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Socioeconomic Differences in Multipartner Fertility Among Norwegian Men

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Abstract This article analyzes male fertility, with a particular focus on multipartner fertility, for cohorts born 1955 to 1984 in Norway. We find that socioeconomically disadvantaged men have the lowest chance of becoming fathers and the lowest likelihood of fathering multiple children in stable unions. Multipartner fertility, on the other hand, is positively associated with both disadvantage and advantage: higher-order birth risks with a new partner are more prevalent among men with low as well as high socioeconomic status. An intervening factor among disadvantaged men may be a higher union dissolution risk, and an elevated risk among advantaged men may be associated with their higher preferences for children and other features that make these men more attractive to women as partners and fathers of future children.

Keywords Male fertility · Multipartner fertility · Childlessness · Socioeconomic differences

Introduction

Fertility research has traditionally maintained a highly gendered focus on women's childbearing (Goldscheider and Kaufman 1996; Martín-García 2009). However, the shift from men's sole role as economic providers toward an increased emphasis on the father as caregiver has moved male fertility higher on the research agenda. In a country like Norway, where gender equality has been a political goal for decades and gender practices have resulted in top rankings in gender equality indexes (such as the United Nations gender empowerment measure (GEM); UNDP 2009), three trends in particular highlight the importance of greater in-depth analyses of men's fertility patterns.

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First, more men than women remain childless, and there is a trend of an increasing gender gap in younger cohorts (Kravdal and Rindfuss 2008; Lappegård et al. 2011). The increasing gender gap could reflect both a stronger self-selection away from fatherhood by men and a stronger selection of men into fatherhood by women.

Second, there is an increasing propensity among men to have children with several partners, known as "multipartner fertility" (Carlson and Furstenberg 2006; Guzzo and Furstenberg 2007; Lappegård et al. 2011). Estimates from the United States indicate that 8 % of men aged 15–44 have children with more than one partner (Guzzo and Furstenberg 2007). Estimates from Norway show an increase in the proportion of men who have had children with more than one partner from less than 4 % in cohorts born before World War II to approximately 11 % in cohorts born in the early 1960s (Lappegård et al. 2011).

Third, although socioeconomic differentials in fertility have diminished among Norwegian and other Nordic women, they remain large and have even increased among men (Andersson et al. 2009; Rønsen and Skrede 2010). Estimates from Norway, for example, have shown that the proportion of men with low education who have children with more than one woman has doubled from cohorts born during World War II to cohorts born in the early 1960s, but this proportion has also remained more or less constant among men with highest education (Lappegård et al. 2011).[1] For the youngest cohort at age 45, the proportion was 15 % among men with low education and 5 % among men with high education (Lappegård et al. 2011). The reduced dissimilarities in Norwegian female fertility are mainly due to lower childlessness and higher cohort total fertility among the highly educated, which suggests that generous family and labor market policies have enabled most women to pursue both a career and childbearing. The large and increasing socioeconomic fertility differences in men's fertility have thus attracted attention and call for closer investigation of the processes behind these patterns.

The aim of this study is to explore socioeconomic differences in male multipartner fertility, which is a little researched topic, especially outside the United States. In Europe, childbearing with more than one partner has been analyzed within the context of stepfamily formation. However, studies of stepfamily fertility consider only children born within a new marriage or consensual union, while the women or couples remain the unit of analysis (e.g., Buber and Prskawetz 2000; Henz 2002; Oláh 2001; Thomson 2004; Vikat et al. 1999). Our study of multipartner fertility thus has a broader perspective: we study childbirths with a new partner regardless of union status. Moreover, men are the unit of analysis.

Like many other demographic events, multipartner fertility is a complex process interlinked closely with other transitions over the life course. First, it is directly dependent on the event of a first birth: entry into fatherhood is obviously a prerequisite for experiencing other childbirths, whether with the same partner or a different one. Next, it is closely related to union formation and dissolution (Manlove et al. 2008). Previous research shows that unmarried parents are more likely to have had a child by a previous partner than married parents (Carlson and Furstenberg 2006; Manlove et al. 2008), and men not in a cohabiting union at the time of the preceding

[1] Low education is here defined as compulsory or 10 years of schooling; highest education is defined as college or university taking five or more years (e.g., a master's degree or PhD, taking 18 or more years).

birth are more likely to have their next child with a new partner (Guzzo and Furstenberg 2007). To date, studies of American men suggest that multipartner fertility is associated with socioeconomic disadvantage (Carlson and Furstenberg 2006; Guzzo and Furstenberg 2007). Given socioeconomic differences in divorce (Härkönen and Dronkers 2006), different conditions upon entering parenthood may select men from disadvantaged socioeconomic backgrounds into groups with higher divorce risks and hence higher multipartner fertility propensities.

In this article, we explore socioeconomic differences in male fertility for Norwegian cohorts born from 1955 to 1984 based on longitudinal data on births, marital status, education, and income. We study the multipartner fertility process using a two-step procedure. That is, we first analyze the event of becoming a father, and then analyze the competing risk of having a higher-parity birth with a new partner (multipartner fertility), a higher-parity birth with the same partner (same-partner fertility), or having no additional children.

We use very rich data from the Norwegian population registers in which almost all children are linked to a biological father. This is a great advantage compared with previous analyses of male fertility, which have been based largely on survey data. The quality of survey data for studies of male fertility has been questioned (Rendall et al. 1999) because biological children tend to be underreported, especially if the father no longer resides with the child (Juby and Le Bourdais 1999).

The article proceeds as follows: In the next section, we outline the conceptual framework for our analysis and discuss the complex relationships between socioeconomic status (SES) and multipartner fertility. Then follows a more detailed description of the data and the method used. We then present the results, and conclude in the final section with a brief summary and discussion.

Conceptual Framework

The close relationship between men's SES and fertility is widely recognized. The traditional argument has been that men with higher SES will be better equipped to support a family and therefore will be more attractive as potential marriage partners (Becker 1981). In a traditional male breadwinner/female caregiver family, the man's ability to support a family is crucial, but in many industrialized countries, there has been a move away from this traditional family type toward a more modern family type of dual breadwinners. Norway is characterized by the latter, but part-time work is still very common among mothers, and mothers continue to do most of the household work (Kitterød and Pettersen 2006).

The Norwegian family model is therefore distinctly not gender-neutral, and the present division of labor has been labeled "gender-equality light" (Rønsen and Skrede 2006; Skrede 2004). In this family model, the income prospects of the male partner remain important, and women regard men with higher provider ability as more attractive partners and potential fathers than men with poorer income prospects. Consequently, we can expect that men with higher SES will be more likely to become fathers than other men. Similarly, we expect a positive association between fathering another child with the same partner and higher SES.

The relationship between multipartner fertility and SES is less clear-cut because the multipartner fertility process is so closely interlinked with union dissolution and divorce. Following the preceding reasoning while overlooking this complexity, it can be argued that there will be a positive association between fathering another child with a new partner and SES. However, previous studies showing a negative association between SES and multipartner fertility (Carlson and Furstenberg 2006; Guzzo and Furstenberg 2007) indicated the greater difficulty of predicting the direction of the relationship between SES and multipartner fertility.

A key factor is the underlying selection process related to dissimilar union dissolution risks for men of different socioeconomic status. In the Nordic countries, previous research has found that men with higher educational attainment have lower union dissolution risks than men with lower education (e.g., Hoem 1997; Jalovaara 2003; Lyngstad 2004). Consequently, the men "at risk" of fathering another child with a new partner consist of relatively fewer men with high education and relatively more men with low education. In other words, there is a negative selection of highly educated men and a positive selection of low-educated men into the pool of men at risk of multipartner fertility. These selection processes interfere with the direct relationship between SES and additional childbirths discussed earlier.

For men with high education, the negative selection via union dissolution may thus cancel out or even outweigh the assumed positive direct association with SES and result in a lower multipartner propensity for this group. Likewise for men with low education, the positive selection via union dissolution may cancel or even outweigh the assumed direct negative association with SES and result in a higher multipartner propensity for this group, as has been observed in previous analyses from the United States (Carlson and Furstenberg 2006; Guzzo and Furstenberg 2007).

Our study attempts to disentangle some of the linkages between union formation and dissolution by controlling for partnership history in the birth process models. We are able to do so as far as marriage is concerned, given that we have high-quality longitudinal data on marital status, and we distinguish between ever-married men who have never divorced, ever-married men who later divorced, and never-married men.

Obviously, we may expect continuously married men to be more likely to father a child with the same partner and less likely to father a child with a new partner than divorced and never-married men. A complicating factor regarding never-married men is that we do not know whether they presently are cohabitating or have ever cohabited because our administrative data do not contain such information. However, cohabiting unions have been found to be less stable than formal marriages, even if children are in the relationship (Byberg et al. 2001; Manning et al. 2004). Consequently, never-married fathers are likely to have less stable partnership histories and be more "at risk" of multipartner fertility than continuously married fathers, which has also been found in studies of American men (Carlson and Furstenberg 2006; Guzzo and Furstenberg 2007; Manlove et al. 2008).

The differences in multipartner fertility between men who have experienced divorce and never-married men are more ambiguous. In our data, both groups contain current and past cohabitants, but a reasonable assumption is that never-married men have the more unstable union histories. We therefore expect never-married men to be more likely to have a child with a new partner than ever-married men who later

divorced. However, previously married men may have other unobserved characteristics that could make them both more attractive and more unattractive as prospective partners and fathers of future children. For example, a man's history of a previous marriage may signal commitment ability and possibly indicate he is more family- and child-oriented. Conversely, a history of divorce may signal less partnership commitment and less father involvement. Such circumstances suggest that men who have married and who were later divorced could be both more likely and less likely to father a child with a new partner than men with no marriage experience. Overall, it is therefore difficult to predict which of the two groups will have the highest multipartner fertility.

So far we have discussed the unidirectional relationship between SES and men's fertility behavior. We are well aware that the relationship could run both ways—that is, family formation and children may also affect a man's SES. Studies from many countries show, for example, that married men and fathers have higher earnings and income than nonmarried and childless men. Although well documented, the male marital wage premium is still not fully understood (Rogers and Stratton 2010). Drawing on appropriate methods to establish causality, some studies find that marriage and children do increase men's earnings (Gupta et al. 2007; Lundberg and Rose 2002). However, recent studies from Norway have arrived at somewhat different conclusions, suggesting that the wage premium is mainly caused by selection (Kunze 2011; Petersen et al. 2011). That is, the men who eventually marry and have children earn more and have higher-paying occupations even prior to marriage and fatherhood.

The evidence for Norway thus indicates that a man's SES is fairly independent of his marital and fertility history. However, we do not overlook that there may be some mutual dependence and that SES is not completely exogenous to the multipartner fertility process. Therefore, we shall not interpret our results as causal effects, but rather as correlations and close associations. A more descriptive analysis like this will still improve our understanding of the complex interlinkages between SES and men's fertility behavior.

In Fig. 1, we provide an illustration to summarize the various linkages running from SES to multipartner fertility while suppressing possible linkages in the other direction. First, we expect a direct positive relationship that operates irrespective of marital history (solid line). Second, indirect associations operate through different selection processes related to marriage and divorce (dashed lines). Because men with higher SES are more likely to marry and less likely to divorce, they are more likely to remain in a marriage. Hence, there is a positive selection of men with higher SES into the marital-history group "ever-married, never-divorced" and a negative selection of men of higher SES into the two other marital-history groups: in particular, into the "never-married" group. Finally, there is the additional direct relationship between a certain marital history and multipartner fertility. This linkage is obviously negative for "ever-married, never-divorced" men and positive for "ever-married, ever-divorced" and "never-married" men. The overall association between SES and multipartner fertility is thus complex. However, based on the aforementioned considerations and evidence from previous research, we primarily expect multipartner fertility to be linked with socioeconomic disadvantage.

Thus far, we have considered how SES may be associated with having multiple partners directly and indirectly through different marital-history experiences. When

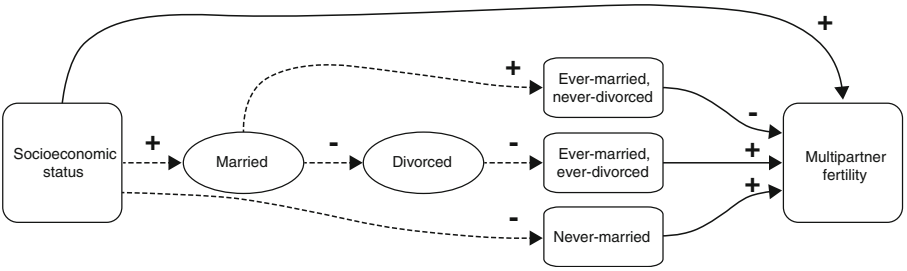

Fig. 1 Expected associations among socioeconomic status, marital history, and multipartner fertility. Direct linkages and selection processes

controlling for marital history in a multivariate model framework, we obtain an estimate of the importance of SES, net of the marital history. This estimate is an average for all men in our sample. However, it is quite conceivable that the relationship with SES may be different for different marital-history groups. Such interactions may be a result of unobservable characteristics that are correlated with marital history. For example, if marriage experience signals capacity for partnership commitment and child involvement, higher SES may be more important for multipartner propensity for never-married men than for ever-married men who later divorced. However, if divorce is associated with less partnership commitment and less child involvement, higher SES may be more important for ever-married men with divorce experience than for never-married men. Likewise, we would expect high SES to be of least importance for continuously married men, especially when multipartner fertility is concerned, given that this is a relatively rare event in this group. Therefore, in the upcoming analysis, we will also consider the outcome of such interactions between SES and marital history.

Data and Methods

Our analysis is based on individual-level data for the period 1971–2006, extracted from various administrative registers for the entire Norwegian population. Each citizen has a unique identifying code that makes it possible to construct longitudinal data from different linked information sources. The births of children are extracted from the Central Population Register, which contains records of every person who has ever lived in the country since 1960 and their respective childbirths. For each birth, we are able to link the father and the mother of the child to determine whether the respective birth is with the same partner or with a new partner.

Our study includes the 1955 to 1984 male birth cohorts. The abundant data allow analyses of relatively small groups, such as men with higher university education, that are normally not feasible with ordinary sample surveys. Another virtue of register data is that they are recorded consecutively. Therefore, their quality and completeness are not dependent on the nature of the relationship between the father and the child over time (Kravdal and Rindfuss 2008). For married couples, the registration of paternity follows the *pater est* rule, which automatically determines the husband of the mother to be the child's father. Otherwise, paternity is declared at birth. Consequently, the birth histories of our selected male cohorts are almost complete:

only 1 % to 1.5 % of the children in our data have no registered father. This determination is more difficult with surveys because children may be underreported if they no longer reside with the father (Juby and Le Bourdais 1999).

Birth histories have further been linked to annually collected administrative register data on education, income, and marital status. Immigrants are excluded from the analysis sample because we have no information on their life histories prior to immigration. Our latest information for education and income is from 2005, but because we lag these variables by one year in the models, the end point of the analysis is 2006. The maximum age of men in our study is thus 51 years (the 1955 cohort).

Our main indicators of SES are level of education and income. Both variables are recorded annually and are thus time-varying. We divided level of education into four groups using the Norwegian standard classification of education[2]: (1) compulsory (10 years of schooling); (2) secondary (11–13 years); (3) college or university, up to and including a bachelor's degree (14–17 years); and (4) college or university education taking five or more years (e.g., a master's degree or PhD; 18 or more years). Income is defined as a person's gross annual pensionable earnings in Norwegian Kroner (NOK).[3] We use log income[4] in real terms: that is, annual income is adjusted according to the consumer price index, with 2005 as the base year.

In our models, we further control for current educational enrollment, socioeconomic background, and region of residence during adolescence. Current educational enrollment is a time-varying dummy variable that indicates whether a person is engaged in any schooling lasting one month or more in a given year. It thus encompasses both short and long courses at all levels of education. Social background is based on the educational level of the man's parents. If possible, the father's education is used; if not, the mother's education is used. The variable has three levels: low, corresponding to education at the compulsory level (10 years); medium, corresponding to education at the secondary level (11–13 years); and high, referring to education at college or university level (14 years or more). Region of residence is based on information on the person's municipality at the age of 16 years, and has been grouped into seven wider regions based on a standard regional classification for Norway.

Because childbearing is an ongoing process and we have access to long time-series of longitudinal data, we model these dynamics by means of hazard rate regression. The central concept, the hazard rate, is defined as the rate at which an event occurs within a certain short time interval, given that it has not yet occurred. Formally, it can be written as

$$h(t) = \lim \left[P\left(t \le T < t + \Delta t \middle| T \ge t\right) \right] \Big/ \Delta t \qquad \Delta t \to 0+, \tag{1}$$

where $h(t)$ is the hazard rate, and $P(t \le T < t + \Delta t \mid T \ge t)$ denotes the conditional probability of experiencing a childbirth in the time interval Δt. There are many

[2] We use a recent version of the standard in which the levels of education have been revised to be more compatible with international standards (see www.ssb.no/utniv_en/).

[3] 1 US$=5.80 NOK according to exchange rates as of March 14, 2012.

[4] The income of persons with zero earnings is set to 1 NOK.

possible parametric specifications for the hazard function. We use a discrete hazard rate model because most of our data are recorded annually. Using a logit transformation, the discrete hazard rate function can be expressed as

$$\log\left(P_t/1-P_t\right)=\boldsymbol{\beta}\mathbf{X}_t, \tag{2}$$

where P_t is the conditional probability that a birth occurs at time t, $1 - P_t$ is the probability that no birth occurs at time t, $\boldsymbol{\beta}$ is a vector of coefficients, and $\mathbf{X}_t$ is a vector of covariates that may or may not vary with time (see, e.g., Allison 1995).

A challenge when modeling multipartner fertility is its dependence on the man having ever fathered a child, and its close association with union formation and dissolution. Thus, we are faced with multiple processes that are partly sequential and partly more synchronized. Our modeling strategy has been first to analyze the event of becoming a father, and next to analyze the competing risk of having a higher-parity birth with a new partner (multipartner fertility), a higher-parity birth with the same partner (same-partner fertility), or no more children. The simultaneity with union dissolution remains, however. Because the two processes are so closely interlinked, it seems unreasonable to regard current marital status as an exogenous explanatory variable in the model. Instead, we control for the past marital status history and lag the variable by one year, which is likely to ameliorate some of this endogeneity. Nevertheless, in the first birth model, we regard the processes of marrying and having children as too simultaneous to warrant the inclusion of marital status history as an exogenous variable, even if it is lagged by one year. For second and higher-order births, we do include the past marital history; and, as previously mentioned, we distinguish between the following groups: (1) men who have ever married but never divorced; (2) men who have ever married and later divorced; and (3) men who have never married. The variable is updated annually and thus time-varying, but men can move in only one direction: from category (3) (never-married) to category (1) (ever-married, never-divorced) to category (2) (ever-married, ever-divorced). The latter category is an absorbing state: men who reach this stage remain there regardless of future marriage(s) and divorce(s). The inclusion of marital history should capture some of the past relationship history, which has proved an important determinant of multipartner fertility in previous research (Guzzo and Furstenberg 2007; Manlove et al. 2008).

In the first-birth model, the process time is the person's own age, measured at the end of the calendar year and categorized into broader five-year intervals (except for the last, which contains ages 45–51 years). In the higher-parity models, duration is time since last birth, which is equivalent to the age of the youngest child. It is measured in years and entered as a continuous variable with a squared term to catch possible nonlinearity. The higher-order parity model also controls for age at first birth, which has been shown to be an important determinant of continued childbearing in much previous research (e.g., Manlove et al. 2008). Furthermore, the higher-order parity model includes parity (number of previous children) as a separate covariate to control for variations in the timing of different higher-order births, from the second (parity 1) and up to the fifth (parity 4).

When modeling first birth, we follow the men from the year they turn 16 until they father a first child or, if not, until the end of the observation period (2006).[5] When modeling the competing risk of having additional children with the same partner or with another partner, we follow the men from the year of birth of their last child until the year of a new birth, or in the case of no additional children, to the end of the observation period. In all models, we censor individuals who die or emigrate during the follow-up period. We also censor men who enter a same-sex registered partnership at the time of that event because their risk of fathering additional children with a female partner is negligible.

In Table 1, we show some summary statistics related to fathering more children. In that table, we calculate the proportion of men who have had another child with the same partner or with a new partner, or have had no additional children, by parity and by marital history as observed in the year of that particular childbirth, or when censored if the men have no more children. As would be expected, the proportions with both same-partner and multipartner fertility decline rapidly with parity; however, on average for our cohorts, the proportion with a multipartner second birth (parity 1) is 8 %. Also as expected, the multipartner proportion among continuously married men is very low (1 %), but it is interesting to note that it is more than twice as high among ever-married men who later divorced than among never-married men (20 % vs. 9 %).

In the multivariate analysis, we investigate these and other associations in more detail, taking into account the dynamics of the fertility processes and the longitudinal nature of the data. Table 2 displays descriptive statistics of the variables included in the models for higher-order births. The variables are measured at the start of each birth process (the second to the fifth), which corresponds to the year of birth of the men's last child.

Results

Socioeconomic Status and Fertility

Previous studies of men's cohort fertility patterns have shown a positive association between men's educational level and fertility (Kravdal and Rindfuss 2008; Lappegård et al. 2011). In the present analyses, this turns up in higher first-birth rates for university-educated men, and in particular for those with a higher university degree (Table 3). We find the same pattern for higher-parity births with the same partner (Table 4), where the positive association is even stronger. However, when multipartner fertility is concerned, the pattern is more U-shaped, as illustrated in Fig. 2. Men with compulsory education are more likely to experience this event than men with secondary and some college education, but men with a higher university degree still have the highest birth risk with a new partner. The elevated risk for low-educated men is in line with previous research from the United States, which has shown that multipartner fertility is often associated with socioeconomic disadvantage (Carlson

[5] Only 0.02 % become fathers before they reach age 16.

Table 1 Percentage of men with same-partner and multipartner fertility, by parity and marital history measured at year of birth of the respective child (or year of censoring if no more children)

	No Additional Child	Same Partner	New Partner
All	47.4	46.6	6.0
Parity			
One	27.7	64.5	7.8
Two	60.9	34.3	4.7
Three	77.4	19.5	3.1
Four	78.5	18.6	2.9
Marital History			
Ever-married, never-divorced	43.7	55.2	1.1
Ever-married, ever-divorced	64.0	16.4	19.6
Never-married	47.7	43.5	8.8
Number of Observations (persons × parity)	508,045	499,235	63,810

and Furstenberg 2006; Guzzo and Furstenberg 2007). To our knowledge, however, the higher rates for highly educated men have not been documented previously.

The preceding suggests that the multipartner process is quite multifaceted, involving elements of both selection and attraction. Low education may be an important factor because it is associated with more unstable unions and higher union dissolution risks. Higher education, on the other hand, is usually associated with lower union dissolution rates, so we must look for other explanations here. An argument close at hand is the traditional notion that men with higher education are better equipped to support a family and therefore more attractive as partners and potential fathers. Furthermore, these men may have other unobserved characteristics that enhance their multipartner birth propensity. Our results thus indicate that both disadvantage and advantage play roles in the multipartner fertility process, and that the association with SES may be more nuanced than previously observed.

As predicted, a man's income is positively associated with entry into fatherhood (Table 3) and having another child with the same partner (Table 4), and interestingly also with having a higher-order birth with a new partner. The strongest association with income concerns the likelihood of having a first child, however, indicating that economic considerations are more decisive for men's chance of ever becoming a father than for their likelihood of having more children. As discussed earlier, this may in part reflect men's own preferences and constraints but also differential selection processes into fatherhood based on their attractiveness to women as partners and income providers.

Marital History and Fertility

In the higher-order parity model (Table 4), the past marital history is an important control variable. Not surprisingly, we find that men who have been continuously married (ever-married, never-divorced) are much more likely to father another child with the same partner, and much less likely to have a child with a new partner than men who have never been married. Men who have ever married but who later divorced also have higher same-partner fertility compared with never-married men;

Table 2 Descriptive statistics of fathers measured at first year under risk of fathering a new child (percentages unless otherwise indicated)

Variable	% or Mean
Educational Level	
Compulsory (10 years)	26.8
Secondary (11 to 13 years)	48.1
Some college (14 to 17 years)	17.6
Higher degree (18+ years)	7.1
Mean Income (NOK, 2005 prices)	280,736
Marital History	
Never-married	57.9
Ever-married, never-divorced	37.7
Ever-married, ever-divorced	4.4
Current Educational Enrollment	16.4
Parents' Educational Level	
Compulsory (10 years)	17.3
Secondary (11 to 13 years)	53.8
University (14+ years)	25.5
Age (years)	
16–24	15.8
25–29	33.5
30–34	32.1
35–39	14.5
40–44	3.6
45–51	0.6
Birth Cohort	
1955–1959	26.7
1960–1964	25.3
1965–1969	23.8
1970–1974	16.4
1975–1979	6.4
1980–1984	1.5
Parity (number of previous children)	
One	48.8
Two	34.8
Three	13.4
Four	3.0
Mean Age at First Birth	27.2
Number of Observations (persons × parity)	1,071,090

quite interestingly, though, we find that they also have much higher multipartner fertility. As we argue earlier, this is not obvious *a priori* because never-married men probably have the most unstable unions and therefore are more "at risk" of having a child with a new partner. Apparently, other circumstances weigh more heavily here, such as unobserved characteristics that make previously married men more attractive

Table 3 Relative risks (odds ratios) of first birth among Norwegian men and 95 % confidence intervals (CI) (in parentheses)

Variable	Odds Ratio (CI)
Educational Level	
Compulsory (10 years)	1
Secondary (11 to 13 years)	1.01 (1.01–1.02)
Some college (14 to 17 years)	1.15 (1.14–1.16)
Higher degree (18+ years)	1.46 (1.44–1.48)
Log Income (NOK, 2005 prices)	1.14 (1.14–1.14)
Current Educational Enrollment	
Not in education	1
In education	0.63 (0.63–0.64)
Parents' Educational Level	
Compulsory (10 years)	1.21 (1.20–1.22)
Secondary (11 to 13 years)	1.16 (1.15–1.17)
University (14+ years)	1
Age (years)	
16–19	1
20–24	4.65 (4.55–4.74)
25–29	9.16 (8.97–9.35)
30–34	9.79 (9.58–10.00)
35–39	5.91 (5.77–6.05)
40–44	2.40 (2.33–2.47)
45–51	0.74 (0.70–0.79)
Birth Cohort	
1955–1959	1
1960–1964	0.92(0.91–0.93)
1965–1969	0.87 (0.86–0.88)
1970–1974	0.78 (0.77–0.79)
1975–1979	0.62 (0.61–0.63)
1980–1984	0.47 (0.46–0.47)
Number of Observations (person-years)	12,854,257

Note: The model also includes a control for geographical region.

to women as partners and fathers and/or differential values and preferences that make these men more child- and family-oriented than never-married men. We cannot disentangle these mechanisms with the information available in our register data, but later in the article, we will offer some more insights by examining how marital status history interacts with education and income to create different outcomes for different socioeconomic groups.

Other Background Variables

We will comment on the other control variables only briefly here. In line with previous research (e.g., Guzzo and Furstenberg 2007), we find that men from lower

Table 4 Relative risks (odds ratios) of higher-order births among Norwegian fathers and 95 % CI (in parentheses)

Variable	Same Partner	New Partner
Educational Level		
Compulsory (10 years)	1	1
Secondary (11 to 13 years)	1.17 (1.16–1.18)	0.87 (0.86–0.89)
Some college (14 to 17 years)	1.41 (1.40–1.43)	0.91 (0.88–0.94)
Higher degree (18+ years)	1.67 (1.65–1.70)	1.10 (1.04–1.15)
Log Income (NOK, 2005 prices)	1.02 (1.02–1.03)	1.02 (1.02–1.02)
Marital History		
Never-married	1	1
Ever-married, never-divorced	2.00 (1.98–2.01)	0.17 (0.17–0.18)
Ever-married, ever-divorced	1.03 (1.01–1.05)	2.15 (2.11–2.20)
Current Educational Enrollment		
Not in education	1	1
In education	0.86 (0.85–0.87)	0.96 (0.93–0.99)
Parents' Educational Level		
Compulsory (10 years)	0.96 (0.95–0.97)	1.00 (0.97–1.03)
Secondary (11 to 13 years)	0.97 (0.96–0.98)	1.00 (0.97–1.03)
University (14+ years)	1	1
Age (years)		
16–24	1	1
25–29	1.52 (1.50–1.55)	0.99 (0.95–1.04)
30–34	1.78 (1.74–1.82)	0.80 (0.76–0.84)
35–39	1.45 (1.41–1.49)	0.53 (0.49–0.56)
40–44	0.91 (0.87–0.94)	0.31 (0.28–0.33)
45–51	0.55 (0.52–0.58)	0.19 (0.17–0.21)
Birth Cohort		
1955–1959	1	1
1960–1964	1.04 (1.03–1.05)	1.07 (1.05–1.10)
1965–1969	1.04 (1.02–1.05)	1.11 (1.08–1.14)
1970–1974	1.06 (1.05–1.07)	1.10 (1.07–1.14)
1975–1979	1.02 (1.00–1.04)	1.08 (1.03–1.13)
1980–1984	0.85 (0.81–0.89)	0.86 (0.77–0.96)
Age of Youngest Child	2.68 (2.67–2.69)	1.74 (1.72–1.75)
Age of Youngest Child, Squared	0.89 (0.89–0.89)	0.98 (0.98–0.98)
Parity (number of previous children)		
One	1	1
Two	0.27 (0.27–0.27)	0.53 (0.52–0.54)
Three	0.14 (0.14–0.14)	0.38 (0.37–0.40)
Four	0.17 (0.16–0.17)	0.36 (0.33–0.39)
Age at First Birth	0.90 (0.89–0.91)	0.95 (0.93–0.97)
Age at First Birth, Squared	1.02 (1.02–1.02)	1.00 (0.99–1.00)
Number of Observations (person-years)	7,494,406	

Note: The model also includes a control for geographical region.

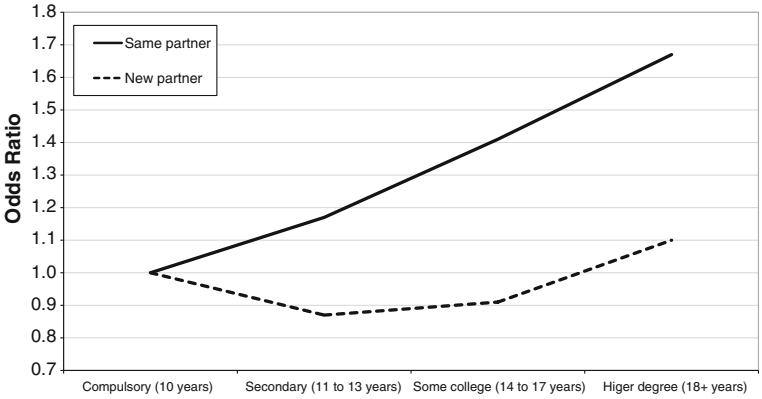

Fig. 2 Relative risks (odds ratios) of higher-order births by educational attainment as reported in Table 4

social backgrounds become fathers at younger ages than men who grew up in families with higher social background (Table 3). When higher-parity births are concerned, men from more disadvantaged families (low social background) are less likely than men with higher social status to have another child with the same partner, but there are no social background differences in higher-parity births with a new partner (Table 4). The increasing negative gradient across birth cohorts for first births reflects the ongoing postponement of fatherhood by younger male generations. However, the men in the 1960s and 1970s birth cohorts that have become fathers have slightly rising higher-parity birth rates both with the same and with a new partner. Also interesting is that the positive gradient across cohorts for multipartner fertility is slightly steeper than the corresponding gradient for same-partner fertility, indicating that multipartner fertility has increased more over time.

Enrollment in education clearly delays fatherhood and progression to higher parities with the same partner, while there is a much weaker negative relationship between current educational enrollment and multipartner fertility. The peak age for becoming a father is estimated to be between ages 30 and 34, which is also the peak age for fathering another child with the same partner. However, the peak age for multipartner fertility is somewhat lower, at less than 30 years. For both higher-order birth events, the association with age at first birth is negative. That is, the higher the age at first birth, the less likely men are to have more children; but for same-partner births, the association is less negative the higher the age at first birth (age at first birth squared is positive). Finally, fathers of two or more children are less likely to have another child than one-child fathers. However, it is worth noting that the negative association is stronger for same-partner fertility than for multipartner fertility, which suggests that having had previous children is somewhat less inhibiting for additional childbearing in a new relationship than in the same union.

Interactions Between Socioeconomic Status and Marital History

Previously we argued that the associations between SES and multipartner fertility may vary with marital history because different social groups may have different marriage dissolution risks. Such selections have been partly controlled for by

including marital history in the model. However, men with different marital histories may be dissimilar in other respects as well—for example, in their own family values and preferences and in their attraction to women as partners and potential parents of shared children. Because the importance of such unobserved characteristics may vary with SES as well, we ran models with interactions between marital history and education and between marital history and income, respectively, for higher-order births. To illustrate the main results from these models, we compute the odds ratios for various marital-history groups (Table 5).[6] The odds ratios have been obtained by multiplying the coefficients of education and income, respectively, with the coefficients of their interaction terms with marital status. Thus, compulsorily educated men constitute the reference category within each marital-history group.

Starting with the interaction between education level and marital history (Table 5, panel a), we find that for same-partner fertility, the educational gradient is positive for all three marital-history groups. However, it is steeper for both ever-married fathers who later divorced and for fathers who never married than for continuously married fathers. This suggests that for more childbirths with the same partner, higher education is more important if men have had a history of union instability. For multipartner fertility, there are larger and partly opposing contrasts between the marital-history groups. Among both continuously married and never-married men, the risk of a multipartner birth is higher for men with compulsory education than for men with higher education, but the negative educational gradient is somewhat stronger for continuously married fathers. This corroborates previous findings from the United States that multipartner fertility is associated with socioeconomic disadvantage (e.g., Guzzo and Furstenberg 2007). On the other hand, there is a clear positive educational gradient among ever-married men who later divorced, implying that for these fathers, the risk of a birth with a new partner is higher at higher educational levels. This shows that multipartner fertility may also be associated with socioeconomic advantage. The extent to which the dissimilar socioeconomic associations are the outcome of men's own preferences and self-selection away from or into additional union formation and fathering, or their differing attraction to and selection by women, cannot be ascertained on the basis of register data. However, we can conclude that men who have children with more than one partner seem to be more heterogeneous than previously observed.

Turning to the interaction between income and marital status (Table 5, panel b), we see no positive relationship between income and additional childbirths for continuously married men. In fact, the estimate is negative and quite substantial for multipartner fertility, indicating that the higher the income of continuously married men, the lower the risk of fathering a child with a new partner. In contrast, we obtain positive income estimates for both birth events in the two other marital-history groups. However, for never-married fathers, the positive association is stronger if the birth is with the same partner than with a new one, whereas the magnitude is about the same for both multipartner and same-partner fertility among ever-married fathers who divorced. Hence, higher income is predominantly a positive correlate of additional childbirths if the father has not been continuously married. If he has a history of marital disruption, there is a positive linkage with both multipartner and same-partner

[6] The full results from these models may be obtained from the authors.

Table 5 Computed relative risks (odds ratios) of higher-order births among Norwegian fathers by (a) educational level and marital history and (b) income and marital history

	Marital History		
	Ever-Married, Never-Divorced	Ever-Married, Ever-Divorced	Never-Married
a. Educational Level			
Same partner			
Compulsory (10 years)	1	1	1
Secondary (11 to 13 years)	1.09	1.16	1.28
Some college (14 to 17 years)	1.29	1.49	1.62
Higher degree (18+ years)	1.50	2.06	2.07
New partner			
Compulsory (10 years)	1	1	1
Secondary (11 to 13 years)	0.64	1.05	0.82
Some college (14 to 17 years)	0.66	1.28	0.75
Higher degree (18+ years)	0.67	1.79	0.79
b. Income			
Same partner	0.99	1.04	1.06
New partner	0.93	1.05	1.01

Notes: The results are based on a model that includes all the covariates in Table 4 plus an interaction term between (a) educational level and marital history and (b) income and marital history. The full models are not reported here, but results can be obtained from the authors upon request. The odds ratios have been computed by multiplying (a) the main effect of educational level with the interaction effects of educational level × marital history, and (b) the main effect of log income with the interaction effects of log income × marital history.

fertility, but if he has never been married, the positive link concerns predominantly additional childbirths with the same partner.

Summary and Discussion

Men's fertility behavior is driven by preferences for partnership and fatherhood on the one hand and their attractiveness to women as partners and potential fathers on the other. Over the years, shifting gender roles have led to new expectations of the fatherhood role and more emphasis on the father as caregiver as well as provider. Accordingly, men's preferences and opportunities for childcare have gained importance, but as long as men continue to be the main breadwinners, their potential as economic providers remains essential. In this article, we studied how SES is related to men's fertility behavior and particularly to male multipartner fertility. Using administrative register data for Norway, we explored this relationship by analyzing entry into fatherhood and the propensity to father additional children with either the same or a new partner.

Our results show that men with low education and income have the smallest chances of becoming fathers, and having become fathers, they are less likely to have

more children with the same partner. Both entry into fatherhood and additional childbirths within the same union are thus positively associated with socioeconomic advantage. However, the risk of having a child with a new partner is positively related to both socioeconomic advantage and disadvantage. This suggests that the multipartner process is more multifaceted, involving elements of both selection and attraction. Socioeconomic disadvantage may act as a selection mechanism because it is associated with more unstable unions and higher union dissolution risks. Socioeconomic advantage, on the other hand, is usually associated with lower union dissolution rates, and a more reasonable interpretation in this case is that these men are better equipped to support a family and therefore are more attractive as partners and potential fathers.

Another novel finding from the present study is that men with divorce experience have a higher risk of multipartner fertility than men who have never been married. This is somewhat surprising because never-married men presumably have the most unstable union histories. However, many will have had some cohabitation experience, since only 11 % of the births in Norway are both out of wedlock and outside of cohabitation. To gain further insights into the close relationship between union stability and economic stability, we further tested for interactions between marriage history and educational attainment. The results show that the association with educational attainment is the reverse for ever-married men who later divorced and for never-married men. In the former group, the multipartner birth risk is greatest among the highly educated; in the latter, it is greatest among the low-educated. Hence, multipartner fertility is clearly associated with socioeconomic disadvantage but only if the father has never been married. It is possible that these men have never been in a stable relationship with the mothers, which has grave implications for both the children and the fathers themselves.

The finding that divorce experience in combination with socioeconomic advantage is positively associated with multipartner fertility may be related to imbalances in the marriage market because higher education is linked not only to better provider ability but also to more gender-equal attitudes and practices in the family (Bernhardt 2000; Kitterød 2002). Gender role attitudes may again affect how men (and women) view parenthood. A U.S.-based study showed that egalitarian men have higher preferences for children than traditional men, and it is argued that, rather than being symbolic, children are very much an integral part of an egalitarian man's family (Kaufman 2000). Conditional on their work- and family-life strategies, some women may prefer a main provider, while others may have stronger preferences for a co-childcare provider. In either case, women are more likely to consider socioeconomically advantaged men more attractive as partners and potential fathers. In the marriage market, these factors may exceed the potential downside of experiencing divorce. Further, a previous marriage may signal commitment ability and thus attractiveness. We suspect that both mechanisms are operating and mutually in force.

Our study has two limitations in particular. First, using register data, we had access only to actual behavior and thus had no information on men's attitudes to and preferences for fatherhood, including their willingness and ability to be both a provider and co-childcare provider. To gain improved insights into these circumstances, we need data that illuminate more of the attitudinal factors that determine men's fertility behavior. Second, using marital histories, we obtained important

insights into the association between different marriage experiences and multipartner fertility, in particular. However, to obtain a fuller picture, we would need complete union histories, including cohabitation outside marriage. The increasing prevalence of cohabitation gains importance in disentangling childbirths within established unions from childbirths in unstable unions where the father has never resided with the child.

The contribution of this article is to provide more insights into male fertility in general, and multipartner fertility in particular, given that the existing studies in this area are mainly from the United States. A common finding from previous research is that multipartner fertility is primarily associated with socioeconomic disadvantage. Our analysis broadens this perspective and shows that multipartner fertility is a multifaceted phenomenon, related to both socioeconomic disadvantage and advantage, and involving elements of both selection and attraction. Future work needs to examine these contrasts in more depth. In addition, there is a need to focus more on the consequences of these processes, for the well-being of fathers as well as children.

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