers from 2001 onwards. Occupations for intercensal years were imputed using the nearest census (e.g. 1970 information for 1971; 1972 and 1975 information for 1973 and 1974). For the period 1990–95 we used the occupation in the 1990 Census, and for 1996–2001 we used the occupation from 2001. It is worth noting that the occupational registers (available 2001–14) were based on reports from employers and only included the currently employed.

Occupational notations in SEDD are coded in an internationally comparable coding scheme for historical occupations: HISCO, the Historical International Standard Classification of Occupations (Van Leeuwen et al. 2002). For the period after 1968, the occupational codings from Statistics Sweden were recoded to HISCO (see Dribe and Helgertz 2016). These standardized occupations were subsequently coded into HISCLASS (Historical International Social Class Scheme), a twelve-category occupational classification scheme based on skill level, degree of supervision, whether manual or non-manual, and whether urban or rural (Van Leeuwen and Maas 2011).

We used an abbreviated scheme with six classes: higher white-collar workers (HISCLASS 1–2), lower white-collar workers (HISCLASS 3–5), medium-skilled workers (HISCLASS 6–7), lower-skilled workers (HISCLASS 9–10), unskilled workers (HISCLASS 11–12), and farmers (HISCLASS 8). In all analyses, we also included individuals without a registered occupation as a seventh category (NA). Except for farmers, who were a bit problematic to fit into the class scheme over such a long period of time, other classes broadly reflected a status hierarchy from lowest status (unskilled workers) to highest status (higher white-collar workers). The class scheme has frequently been used in historical studies of social stratification, and is very similar to other commonly used class

schemes in the stratification literature (e.g. the EGP Class Scheme; see Erikson and Goldthorpe 1992). We could be concerned that this kind of class scheme is not valid for such a long period, and that the grouping together of classes is not straightforward over time. While there is no doubt that the distinction between top and bottom is meaningful both today and in the 1920s, the distinction between the unskilled workers and lower-skilled workers, for instance, may be more doubtful. Thus, in addition to the seven-class scheme, we also estimated models using a three-class scheme (manual, non-manual, NA/farmer). The manual group consists of the medium-skilled, low-skilled, and unskilled workers, and the non-manual group consists of the higher and lower white-collar workers.

In the study area, both absolute and relative social mobility increased during the twentieth century up to 1970, mainly because upward mobility became more prevalent. Formal education and meritocracy became increasingly important for people from lower-class origins to advance socially (Dribe et al. 2015).

There has recently been increasing recognition in both economics and sociology that social class and income capture different aspects of a person's relative position in society and there is no reason to expect that they should move in tandem (Björklund and Jäntti 2000; Erikson and Goldthorpe 2010; Blanden et al. 2013; Breen et al. 2016; Mood 2017). Income is a measure of the economic resources available to an individual or household at a given moment in time, and is expected to fluctuate more than social class over the life course. To look at the possible importance of income for the class–fertility relationship, we estimated models including both social class and income for the period after 1946 when annual income information was available in the data. We used total income from employment, self-employment, and capital, including some social insurance benefits based on previously earned income (including parental leave benefits). Household income was defined as the sum of the income earned by the spouses or partners. Income deciles were calculated from the entire sample, specific by year (and sex for first births). These models were estimated on a reduced sample due to missing income information for some individuals.

In the multivariate analysis we adjusted models for a limited number of variables. All models were adjusted for age and age squared to account for age dependency. Models for second and higher-order births controlled for time since last birth and time since last birth squared (duration), and in higher-order models, number of previous births was also adjusted for. Models did not adjust for marital status, as union formation is often closely linked with transition to parenthood and part of the same decision. First-birth models including an adjustment for marital status gave somewhat different results (detailed results not shown).

Methods

We estimated the association between social class and parity-specific birth risks using discrete-time complementary log–log regression with clustered standard errors at the individual level (see, e.g. Prentice and Gloeckler 1978 for an equivalent model). The reason for using this model, rather than a continuous-time survival model, was that the data on income and class were mostly annual and the structure of the data after 1968 was in a panel form with annual observations. The model is equivalent to a continuous proportional hazards model when time is in discrete form. The exponentiated regression parameters are interpreted as relative risks. The model is fitted to a sequence of annual binary outcomes, until the event of interest occurs or the time to event is censored.

We considered first, second, and higher-order births separately. Social class and, in some models, income were included as lagged variables, reflecting the situation in the year before the observation. The estimates from these models cannot be interpreted as causal effects of social class on fertility. Even though the ordering of events was taken into account and social class referred to the year before the risk of birth, unobserved endogeneity (e.g. that family-oriented individuals may have taken different decisions on education and career than less family-oriented ones) could not be accounted for. Hence, the estimates should be viewed as empirical associations between social class and fertility rather than estimates of causal effects.

Descriptive statistics

We focused the analysis on four different periods: 1922–46, 1947–67, 1968–89, and 1990–2015. While the exact periodization was partly driven by data availability, the periods reflected the change in work–family regimes, from a male-breadwinner context in the first period to a dual-earner context in the final period.

Table 1 reports the descriptive statistics of the different study samples for the four subperiods. The increasing proportions without a class in the first-birth sample in the two later periods can be

attributed to the increasing proportion of the time at risk before a first birth being spent in education and hence delayed entry into the labour force. The overall higher proportion with missing occupations in the later periods is explained by the different registration of occupations in these periods, as previously mentioned. The changing composition of social class over time is not unexpected. Most noticeable is the diminishing role of farmers and skilled workers over time and the rising importance of both higher and lower white-collar workers. This changing distribution with increasing proportions in certain occupational categories should be kept in mind when looking at results in the most recent period.

Table 1 also shows the mean age at birth by parity and period, and by sex for first births. For women, age at first birth declined from 27.2 in 1922–46 to 24.7 in 1968–89, and then increased again to 27.2 in the final period. This pattern is well in line with the aggregate pattern for Sweden as a whole (Sandström 2014). For men the age at first birth declined from 30.1 in the first period to 27.6 in 1968–89 and then increased to 29.3 years in the last period. For second births, age of woman at birth increased from 29.8 in the first period to 31.4 in the last period. The mean age of woman at higher-order births increased from 33.9 years in the first period to 35.1 in the last period.

Results

Table 2 shows the relative risks of transitioning to the next birth by period, parity, and social class using the three- and seven-class groupings, respectively. In the model for the period 1922–46 (panel A), first- and second-birth risks are highest among farmers, while first-birth risks tend to be lower among non-manual workers, especially women. For men, the higher white-collar class experiences the highest first-birth risks besides the farmers, and the lower white-collar class the lowest, while there are no differences in first-birth risks within the blue-collar classes. For women, first-birth risks are much lower for the white-collar classes (RR = 0.24, $p < 0.01$ for higher white-collar and RR = 0.56, $p < 0.01$ for lower white-collar), while there are no differences within the blue-collar group. Thus, there are opposite patterns for men and women, with high social class being related to a higher likelihood of a first birth for men, but a lower likelihood for women. For continued childbearing the pattern is quite different. While few of the coefficients are statistically significant for second births, the highest likelihood of a higher-order birth is seen among the higher white-collar class (RR = 1.35, $p < 0.01$), and the lowest among the unskilled workers (RR = 0.66, $p < 0.01$). In other words, it appears as if higher social class is associated with delayed entry into parenthood for women, but not for men, and then with higher fertility after first birth, and especially after the second birth. For all transitions, fertility is higher for farmers than medium-skilled workers.

Panel B shows estimates for the period 1947–67. Farmers still show the highest fertility at all parities, except for first births for women. Apart from farmers, there are opposite patterns for first births for men and women, with lower first-birth risks for non-manual women and higher risks for non-manual men. Higher white-collar social class is connected to a lower likelihood of a first birth for women (RR = 0.54, $p < 0.01$) but a higher likelihood for men (RR = 1.23, $p < 0.01$), similar to the previous period. For second births, a U-shaped pattern emerges, with higher birth risks for the unskilled (RR = 1.50, $p < 0.01$) and higher white-collar (RR = 1.20, $p < 0.05$) classes, and the lowest birth risks among the low- and medium-skilled workers. For higher-order births, the pattern is similar to second births. Apart from the farmers, the highest likelihood of a birth is among unskilled and higher white-collar workers and the lowest among low- and medium-skilled workers.

In the model for the 1968–89 period (panel C), the pattern for the transition to first birth is quite similar for men and women. Aside from the farmers, whose fertility is still higher than that of the other classes, there is a weak inverted U-shaped relationship, with somewhat higher first-birth risks for the medium-skilled workers than for the low-skilled/unskilled and white-collar classes. For second births, the white-collar classes show higher fertility (for higher white-collar, RR = 1.43, $p < 0.01$), while there are no differences within the manual class. For higher-order births, the U-shaped pattern from the previous period is still clearly visible even if the coefficient for the unskilled is not statistically significant.

By the last period, 1990–2015 (panel D), we see that the pattern for first births has changed considerably. For both men and women, but in particular for women, first-birth risks are highest for the higher white-collar workers (RR = 1.21 for men and RR = 1.56 for women, both $p < 0.01$). For second births there is a linear positive relationship between social class and fertility, with the lowest fertility for the unskilled and the highest fertility among the higher white-collar workers (RR = 1.53, $p < 0.01$). For higher-order births there is an almost opposite pattern, with a negative association between social class and fertility. Unskilled workers have the

Table 1 Descriptive statistics of the analytical samples for four different time periods: Scania, Sweden, 1922–2015

	(1) First births, men	(2) First births, women	(3) Second births, couples	(4) Higher-order births, couples
A. 1922–46				
Births	7,219	5,017	1,862	1,235
Total time at risk (person-years)	135,615	104,907	11,223	7,938
Mean age at birth (years)	30.1	27.2	29.8	33.9
Mean time since last birth (years)	–	–	3.5	3.4
Mean previous births	–	–	–	2.2
Individuals at risk	18,566	19,196	4,707	2,125
Social class (percentages)				
Three-class scheme				
Manual	66.8	43.3	49.0	41.4
Non-manual	17.3	17.2	45.5	44.8
Farmers/NA	15.9	39.5	5.6	13.9
Seven-class scheme				
Unskilled	22.6	5.5	6.3	4.9
Low-skilled	22.5	33.5	15.9	15.2
Medium-skilled	21.7	4.3	26.8	21.3
Lower white-collar	13.8	15.9	26.6	25.1
Higher white-collar	3.4	1.3	18.9	19.7
NA	13.9	39.5	0.8	0.3
Farmers	2.0	<0.1	4.8	13.6
B. 1947–67				
Births	7,243	5,038	2,113	987
Total time at risk (person-years)	126,365	72,983	23,274	19,583
Mean age at birth (years)	29.5	25.7	31.2	35.2
Mean time since last birth (years)	–	–	3.7	4.0
Mean previous births	–	–	–	2.5
Individuals at risk	20,063	15,649	5,929	3,170
Social class (percentages)				
Three-class scheme				
Manual	62.8	33.8	68.3	61.9
Non-manual	28.5	40.6	29.8	34.0
Farmers/NA	8.7	25.6	1.9	4.1
Seven-class scheme				
Unskilled	8.9	5.5	10.8	9.5
Low-skilled	22.2	24.7	23.5	21.1
Medium-skilled	31.8	3.7	34.0	31.4
Lower white-collar	20.2	37.3	23.2	26.4
Higher white-collar	8.2	3.3	6.6	7.6
NA	7.7	25.6	0.2	0.1
Farmers	1.0	<0.1	1.6	4.0
C. 1968–89				
Births	6,128	5,601	2,989	1,024
Total time at risk (person-years)	114,128	78,213	20,272	27,759
Mean age at birth (years)	27.6	24.7	30.2	33.3
Mean time since last birth (years)	–	–	3.7	4.1
Mean previous births	–	–	–	2.3
Individuals at risk	20,290	16,074	6,008	4,997
Social class (percentages)				
Three-class scheme				
Manual	45.3	27.5	47.1	48.4
Non-manual	19.3	27.0	42.0	43.2
Farmers/NA	35.4	45.5	10.4	8.3
Seven-class scheme				
Unskilled	3.2	4.8	3.1	3.1

(*Continued*)

Table 1 Continued.

	(1) First births, men	(2) First births, women	(3) Second births, couples	(4) Higher-order births, couples
Low-skilled	21.4	18.1	20.6	21.0
Medium-skilled	20.7	4.7	18.3	19.1
Lower white-collar	16.3	25.0	40.1	40.7
Higher white-collar	3.1	2.0	7.0	7.7
NA	34.7	45.4	10.2	7.7
Farmers	0.7	<0.1	0.2	0.6
D. 1990–2015				
Births	6,068	6,463	2,817	1,397
Total time at risk (person-years)	132,543	106,758	14,124	30,282
Mean age at birth (years)	29.3	27.2	31.4	35.1
Mean time since last birth (years)	–	–	3.2	4.2
Mean previous births	–	–	–	2.5
Individuals at risk	22,972	21,215	4,843	5,603
Social class (percentages)				
Three-class scheme				
Manual	31.5	26.3	32.2	34.5
Non-manual	18.0	21.2	47.4	57.5
Farmers/NA	50.5	52.5	20.4	7.8
Seven-class scheme				
Unskilled	3.8	5.6	3.5	2.5
Low-skilled	17.3	18.7	19.4	20.7
Medium-skilled	10.4	2.1	9.2	11.3
Lower white-collar	15.2	19.2	34.6	42.9
Higher white-collar	2.8	2.0	12.8	14.6
NA	50.4	52.5	20.4	7.8
Farmers	0.1	<0.1	–	–

Note: Samples include individuals aged 16–39 for first births and couples with women aged 16–54 for continued childbearing. Mean age at birth refers to women in couples (for second and higher-order births).
Source: The Scanian Economic-Demographic Database, Bengtsson et al. (2018).

highest fertility (RR = 1.30, but $p > 0.10$) at these parities (except for those missing an occupation) and the white-collar classes the lowest (for the non-manual group as a whole, RR = 0.74, $p < 0.01$).

The models in Table 3 adjust for income decile for the last three periods (where income information is fully available: individual income for first births and total household income for higher-order births). Looking at first births, the relative risks for the 1947–67 and 1990–2015 periods are very similar to those in the main model (Table 2). The results are also highly similar in the 1968–89 period, but there are some differences for farmers and for the unknown category. For farmers the relative risks are larger when adjusting for income, indicating that the fertility behaviour for this class deviates more when income is taken into account. Estimates for second and higher-order births are also highly similar to those without adjusting for income. Some estimates differ, but mainly for the unknown category and in one case also for the unskilled. In general, however, the association between social class and fertility is not much affected by income at any parity, which indicates that the association between social class and fertility is not mainly a result of income differences across classes but reflects conditions more directly associated with class. This independent association of social class and income with fertility partly reflects poor overlap between the two variables (in the sense that the lowest class is not always the poorest group and vice versa), and partly their capturing of different aspects of fertility influence, such as income effects vs. attitudinal and cultural differences between classes. It is well known from the literature that there are pronounced differences in attitudes between social classes concerning a range of societal issues including gender roles and family (see, e.g. Svallfors 2004), and this could be one explanation for class differences in fertility net of income differences. At the same time it is worth pointing out that Sweden was a culturally homogenous society for much of the period in terms of both language and religion, and also one of the countries with the highest income equality in the world.

Table 2 Relative risks of the transition to next birth, by social class, in Scania, Sweden, 1922–2015: models without income controls

Social class	(1) First births, men	(2) First births, women	(3) Second births, couples	(4) Higher-order births, couples
A. 1922–46				
Manual	1	1	1	1
Non-manual	0.93*	0.50**	1.05	1.31**
Farmer/other	0.92	1.29**	1.50**	1.32**
Unskilled	0.94	1.12	1.15	0.66*
Low-skilled	0.99	1.08	0.96	0.87
Medium-skilled	1	1	1	1
Lower white-collar	0.84**	0.56**	1.01	1.10
Higher white-collar	1.19**	0.24**	1.11	1.35**
Unknown	0.50**	1.38**	0.82	0.96
Farmers	1.71**	1.66	1.64**	1.21+
Observations	135,615	104,907	11,223	7,938
B. 1947–67				
Manual	1	1	1	1
Non-manual	1.12**	0.83**	1.08	1.16*
Farmer/other	0.92	0.95	2.19**	2.08**
Unskilled	0.75**	1.16	1.50**	1.33**
Low-skilled	0.96	1.07	0.99	0.88
Medium-skilled	1	1	1	1
Lower white-collar	1.00	0.93	1.13*	1.09
Higher white-collar	1.23**	0.54**	1.20*	1.41**
Unknown	0.48**	1.03	1.06	1.41
Farmers	2.01**	1.00	2.54**	2.12**
Observations	126,365	72,956	23,274	19,583
C. 1968–89				
Manual	1	1	1	1
Non-manual	0.96	0.86**	1.12**	0.84*
Farmer/other	0.52**	0.91**	1.01	1.13
Unskilled	0.85*	0.99	1.00	1.18
Low-skilled	0.90**	0.91	1.02	1.16
Medium-skilled	1	1	1	1
Lower white-collar	0.91*	0.80**	1.09+	0.82*
Higher white-collar	0.87*	0.90	1.43**	1.57**
Unknown	0.47**	0.85*	1.00	1.19
Farmers	1.15	1.49	2.60**	1.98+
Observations	114,609	78,213	20,272	27,759
D. 1990–2015				
Manual	1	1	1	1
Non-manual	1.10**	1.07*	1.40**	0.74**
Farmer/other	0.85**	1.03	0.98	1.55**
Unskilled	0.94	0.93	0.80	1.30
Low-skilled	0.93+	1.27**	0.86*	1.10
Medium-skilled	1	1	1	1
Lower white-collar	1.01	1.22*	1.18*	0.78**
Higher white-collar	1.21**	1.56**	1.53**	0.90
Unknown	0.81**	1.21*	0.87+	1.69**
Farmers	0.82	0.72	… [1]	… [1]
Observations	132,543	106,758	14,122	30,235

$+p < 0.10$, $*p < 0.05$, $**p < 0.01$.

[1]Too few observations to include in estimation.

Notes: Relative risks from complementary log–log models (exp(coefficient)). Values of '1' denote the reference category. Samples include individuals aged 16–39 for first births and couples with women aged 16–54 for continued childbearing. Models control for age and age squared (1, 2, 3, 4; age of woman for 3, 4), time since last birth and time since last birth squared (3, 4), and number of previous births (4). Social class in (1) and (2) is measured by individual occupation, and in (3) and (4) as the higher class within the couple. All models are statistically significant ($p < 0.001$) based on Chi-square tests. Separate models are shown for three- and seven-class groupings.

Source: As for Table 1.

Table 3 Relative risks of the transition to next birth, by social class, in Scania, Sweden, 1947–2015: models adjusting for household income

Social class	(1) First births, men	(2) First births, women	(3) Second births, couples	(4) Higher-order births, couples
A. 1947–67				
Unskilled	0.80**	1.15	1.48**	1.30*
Low-skilled	0.98	1.08	0.97	0.86
Medium-skilled	1	1	1	1
Lower white-collar	0.99	0.97	1.09	1.02
Higher white-collar	1.18**	0.58**	1.12	1.31*
Unknown	0.48**	0.95	0.60	1.11
Farmers	2.09**	1.00	2.17**	1.90**
Observations	126,365	72,956	22,024	19,123
B. 1968–89				
Unskilled	0.94	1.15+	1.03	1.14
Low-skilled	0.94	0.96	1.04	1.15
Medium-skilled	1	1	1	1
Lower white-collar	0.94+	0.82**	1.09	0.85+
Higher white-collar	0.88+	1.02	1.36**	1.56**
Unknown	0.62**	1.24**	1.08	1.27+
Farmers	1.43**	2.28+	2.67**	1.73
Observations	112,393	75,278	19,144	26,577
C. 1990–2015				
Unskilled	1.06	1.12	0.90	0.96
Low-skilled	0.96	1.38**	0.89	1.02
Medium-skilled	1	1	1	1
Lower white-collar	1.01	1.26**	1.11	0.81*
Higher white-collar	1.10	1.50**	1.33**	0.95
Unknown	0.89*	1.41**	0.97	1.11
Farmers	1.00	0.89	…[1]	…[1]
Observations	132,537	106,742	14,012	30,177

$+p < 0.10$, $*p < 0.05$, $**p < 0.01$.

[1]Too few observations to include in estimation.

Notes: Relative risks from complementary log–log models (exp(coefficient)). Values of '1' denote the reference category. Samples include individuals aged 16–39 for first births and couples with women aged 16–54 for continued childbearing. Models control for age and age squared (1, 2, 3, 4; age of woman for 3, 4), time since last birth and time since last birth squared (3, 4), number of previous births (4), individual income (1, 2), and total household income (3, 4). Social class in (1) and (2) is measured on individual occupation, and in (3) and (4) as the higher class within the couple. All models are statistically significant ($p < 0.001$) based on Chi-square tests. The 1922–46 period is not included as full income information was not available.

Source: As for Table 1.

Our results so far are based on the regional sample from southern Sweden. For the periods after 1967 we can follow individuals originating in this area and their descendants residing all over Sweden. This larger sample includes all individuals who have ever resided in the area, as well as children born to current and former residents present in the area after 1947, when unique personal identifiers were introduced. Table 4 shows estimates for the two later periods. Overall, the relative risks for those with a registered occupation are similar to those in Table 3, which is reassuring as they do not indicate that the area under study deviates in any important way from the pattern in the country as a whole, even though the comparison is only made with people with some intergenerational connection to the area.

Discussion

Our analysis of the association between social class and parity-specific fertility has given some important insights into its long-term development. Looking first at the transition to parenthood, the first stage of the fertility process, higher social class was associated with lower fertility for women in the first three periods, but not in the last. In the 1920s to 1940s, this was related to basic conditions of women's labour markets, as discussed previously. Until 1939

Table 4 Relative risks of the transition to next birth, by social class: enlarged sample including individuals from the whole of Sweden, 1968–2015 (models adjusting for household income)

Social class	(1) First births, men	(2) First births, women	(3) Second births, couples	(4) Higher-order births, couples
A. 1968–89				
Unskilled	0.78**	1.02	0.94	1.27*
Low-skilled	0.91**	0.99	0.96	1.22**
Medium-skilled	1	1	1	1
Lower white-collar	0.92**	0.89**	1.06*	0.88**
Higher white-collar	0.94*	0.86**	1.47**	1.50**
Unknown	0.54**	1.07*	1.03	1.66**
Farmers	1.20**	1.22	1.55**	1.59**
Observations	492,499	388,793	76,484	94,845
B. 1990–2015				
Unskilled	0.76**	0.85**	0.75**	1.14
Low-skilled	0.90**	1.12*	0.87**	1.04
Medium-skilled	1	1	1	1
Lower white-collar	0.90**	1.05	1.11*	0.81**
Higher white-collar	0.99	1.20**	1.37**	1.00
Unknown	0.66**	0.91*	0.80**	1.59**
Farmers	1.01	1.25	…[1]	…[1]
Observations	595,176	485,620	37,296	101,434

$+p < 0.10$, $*p < 0.05$, $**p < 0.01$.

[1]Too few observations to include in estimation.

Notes: Relative risks from complementary log–log models (exp(coefficient)). Values of '1' denote the reference category. Samples include individuals aged 16–39 for first births and couples with women aged 16–54 for continued childbearing. Models control for age and age squared (1, 2, 3, 4; age of woman for 3, 4), time since last birth and time since last birth squared (3, 4), number of previous births (4), individual income (1, 2), and total household income (3, 4). Social class in (1) and (2) is measured on individual occupation, and in (3) and (4) as the higher class within the couple.

Source: As for Table 1.

employers had the right to lay off women who got married and had children (see Appendix 2 of Stanfors 2003). In this period women faced a very clear trade-off between family and work: a trade-off that most often led women into homemaking rather than into a labour market career (see Goldin 2006; Stanfors 2007). For example, in the 1920s and 1930s around 90 per cent of women left their job and the labour force upon marriage. In the 1970s and 1980s this figure was down to around 10 per cent and by 1990 the phenomenon had completely disappeared (Stanfors and Goldscheider 2017). For women who chose the career path in the 1920s to 1940s, it clearly came at the expense of family formation, which was not the case in later periods (see Sandström and Marklund 2019).

For young men, having a career and a high-class position did not have a negative effect on the transition to parenthood before the 1960s. Instead, having a secure income was a prerequisite for union formation and men with a better job were more attractive on the marriage market. The patterns for men and women converged in the 1970s and 1980s, with somewhat lower transition rates to parenthood for the white-collar classes and low-skilled/unskilled workers compared with medium-skilled workers. A similar convergence in the transition to first birth between men and women was observed until about 1990 in a study using survey data (Dribe and Stanfors 2009a). Then, after 1990, higher class became related to elevated transition to parenthood, especially for women. This reflected the importance of having a job and a career before forming a family and having children, and that this was especially true for women (e.g. Goldscheider et al. 2015; Stanfors and Goldscheider 2017). Once women reached high-class positions they transitioned rather quickly to parenthood, likely as a result of postponing family formation until after finishing education and getting a secure job.

Regarding continued childbearing, the patterns for second births and higher-order births were quite different over time. While the relationship with social class for second births changed from weakly U-shaped to positive, it went from weakly U-shaped to negative for higher-order births. Second births often follow first births more automatically, both in high-fertility societies and in contexts with a

strong two-child norm. In Sweden, this was reinforced by different policy measures incentivizing a rapid transition to second birth for those with that target, as previously mentioned.

It is perhaps a bit surprising that fertility after the second birth was particularly high in the higher white-collar group in all periods except after 1990. During the fertility transition this class was a forerunner in the adoption of family limitation and low fertility, but after the decline, when all classes had adopted modern fertility behaviour with deliberate control of fertility within marriage, this class stood out with higher fertility than the lower white-collar workers and the blue-collar workers. One interpretation of this result is that when deliberate fertility control within marriage was universally accepted in all social classes, socio-economic factors became even more important determinants of fertility. The higher-class families benefited from more economic resources and better housing than the lower classes, and were not dependent on supplementary income of the wives to the same extent, which lowered the opportunity costs of children.

This situation was most pronounced in the male-breadwinner context, and changed over time as women in all classes entered into the labour market in increasing numbers. However, even in the transformation periods most women with young children did not work, or only worked part-time. The institutional support to families with working mothers was also weak at the beginning of the transformation, but gradually expanded over time, as previously discussed. In the final period (1990–2015), partnered women with young children participated fully, or close to fully, in the labour force, with increasing support from institutional childcare, preschool, and after-school programmes. Increasing career demands in white-collar families could be a reason for higher-order fertility being lower in this group (especially in the lower white-collar class) in the last period.

Conclusion

The research reported in this paper is among the first to examine the association between social class and parity-specific transitions to next birth, covering a period of almost 100 years, from the early 1920s to 2015, and using longitudinal individual-level data. A fundamental conclusion from this and previous historical research in the area is that there is no universal relationship between socio-economic status and fertility, valid across contexts and over time. Our findings identified a number of interesting patterns. First, social class and income were quite independently related to fertility outcomes. Second, the relationship between social class and fertility was parity-dependent, with different patterns at different parities. Third, there were pronounced changes in the associations between social class and fertility over time. Fourth, at least during some periods, the associations for first births were strongly sex-specific.

For transitions to parenthood, higher class position was associated with high fertility for men and lower fertility for women before 1970, but then converged to a positive association for both sexes after 1990. Over the same time frame, a weakly U-shaped relationship between social class and continued childbearing before 1950 turned into a positive association for second births, and a largely negative association for higher-order births in contemporary Sweden.

On a general level these patterns were connected to changes and conditions related to the compatibility between work and family, and especially women's increasing participation in education and paid labour. These fundamental societal changes in economic and social institutions, as well as in broad attitudes and norms in society, have shaped decision-making about family and career for both men and women, but especially for women. In turn they have altered the relationship between social class and fertility. Overall, high socio-economic status has increasingly become connected to childbearing in the sense of higher transition to parenthood and second-birth fertility, but at the same time with a lower likelihood of having higher-order births.

Notes and acknowledgements

1 Martin Dribe and Christopher D. Smith are both based at Lund University, Sweden: Martin Dribe in the Centre for Economic Demography and Department of Economic History, School of Economics and Management, and Christopher D. Smith in the Centre for Economic Demography.

2 Please direct all correspondence to Martin Dribe, Centre for Economic Demography and Department of Economic History, School of Economics and Management, Lund University, P.O. Box 7080, 220 07 Lund, Sweden; or by E-mail: Martin.Dribe@ekh.lu.se

3 This paper has been produced within the research programme 'Landskrona Population Study', funded by the Swedish Foundation for Humanities and Social Sciences (RJ). It also forms part of the LONGPOP project, which has received funding from the European Union's

Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 676060 (disclaimer: this publication reflects only the authors' views and that the Agency is not responsible for any use that may be made of the information it contains). Previous versions of the paper were presented at meetings of the Population Association of America (2019), Nordic Demographic Society (2019), and Social Science History Association (2019), and at the Demographic Unit at Stockholm University (2020). We are grateful to participants at these occasions, as well as to three anonymous reviewers, for comments and suggestions.

ORCID

Martin Dribe http://orcid.org/0000-0003-2340-4668

References

Andersson, G. 1999. Childbearing trends in Sweden 1961–1997, *European Journal of Population/ Revue europenne de Dmographie* 15(1): 1–24. doi:10.1023/A:1006145610780

Andersson, G., J. M. Hoem, and A.-Z. Duvander. 2006. Social differentials in speed-premium effects in childbearing in Sweden, *Demographic Research* 14(4): 51–70. doi:10.4054/DemRes.2006.14.4

Becker, G. S. 1960. An economic analysis of fertility, in G. B. Roberts (ed), *Demographic and Economic Change in Developed Countries*. New York: Columbia University Press, pp. 209–240.

Becker, G. S. 1991. *A Treatise on the Family. Enlarged edition*. Cambridge, MA: Harvard University Press.

Bengtsson, T., and M. Dribe. 2014. The historical fertility transition at the micro level: Southern Sweden 1815–1839, *Demographic Research* 30(17): 493–534. doi:10.4054/DemRes.2014.30.17

Bengtsson, T., M. Dribe, and J. Helgertz. 2020. When did the health gradient emerge? Social class and adult mortality in southern Sweden, 1813–2015, *Demography* 57(3): 953–977. doi:10.1007/s13524-020-00877-5

Bengtsson, T., M. Dribe, L. Quaranta, and P. Svensson. 2018. The Scanian Economic Demographic Database. Version 6.2 (Machine-readable database). Lund: Lund University, Centre for Economic Demography.

Bernhardt, E. 1972. Fertility and economic status: Some recent findings on differentials in Sweden, *Population Studies* 26(2): 175–184.

Björklund, A., and M. Jäntti. 2000. Intergenerational mobility of socio-economic status in comparative perspective, *Nordic Journal of Political Economy* 26(1): 3–33.

Blanden, J. 2013. Cross-country rankings in intergenerational mobility: A comparison of approaches from Economics and Sociology, *Journal of Economic Surveys* 27(1): 38–73. doi:10.1111/j.1467-6419.2011.00690.x

Blanden, J., P. Gregg, and L. Macmillan. 2013. Intergenerational persistence in income and social class: The effect of within-group inequality, *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 176(2): 541–563. doi:10.1111/j.1467-985X.2012.01053.x

Breen, R., and J. O. Jonsson. 2005. Inequality of opportunity in comparative perspective: Recent research on educational attainment and social mobility, *Annual Review of Sociology* 31(1): 223–243. doi:10.1146/annurev.soc.31.041304.122232

Breen, R., C. Mood, and J. O. Jonsson. 2016. How much scope for a mobility paradox? The relationship between social and income mobility in Sweden, *Sociological Science* 3: 39–60. doi:10.15195/v3.a3

Breschi, M., M. Esposito, S. Mazzoni, and L. Pozzi. 2014. Fertility transition and social stratification in the town of Alghero, Sardinia (1866–1935), *Demographic Research* 30(28): 823–852. doi:10.4054/DemRes.2014.30.28

Budig, M. J., and P. England. 2001. The wage penalty for motherhood, *American Sociological Review* 66(2): 204–225. doi:10.2307/2657415

Clark, G., and N. Cummins. 2015. Malthus to modernity: Wealth, status, and fertility in England, 1500–1879, *Journal of Population Economics* 28(1): 3–29. doi:10.1007/s00148-014-0509-9

Dribe, M., and J. Helgertz. 2016. The lasting impact of grandfathers: Class, occupational status, and earnings over three generations in Sweden 1815–2011, *Journal of Economic History* 76(4): 969–1000. doi:10.1017/S0022050716000991

Dribe, M., and F. Scalone. 2014. Social class and net fertility before, during and after the demographic transition: A micro-level analysis of Sweden 1880–1970, *Demographic Research* 30(15): 429–464. doi:10.4054/DemRes.2014.30.15

Dribe, M., and M. Stanfors. 2009a. Education, work and parenthood: Comparing the experience of young men and women in Sweden, *Journal of Family and Economic Issues* 30(1): 32–42. doi:10.1007/s10834-008-9134-7

Dribe, M., and M. Stanfors. 2009b. Does parenthood strengthen a traditional household division of labor? Evidence from Sweden, *Journal of Marriage and Family* 71(1): 33–45. doi:10.1111/j.1741-3737.2008.00578.x

Dribe, M., and M. Stanfors. 2010. Family life in power couples: Continued childbearing and union stability among the educational elite in Sweden, 1991–2005, *Demographic Research* 23(30): 847–878. doi:10.4054/DemRes.2010.23.30

Dribe, M., J. D. Hacker, and F. Scalone. 2014. The impact of socio-economic status on net fertility during the historical fertility decline: A comparative analysis of Canada, Iceland, Sweden, Norway, and the USA, *Population Studies* 68(2): 135–149. doi:10.1080/00324728.2014.889741

Dribe, M., J. Helgertz, and B. van de Putte. 2015. Did social mobility increase during the industrialization process? A micro-level study of a transforming community in southern Sweden 1828–1968, *Research in Social Stratification and Mobility* 41(1): 25–39. doi:10.1016/j.rssm.2015.04.005

Dribe, M., M. Breschi, A. Gagnon, D. Gauvreau, H. A. Hanson, T. N. Maloney, S. Mazzoni, J. Molitoris, L. Pozzi, K. R. Smith, and H. Vézina. 2017. Socio-economic status and fertility decline: Insights from historical transitions in Europe and North America, *Population Studies* 71(1): 3–21. doi:10.1080/00324728.2016.1253857

Duvander, A.-Z., and G. Andersson. 2006. Gender equality and fertility in Sweden, *Marriage and Family Review* 39 (1-2): 121–142. doi:10.1300/J002v39n01_07

Edin, K. A., and E. P. Hutchinson. 1935. *Studies of Differential Fertility in Sweden*. London: P. S. King & Sons, Ltd.

Erikson, R., and J. H. Goldthorpe. 1992. *The Constant Flux: A Study of Class Mobility in Industrial Societies*. Oxford: Clarendon Press.

Erikson, R., and J. H. Goldthorpe. 2010. Has social mobility in Britain decreased? Reconciling divergent findings on income and class mobility, *British Journal of Sociology* 61(2): 211–230. doi:10.1111/j.1468-4446.2010.01310.x

Esping-Andersen, G., and F. C. Billari. 2015. Re-theorizing family demographics, *Population and Development Review* 41(1): 1–31. doi:10.1111/j.1728-4457.2015.00024.x

Evertsson, M. 2014. Gender ideology and the sharing of housework and child care in Sweden, *Journal of Family Issues* 35(7): 927–949. doi:10.1177/0192513X14522239

Freedman, D. S., and A. Thornton. 1982. Income and fertility: The elusive relationship, *Demography* 19(1): 65–78. doi:10.2307/2061129

Goldin, C. 2006. The quiet revolution that transformed women's employment, education, and family, *American Economic Review* 96(2): 1–21. doi:10.1257/000282806777212350

Goldin, C. 2014. A grand gender convergence: Its last chapter, *American Economic Review* 104(4): 1091–1119. doi:10.1257/aer.104.4.1091

Goldscheider, F., L. S. Olah, and A. Puur. 2010. Reconciling studies of men's gender attitudes and fertility: Response to Westoff and Higgins, *Demographic Research* 22(8): 189–198. doi:10.4054/DemRes.2010.22.8

Goldscheider, F., E. Bernhardt, and T. Lappegård. 2015. The gender revolution: A theoretical framework for understanding changing family and demographic behavior, *Population and Development Review* 41(2): 207–239. doi:10.1111/j.1728-4457.2015.00045.x

Haines, M. R. 1989. Social class differentials during fertility decline: England and Wales revisited, *Population Studies* 43(2): 305–323. doi:10.1080/0032472031000144136

Hoem, J. M. 1990. Social policy and recent fertility change in Sweden, *Population and Development Review* 16(4): 735–748. doi:10.2307/1972965

Hoem, J. M. 1993. Public policy as the fuel of fertility: Effects of a policy reform on the pace of childbearing in Sweden in the 1980s, *Acta Sociologica* 36(1): 19–31. doi:10.1177/000169939303600102

Hoem, J. M., G. Neyer, and G. Andersson. 2006. Educational attainment and ultimate fertility among Swedish women born in 1955–59, *Demographic Research* 14(16): 381–404. doi:10.4054/DemRes.2006.14.16

Jalovaara, M., G. Neyer, G. Andersson, J. Dahlberg, L. Dommermuth, P. Fallesen, and T. Lappegård. 2019. Education, gender, and cohort fertility in the Nordic countries, *European Journal of Population* 35(3): 563–586. doi:10.1007/s10680-018-9492-2

Jones, L. E., and M. Tertilt. 2008. An economic history of fertility in the U.S.: 1826–1960, in P. Rupert (ed), *Frontiers of Family Economics Vol 1*. Bingley, UK: Emerald Publishing, pp. 165–230.

Jones, L. E., A. Schoonbroodt, and M. Tertilt. 2011. Fertility theories: Can they explain the negative fertility-income relationship?, in J. B. Shoven (ed), *Demography and the Economy*. Chicago: Chicago University Press, pp. 43–100.

Klüsener, S., M. Dribe, and F. Scalone. 2019. Spatial and social distance at the onset of the fertility transition: Sweden, 1880–1900, *Demography* 56(1): 169–199. doi:10.1007/s13524-018-0737-9

Kravdal, Ø., and R. R. Rindfuss. 2008. Changing relationships between education and fertility: A study of women and men born 1940 to 1964, *American Sociological Review* 73(5): 854–873. doi:10.1177/000312240807300508

Livi-Bacci, M. 1986. Social-group forerunners of fertility control in Europe, in A. J. Coale and S. C. Watkins (eds), *The Decline of Fertility in Europe*. Princeton, NJ: Princeton University Press, pp. 182–200.

Maloney, T. N., H. Hanson, and K. R. Smith. 2014. Occupation and fertility on the frontier: Evidence from the state of Utah, *Demographic Research* 30(29): 853–886. doi:10.4054/DemRes.2014.30.29

McDonald, P. 2013. Societal foundations for explaining low fertility: Gender equity, *Demographic Research* 28(34): 981–994. doi:10.4054/DemRes.2013.28.34

Mincer, J. 1963. Market prices, opportunity costs, and income effects, in C. F. Christ et al. (ed), *Measurement in Economics. Studies in Mathematical Economics and*

Econometrics in Memory of Yehuda Grunfeld. Stanford: Stanford University Press, pp. 67–82.

Molitoris, J., and M. Dribe. 2016. Ready to stop: Socioeconomic status and the fertility transition in Stockholm, 1878–1926, *Economic History Review* 69 (2): 679–704. doi:10.1111/ehr.12275

Mood, C. 2017. More than money: Social class, income, and the intergenerational persistence of advantage, *Sociological Science* 4: 263–287. doi:10.15195/v4.a12

Neilson, J., and M. Stanfors. 2014. It's about time! Gender, parenthood and household division of labor under different welfare regimes, *Journal of Family Issues* 35(8): 1066–1088. doi:10.1177/0192513X14522240

Nisén, J., P. Martikainen, K. Silventoinen, and M. Myrskylä. 2014. Age-specific fertility by educational level in the Finnish male cohort born 1940–1950, *Demographic Research* 31(5): 119–136. doi:10.4054/DemRes.2014.31.5

Nisén, J., P. Martikainen, M. Myrskylä, and K. Silventoinen. 2018. Education, other socioeconomic characteristics across the life course, and fertility among Finnish men, *European Journal of Population* 34(3): 337–366. doi:10.1007/s10680-017-9430-8

Olah, L. S., and E. Bernhardt. 2008. Sweden: Combining childbearing and gender equality, *Demographic Research* 19(28): 1105–1144. doi:10.4054/DemRes.2008.19.28

Prentice, R., and L. Gloeckler. 1978. Regression analysis of grouped survival data with application to breast cancer data, *Biometrics* 34(1): 57–67. doi:10.2307/2529588

Sandström, G. 2014. The mid-twentieth century baby boom in Sweden – changes in the educational gradient of fertility for women born 1915–1950, *The History of the Family* 19(1): 120–140. doi:10.1080/1081602X.2013.871317

Sandström, G., and E. Marklund. 2019. A prelude to the dual provider family – the changing role of female labour force participation and occupational field on fertility outcomes during the baby boom in Sweden 1900–60, *The History of the Family* 24(1): 149–173. doi:10.1080/1081602X.2018.1556721

Schön, L. 2010. *Sweden's Road to Modernity: An Economic History*. Stockholm: SNS.

Silva, E. 2014. *Essays on Income and Fertility. Sweden 1968–2009*. Lund University, PhD dissertation. Lund Studies in Economic History 63.

Skirbekk, V. 2008. Fertility trends by social status, *Demographic Research* 18(5): 145–180. doi:10.4054/DemRes.2008.18.5

Stanfors, M. 2003. *Education, Labour Force Participation and Changing Fertility Patterns. A Study of Women and Socioeconomic Change in Twentieth Century Sweden*. Stockholm: Almqvist & Wiksell International.

Stanfors, M. 2007. *Mellan arbete och familj. Ett dilemma för kvinnor i 1900-talets Sverige [Between Work and Family. A Dilemma for Women in Twentieth-Century Sweden]*. Stockholm: SNS.

Stanfors, M. 2014. Women in a changing economy: The misleading tale of participation rates in a historical perspective, *The History of the Family* 19(4): 513–536. doi:10.1080/1081602X.2014.909737

Stanfors, M., and F. Goldscheider. 2017. The forest and the trees: Industrialization, demographic change, and the ongoing gender revolution in Sweden and the United States, 1870–2010, *Demographic Research* 36(6): 173–226. doi:10.4054/DemRes.2017.36.6

Statistics Sweden. 1999. Befolkningsutvecklingen under 250 år. Historisk statistik för Sverige [The population development during 250 years. Historical statistics of Sweden]. *Demografiska rapporter* 1999:2. Stockholm: Statistics Sweden.

Svallfors, S. 2004. *Klassamhällets kollektiva medvetande. Klass och attityder i jämförande perspektiv [The Collective Consciousness of Class Society. Class and Attitudes in Comparative Perspective]*. Umeå: Boréa.

Tesching, K. 2012. *Education and Fertility. Dynamic Interrelations between Women's Educational Level, Educational Field and Fertility in Sweden*. PhD diss. Stockholm University. Stockholm University Demography Unit. Dissertation Series 6.

Testa, M. R., and F. Stephany. 2017. The educational gradient of fertility intentions: A meta-analysis of European studies, *Vienna Yearbook of Population Research* 15: 1–38.

Trimarchi, A., and J. Van Bavel. 2017. Education and the transition to fatherhood in Europe: The role of selection into union, *Demography* 54(1): 119–144. doi:10.1007/s13524-016-0533-3

Van Bavel, J., M. Klesment, E. Beaujouan, Z. Brzozowska, A. Puur, D. Reher, M. Requena, G. Sandström, T. Sobotka, and K. Zeman. 2018. Seeding the gender revolution: Women's education and cohort fertility among the baby boom generations, *Population Studies* 72(3): 283–304. doi:10.1080/00324728.2018.1498223

Van Leeuwen, M. H. D., and I. Maas. 2011. *HISCLASS. A Historical International Social Class Scheme*. Leuven: Leuven University Press.

Van Leeuwen, M. H. D., I. Maas, and A. Miles. 2002. *HISCO. Historical International Standard Classification of Occupations*. Leuven: Leuven University Press.

Vézina, H., D. Gauvreau, and A. Gagnon. 2014. Socioeconomic fertility differentials in a late transition setting: A micro-level analysis of the Saguenay region in Quebec, *Demographic Research* 30(38): 1097–1128. doi:10.4054/DemRes.2014.30.38

Waldfogel, J. 1998. Understanding the 'family gap' in pay for women with children, *Journal of Economic Perspectives* 12(1): 137–56. doi:10.1257/jep.12.1.137

Willis, R. J. 1973. A new approach to the economic theory of fertility behavior, *Journal of Political Economy* 81(Suppl): S14–S64. doi:10.1086/260152

Appendix

Table A1 Relative risks of the transition to first birth, by social class, in Scania, Sweden, 1922–2015, for men and women aged 16–49: models without income controls

Social class	(1) Men	(2) Women
A. 1922–46		
Unskilled	0.98	1.13
Low-skilled	1.02	1.08
Medium-skilled	1	1
Lower white-collar	0.88**	0.56**
Higher white-collar	1.23**	0.24**
Unknown	0.51**	1.39**
Farmers	2.09**	1.58
Observations	175,431	132,035
B. 1947–67		
Unskilled	0.78**	1.19+
Low-skilled	0.96	1.08
Medium-skilled	1	1
Lower white-collar	0.98	0.94
Higher white-collar	1.25**	0.56**
Unknown	0.43**	1.04
Farmers	2.07**	0.48
Observations	177,937	96,280
C. 1968–89		
Unskilled	0.85*	0.98
Low-skilled	0.91**	0.91
Medium-skilled	1	1
Lower white-collar	0.93+	0.80**
Higher white-collar	0.89+	0.90
Unknown	0.46**	0.85*
Farmers	1.20	1.45
Observations	154,193	98,828
D. 1990–2015		
Unskilled	0.95	0.91
Low-skilled	0.93	1.24*
Medium-skilled	1	1
Lower white-collar	1.03	1.21*
Higher white-collar	1.27**	1.54**
Unknown	0.82**	1.19*
Farmers	0.93	0.67
Observations	155,463	123,409

$^{+}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Notes: Relative risks from complementary log–log models (exp (coefficient)). Values of '1' denote the reference category. Models control for age and age squared. Social class is measured by individual's occupation. All models are statistically significant (p<0.001) based on Chi-square tests.

Source: As for Table 1.

Table A2 Relative risks of the transition to third and fourth or later births, by social class, in Scania, Sweden 1922–2015: models without income controls

Social class	(1) Third births, couples	(2) Fourth and later births, couples
A. 1922–46		
Unskilled	0.78	0.49
Low-skilled	1.00	0.71
Medium-skilled	1	1
Lower white-collar	1.14	1.04
Higher white-collar	1.42**	1.26
Unknown	0.85	1.11
Farmers	1.46**	1.02
Observations	4,436	3,502
B. 1947–67		
Unskilled	1.38*	1.21
Low-skilled	0.94	0.74
Medium-skilled	1	1
Lower white-collar	1.12	1.04
Higher white-collar	1.40*	1.41
Unknown	1.61	… [1]
Farmers	1.90**	2.30*
Observations	12,904	6,677
C. 1968–89		
Unskilled	1.08	1.43
Low-skilled	1.11	1.31
Medium-skilled	1	1
Lower white-collar	0.81*	0.84
Higher white-collar	1.60**	1.45
Unknown	1.24	1.06
Farmers	2.38**	1.33
Observations	20,796	6,963
D. 1990–2015		
Unskilled	1.45+	1.08
Low-skilled	1.27*	0.82
Medium-skilled	1	1
Lower white-collar	0.84	0.70*
Higher white-collar	1.06	0.63+
Unknown	1.89**	1.36+
Farmers	… [1]	… [1]
Observations	19,740	10,495

$^{+}p < 0.10$, $*p < 0.05$, $**p < 0.01$

[1]Too few observations to include in estimation.

Notes: Relative risks from complementary log–log models (exp (coefficient)). Values of '1' denote the reference category. Samples consist of couples with women aged 16–54. Models control for age of woman, age of woman squared, time since last birth, and time since last birth squared, and also previous births (for fourth and later births only). Social class is measured by the higher class within the couple. All models are statistically significant (p<0.001) based on Chi-square tests.

Source: As for Table 1.