Lifetime Parenthood in the Context of Single- and Multiple-Partner Fertility

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Abstract

The proportion of life spent caring for dependent children is a defining feature of life courses. This study analyzes the period of life spent as parents to children no older than 18 as a salient difference between single- and multiple-partner fertility trajectories. Individuals who have children with more than one partner spend a much longer time as parents to dependent children than those who have children with one partner, on average 8.2 more years among men and 6.2 more years among women. Cross-partner birth spacing is a more powerful proximate cause of this gap than completed fertility. The association is not confounded by social origins. Among those who have children with more than one partner, the number of years spent as parents varies slightly by socioeconomic position: high income earners on average spend one more year as parents than low income earners.

1. Introduction

Childbearing with multiple partners has played an important role in driving the development towards increased diversity in household structures. In high divorce societies, every fourth parent has more than one reproductive partner and every third child has a half-sibling (Thomson, Lappegård, Carlson, Evans, & Gray, 2014). Thus, single-partner fertility (SPF) and multiple-partner fertility (MPF) have emerged as two distinct pathways of reproduction. MPF trajectories show greater variability with regard to completed fertility and there is greater variability in the spacing between cross-partner births than in births with the same partner (Thomson, 2015). *Ceteris paribus*, this should affect the number of years a given individual spends as a parent. Kreyenfeld and colleagues (2017) commented on possible implications of extended parenthood in MPF trajectories on the basis of measures of second parity birth spacing. However, no empirical research has been dedicated to investigating the relationship between the number of reproductive partners and years spent in parenthood.

We analyze the divergence between MPF and SPF in terms of the years spent as parents to dependent children. We do so by describing the fertility careers of the entire 1957 cohort in Sweden using administrative data. We depict the existence of all offspring aged 0 to 18 up to the point at which the index person is 55 years old, and project further to age 65. We repeat this procedure based on the condition that the child is registered as living in the same dwelling as the parent.

It is important to study the number of years spent as parents because this specifies the individual's term as a (potential) caregiver to dependent children (Vargha, Gál, & Crosby-Nagy, 2017). The social position stemming from biological parenthood of dependent offspring, and the proportion of life spent in this position, are defining traits of individuals' lives (Rossi, 1990). The number of years spent as parents is also relevant for the level of living across the life course. The risk of poverty is strongly related to the presence of dependent children in the household (Van Winkle & Struffolino, 2018). Extensively spaced births lead to less efficient labor market interruptions (Ni Bhrolchain, 1986). Fewer adult years without dependent children may compromise labor-market attachment, career development and the accumulation of wealth and pensions savings (Ginn, 2003). Studying lifetime parenthood is therefore important for an understanding of MPF as an emergent demographic behavior from a life course perspective (Buhr & Huinink, 2014).

Previous research has used rich household survey data to model the causes and decisions leading to the discrete events of birth spacing, parity progression and childbearing with new partners (É. Beaujouan, 2012; Holland & Thomson, 2011; Ivanova, Kalmijn, & Uunk, 2014; Kreyenfeld et al., 2017). By taking a birds-eye perspective on a 'net' outcome – years spent as parents to dependent children – we

provide an important complement to this literature. We answer four empirical questions: What are the years spent in parenthood (henceforth YIP) for SPF and MPF men and women in Sweden? Is the difference between the two groups accounted for mainly by birth spacing or mainly by completed fertility? Are there socioeconomic differences in YIP within MPF and SPF trajectories? Do social origins confound the relationship between the number of reproductive partners and years spent in parenthood?

2. Theoretical framework and previous research

2.1. Parenthood status

Parenthood status can be straightforwardly established on the basis of biological relatedness. Beyond consanguine ties, however, the concept of a parental relationship is an elusive one. It may be defined by the length, proximity and affinity of adult-child interactions or by residency (Kalmijn et al., 2018). These factors occur in the fluctuating context of family constellations that include blended, mixed or single headed households (Cancian, Meyer, & Cook, 2011). An adult may have a parental bond with a stepchild, along with the responsibilities expected of biological parents. Biological parents and step-parents alike may lack this type of relationship to a child, or the parental bond may be interrupted by separation or other events that change the nature of the relationship. Apparent social or biological parenthood conceals substantive heterogeneity. Post-separation residential childcare arrangements are also a key issue (Vanassche, Corijn, Matthijs, & Swicegood, 2015). This is particularly true in Sweden, where it is estimated that children alternate residency between parents in one-third of post-divorce arrangements (Turunen, Brandén, Lundström, & Nyman, 2018). These arrangements are sometimes unstable, with *de facto* care falling to the mother. Thus, for mothers, it is very rare for 'parenthood' to end with separation. By contrast, the population of divorced fathers will be characterized by a heterogeneous gradient of parenthood status.

Defining the period of life that constitutes parenthood is equally difficult. The duration of parenthood may be seen as ongoing (following the birth of a child). Other aspects of parenthood may last until the end of formal and informal parental-custodial responsibilities. Again, the framing of this period is obviously variable, but commonly applied thresholds are the age of majority or average nest-leaving ages. King (1999) and Eggebeen and Uhlenberg (1985) estimate YIP as the number of years with a biological child under 19 years of age present in the household. Other studies instead take the offspring perspective, describing childhood years spent in different household structures (e.g. Andersson & Philipov, 2002). Watkins, Menken, and Bongaarts (1987) contrast measures of years lived with live offspring aged under 19 years of age to years lived with any live offspring, across historical periods. Using measures that do not consider to the age of children, parenthood status occupies a larger proportion of the total life course as life expectancy increases. When defined on the basis of dependent offspring, parenthood status occupies a smaller proportion of the total life course as life expectancy increases. When using measures that condition on the age of offspring, age at first birth becomes the main parameter of interest. When using measures that limit parenthood on the basis of the age of the child, the full reproductive period matters.

Existing longitudinal studies on YIP (Andersson & Philipov, 2002; Eggebeen & Uhlenberg, 1985; King, 1999; Watkins et al., 1987) do not consider the role of the number of reproductive partners. The same is true of research that focuses on the mean onset and end of parental or grandparental status (Leopold & Skopek, 2015). In our study, the family dynamics involved in MPF encompass both age at first birth, spacing and stopping. Therefore, we use a dependent-child measure, counting only children aged 18 or under. We ignore step-parents and only consider parenthood relating to biological children. This provides an incomplete picture of cumulated parenthood. However, biological relatedness is the most socially and legally binding relation to dependent children. Biological relations imply a much higher and less variable degree of filiation than step-relationships, even across household structures (van Houdt, Kalmijn, & Ivanova, 2018). We measure parenthood regardless of the residential relationship to the child. Only about 5 percent of mothers in Sweden report not having main residential

custody (shared or sole) after separation (Statistics Sweden, 2014). Among separated fathers, about 19 percent reported that the child lives only with the mother, 39 percent practiced equal shared parenting and the remaining had minor or all residential custody. For men, therefore, but less so for women, this measure has limitations, sometimes counting time spent in parenthood also when no parent-child social relationship exist. However, several aspects of parenthood may remain unchanged by care arrangements and co-residency, such as the normative expectations linked to having dependent children, and the legal responsibility of providing for them. Thus, our study captures a meaningful lower bound for years spent in parenthood.

In addition, we approximate custodial biological parenthood using annual measures of the child's registered dwelling. Parents may still have biological children in their home full-time, or part-time via alternating residency, even though the child is not registered at their dwelling. At the time our population transition into parenthood, eight percent of the children of separated parents are registered with their father (Statistics Sweden, 2015). Joint custody also emerges as a salient post-divorce arrangement, growing from 4 percent of post-divorce arrangements in the 1990s to about a 30 percent in 2013 (Statistics Sweden, 2015). Thus, our measure of co-residential parenthood is mainly complementary and used probabilistically at an aggregate scale. The probability of at least limited residential parenthood is positively correlated with dwelling co-registry at a population level.

2.2. Family dynamics in single- and multiple-partner fertility

Previous research indicates that cross-partner births can be rather lengthly spaced (Heintz-Martin, Bourdais, & Hamplová, 2014; Henz, 2002; Henz & Thomson, 2005; Holland & Thomson, 2011; Stewart, 2002; Thomson, 2004; A Vikat, Thomson, & Hoem, 1999; Andres Vikat, Thomson, & Prskawetz, 2004). Vikat, Thomson, and Hoem (1999) found a rapid transition from union formation to childbirth in higher order childbearing unions, while more extensive spacing has been found for actual cross-partner birth intervals (e.g. Holland & Thomson, 2011; Kreyenfeld et al., 2017). Why would birth spacing differ between single- and multiple-partner fertility? Whereas same-partner transition involves impregnation, cross-partner parity progression also involves separation from current partnerships and re-partnering (Kreyenfeld & Heintz-Martin, 2015). Therefore, cross-partner birth intervals should be more extensive. The tempo of cross-partner births may increase if there is a tendency to rapidly solidify higher order unions or a desire for siblings of a similar age to the children from previous unions (Griffith, Koo, & Suchindran, 1985). Moreover, re-partnering, divorce and conception are likely to be endogenous, so individuals who have children with subsequent partners may transit through these stages at a greater pace. MPF individuals start their reproductive period early in life, and are thus exposed to higher parity transitions during more fecund biological ages, which may shorten birth intervals. Typical correlates of MPF, such as early age at first birth, non-marital status and low educational level (Lappegård & Rønsen, 2013; Monte, 2018), are associated with rapid union dissolution (Lyngstad & Jalovaara, 2010).

Several studies have found an elevated likelihood of third and higher order births among MPF individuals. While MPF mechanically implies at least two births, the theoretical reasons for an increased likelihood of higher parities are unclear. If individual fertility trajectories followed a general pattern, childbirth among MPF individuals would stop at the same parity as single-fertility individuals. From a union perspective, however, childbearing careers may be reset, leading to higher total individual fertility within the limits of biological age. Moreover, if higher order unions re-boot childbearing careers, there may be a wish to provide the common child with a younger full-sibling. On the other hand, higher order unions have a greater dissolution rate than first childbearing unions (Henz & Thomson, 2005; Teachman, 2008) and are more likely to occur without the partners co-residing (Monte, 2018). Therefore, MPF unions disproportionally end before reaching their full potential fertility, which negatively impacts on completed fertility (Beaujouan & Solaz, 2008). Research on the role of re-parenting in relation to lifetime cumulative fertility has found that re-partnering individuals have fewer births overall than would be expected in the absence of divorce, but also that the overall number of children born to re-partnering individuals is more varied, with re-partnered men being more

likely to reach third or higher parity (Jansen, Wijckmans, & Van Bavel, 2009; Jokela, Rotkirch, Rickard, Pettay, & Lummaa, 2010; Li, 2006; Meggiolaro & Ongaro, 2010).

2.3. Social background, socioeconomic position and gender

Family structure and family dynamics tend to be stratified by socioeconomic position. Why would years in parenthood differ on the basis of socioeconomic position? Opportunity structures for childbearing are contingent on the level of income that is forfeited, which means that human capital is positively correlated with the postponement of parenthood (Rosenzweig & Stark, 1997). Moreover, career investments with greater returns may lead to individuals having shorter birth intervals (Ni Bhrolchain, 1986). It remains an empirical question whether this gradient is also present in the MPF trajectory. High SES individuals are at an advantage on the marriage market and are more likely to find a new partner at any given moment, which may lead to shorter cross-partner spacing (Wu & Schimmele, 2005). In contrast to theories on the opportunity costs of childbearing, there is a slight positive relationship between total fertility and SES for men in Sweden, and no clear relationship for women (Jalovaara et al., 2018). However, the mechanisms associated with fertility behavior on the single partner fertility pathway need not pertain to those who have children with multiple partners; the two groups may differ in relation to fertility behavior and intentions and also in their responses to the economic pressures of childbearing. Gender is also central to this issue. Biological time is a more important factor for women, setting a definite limit to their reproductive careers and decreasing their total fertility relative to men. Women enter parenthood at earlier ages than men, however, which may counterbalance this difference. Previous research has found that men re-partner both more quickly and more frequently (Ivanova, Kalmijn, & Uunk, 2013; Sweeney, 2010), which implies that re-partnering and cross-partner parity progression may occur more quickly among men. Social background influences several of the mechanisms that are theoretical importance for multi-partner fertility. These include single parenthood, separation propensity and age at first birth, and also the transmission of socioeconomic status. Simultaneously, social background may influence completed fertility and parity progression tempo net of individuals' achieved characteristics, which may confound the relationship between MPF and years spent in parenthood.

In this study, the main emphasis is directed at describing overarching patterns for the MPF and SPF trajectories, and we do not pursue theoretically driven questions regarding which factors causally lead to MPF and drive the relationship between MPF and years spent as parents to dependent children. As a secondary analysis, however, we do engage with some related but purely empirical questions. For example, we present the distributions of years in parenthood across MPF/SPF trajectories, gender and income levels and show point estimates conditioned on social background characteristics.

In sum, many micro level processes will determine how YIP varies across single- and multiple-partner trajectories. Research on multiple-partner fertility has focused on predicting transitions and events, but less on analyzing YIP or other accumulated fertility patterns. In the following, we present a first analysis of aggregate patterns of years in parenthood and of the relationship between YIP and the number of reproductive partners.

3. Data and research design

3.1. Data and analytical strategy

Our data are drawn from Swedish administrative registers. We establish biological parenthood for every child born, migrating and deceased. Birth events, spacing and cumulated fertility are derived at the monthly level. Administrative data are well-suited to our descriptive research question, since few surveys are large enough to isolate minority experiences, such as MPF, from a cohort perspective and to follow all accumulated births to all the index persons' reproductive partners, with complete coverage and without attrition, across more than half a century. Moreover, we largely avoid the

common issue of men underreporting the number of children from higher order unions (Juby & Le Bourdais, 1999).

We adopt a cohort approach and follow all individuals born in Sweden in 1957 from age 16 to the final observation point in 2012, or age 55. From this population, we include all those who have had two or more children by age 55 ($N=64,226$), and we track all offspring ($N=165,251$) born to this index cohort. Years in parenthood are calculated by summing individual's years overlapping with live offspring no older than 18 years. The death of offspring ($N = 1,299$, $\% = 0.79$) or the parent ($N=1,741$, $\% = 2.71$) does not lead to the censoring of the index person but alters the person's parental status in the subsequent years. Based on the observed ages of all children born by age 55, we project biological parental status up to age 65. Since little childbearing takes place for men and women after age 45-50 (Appendix Figure A1) this provides a close to complete picture of exposure to time spent with offspring no older than 18 years. We use this threshold because age 18 is the default juncture for adulthood in Sweden, and is the point at which certain formal custodial duties end, and also marks the onset of the child's civic rights and responsibilities; it is also roughly the time at which nest-leaving normatively becomes a common option (Albertini, Gähler, & Härkönen, 2018). A second measure of years in parenthood is defined by having live offspring no older than 18 registered in the dwelling. For the sake of brevity, we will refer to years in parenthood to children aged 18 or younger as simply 'years in parenthood', 'parenthood' or YIP.

The 1957 cohort has been chosen because it allows a timespan long enough to plausibly track completed multiple-partner fertility for men and women. Moreover, the 1957 cohort entered childbearing ages in the 1970s and is thus representative of the new family regime of high divorce rates that still dominates today. Pre-1957 cohorts were also rejected as a result of missing data on residential information. All the figures presented in this study can be reproduced for adjacent younger cohorts, for which results have been found to be almost identical (available upon request).

MPF is defined as ever having had a child with more than one partner ($N=10,653$, $\% = 16.59$). This binary measure includes all with either two reproductive partners ($\% = 89.31$) or three or more reproductive partners ($\% = 10.69$). The main focus is directed at fertility trajectories rather than union trajectories. However, all MPF individuals have separated a first childbearing union (or never entered a union with the focal child's biological parent). For comparability, we therefore sometimes divide the SPF group occurrence of childbearing union dissolution, leading to three fertility trajectories: MPF, SPF in intact childbearing unions, and SPF with dissolved/never-formed childbearing unions. It is worth repeating that in all analyses we analyze all parents who have ultimately had two or more children. This population is chosen in order to intuitively contrast multiple-partner fertility trajectories (that are mechanically of second or higher parity) with comparable single-partner fertility trajectories. Distributions of, for example, completed fertility should therefore not be seen as general depictions that relate to the full population of parents in the cohort.

Our main analytical method is to present the distribution of years in parenthood, its proximate determinants in terms of completed fertility and birth spacing, and how these vary by the number of reproductive partners. We do this using a combination of contingency tables, state distribution plots and kernel density estimates. To show variability across SES, we also disaggregate these statistics by income quartiles. To answer our fourth research question – whether social origins confound the relationship between YIP and multi-partner fertility – we fit stepwise linear regression models to predict years in parenthood, first including MPF and then a number of indicators of social origin.

3.2. Other measures

We calculate yearly income ranks by period, age and gender based on the population as a whole. Negative values were bottom-coded. To offset yearly fluctuations due to parental leave, educational enrolment, and brief periods of migration etc., we use the highest observed value between 37 and 42. Income does not perfectly capture all aspects of an individual's socioeconomic position. Nonetheless,

registered income data are of very high quality (Mood, 2017) and income represents resources that are of theoretical importance for years spent in parenthood (Lappegård & Rønsen, 2013).

We include a number of measures of social origin. Parental occupational class is based on decennial census data, which have been coded to produce an ordinal variable in accordance with the EGP class schema: I = upper middle class, II = middle class, III = routine non-manual, VI = skilled manual, VII = unskilled manual. Additional categories are created for self-employed, farmers and for those for whom there is no information on the parents' occupation (Erikson & Goldthorpe, 1992). The highest ranking occupation is used. We also include sibling set size, family structure at age 16 (intact = 84 %, separated = 16 %), and maternal age at first birth (mean = 24, SD = 4.7). Finally, we include a categorical variable focused on regional characteristics of the residential municipality at age 16 (Metropolitan = 25 %, Urban = 24 %, Small town/rural = 23 %, Unknown = 28 %). Appendix Table A1 presents totals and percentages for all included variables separately for individuals from single- and multiple-partner fertility trajectories.

4. Results

4.1. Spacing and completed fertility

Figure 1 presents the distribution of completed fertility measured at age 55 across fertility trajectories, sex and income quartiles. Around three-quarters of MPF men have more than two children, and close to thirty percent have four or more children. There is a weak positive income gradient. Among SPF men, both those who have dissolved their childbearing union by age 55, and those who remain in this union, about one-quarter have three children and around ten percent have four or more children. Between 25 and 60 percent of MPF women have three or more children, with a pronounced negative income gradient. Considerably fewer women in the single partner childbearing trajectories have more than three children.

Figure 1. Completed fertility as percentages, by number of children, fertility trajectory, sex, and income quartiles. All parents to two or more children.

Figure 2 presents kernel density estimates for birth intervals for parity progression with the same and a new childbearing partner respectively. We refer to the supplemental material (Figure 1– Figure 9), for summary measures of spread and dispersion for all figures presented in the paper. At each parity, the distribution of birth intervals for cross-partner childbearing is heavily skewed to the right. For men (women), second parity see a mean spacing of 3 (3) years for same-partner births and 8.8 years (7) for new-partner births. The left (right) vertical lines of each shaded distribution indicate the 25th (75th) percentile: 25 percent of all MPF men (women) display a spacing of 11 years or greater. In contrast, 75 percent of the observations for MPF trajectories have birth intervals of four or less years. The difference between MPF and SPF is slightly reduced among individuals whose cross-partner childbirths occurred at the third or fourth births.

Figure 2. Kernel density estimates for birth intervals. By fertility trajectory, sex and parity progression.

Figure 3 shows the same statistics by income-bracket, with dark shades representing the first quartile of ranked income and light shades the fourth. No substantive income gradient can be seen for birth intervals in same-partner parity progression (upper panels). The spacing among MPF individuals in the higher income brackets is somewhat more skewed to the right, at least for women, for whom the median spacing is greater by one year in the fourth income quartile and the 75th percentile is 12 for the fourth income quartile and 9 for the first income quartile. In Appendix Figure A2, these descriptive data on birth intervals are parameterized using competing-risk, discrete-time event history analysis. The same pattern emerges, with a higher risk for childbirth at later years after previous childbirth and with this pattern exacerbated for individuals with higher incomes.

Figure 3. Kernel density estimates for birth intervals. By fertility trajectory, sex, income quartile and parity progression.

Figure 4 shows the proportions of the population in parenthood at each age. Overall, for both men and women, the onset of parenthood comes earlier and ends later for MPFs compared to SPFs. For SPF men, about 50 percent are in parenthood at age 30. For MPF men, about 50 percent are in parenthood at age 25. By age 55, only 25 percent of SPF men are in parenthood, whereas more than 60 percent of MPF men are parents at this age. For women in general, a larger proportion enter parenthood at earlier ages. This pattern is even more pronounced for the MPF women. By age 24, three quarters of female MPFs are parents and about half of female MPFs have one or more dependent children (children under the age of 19) at age 50. At any given age, a larger proportion of both male and female MPFs are in parenthood with only one dependent child relative to higher parities, which is due to the longer time interval between cross-partner births. At 35-45 years of age, MPFs are more likely to have three or more children. At any age, MPF parents are less likely than SPF parents to have two children, which is the modal family size in Sweden.

Figure 5 shows the same statistics but with parenthood more strictly defined as having children registered at the index individual's dwelling. For MPF men, the onset of parenthood is earlier and the duration parenthood remain larger than for SPF men. The fraction of MPF men who are in parenthood at any given age is reduced, however, only exceeding 50 percent between age 30 and 50, and never exceeding 75 percent of the population. An unknown number of the "non-parents" based on this measure are likely to be in a parental relationship with children. For women, it is noteworthy that the patterns remain largely the same as in Figure 4.

Figure 4. Parental status from ages 16 to 55, percentages, by fertility trajectory, sex and parity.

Figure 5. Parental status (conditioned on child co-residency) from ages 16 to 55, percentages, by fertility trajectory, sex and parity.

4.2. Years spent in parenthood with dependent children

Figure 6 presents kernel density estimates for total years in parenthood, by completed fertility. Here, years in parenthood are projected to age 65 based on the age of live offspring at the time the index individuals are 55. In these estimates, we assume that all offspring live to age 18. A YIP value of less than 18 is extremely rare, since very few children in our sample have died. Years spent in parenthood in SPF trajectories are more compressed around the mean whereas they are more widely dispersed among individuals who have children with more than one partner. Of the parents who have a total of two children, MPF men (women) below the 25th percentile have a YIP of 24 (24) and men (women) above the 75th percentile spend 31 (29) or more years as parents; the mean difference between SPF men and women is 6.2 and 5.2, respectively. The mean and median gap is reduced at higher completed fertility, but extremely few SPF individuals spend as much time in parenthood as the top 25 percent of the MPFs. When YIP is calculated across all individuals regardless of completed fertility MPF and SPF individuals differ by more than eight years for women and 6 years for men (not shown). Figure 7 presents the same statistics for the first and fourth income quartiles. There is no income gradient for YIP among single-partner fertility individuals. For MPFs, the fourth income quartile spends on average close to one more year in parenthood.

Figure 8 presents kernel density estimates for total years in parenthood, with parenthood conditioned on children being registered at the index person's dwelling, by completed fertility. Men spend few years as residential parents, with 75 percent of two-child MPF men spending less than 18 years in this condition. The income gradient for years as parents to residential children, presented in Figure 9, is slightly right-skewed distribution for MPF men and women.

Figure 6. Kernel density estimates for years as parents to biological children no older than 18. By sex and completed fertility.

Figure 7. Kernel density estimates for years as parents to biological children no older than 18. By sex, income quartile and completed fertility.

Figure 8. Kernel density estimates for years as parents to biological children no older than 18 (conditional on child co-residence). By sex and completed fertility.

Figure 9. Kernel density estimates for years as parents to biological children no older than 18 (conditional on child co-residence). By sex, income quartile and completed fertility.

In Table 1, we evaluate whether the association between MPF and YIP is confounded by temporally antecedent background characteristics that may lead to both MPF and – via higher birth spacing and a greater number of children – to higher YIP. We predict years in parenthood to dependent children regardless of residential relationship to children. We present estimates for MPF only, since it is the explanatory factor of interest (estimates for all included covariates are presented in appendix Table A2). Model 1 shows the bivariate association between MPF and years in parenthood. When the full population of parents to two or more children is considered, MPF is associated with 8 more years in parenthood for men and 6.4 more years for women. This decreases by about one year when the focus is restricted to two-child fertility trajectories, and is reduced to 5.2 (men) and 4 (women) among individuals with four children. Model 2 adjusts for the index person's parents' occupational class, childhood union stability, mother's age at first birth, number of siblings and birth region characteristics. The estimates remain largely unchanged. For men and women at all levels of completed fertility, social background characteristics have no apparent confounding role on the relationship between MPF and years as parents to dependent children. It is worth noting the R-square measure in Model 1 for men and women. Adding data on the number of reproductive partners, the average square error is reduced to almost 40 percent for men and 30 percent for women (and around 30 percent for men and women in the completed fertility-specific models). A greater number of years as parents to dependent children may be seen as a core feature of MPF fertility trajectories.

Summarizing the results, high completed fertility and long (cross-partner) birth-spacing appear to be part and parcel of multi-partner fertility trajectories. In line with theory (Griffith et al., 1985; Henz & Thomson, 2005), regardless of social origin and across different socioeconomic levels and completed fertility, individuals in MPF trajectories spend substantially more years as parents to dependent children than individuals in SPF trajectories. It lies beyond the scope of this study to establish the causal impact of MPF on years in parenthood. Several factors that influence completed fertility and fertility tempo also serve to extend the size of the population at risk of MPF: early first childbearing and early separation or single parenthood. These events are in turn mediated by and impact on socioeconomic position and its unobserved correlates. Modelling these will not assist us in understanding the causal impact of MPF, since theory posits that the MPF and family/socioeconomic circumstances impact each other. For interested readers, in supplemental material (Table 1S), we include several controls for SES and first union characteristics, and show that the main effects of MPF remain unchanged after adjusting for several of these parameters.

Table 1. *The association between years in parenthood and MPF; main effects from OLS.*

	Men		Women	
	Model 1	Model 2	Model 1	Model 2
Two + children MPF	8.09	8.09	6.44	6.39
Constant	22.72	23.26	23.16	24.00
R-squared	0.39	0.42	0.29	0.31
N	30,992	25,694	33,234	27,515
Two children MPF	6.25	6.24	5.22	5.29
Constant	21.20	21.78	21.49	22.22
R-squared	0.30	0.37	0.29	0.33
N	18,031	14,831	19,464	15,984
Three children MPF	5.38	5.39	4.31	4.24
Constant	24.82	25.11	25.33	26.45
R-squared	0.32	0.35	0.24	0.28
N	9,252	7,793	10,199	8,565
Four children MPF	5.21	5.46	4.00	4.10
Constant	27.61	27.81	28.24	28.91
R-squared	0.29	0.35	0.20	0.25
N	2,697	2,238	2,648	2,190
<i>MPF only</i>	✓	-	✓	-
<i>Social origin¹</i>	-	✓	-	✓

¹Parents' occupational class, childhood union stability, mother's age at first birth, number of siblings, birth region characteristics. All estimates are statistically significant at $p < 0.001$.

5. Conclusion and discussion

A sizable and growing minority of higher order births take place within multiple-partner careers in most countries with relatively high union dissolution rates (Cancian et al., 2011; Carlson & Furstenberg, 2006; Guzzo, 2014; Kreyenfeld et al., 2017; Lappegård & Thomson, u.å.; Monte, 2018; Thomson, 2014, 2015; Thomson et al., 2014). Research on multiple-partner fertility has focused on predicting cross-partner births and step-family fertility. Across the life course, these discrete events produce trajectories with particular characteristics, for example with regard to years spent in parenthood, which have not been adequately mapped in the existing literature. This study has analyzed differences in years spent in parenthood among individuals who have children with one or more partners.

We find that that childbearing MPF trajectories involve substantially more years as parents to dependent children, on average 8 more years for men and 6.4 more years for women. Individuals in MPF-trajectories become parents earlier in life and move out of this status later in life. Individuals in MPF-trajectories also live a smaller fraction of their parental years as parents to two dependent children, but spend more years parenting one or three or more children. The difference in years spent as parent to dependent children between MPF and SPF trajectories is particularly pronounced for two-child fertility careers. The most important proximate driver of these patterns is found in extensive cross-partner birth intervals. The second most important driver is higher completed fertility.

We also find that MPF individuals display slightly heterogeneous patterns of years spent in parenthood across socioeconomic groups, as measured by income rank quartiles. Among MPF individuals, there is a positive income gradient for completed fertility among men, but a pronounced negative income gradient for completed fertility among women. For both men and women, the spacing of cross-partner births is more extensive in the highest income quartile, on average by about one year, while no such gradient is present in the SPF trajectory. The upper income group spend about one year more in parenthood with dependent children than the first income quartile group. Among males, MPF often implies parenthood at advanced ages. Based on a measure of parenthood that is conditional on biological children being registered as residing with the parent, men who have children with multiple partners spend a larger proportion of their lives as non-custodial parents. Moreover, our analyses show that the relationship between MPF and years in parenthood is not confounded by social origins.

Previous research has shown that the incidence of MPF is highest in socioeconomically vulnerable populations and has argued that this means that the weight of the various arduous consequences of MPF is being placed on families that are already struggling disproportionately (Carlson & Furstenberg, 2006; Manlove, Logan, Ikramullah, & Holcombe, 2008). The present study adds to this by highlighting that MPF individuals spend a substantially higher numbers of years as parents to dependent children. The financial burdens of parenthood are not necessarily only associated with entering parenthood in and of itself, but also with the extended pressure of custodianship across the life course, particularly among women. Given this extended phase of caretaking, there are considerable transfers of time and money from MPF parents, particularly mothers, to offspring across the life course (cf. Vargha et al., 2017). Moreover, the larger intervals for cross-partnership fertility mean more fluctuations in and out of the labor market. Spending fewer years of the wage-earning life without dependent children means having less time to build a pension and less time to devote to a career. Thus, our findings also add to the growing literature that is studying MPF in the light of life chances.

Our analysis also improves our understanding of multi-partner fertility as an emergent fertility trajectory. Kreyenfeld et al. (2017) noted that the extended second-birth spacing makes longer periods of parenthood a potentially salient feature of MPF. The current study is the first that has been dedicated to elaborating on and investigating this phenomenon. By taking a complete cohort perspective, focusing on all births to men and women disaggregated by socioeconomic grouping, we have been able to show the extent of differences in years in parenthood with dependent children and to elaborate on the most proximate causes of these differences. We have also described other life course features of MPF. For example, because childbirth with a new partner predominantly takes place at the second parity (which a large birth interval) after which more births are likely to follow, parents to children of multiple partners will spend a greater amount of time parenting single children as well as parenting a very large number of dependent children. As such, extended periods of parenthood and a shift away from the normative two-dependent-child household appear to be central to the experience of having children with more than one partner.

This study has several limitations. Importantly, it focuses on fertility at the expense of household and union characteristics. As such, the results have only scratched the surface of family complexities. Singlehood or partner co-residency, alternating residency arrangements and non-biological children in

blended and mixed household structures together provide the de facto context for parent-like relations. Most importantly, MPF is not the only road to extended years in parenthood. Years spent in parenthood or in a parental role can also be extended by the inclusion of step-children. However, first union dissolution does not always result in re-partnering, and step-family constellations do not always emerge from re-partnering. When step-families do occur, the creation of de facto social and custodial parenthood is far more contingent on the union context and relationship qualities than is the case with biological parent-child relations. Thus, the years spent as biological parents to dependent children documented in the present study constitute a important lowest threshold measure. Another important caveat relates to the measure of residential custodianship. These measures provide useful benchmarks for lifetime co-residence but they are rather imprecise, since one may be registered as living with one parent, while in fact residing with the other. Our findings are also period and context specific. Social policies such as “speed premiums” (Andersson, Hoem, & Duvander, 2006; Miranda, 2019) will impact on years spent in parenthood. Sociocultural family dynamics will also impact on years spent in parenthood across places with similar aggregate rates of MPF. For example, the speed of partnering and cross-partner birth spacing may be shorter in contexts in which single parenthood is more common than in Sweden, and total fertility will differ in contexts with lower ages at first birth. Exploring the extent of these differences would be an interesting avenue for future research.

To conclude, this study has described a number of aspects of how years spent in parenthood are accumulated over the entire fertility careers of single- and multiple-partner individuals. A reasonable future step would be to incorporate the number of reproductive partners into research on lifetime parenthood across different contexts. An ongoing challenge when studying MPF is that of how to best account for both household and fertility trajectories. In this regard, recent developments in survey design (e.g. Schoeni, Bianchi, Hotz, Seltzer, & Wiemers, 2015), which focus on collecting life-course descriptions of family relations – custodial, biological and social – hold great promise for future research.

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Appendix

Figure A1. Kaplan-Meier Survival estimates of transition to MPF (Birth with higher order partner). $N=10,653$. Own Calculations from register data.

Figure 2A. Risk of parity progression at specific number of years since last birth (baseline = 4 years), sub-hazard rates from competing risk survival analysis, by parity and childbearing partner order. Income*parity-groups with <50 events excluded.

Table 1A. Summary statistics by single- and multiple-partner trajectory

	SPF (N=53573)	MPF (N=10653)
<i>Demographics</i>		
<i>Completed parity</i>		
2	34495 (64.4%)	3000 (28.2%)
3	15065 (28.1%)	4386 (41.2%)
4	3146 (5.9%)	2199 (20.6%)
5	867 (1.6%)	1068 (10.0%)
<i>Sex</i>		
Men	25901 (48.3%)	5091 (47.8%)
Women	27672 (51.7%)	5562 (52.2%)
<i>First union characteristics</i>		
<i>Age at first birth</i>		
Mean	27	23
Median	27.0	23.0
Q1, Q3	24.0, 31.0	20.0, 26.0
<i>Type</i>		
Single	118 (0.2%)	1417 (13.3%)
Cohabiting	8819 (16.5%)	5128 (48.1%)
Married	44636 (83.3%)	4108 (38.6%)

SPF (N=53573)   MPF (N=10653)

(Table 1A Cont.)

Socioeconomic position

Income rank (1-10)

mean	6	5
Median	6.0	5.0
Q1, Q3	3.0, 8.0	3.0, 7.0

Social origin

Parental occupational class

Unskilled manual	11690 (21.9%)	2929 (27.6%)
Skilled m	11816 (22.1%)	2560 (24.1%)
Routine non-manual	5274 (9.9%)	1005 (9.5%)
Semi-skilled nm	10784 (20.2%)	1889 (17.8%)
Skilled nm	3825 (7.2%)	509 (4.8%)
Professional	174 (0.3%)	21 (0.2%)
Self-employed	4600 (8.6%)	880 (8.3%)
Farmers	4117 (7.7%)	399 (3.8%)
Unknown	1190 (2.2%)	425 (4.0%)

Parents separated at age 16

No	7106 (13.3%)	2479 (23.4%)
Yes	46271 (86.7%)	8135 (76.6%)

Mother's age at first birth

mean	24	23
Median	23.0	22.0
Q1, Q3	21.0, 27.0	19.0, 25.0

Birth region characteristics

Metropolitan	13093 (24.4%)	2927 (27.5%)
Urban	12532 (23.4%)	2658 (25.0%)
Small town	12208 (22.8%)	2302 (21.6%)

Table 2A. The association between years in parenthood and MPF for individuals with two children, main effects from OLS. Standard errors in brackets.

	Men				Women			
	m1	m1	m2	m2	m1	m1	m2	m2
<i>Multiple-partner fertility</i>	6.253	(0.071)	6.238	(0.069)	5.221	(0.059)	5.289	(0.062)
<i>Parental occupational class¹</i>								
Skilled Manual			0.103	(0.051)			-0.037	(0.052)
Routine non-manual			-0.035	(0.064)			-0.170	(0.068)
Semi-skilled non-manual			-0.128	(0.053)			-0.146	(0.054)
Skilled non-manual			-0.076	(0.072)			-0.267	(0.078)
Professionals			-0.397	(0.287)			-0.387	(0.347)
Self-employed			-0.095	(0.068)			-0.142	(0.070)
Farmers			-0.118	(0.074)			-0.226	(0.076)
Occ. unknown			-0.277	(0.203)			-0.077	(0.200)
<i>Parents divorced</i>			0.003	(0.064)			-0.095	(0.064)
<i>Mother's age at first birth</i>			-0.021	(0.004)			-0.022	(0.004)
<i>Sibling size</i>			0.003	(0.019)			0.010	(0.020)
Constant	21.204	(0.018)	21.784	(0.123)	21.490	(0.018)	22.223	(0.125)
R-squared	0.299		0.365		0.286		0.326	
N	18031		14831		19464		15984	

¹Reference category = Unskilled manual.