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Repartnering of women in the United States: The interplay between motherhood and socio-economic status

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We examine the socio-economic differentials in mothers' and non-mothers' repartnering behaviours following the dissolution of a co-residential (marital or cohabiting) union. Based on five waves of the National Survey of Family Growth (N=11,479), we use discrete-time event history models, jointly modelling exit from a partnership and entry into a new union. Few differences are found for entry into direct marriage, which is a rarely observed event. However, when we examine women's entry into cohabitation (a possible stepping stone to marriage), we observe: (1) a motherhood gap, where mothers are less likely to repartner than non-mothers; (2) a negative association between educational attainment and repartnering probability; and (3) the motherhood gap existing only for low-educated women. Supplementary analyses on the impact of the Great Recession demonstrate that whereas the economic cycle mattered for the repartnering of low-educated women, it made no difference for more highly educated women.

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Keywords: educational attainment; motherhood; repartnering; separation; socio-economic inequalities

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Introduction

The study of socio-economic differentials in individuals' demographic behaviours is a burgeoning line of research, with studies examining disparities in both the likelihood of experiencing and the timing of transitions to marriage (Dykstra and Poortman 2010; Kalmijn 2013; Bloome and Ang 2020; Mooyaart et al. 2022), parenthood (Kravdal and Rindfuss 2008; Begall and Mills 2013; Thomson et al. 2014; Lundberg et al. 2016; Nitsche and Hayford 2020), and divorce (Härkönen and Dronkers 2006; Matysiak et al. 2014) to name a few. This interest is understandable, given the importance of these transitions for the short- and long-term well-being of adults and their children. Consequently, researchers have recognized that the study of socio-economic differentials in demographic behaviours is crucial in understanding how socio-economic disadvantages are (re)produced (McLanahan 2004; DiPrete and Eirich 2006). Our ambition is to contribute to this

research by exploring the socio-economic differentials in mothers' and non-mothers' repartnering behaviours following the dissolution of a partnership.

There are a number of substantive reasons why the study of repartnering has drawn significant attention. Most importantly, entry into a new partnership is significant because of its potential to counteract some of the negative effects which divorce can have on individuals. For example, the well-documented finding that the negative consequences of union dissolution last longer for women (Leopold 2018), especially mothers (Hogendoorn et al. 2020), than for men has made the study of women's repartnering particularly important. Divorce has been found to result in a substantial decline in income for women in particular (Poortman 2000; Ongaro et al. 2009; Leopold 2018), but this might be offset by repartnering (Dewilde and Uunk 2008; Jansen et al. 2009).

An additional argument here is that women tend to disproportionately bear the brunt of childcare

responsibilities, not only during but also following the dissolution of an intimate partnership. Therefore, understanding the potential barriers which particular groups of mothers might face in their repartnering trajectories is crucial, as these may have important repercussions for the life-course outcomes of their children. For example, whereas children in single-mother households are disadvantaged in terms of economic resources and parental engagement, children in married-stepfather households experience similar levels of parental engagement to children in biological-father families (Carlson and Berger 2013). In other words, mothers' repartnering has the potential to offset some of the negative consequences of parental partnership dissolution for children.

We use data from the National Survey of Family Growth (NSFG) and address two key research questions: (1) What is the influence of women's motherhood status and socio-economic status (SES) on repartnering? and (2) Does the magnitude of the potential 'motherhood gap' (i.e. difference between mothers and non-mothers) in repartnering vary across socio-economic groups? Sex differences in repartnering have received considerable attention, with researchers even noting that 'gender is the most crucial determinant in the re-partnering process' (Wu and Schimmele 2005, p. 27). Although differences in repartnering between socio-economic groups have certainly been addressed (Smock 1990; Sweeney 1997; Shafer and James 2013; Pasteels and Mortelmans 2017), the results have been somewhat inconclusive, potentially due to the lack of attention to the possible interplay between motherhood and SES status. Our contribution to the literature is threefold.

First, our key substantive contribution is the study of the interplay between maternal status and socio-economic conditions by looking at women with different levels of educational attainment. Our work reflects on what the interplay between motherhood status and economic vulnerability might mean for women's repartnering trajectories after separation. In doing so, we directly address the call for more explicit attention to the potential social class disparities in individuals' relationship behaviours (Sassler 2010). Given the possible importance of repartnering after separation for women's wellbeing and children's development, our contribution to the literature lies in the careful examination of where potential inequalities might exist in women's post-separation behaviours.

Second, we do not focus on repartnering after the dissolution of *marital* unions only but rather

extend our focus to women who separate after any co-residential union (marital or cohabiting) and examine their chances of transitioning to a new partnership. In the United States (US), a sizeable part of family life unfolds outside marriage (Cherlin 2009; Musick and Michelmore 2018). Among women in a union, the proportion cohabiting has increased from 16 to 30 per cent in the last 20 years (Goodwin et al. 2010; CDC, n.d.), and the share of births to unmarried women almost doubled between 1985 and 2019, from 22 to 40 per cent (Martin et al. 2012, 2019). Given the large socio-economic disparities in the likelihoods of marrying and of experiencing childbearing in the context of a marital or non-marital union (McLanahan and Percheski 2008), we do not condition our sample of interest on first being selected into marriage (although we do, of course, account for this characteristic of women's relationship histories in our analyses).

Third, the key methodological improvement in our analyses of differentials in repartnering is that we also account for selection *into* partnership dissolution. We adopt a multi-process model and jointly estimate the process of repartnering and the preceding process of partnership dissolution. Relating to the first contribution, here we account for whether the selection into dissolution is shaped by the participants' SES.

What is repartnering?

Before we discuss the theoretical foundations of our work, we should first clarify what event we are focusing on when we study women's repartnering. In the study of repartnering, scholars often focus on the odds of individuals remarrying, as this type of partnership is viewed as more stable than non-marital cohabitation (Smock 1990; Sweeney 1997; Shafer 2013; Shafer and James 2013). However, it is important to recognize that, by and large, cohabitation is an essential first step in the possible progression to marriage. In fact, estimates show that the (vast) majority of remarriages in the US are preceded by cohabitation (Teachman 2008; Brown et al. 2019). In other words, irrespective of how that cohabitation progresses, the stage of living together is a rather normative step in the repartnering trajectory. Therefore, in our work, we are interested mostly in how a woman's socio-economic and motherhood statuses impact her probability of entering a cohabitating union. We also account for the possibility of repartnering through *direct* marriage (i.e. without

cohabiting first) and, thus, model the repartnering process in a competing risks framework.

Motherhood status, socio-economic status, and repartnering

Motherhood and SES might impact repartnering because of how they affect three important factors: a woman's need for a partner, her attractiveness to others on the mating market, and her opportunity to meet partners (Becker 1981 [1991]; Goldscheider and Waite 1986; Oppenheimer 1988; de Graaf and Kalmijn 2003). This theoretical approach has been widely used to explain why children might be a barrier to repartnering, as well as in the study of how socio-economic characteristics might impact men's and women's chances of entering a first marriage (Dykstra and Poortman 2010).

Motherhood status

Mothers face different odds of repartnering from non-mothers because of how children impact the three factors just outlined. First, parents might have a greater need (financial and/or non-financial) and, thus, more incentive to repartner than non-parents. After the dissolution of a union, women face economic challenges, which can be especially problematic for those with dependent children (Poortman 2000; Ongaro et al. 2009; Schnor et al. 2017). New partners can compensate for the lack of resources experienced in single-mother families (Berger et al. 2008; Carlson and Berger 2013). Yet, given that mothers are significantly less likely to repartner, across national contexts (Ivanova et al. 2013; Andersson et al. 2017) it appears that individual (financial) need is outweighed by other factors, such as attractiveness to potential partners.

The presence of children from a previous union means that the new partner will need to invest in building a relationship with non-biological offspring and, especially at the start of cohabitation, to act as a step-parent, a role which can be challenging (Stewart et al. 2003). This consideration might be particularly strong for mothers (as opposed to fathers), given that they are more likely to have co-resident children. The reluctance to act as a step-parent has been documented in the literature (Potarca et al. 2017) and can explain why mothers are less likely than fathers to enter new partnerships.

The final consideration here relates to how children might constrain the opportunities to meet a

new partner. Given their need for care provision, children are likely to reduce the time and energy that parents have for leisure activities and for socializing with potential new partners (Koo et al. 1984). Furthermore, children can oppose their parents' possible repartnering (Koo et al. 1984). Finally, children have been shown to impact parents' social networks in sex-specific ways: whereas fathers temporarily increase the kin composition of their social network on having children, for women child-bearing may result in a reduction in the size of the social network, at least until children reach school age (Munch et al. 1997). This can translate into restricted opportunities to meet new partners after the dissolution of the first union.

In line with these theoretical arguments, empirical studies have consistently reported that mothers are less likely to repartner than non-mothers (Wu and Schimmele 2005; Poortman 2007; Meggiolaro and Ongaro 2008; Ivanova et al. 2013; Di Nallo 2019). Therefore, we expect to find a negative effect of having children on women's likelihood of repartnering.

Socio-economic status

The arguments related to the link between SES and partnering have focused on how a partner's characteristics can maximize the gains for the household as a whole (Cherlin 1979; Becker 1981 [1991]; Oppenheimer 1988; Oppenheimer et al. 1997). Early works were grounded in the assumption that specialization is the most beneficial mode of dividing labour, with one partner being gainfully employed and the other taking responsibility for the household (Becker 1981 [1991]). According to this model, and assuming a preference for traditional division of labour, researchers argued that the individuals *least* likely to enter a partnership are women with many socio-economic resources and men with few, as they have least to gain from being in a partnership or are least attractive to potential partners, respectively.

Yet, the past decades have seen drastic changes in gender roles and in the feasibility of sustaining a household on a single income (Wetzel 1995; Sweeney 2002). These changes have made specialization a less beneficial—and less preferred—household model than the dual-earner arrangement. Therefore, higher earning potential might make both men *and* women more attractive on the mating market. Indeed, a number of studies have shown that a positive association can be found

between a woman's SES and her odds of marrying (Sweeney 2002; Shafer and James 2013). In fact, arguments have been put forward that given increasing income inequality and the fact that women are still under-represented in the pool of high income earners, competition for these women might only intensify (Carbone and Cahn 2014). This claim is not undisputed, however, as recent studies have argued that women with higher education might be facing a particularly restricted partner market (Lichter et al. 2020), especially given the established preference for homogamous partnerships (Schwartz and Mare 2005).

When it comes to repartnering, the findings have been mixed. Studies in European contexts have found that higher-SES women are less likely to repartner than lower-SES women (Pasteels and Mortelmans 2017), similar to the results for first-time partnering (Dykstra and Poortman 2010). In the US, the context of interest here, the association between women's socio-economic resources and entering a new marriage has been reported to be null (Shafer and James 2013) or positive, at least for some groups of women (Black women, Smock 1990; older women, Sweeney 1997). Two alternative hypotheses can be put forward.

The status of being *never married* is a valued characteristic on the partnering market (Bzostek et al. 2012; Qian and Lichter 2018). On the one hand, higher SES (a desired partner characteristic) might be able to 'offset' divorcees' potential lower attractiveness on the mating market. Such 'exchange' of valuable traits has been empirically demonstrated (Qian and Lichter 2018) and implies that more highly educated women will be more likely to repartner than their lower-educated counterparts. On the other hand, more highly educated women might be slower to enter new unions for several reasons. First and foremost, these women face a more restricted partnering market in general, assuming a preference for a partner of similar socio-economic standing (Lichter et al. 2020). They might also have a lower (financial) need to enter a cohabitation quickly. Previous qualitative works have demonstrated that financial and housing considerations are important reasons for people moving in together (Sassler 2004). These concerns are likely to be more pronounced among women with fewer socio-economic resources, whereas women with more resources can afford to take more time to enter a new cohabiting union. On balance, however, we expect high-SES women to be more likely to repartner than low-SES women.

Interplay between motherhood and socio-economic statuses

Our key research interest lies in the interplay between socio-economic vulnerability and motherhood status. As previously outlined, the key reasons for mothers' lower probability of repartnering are their lower attractiveness to potential partners and their restricted opportunities to meet such partners. We propose that even though lower-SES mothers might have a greater need to repartner, higher SES can better offset the barriers which children pose to repartnering. Although the transition to motherhood is associated with a higher likelihood of exiting the labour market (Boushley 2008; Percheski 2008; Evertsson 2013; Damaske and Frech 2016), more highly educated women are more likely to remain employed after having children (Doren 2019). Thus, higher-SES women are in a better position to be able to contribute to a household financially, even when they are mothers. As stated earlier, a dual-income arrangement is more advantageous to a household than a single-breadwinner model, especially in a liberal welfare state such as the US (Wetzel 1995). Additionally, provided that higher-SES mothers have a stronger attachment to the labour market, they may also benefit from more opportunities to meet new partners, given that previous studies have demonstrated that work is an important place to meet new partners in the remarriage market (de Graaf and Kalmijn 2003). In line with these mechanisms of how SES might offset the barriers which children present to repartnering, we expect that the motherhood gap will be smaller for higher- than for lower-SES women.

Selection into partnership dissolution and macro-level economic shocks

One of the main challenges we face in investigating repartnering dynamics is the selection issue: women who are 'at risk' of repartnering are those who have experienced a partnership dissolution. Therefore, we need to consider that women could be selected into the repartnering market because some characteristics might be systematically associated with higher chances of partnership dissolution. For instance, maternal status and educational level are not randomly assigned across women who experience a union break-up: mothers are less likely to experience a separation compared with childless women (e.g. Bellido et al. 2016) and more highly educated women are less likely to dissolve a partnership (Härkönen and Dronkers 2006; Matysiak et al.

2014). Past research has also documented that women with lower levels of education are less likely to marry overall compared with more educated women in the US (Goodwin et al. 2010). Also, among mothers, the odds of separation are markedly higher for those who are cohabiting compared with the married (Musick and Michelmore 2018). As a result, the pool of repartnering women is likely selected from those with low to middle education who have never experienced marriage. In order to control for such selection, we adopt a multi-process model in which we jointly estimate the processes of partnership dissolution and repartnering.

A second important consideration, given our use of data from the US, is the possible impact of pronounced downturns in the economic cycle (e.g. the Great Recession of the late 2000s). As previously stated, we expect that mothers with low SES will display the lowest probability of repartnering. On the one hand, it is possible that the economic crisis would have exacerbated this disadvantage and widened the motherhood gap in repartnering for low-SES women. On the other hand, the economic downturn might have exacerbated the need for low-SES mothers to find a new partner who could contribute to the household, whereas higher-SES mothers would have been better able to buffer for the possible impact of the crisis on household income. Therefore, as an auxiliary step in our analyses, we also explore whether the interplay between socio-economic and motherhood statuses varies across the economic cycle.

Data and method

Sample

We use five cycles of the NSFG: 2006–10, 2011–13, 2013–15, 2015–17, and 2017–19. These contain information on men and women born in the US from 1961 to 2004 and aged 15–45 at the time of interview. This survey collects a rich array of retrospective information on family life, including partnership and childbearing trajectories, along with details on socio-economic and ethnic background. Complete information about the interviewing, data storage, and informed consent procedures can be found on the NSFG website (www.cdc.gov/nchs/nsfg/).

Our analytical sample consists of 11,479 women aged 24–45 years who experienced the dissolution of at least one co-residential (marital or cohabiting) union between January 1996 and December 2019. We decided to restrict our sample to women who were at least 24 years old, as this is the age at

which most college graduates complete their education (or at least four-year college, which is sufficient to place someone in our highest-educated group; Shapiro et al. 2017).

We do not condition our analyses on the women being divorcees but rather on having experienced the dissolution of a co-residential (marital or cohabiting) union. From the retrospective information collected during the interview, we are able to reconstruct women's partnership and fertility histories. Women could have been exposed to the risk of separation (and repartnering) multiple times. Some women ($n = 1,559$) entered the sample during their second or higher-order periods of singlehood because they experienced their first before age 24. Table 1 reports descriptive statistics about our sample.

The data contain 15,513 episodes of singlehood (the term 'singlehood spells' refers to the period without a partner *after* the dissolution of the first cohabiting union). We observe a repartnering after about 25 per cent of the singlehood spells before the interview (i.e. 3,975 from a total of 15,513). For each spell of singlehood, we have information about subsequent unions and can exploit key information on the preceding union, such as the start date, partner's age, and whether children were born in it (Table A1 in the supplementary material displays the characteristics of women at the start of their partnerships). As shown in Table 1, 50 per cent of women who entered their first singlehood spell were mothers at the start of that period. Second and higher-order singlehood spells were more common among lower-educated than more highly educated women.

Operationalizations and analytical strategy

We use discrete-time event history analysis to model the process of repartnering (Allison 1982; Steele 2008). The analytical sample is restricted to respondents who reported the dissolution of at least one co-residential (marital or cohabiting) union. The *event* of repartnering is defined as the starting date of cohabitation (or direct marriage) with a new partner. Respondents who did not enter a new partnership are censored at the date of interview.

In order to uncover whether women's SES and maternal status influence the probability of repartnering, we estimate a multi-process competing risk model, jointly estimating the transition to a new partnership (marriage or cohabitation) and the dissolution of the previous union. The durations between events experienced by the same individual are correlated because of the presence of

Table 1 Descriptive statistics for analytical sample of women aged 24–45 in the US at risk of repartnering

	Singlehood spells (persons × episodes)							
	All		First		Second		Third/higher	
	<i>N</i>		<i>N</i>		<i>N</i>		<i>N</i>	
<i>Singlehood spells</i>	15,513		9,901		3,944		1,668	
<i>Subsequent union</i>								
No union	11,538		7,295		2,958		1,285	
Direct marriage	449		311		107		31	
Cohabitation	3,526		2,295		879		352	
<i>Average number of singlehood spells</i>	1.73		1.32		2.24		3.00	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>Age at start of singlehood spell</i>	29.20	5.34	28.03	4.80	30.67	5.49	32.63	5.73
<i>Singlehood duration (months)</i>	68.63	64.23	78.30	67.47	55.13	56.08	43.18	47.80
<i>Is a mother at start of spell</i>	0.54		0.50		0.60		0.63	
<i>Experienced parents' separation</i>	0.54		0.51		0.58		0.64	
<i>Year of birth</i>	1976.5		1976.9		1976.1		1975.3	
<i>Education</i>								
Less than high school	0.16		0.14		0.19		0.22	
High school graduate	0.30		0.28		0.31		0.33	
Some college but no degree	0.23		0.22		0.24		0.24	
Two-year college degree	0.11		0.10		0.12		0.11	
Four-year college degree/higher	0.20		0.25		0.14		0.11	
<i>Mother's education</i>								
Less than high school	0.26		0.27		0.26		0.27	
High school graduate	0.34		0.33		0.34		0.34	
Some college and two-year degrees	0.22		0.21		0.22		0.22	
Bachelor's degree or higher	0.17		0.17		0.16		0.16	
No mother figure identified	0.02		0.01		0.02		0.02	
<i>Ethnicity</i>								
Hispanic	0.19		0.22		0.17		0.14	
Non-Hispanic white	0.51		0.50		0.54		0.63	
Non-Hispanic Black	0.22		0.21		0.22		0.17	
Non-Hispanic other or Multiple race	0.07		0.07		0.07		0.06	
<i>Duration of previous union</i>								
<1 year	0.20		0.17		0.24		0.37	
1–2 years	0.27		0.28		0.33		0.30	
3–5 years	0.25		0.27		0.23		0.20	
6–9 years	0.17		0.18		0.13		0.09	
10+ years	0.12		0.10		0.07		0.04	

Note: SD refers to the standard deviation.

Source: Authors' analysis of NSFG data for 2006–19.

unobserved individual-specific characteristics that influence the occurrence of each event. This model thus allows us to capture the unobserved heterogeneity potentially affecting the two equations—for partnership separation and repartnering—thereby addressing the selection bias of the estimates.

We merge the monthly data into six-month periods to create a person-six-month file and run a model for all women who separated between 1996 and 2019. All singlehood spells start in the month of the last union dissolution and end with the formation of a new union or with censoring for those who remained single. The spells are nested within individuals (since women might break up more than once), which

yields a two-level data structure. The multilevel—or random-effect—event history models adopted in this study were purposely developed for a hierarchical data structure (Steele 2011).

In the multi-process model, two equations estimate simultaneously the risk of union dissolution (D_{ijt}) and the competing risk of repartnering (R_{ijt}) for women who experience a union dissolution:

$$\begin{cases} D_{ijt} = \log\left(\frac{p_{ijt}^D}{1 - p_{ijt}^D}\right) \\ R_{c,ijt} = \log\left(\frac{p_{ijt}^{Rc}}{1 - p_{ijt}^{Rc}}\right) \end{cases} \quad (1)$$

where p_{ijt} is the probability that a transition occurs at time t during spell j for individual i . The subscript c indicates whether the woman transitions from singlehood to direct marriage or to cohabitation.

The full system of equations estimating the risk of union separation and repartnering is defined as follows:

$$\begin{cases} D_{ijt} = \alpha^D(t) + \theta_1^D E_i^D + \theta_2^D M_i^D + \theta_3^D E_i^D M_i^D \\ \quad + \boldsymbol{\beta}^D \mathbf{X}_{ijt}^D + u_i^D \\ R_{ijt} = \alpha^{Rc}(t) + \theta_1^{Rc} E_i^{Rc} + \theta_2^{Rc} M_i^{Rc} + \theta_3^{Rc} E_i^{Rc} M_i^{Rc} \\ \quad + \boldsymbol{\beta}^{Rc} \mathbf{X}_{ijt}^{Rc} + u_i^R \end{cases} \quad (2)$$

where $\alpha_{ij}(t)$ is a function of time and consists of a linear and quadratic term capturing the *duration of single status* (using the respondent's age) after union dissolution. The term $E_i^{(r)}$ is an indicator of an individual's SES, represented by their highest educational attainment at the time of interview (*education* = less than high school (reference); high school; some college; two-year degree; four-year degree or higher), and $M_i^{(r)}$ is an individual's maternal status at the start of the singlehood spell (*mother*; childless (reference category)); both indicators are also interacted to test for moderation effect of SES on the relationship between maternal status and repartnering. The vectors $\mathbf{X}_{ijt}^{(r)}$ and $\mathbf{X}_{ijt}^{r(r)}$ denote time-varying and invariant covariates with a vector of coefficients $\boldsymbol{\beta}$. The control variables that differ for r (dissolution and repartnering) are described shortly. Finally, u_i captures individual random effects, which are assumed to follow a normal distribution with zero mean and variance σ^2 . The model assumes that conditional on u_i , the durations of spells for the same individual are independent. The equations are estimated simultaneously with a joint maximum likelihood procedure. As we assume that individuals can experience these transitions multiple times during their lifetime, repeated events are modelled using a two-level hierarchical structure, with events nested within individuals. Following in the vein of Steele et al. (2005), we estimate the model using Monte Carlo Markov chain methods, as implemented in the software MLwiN.

An argument can be made that women's SES should be entered as a time-varying covariate, possibly focusing on current employment status or income level. Unfortunately, such detailed retrospective data were not collected when the women were interviewed. Our use of completed education as a proxy for SES does not differ from the approach

used in numerous other studies on socio-economic inequality in demographic behaviours (e.g. Mooyaart et al. 2022).

We supplement the main analysis with a robustness test encompassing all women who have experienced a partnership dissolution after age 20 (instead of 24) in order to ensure that by omitting partnerships at younger ages, we are not introducing further selection into our results (Figure A1 in the supplementary material). Those women who have presumably not completed their education before age 24—most likely those who reported 'four-year degree'—are assigned 'some college' as their highest attainment up to age 22.

In all equations on the repartnering process, we control for three characteristics of previous unions: *type of previous union* (cohabitation; marriage (reference)); *number of previous unions* (two or more previous unions; one previous union); and *duration of previous union* (<1 year (reference); 1–2 years; 3–5 years; 6–9 years; 10+ years). To examine trends over time in relationship instability, we control for the logarithm of *year of separation* (continuous variable), similar to de Graaf and Kalmijn (2003). Research on the intergenerational association of family structure has implied that individuals' union instability may echo their own childhood family disruptions (Amato 1996; Liefbroer and Elzinga 2012) or economic hardship (Kiernan 1992). Therefore, we use a dummy variable indicating whether parents were still a couple when the respondent was 16 (*experienced parents' separation*; intact family (reference)) and one indicator for *mother's education* (a categorical variable showing mother's highest level, similar to the education variable for the respondent). A four-category, time-invariant variable captures respondents' self-reported *ethnicity* (Hispanic (reference); Non-Hispanic white, single race; Non-Hispanic Black, single race; Non-Hispanic other or Multiple race).

In all the specifications of the dissolution process, we control for the following characteristics of the union: (1) *duration of previous union* with non-linear splines (<1 year (reference); 1–2 years; 3–5 years; 6–9 years; 10+ years); (2) two dichotomous indicators for whether the respondent was already a *mother* prior to this union and the presence of *step-children in the household*; (3) *year in which the partnership was formed*; and (4) *age difference between partners* (with a linear and a quadratic term).

In the auxiliary analyses about the possible role of the Great Recession on repartnering behaviour across the dimensions of maternal status and SES, we use a multi-process model equivalent to that

just described but focusing only on women who experienced a partnership break-up before the onset of the Great Recession (conventionally set at December 2007; National Bureau of Economic Research 2020). Thus, we rule out the economic crisis as a cause of *selection* into/out of the repartnering market. Here, we adopt a multi-process model, as in the previous step, stratified by three levels of education. In this setting, the influence of the crisis is operationalized as a three-category, time-varying operator (*period of repartnering*: before the Recession (reference); during Recession; and after Recession), with the middle category starting from July 2007, in order to take into account any potential anticipatory effect, and ending in June 2009. This term is also interacted with the maternal status indicator, to highlight any differential impact of the crisis on mothers with respect to childless women.

The full model thus, becomes:

$$\begin{cases} Di_{jt} = \alpha^D(t) + \beta^D X'_{ijt} + u_i^D \\ Ri_{jt} = \alpha^R(t) + \delta_1^R M_{ij} + \delta_2^R E_{ij} + \delta_3^R C_{ij} + \delta_4^R C_{it} \\ \quad \times M_i \times E_i + \theta^R I_{ijt}^R + \beta^R X_{ijt} + u_i^R \end{cases} \quad (3)$$

where R_{ijt} represents the risk of a new union (regardless of type); $C_{it} \times M_i \times E_i$ is the three-way interaction between education, maternal status, and the crisis indicator; and I_{ijt}^R is a linear combination of two-way interactions among the aforementioned variables.

Results

We begin by presenting the Kaplan–Meier estimates of transitions to cohabitation and marriage (either direct marriage or marriage via cohabitation), by education and maternal status (Figure 1). The vast majority of marriages depicted in this figure are marriages *after* cohabitation: the probability of direct marriage is extremely low, as both the descriptives in Table 1 and the subsequent analyses demonstrate. Figure 1 shows that the most pronounced differences between women, based on their educational level and motherhood status, are in their transitions to cohabitation; the (subsequent) transition to marriage is less stratified. We interpret this as supporting our argument in the Introduction, that studying the transition to cohabitation is crucial in the examination of women's repartnering, as this is a decisive stage in the overall trajectories. An additional observation here is that when it comes to educational differences in the transition to cohabitation (leftmost panel), the clearest gap is between women with a four-year college

degree, who display the lowest annual transition rates, and the rest of the women who display more similar, and higher, transition rates. When it comes to motherhood status, Figure 1 shows lower annual transition rates to cohabitation for mothers than for women without children.

Motherhood status and educational attainment: Main effects

We start by addressing our first research question about the associations between women's maternal status, SES, and probability of repartnering. In Table 2, Model 1 displays the findings from the main effects model estimating these associations *ceteris paribus*. We restrict ourselves to discussing repartnering via cohabitation (rather than direct marriage), as this is clearly the main path out of singlehood for women after separation. As we can see in Model 1, motherhood is negatively associated with the probability of repartnering via cohabitation. This is in line with our expectations and other works on the impact of children on women's odds of repartnering. What is interesting to note in Table 2, however, is the association between educational attainment and repartnering. We suggested earlier that women's educational attainment could be a resource making them more attractive in the repartnering market. However, we see that there is a negative association between a woman's level of education and her likelihood of entering a new cohabitation. These findings support the alternative hypothesis about a negative association between resources and the progression to repartnering, based on arguments about the reduced need to repartner for high-SES women and possibly a more limited pool of appropriate partners.

Motherhood status and educational attainment: Interaction

Our second research question addresses the interplay between motherhood and SES at the individual level. The estimates from the model with interactions are presented in Model 2, Table 2. We also plot the predicted probabilities of repartnering on a yearly basis for the different groups of women (Figure 2). Three main conclusions can be drawn. First, a significant (and substantial) motherhood gap in repartnering (via cohabitation) can be observed only in the lowest educational attainment category. In other words, we see some evidence that a higher level of

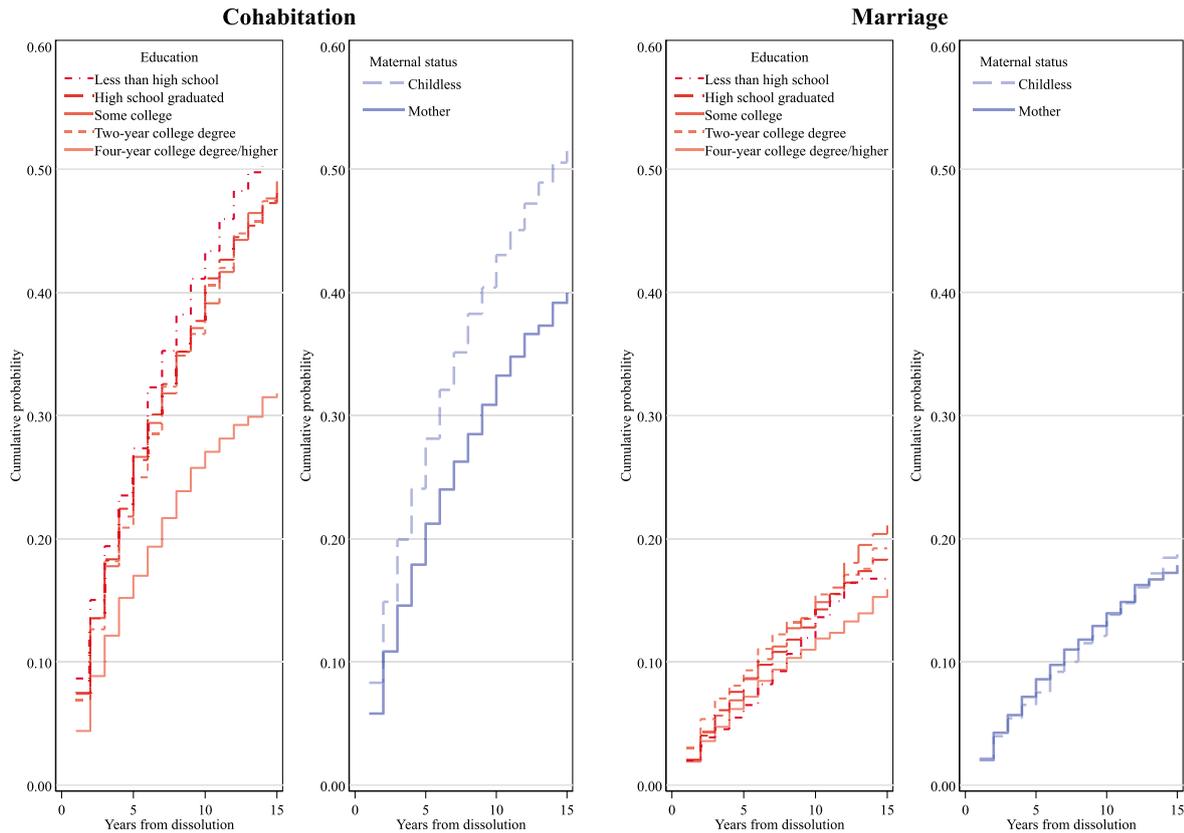


Figure 1 Kaplan–Meier estimates of cumulative probabilities of entering a cohabitation or a marriage (direct or via cohabitation) following the dissolution of a previous union, by maternal status and educational attainment: women aged 24–45 in the US

Note: Respondents’ union dissolutions occurred between January 1996 and December 2019.

Source: Authors’ analysis of NSFG data for 2006–19.

education might ‘compensate’ for the impact of children on women’s repartnering probability. In fact, the motherhood gap in repartnering is either only borderline significant or non-existent for the more highly educated groups of women. Second, although the motherhood gap is insignificant for the more highly educated groups, we actually observe the lowest probability of repartnering (via cohabitation) for the most highly educated mothers. Given that the probability of repartnering is also low among highly educated non-mothers we interpret this finding as more indicative of mothers’ lack of need to enter a new partnership and/or lack of possibility of meeting a desirable partner, rather than unattractiveness to potential partners due to motherhood status. The final key finding here is that differences in women’s repartnering trajectories can be observed only for repartnering via cohabitation and not for direct marriage. In fact, the probability of repartnering via direct marriage is so low that no differences are observed between women, irrespective of their motherhood status or educational level.

Supplementary analyses on repartnering during the Great Recession

In the supplementary analyses, we explore the role of the Great Recession on women’s repartnering behaviours. We do not examine the repartnering behaviours of all women but rather focus on those whose previous union dissolved before the onset of the Great Recession. Given the smaller analytical sample and the three-way interactions explored, the women are grouped into fewer educational categories than in our main analyses. These data-related decisions may make the findings not fully comparable with the main findings. We examine women’s probability of repartnering across three specific periods: before the Recession, during the Great Recession (from July 2007 to June 2009), and during the post-crisis period. The results are displayed in Table A2 and plotted in Figure A2 in the supplementary material.

Two main observations can be made about our findings here. Most importantly, we still observe that mothers are generally less likely to repartner

Table 2 Multi-process model estimating separation and repartnering occurring during the period 1996–2019: main effects and two-way interaction models for women aged 24–45 in the US

	Model 1: Main effects			Model 2: Interactions		
	Risk of cohabitation	Risk of marriage	Risk of separation	Risk of cohabitation	Risk of marriage	Risk of separation
<i>Mother (ref: childless)</i>	–0.413*** (0.05)	0.170** (0.08)	–	–0.209* (0.12)	0.138 (0.14)	–
<i>Education (ref: less than high school)</i>						
High school graduate	–0.191*** (0.07)	0.065 (0.12)	–0.017 (0.03)	–0.275** (0.08)	0.097 (0.15)	–0.018 (0.04)
Some college but no degree	–0.212*** (0.07)	0.089 (0.13)	0.053** (0.03)	–0.317*** (0.09)	0.074 (0.15)	–0.053*** (0.03)
Two-year college degree	–0.277*** (0.09)	–0.026 (0.15)	0.005 (0.03)	–0.390*** (0.10)	0.074 (0.16)	0.005 (0.03)
Four-year college degree/ Graduate or professional school	–0.757*** (0.09)	–0.059 (0.14)	0.015 (0.02)	–0.865*** (0.09)	–0.003 (0.16)	0.016 (0.02)
<i>Interaction between motherhood and education</i>						
High school graduate × Mother	–	–	–	–0.448*** (0.15)	–0.065 (0.205)	–
Some college but no degree × Mother	–	–	–	–0.162** (0.12)	–0.030 (0.174)	–
Two-year college degree × Mother	–	–	–	0.166 (0.15)	0.129 (0.188)	–
Four-year college degree/ Graduate or professional school × Mother	–	–	–	–0.050* (0.17)	–0.006 (0.237)	–
<i>Duration of single status</i>	–0.025** (0.00)	–0.016*** (0.00)	–0.004*** (0.00)	–0.025*** (0.00)	–0.015*** (0.00)	–0.004*** (0.00)
<i>Duration of single status (squared)</i>	0.000*** (0.00)	0.000 (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000* (0.00)	0.000*** (0.00)
<i>Experienced parents’ separation</i>	0.268*** (0.05)	0.117 (0.06)	0.059*** (0.02)	0.244*** (0.04)	0.244** (0.07)	0.059*** (0.02)
<i>Current year (ln)</i>	–3.462* (0.52)	–3.590*** (0.12)	–0.827*** (0.03)	–3.290** (0.78)	–0.928*** (0.12)	–0.829*** (0.03)
<i>Current age</i>	–0.089** (0.04)	–0.028 (0.07)	0.001*** (0.00)	–0.055 (0.04)	–0.075 (0.05)	0.001*** (0.00)
<i>Current age (squared)</i>	0.000 (0.00)	–0.000 (0.00)	0.001*** (0.00)	–0.000 (0.00)	–0.001 (0.00)	0.001*** (0.00)
<i>Mother’s education (ref: Some college, including two-year degree)</i>						
Less than high school	–0.117 (0.07)	0.067 (0.10)	0.057*** (0.02)	–0.013 (0.06)	0.150 (0.09)	0.056*** (0.04)
High school graduate	–0.052 (0.07)	–0.050 (0.09)	0.112** (0.03)	–0.111** (0.06)	–0.064 (0.09)	0.111** (0.03)
Bachelor’s degree or higher	0.044 (0.07)	0.165 (0.11)	0.121*** (0.03)	0.036 (0.06)	0.135 (0.11)	0.117*** (0.03)
No mother figure identified	–0.001 (0.17)	0.255 (0.27)	–0.012 (0.06)	0.024 (0.15)	0.316 (0.23)	–0.016 (0.09)
<i>Ethnicity (ref: Hispanic)</i>						
Non-Hispanic white	–0.327*** (0.07)	0.342*** (0.10)	–0.118*** (0.03)	–0.242*** (0.06)	0.373*** (0.10)	–0.017*** (0.05)
Non-Hispanic Black	0.419*** (0.07)	–0.141 (0.12)	0.068** (0.03)	0.322*** (0.07)	–0.062 (0.11)	0.067** (0.03)
Non-Hispanic other or Multiple race	0.177* (0.09)	0.147 (0.16)	–0.142 (0.04)	0.177** (0.10)	0.252*** (0.13)	–0.141 (0.04)
<i>Ever married</i>	–0.169*** (0.05)	0.85*** (0.09)	–	–0.217*** (0.05)	0.864*** (0.07)	–

(Continued)

Table 2 Continued.

	Model 1: Main effects			Model 2: Interactions		
	Risk of cohabitation	Risk of marriage	Risk of separation	Risk of cohabitation	Risk of marriage	Risk of separation
<i>Duration of previous union (ref: 1–2 years)</i>						
<1 year	–0.040 (0.14)	–0.107 (0.12)	–	–0.031 (0.09)	–0.076 (0.18)	–
3–5 years	0.014 (0.13)	–0.203*** (0.17)	–	–0.040 (0.09)	–0.027 (0.18)	–
6–9 years	–0.004 (0.07)	–0.233 (0.17)	–	–0.035 (0.09)	–0.123 (0.17)	–
10+ years	–0.137 (0.10)	–0.194 (0.17)	–	–0.072 (0.09)	–0.197 (0.18)	–
<i>Children in previous unions</i>	–	–	–0.102*** (0.02)	–	–	–0.102*** (0.03)
<i>Stepchildren in the household</i>	–	–	–0.013 (0.02)	–	–	0.014** (0.02)
<i>Age difference between partners</i>	–	–	–0.017*** (0.00)	–	–	–0.023*** (0.00)
<i>Age difference between partners (squared)</i>	–	–	0.001*** (0.00)	–	–	0.001*** (0.00)
<i>Constant</i>	–15.368** (2.48)	58.562*** (3.82)	–10.83 (1.24)	–10.54*** (2.58)	–11.884*** (4.05)	–0.542 (1.22)
<i>Observations</i>	527,948	527,948	527,948	527,948	527,948	527,948

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Note: Robust standard errors in parentheses. Ref indicates the reference category. The risk of dissolution is from the previous union.

Source: As for Table 1.

than non-mothers, although the gaps are often not as pronounced as in our previous analyses (where we also had more statistical power to detect differences). What is particularly noteworthy, however, is that no significant gaps can be observed between mothers and non-mothers for any groups of women repartnering in the pre-Recession period. Gaps clearly start emerging for the women who were single at the start of the Recession, at which point, non-mothers are more likely to enter a union. This gap is significant and most striking for the lowest educated women. As can be seen in the predicted probabilities plotted in Figure A2, in the moment of economic downturn, the women who might have had the highest (financial) need to find a partner—low-educated, single mothers—were much more likely to remain single than most other groups. At the same time, the economic cycle does not appear to make any difference in the repartnering trajectories of more highly educated women, irrespective of their motherhood status.

Discussion

In this contribution we set out to address the call for more attention to the socio-economic disparities in relationship behaviours (Sassler 2010) by examining

how the repartnering trajectories of women are impacted by the interplay between motherhood and SES, while accounting for possible selection into union dissolution. Three main conclusions can be drawn from our work.

First, our work follows in the footsteps of previous contributions in asserting the existence of a motherhood gap in repartnering, where mothers are less likely to transition to a subsequent union than women without children (Ivanova et al. 2013; Di Nallo 2019). The results from our analyses endorse the arguments that although mothers might have a greater (financial) need to have a second earner as part of their household, their attractiveness to potential partners and opportunities to meet such partners might be negatively impacted by their children. Although our findings certainly support the general consensus in the literature, we acknowledge that we did not have detailed data capturing the precise theoretical mechanisms (e.g. time-varying measures of financial need and/or actual desire to find a new partner; measures of attractiveness of the mating partner). In fact, we would argue that more detailed information on those mechanisms is essential in order to understand some of our subsequent findings properly.

The second key finding is the negative association between our indicator of SES, namely educational

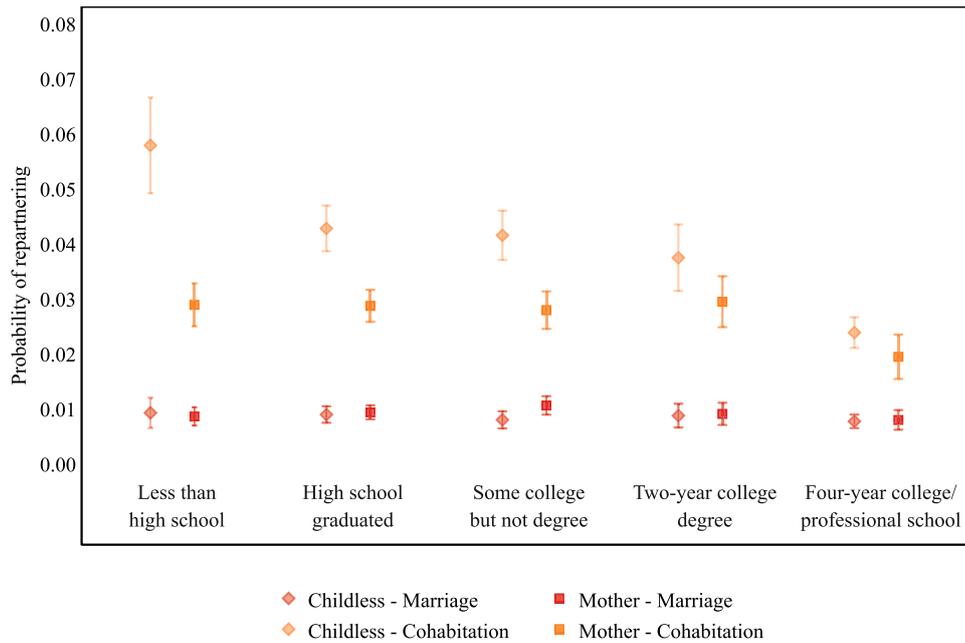


Figure 2 Predicted probabilities of repartnering in cohabitation and direct marriage by maternal status and educational attainment: estimates from multi-process models for women aged 24–45 in the US

Notes: Respondents' union dissolutions occurred between January 1996 and December 2019. Full estimates are presented in Table 2.

Source: As for Figure 1.

attainment, and the probability of entering a new partnership. The precise mechanism behind this association is, of course, difficult to discern, given the lack of detailed time-varying indicators of need, attractiveness, and opportunities. For example, it is possible that our findings about education indicate that women in more precarious positions have a greater need to repartner once their union dissolves, whereas women with more resources might be in a better position to delay entering a new partnership. Alternatively, our findings might be driven by issues related to attractiveness on the repartnering market and the possibility of meeting a desirable new partner. Although partners in higher-order unions are less likely to resemble each other in terms of individual characteristics (Schwartz and Mare 2012; Qian and Lichter 2018), the preference for an educationally homogamous match is still evident in these partnerships (Ivanova and Begall 2015; Theunis et al. 2015). However, given the persistent pattern of men's educational hypogamy (men marrying downwards; Kalmijn 1998; Blossfeld 2009; Van Bavel 2013), more highly educated separated women might, in fact, face a particularly restricted mating market (as they are both potentially searching within a smaller pool of 'matching' partners *and* have the less desirable characteristic of having been

previously partnered; Qian and Lichter 2018). In line with this line of reasoning, previous work has demonstrated that partnerships involving a previously married wife are more likely to be characterized by women's educational hypogamy than partnerships where the wife has not been married before (Qian and Lichter 2018). In other words, we are unable to judge if our findings are driven by a lack of need to partner for the more highly educated women or by their more restricted possibilities for attracting a desirable partner.

Our third key finding concerns the question of the interplay between education and motherhood status. Our main expectation was that higher SES might be able to offset the barriers which children pose to repartnering, thus leading to a smaller motherhood gap in repartnering for more highly educated women. Indeed, we found evidence of a larger gap in the probability of repartnering between mothers and non-mothers within the group of lower-educated women, with barely any difference between highly educated mothers and non-mothers. Still, it is important to point out here that we observed the lowest yearly likelihood of repartnering among highly educated mothers. Although we cannot speak to the precise mechanism behind this finding, it is important to recognize what it might mean for the children of these women. Following the arguments about the

importance of repartnering for women's financial well-being (Dewilde and Uunk 2008; Jansen et al. 2009), our findings would suggest that the children of highly educated separated mothers might be at a disadvantage, as their mothers are less likely to repartner. It is also important to recognize that children of high-SES parents experience larger absolute losses of resources following parental separation than children with lower-educated parents (Bernardi and Radl 2014; Bernardi and Boertien 2016). Our findings can, thus, be seen as aligning with the stream of literature reporting that the repercussions of parental separation for children's outcomes might be larger for those with more highly educated parents than those with lower-educated parents (e.g. Bernardi and Boertien 2016).

Of course, in the discussion so far we have focused exclusively on the potential repercussions of financial losses. Yet, a number of studies have also reported that higher-SES families are better able to compensate (financially and non-financially) for the impact of parental separation (e.g. Grätz 2015). Additionally, we need to recognize that the potential addition of a second earner to the mother's household through repartnering also means that the children experience another family-related change. Some works have suggested that children transitioning to a stepfamily might experience increased stress due to uncertainties about family roles and the ambiguity introduced by the new step-parent figure (Wu and Martinson 1993; Coleman et al. 2000). Prior studies have shown mixed evidence as to how the presence of a non-biological parent affects children's emotional and educational well-being (e.g. Osborne and McLanahan 2007; Jensen et al. 2017; Gaydosh and Harris 2018; Ivanova and Kalmijn 2020). Children living in stepfamilies are exposed to multiple changes in family structure, and disentangling the role of a new family formation from that of a prior parental dissolution remains an important outstanding issue (Osborne and McLanahan 2007; Cavanagh and Fomby 2019; Raley and Sweeney 2020).

In addition to these focal issues, we also examined whether the Great Recession of 2007–09 impacted the interplay between the previously discussed individual characteristics. Our descriptive findings tentatively indicate that the economic cycle appears to be influential only for the partnership behaviours of low-educated women. In fact, we found that the women who might have been in greatest need of a second earner in the household—low-educated single mothers—were most clearly impacted by the economic downturn. The economic cycle made no difference for more highly educated women. We

abstain from over-interpreting this finding, as our effort to account for various sources of selection into union dissolution resulted in relatively small sample sizes for the different groups of women, which might have made detecting differences for other groups challenging.

Next, we need to acknowledge a few limitations of this study. Most importantly, although our work provides a carefully considered analysis of how women's repartnering is impacted by motherhood and educational attainment, we are unable to present concrete evidence of the precise mechanisms at play, as already mentioned. Our work is grounded in the theoretical arguments that repartnering behaviours are contingent on the need to be in a partnership, the attractiveness to potential partners, and the opportunities to repartner (Becker 1981 [1991]; Goldscheider and Waite 1986; Oppenheimer 1988; de Graaf and Kalmijn 2003). However, given that we do not have dynamic indicators of those factors, we cannot speak as to which mechanism is most dominant (e.g. is more highly educated women's lower probability of repartnering driven by their lower need to be in a partnership or lower attractiveness to desired partners?).

Related to this argument, our contribution focuses on only one side of the repartnering market, namely women. In other words, we do not capture the availability of potential new partners, nor the preferences of these partners. Presenting a dynamic impression of both sides of the mating market is certainly beyond the scope of this study. However, such an extension of our work could provide clearer evidence as to which theoretical mechanisms are most clearly at play when socio-economic differentials in mothers' repartnering trajectories are examined.

The lack of time-varying indicators on a number of potentially important individual characteristics (e.g. personal income, labour market participation) is also why we chose to focus on educational attainment as our proxy for SES. Yet, we need to acknowledge two potential shortcomings with this approach. First, education is a time-invariant proxy of SES, which means that we were unable to capture the possible interplay between partnership dissolution/formation and educational patterns, where, for example, some women might return to education after the dissolution of a union. Second, although we interpret the impact of education mostly as indicative of the significance of financial resources and opportunities gained through employment, we cannot exclude the possibility that what we found is, in fact, more closely linked to other correlates of

higher educational attainment. For example, previous studies have shown that more highly educated fathers are more likely to be involved with their children after separation (Westphal et al. 2014), and this in turn might be related to women's repartnering trajectories (McNamee et al. 2014). Given the pattern of assortative mating in first unions in particular (Qian and Lichter 2018), our indicator of mothers' SES might not have captured financial resources per se but rather how the previous partners of these women behaved, for example.

The focus of our main analysis was the transition from singlehood to cohabitation or direct marriage. Hence, we do not address whether cohabitation is an intermediate state that preludes marriage, or not. We know that that cohabitations are relatively more unstable than marriages and might confer fewer benefits to both parents and children (McLanahan 2004). Therefore, future research needs to address this topic to understand whether the transition to marriage after a period of premarital cohabitation is socially stratified (like repartnering via cohabitation) or substantially non-stratified (like the transition to direct marriage). Given the complexity of our models, we chose to focus here on the transition to cohabitation, as direct marriage is a rarely observed event.

Moreover, it is important to point out that our findings are based on interviews with women aged 24–45. Given that more highly educated women tend to postpone the transition to parenthood (Balbo et al. 2013), it is possible that the subsample of younger, highly educated mothers within our sample was more select. Although restricting our sample further, by focusing on women aged 30/35–45 at time of interview, might have addressed that concern, it would also have compromised our ability to investigate the detailed interactions which are the focus of our contribution. We have done our utmost to account for a number of selection mechanisms in our analyses, and this potential point of concern could be addressed with larger data sets which include retrospective information about fertility and partnerships from older participants.

Although our work could be enhanced by the inclusion of more detailed time-varying measures of the main theoretical mechanisms, our findings lead to one clear take-home message. We expected that lower educational attainment would strengthen the barrier which children pose to mothers' repartnering. Instead, we found that more highly educated women in general and highly educated mothers in particular were the least likely to repartner. What remains as an interesting next avenue of inquiry is to consider

what the long-term outcomes of these discrepancies are. In other words, given that higher-order unions tend to be less stable than first partnerships (and especially so if we consider lower-educated cohabiting mothers; Musick and Michelmore 2018), are women (and mothers specifically) better off if they remain single than if they experience continued pattern of partnership instability?

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Disclosure statement

No potential conflict of interest was reported by the authors.

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