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Divorce and the growth of poverty gaps over the life course: A risk and vulnerability approach

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Abstract

Previous research has suggested that divorce drives cumulative inequality between education groups over the life course. We set forth an approach that distinguishes two pathways in this process, the educational gradient in the risk of divorce and the educational gradient in economic vulnerability to divorce. Based on this approach, we studied the role of risk and vulnerability gradients in the growth of poverty gaps between education groups throughout the early and middle stages of the adult life course. Using longitudinal administrative data from the Netherlands, we followed all individuals aged 18 to 35 who entered their first marital union between 2003 and 2005 over a period of 10 years. We found that lower educated individuals were not only at higher risk of divorce, but also more vulnerable to divorce in terms of its consequences for poverty. A decomposition analysis showed that both pathways contributed substantially to the life-course growth of poverty gaps between lower and higher education groups. Results differed between men and women, and between individuals with and without children. Among childless men, childless women, and mothers, divorce widened poverty gaps due mainly to greater economic vulnerability of the lower educated. Among mothers, divorce widened gaps further due to the higher risk of the lower educated. Among lower educated fathers, divorce was not related to poverty. These findings show that divorce is a major driver of cumulative inequality over the life course. They also demonstrate the fruitfulness of a risk and vulnerability approach to life-course inequalities.

Keywords Administrative data; Divorce; Decomposition; Inequality; Poverty

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1   Introduction

Divorce rates in Europe and the United States have increased markedly over the past half century (Amato and James 2010). More recently, divorce rates have stabilized at a high level due to marriage postponement and the rise of cohabitation (Kennedy and Ruggles 2014). These trends are often considered in the context of the second demographic transition (Lesthaeghe and Van de Kaa 1986; Van de Kaa 1987).

Several authors have linked the second demographic transition, and particularly the rise in divorce rates, to increased economic inequality (Haskins 2015; Lundberg et al. 2016; McLanahan 2004). Implicit in this work is the idea that higher educated individuals are concentrated in an advantageous life-course trajectory of postponed family formation and marital stability. Lower educated individuals are concentrated in an adverse trajectory of postponed family formation and divorce. As a consequence, higher educated individuals are believed to accrue the continuous economic benefits of a stable marriage, whereas lower educated individuals are believed to incur prolonged economic losses from the adversities following divorce.

These arguments suggest that divorce acts drives cumulative inequality between education groups (Dannefer 1987; Ferraro and Shippee 2009). Lower educated individuals enter adulthood in disadvantaged economic positions and fall further behind due to the stratified experience of divorce. Two pathways play a role in this process. The first pathway is the educational gradient in the *risk* of divorce, as lower educated individuals are more likely to experience a divorce (Härkönen and Dronkers 2006; Martin 2006). The second pathway is the educational gradient in *vulnerability* to divorce, as lower educated individuals are more likely to fall into poverty following a given divorce (Smock 1994; Vandecasteele 2010).

A notable gap in the literature is that the degree to which divorce drives the growth of poverty gaps has only been partially assessed. A major reason for this gap is that previous studies have focused either on stratified risk or on stratified vulnerability, but not on both pathways. A focus limited to risk ignores the possibility of unequal consequences of divorce for poverty; conversely, a focus limited to vulnerability ignores the possibility of an unequal risk of divorcing in the first place.

The present study is the first to assess both pathways, resulting in a fuller picture of how divorce contributes to growing poverty gaps between education groups. To accomplish this, we introduce an approach that accounts for both for the gradient in divorce risk and the gradient in divorce vulnerability. This enabled us to examine the extent to which educational differences in both pathways contributed to the growth of poverty gaps between education groups throughout the early and middle stages of the adult life course. We applied

the approach to longitudinal administrative data from the Netherlands. The main benefit of these administrative data compared to survey data is the absence of (selective) attrition, addressing a problem faced by most studies on the poverty consequences of divorce. Moreover, the large case numbers and long observation window enabled us to shed light on important subgroups. We investigated the role of divorce in growing poverty gaps not only for the total population, but also separately for mothers, fathers, childless women, and childless men.

Our study has implications for policy and for stratification research in general. If poverty gaps grow because of an educational gradient in risk, this could warrant policies that address educationally stratified incentives and disincentives to divorce. If poverty gaps grow because of an educational gradient in vulnerability, this could warrant policies that cushion the lower educated against the income loss associated with divorce. Furthermore, the distinction between risk and vulnerability easily extends to other research on the role of critical life events in social inequalities.

2 Theoretical background

2.1 Divorce and poverty gaps

Divorce implies changes of great economic significance. Perhaps the most important change is the loss of partner income, as most married couples partially pool their incomes (Heimdal and Houseknecht 2003). Access to pooled income is barred upon divorce. Another change concerns the loss of economies of scale. These amount to almost one third of the total expenditures compared to singles (Browning et al. 2013). When children are involved, divorce poses an additional challenge. Their cost of living is borne by the resident parent alone, and is often not sufficiently compensated for by child support payments.

A vast literature has demonstrated the economic consequences of divorce for men and women with and without children (e.g. Hoffman and Duncan 1988; Holden and Smock 1991; Jarvis and Jenkins 1999; Kalmijn 2005; Poortman 2000). Men tend to experience little changes in their economic situation. They might be more likely to receive unemployment or disability benefits following divorce, but these effects are short-lived. Spousal alimony and child support typically consume only a small part of their incomes. Women, in contrast, rely heavily on partner income. When children are involved, they also become the resident parents in the large majority of cases. Hence, women experience sizable drops in household income, per capita income, and income-to-needs ratios. As a consequence, many women and especially mothers fall into poverty following divorce.

Falling into poverty poses a serious threat to the well-being of families. Poverty during adulthood has been associated with heavy drinking, increases in blood pressure and

3

cholesterol, and higher mortality (Crimmins et al. 2009; Mossakowski 2008). Poverty during childhood has been associated with adolescent obesity, school grade repetition, and lower adult income (Duncan et al. 2010; Lee et al. 2014). These relationships are mostly nonlinear, indicating that falling into poverty is more detrimental than losses higher up the income distribution.

The connection between divorce and poverty is not uniform across education groups, but is stratified along two pathways. The first pathway is the risk gradient, whereby lower educated individuals are more likely to divorce. The second pathway is the vulnerability gradient, whereby lower educated individuals are more likely to fall into poverty when a divorce occurs. In the following sections, we discuss these pathways and how they jointly contribute to the growth of poverty gaps over the life course.

2.2   Educational gradient in risk

Goode (1962; 1963) has provided an explanation as to why the risk of divorce differs between socioeconomic strata. His core premise is that marriages in lower strata experience more internal strain. Such strain could stem from economic hardship, problems in the social network, or greater substance abuse, among other things (Trail and Karney 2012). Whether the strain of lower strata results in divorce depends on the social, economic, and legal barriers to divorce. As long as these barriers are high, divorce is easier for the higher strata, who are resourceful enough to work around the barriers. Over the past decades, however, societal changes such as increased acceptance of divorce, increased female labor force participation and unilateral divorce legislation have lowered the barriers to divorce. According to Goode, this would allow the higher marital strain of lower strata to express itself in the form of higher divorce rates. The result would be a negative gradient in divorce risk, whereby lower strata are more likely to divorce.

Empirical findings support Goode's prediction. Social barriers to divorce appear to be an important explanation of variation in the educational divorce gradient across countries and periods (Härkönen and Dronkers 2006; Matysiak et al. 2014). In those countries and periods in which divorce, extra-marital childbearing, cohabitation and female labor market participation are more common, the educational gradient in divorce risk is more negative.

Studies have also shown that, currently, most countries exhibit a negative gradient in divorce risk. Lower educated individuals are at a higher risk of divorce in Germany (Cooke 2006), Finland (Jalovaara 2003), Japan (Raymo et al. 2004), the Netherlands (De Graaf and Kalmijn 2006), South Korea (Park and Raymo 2013), the United Kingdom (Berrington and Diamond 1999) and the United States (Martin 2006), among other countries. In most countries the negative gradient is substantial. Of all US women married between 1990 and

1994, 14% of those with a master's degree divorced within 10 years, compared to 38% of those who completed high school, and 46% of those without a high school diploma.

Note that none of these studies distinguished between parents and childless couples, so it remains unclear whether the risk gradient varies by the presence of children. Knowing the extent to which the divorce risk is similar across couples with and without children is particularly important when studying the poverty consequences of divorce, as growing up in poverty entails long-term consequences for both adults and their children.

2.3 Educational gradient in vulnerability

A negative educational gradient is also expected for vulnerability to divorce, in terms of falling into poverty. First, lower educated individuals are overrepresented in the lower tail of the income distribution, and so the loss of partner income disproportionately increases their probability of crossing the poverty line. Second, among lower educated individuals, the prospects of economic recovery from divorce are poorer. Two main recovery strategies are available: repartnering and (re)employment. Repartnering has been shown to be less common among the lower educated than among the higher educated (Wu and Schimmele 2005), leaving them on a single income for a longer time. Employment is also a less viable strategy for the lower educated, since their lower earning capacity yields them fewer benefits from increasing their labor market participation.

In contrast to the risk gradient, empirical evidence on the vulnerability gradient is scarce. Table 1 presents an overview of all longitudinal studies that included educational attainment as a moderator in the relationship between divorce and economic well-being. Note that all of the studies listed in Table 1 included the vulnerability gradient as a control variable rather than the research problem of interest. Some studies found that the economic consequences of divorce are more severe for the lower educated (Brewer and Nandi 2014; Mauldin 1991; McKeever and Wolfinger 2001; Poortman 2000; Smock 1994; Vandecasteele 2010). Others found no educational differences (Uunk 2004) or found that consequences are more severe for the higher educated (Bernardi and Boertien 2016; Jansen et al. 2009; Smock et al. 1999; Tach and Eads 2015; Vandecasteele 2011). A possible reason for these inconsistencies is the use of different outcomes, as vulnerability in terms of losing household income is different from vulnerability in terms of falling below the poverty line. Other possible reasons are selective panel attrition or variation in the observation window.

(Table 1 about here)

The roles of gender and parenthood in the vulnerability gradient have not been explored to date, but it is likely that both distinctions are important. Regarding gender, lower educated women more often specialize in unpaid housework than higher educated women (Craig

and Mullan 2011). The resulting depreciation of their human capital renders them particularly vulnerable to divorce, suggesting that the negative educational gradient in divorce vulnerability is stronger among women than men. Regarding parenthood, child custody represents a barrier to employment and implies that the post-divorce household income is shared with more household members. The process of custody assignment is also gendered. Child custody is typically granted to women, even more so in families with lower incomes (Cancian et al. 2014). This suggest that the gradient in vulnerability is most negative among mothers, less negative among childless men and women, and least negative among fathers. Empirical evidence on these subgroups is scarce. One study has found a stronger negative gradient among men (Poortman 2000), yet another study found no gender differences (Jansen et al. 2009). A study accounting for parenthood found that mothers were always economically vulnerable to divorce, irrespective of education, whereas fathers and childless men and childless women were vulnerable only if they were lower educated (Brewer and Nandi 2014).

2.4 Present study

Understanding how divorce affects the growth of poverty gaps between education groups requires attention to both the risk gradient and the vulnerability gradient. Limiting the study to the risk gradient would assume that divorce consequences are equal across education groups, ignoring differential vulnerability. Limiting the study to the vulnerability gradient would condition the sample on divorcees, ignoring the differential risk of divorcing in the first place. Our study examines both pathways simultaneously.

The distinction between risk and vulnerability speaks to both policy debates and theoretical debates. Policies surrounding divorce are, implicitly or explicitly, oriented toward risk or vulnerability. Income taxation is an example of a risk-oriented policy. Taxation rules regarding joint tax liability provide incentives or disincentives for remaining married, and these incentives differ by income level (Dickert-Conlin 1999). Spousal alimony is an example of a vulnerability-oriented policy. Alimony may cushion against the income consequences of divorce, and this cushioning differs by income level (Oldham 2008). Consequently, if poverty gaps grow because of an educational gradient in risk, this could warrant policies that address stratified incentives and disincentives to divorce. If poverty gaps grow because of an educational gradient in vulnerability, this could warrant policies cushioning the stratified poverty consequences of divorce.

Theoretically, this study is grounded in the cumulative inequality literature (Dannefer 1987; Ferraro and Shippee 2009). The central tenet of this literature is that individuals in advantaged positions follow a beneficial life-course trajectory, whereas individuals in disadvantaged positions follow an adverse life-course trajectory. Compared to the beneficial

6

trajectory, the adverse trajectory consists in higher exposure to unfavorable experiences (risk) and lower ability to cope with them (vulnerability). As a result, the relative position of disadvantaged individuals declines further over the life course, leading to an increase in social inequality over the life course. Translated to the present study, we expected, first, that lower educated individuals have higher poverty rates upon entry into marriage. Second, we expected this initial poverty gap to grow over the life course. Third, we expected that this growth was partly explained by the educational gradients in divorce risk and divorce vulnerability. This means that we expected divorce to act as a driver of cumulative inequality over the early and middle stages of the adult life course.

Note that we defined inequalities along educational lines rather than other stratifiers. The main reason is that educational attainment is a stable indicator of social status. Other indicators such as employment status, income, or occupational prestige, are more likely to change during the early and middle stages of the adult life course. Moreover, some of those changes would be endogenous to divorce, making it difficult to compare these indicators over time.

3 The Dutch context

As we used administrative data from the Netherlands, it is important to describe the aspects of divorce in this country context. All divorces in the Netherlands are considered no-fault. Spousal alimony and child support are arranged with or without intervention of a judge. When there are children, legal custody is by default exercised jointly, although in practice the majority of children reside with their mother (De Graaf 2005). In 2009, approximately 1% of male divorcees and 17% of female divorcees received spousal alimony of on average 1,035 EUR per month (Statistics Netherlands 2018a). Approximately 25% of all divorces included a judicial decision on child support of 395 EUR per month on average (Statistics Netherlands 2018b). These figures are fairly comparable to the United States, where in 2009 approximately 0.2% of male divorcees and 3% of female divorcees received spousal alimony of 1,010 USD per month on average. Around 36% of US divorcees paid or received child support of 465 USD per month on average (US Census Bureau 2018).

The Netherlands represents a strong one-and-a-half breadwinner model. On the one hand, employment rates are high compared to the United States and most European countries. Employment rates were 75% for single men, 64% for single women, 87% for partnered men, and 71% for partnered women in 2009. On the other hand, only 25% of women worked full-time, compared to 77% of men. These differences are larger among individuals with a partner or with children (Statistics Netherlands 2018c).

Educational attainment is an important predictor of employment. The 2009 employment

rates were 88% for higher, 81% for intermediately, and 62% for lower educated individuals (EuroStat 2018). Poverty rates are relatively low in the Netherlands. In 2009, the poverty rate defined as a disposable income below 60% of the national median amounted to 10.3%. This was far lower than the in United States (20.7%) and somewhat lower than in Germany (15.8%) and in the United Kingdom (14.8%). Dutch poverty rates differ greatly by education level. The 2009 poverty rates were 7.1% among higher, 11.3% among intermediate, and 12.2% among lower education groups (EuroStat 2018).

Like in most industrialized countries, the Netherlands has witnessed an increase in the risk of divorce among later cohorts. This increase was almost entirely driven by the lower educated. As a result, the positive educational gradient in divorce risk that was observed for the 1942-1964 Dutch marital cohorts has reversed into a negative educational gradient for later cohorts (De Graaf and Kalmijn 2006). Marriage and divorce rates are now similar to those in other European countries (OECD 2018). The 2009 crude marriage and divorce rates in the Netherlands were 4.4 and 1.9 respectively, comparable to Germany (4.6 and 2.3) and the United Kingdom (4.3 and 2.0). They deviated more from the United States, where both marriage and divorce rates were high (6.8 and 3.5). Approximately 60% of Dutch divorces involve at least one child, similar to other European countries (UNSD 2009).[1]

Regarding economic vulnerability to divorce, the Dutch welfare state is relatively generous, albeit with corporatist features (Arts and Gelissen 2002). Family care activities help to accumulate unemployment benefits and exempt individuals from the work availability condition. No distinction is made between full-time and part-time employment. Statutory child allowances are moderate, and paid parental leave high in amount but very short in duration compared with other European countries (Saraceno and Keck 2010). Both are more extensive than in the United States. Besides social insurance, social assistance provides a safety net at the lower tail of the income distribution. Social assistance is a means-tested scheme that covers all residents in the Netherlands. It tops up income to 70% of full-time minimum wage earnings. Nonetheless, social assistance payments lie below the poverty line.

4 Data and method

4.1 Data

We used individual-level administrative data from Statistics Netherlands, spanning the years 2003 to 2015. These data comprise information about all individuals with a Dutch social security number, which is granted to every citizen at birth and to everyone else with legal

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[1]There are no official statistics of the United States regarding the percentage of divorces that involve children.

residence in the Netherlands. Each individual has one unique social security number, which government agencies use to register individual data.[2] Data for this study came from the municipal resident registers, registers for secondary and tertiary education, public employment service, social insurance bank, and revenue service.

Our study population consisted of all individuals who entered their first marital union between the ages of 18 and 35. The lower age bound represents the minimum age of marriage in the Netherlands. The upper bound represents the age at which most first marital unions in the Netherlands have formed and in which labor market careers and families are typically established (Mulder et al. 2006). We excluded individuals enrolled in full-time education after entering marriage. Students are different in terms of nuptial and fertility behavior due to role incompatibility (Ní Bhrolcháin and Beaujouan 2012), and poverty among students is a temporary phenomenon that is not indicative of long-term economic well-being. We focused on marital unions only, as cohabitation could not be reliably identified in the data. From our population, we selected the marriage cohorts of 2003, 2004, and 2005. These cohorts could be followed for at least 10 years. This yielded a study population of 177,083 individuals.

We defined four subgroups within this population: childless men, childless women, fathers, and mothers. These four subgroups were analytically defined as follows. When we speak of childless men or women, we refer to individuals who did not have children before divorce or within 10 years of their first marriage. When we speak of father or mothers, we refer to individuals who had at least one child before divorce or within 10 years of marriage, including children already born before marriage (12.9% of the study population). The distribution over these four subgroups was 9,263 childless men (5.2%), 10,701 childless women (6.0%), 73,927 fathers (41.7%), and 83,192 mothers (47.0%). Note that the individual classification depended on the presence of children during marriage, even if they were allocated to the other partner after divorce. These analytic criteria ensured that the composition of the subgroups was stable over time.

4.2 Measures

Marital status was measured as being in a marriage or not. *Divorce* was measured using binary indicators for the year before, the year of and the year after divorce, as well as linear time since divorce (see section 4.3). *Educational attainment* was measured as the highest level of completed education observed in the observation window of a person. The categories were lower secondary education or less (ISCED 0-2; Dutch: *basis, voortgezet, mbo-1*), upper or post-secondary education (ISCED 3-4; *mbo-2, 3, 4, havo, vwo*), and tertiary edu-

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[2]Under certain conditions, these microdata are accessible for statistical and scientific research. For further information: cvb@cbs.nl.

cation (ISCED 5-8; *hbo, wo, doctor*). The lowest category comprised individuals who either dropped out of education or did not continue beyond compulsory education. The intermediate category comprised those who completed upper secondary education or vocational post-secondary education, but did not enter college. The highest category comprised those who obtained a professional or academic college degree.

Annual disposable household income was measured as the sum of earnings, business income, property income and spousal alimony after taxes and social security transfers. In one percent of cases this income was negative, because of negative business income or overdue tax payments. It was top-coded and bottom-coded at respectively plus and minus one million euros. Household income was equivalized using the square root scale, which is widely used in income research and is easy to implement (e.g. Atkinson et al. 1995; Gottschalk and Smeeding 1997; Solt 2016). That is, each person in the household got assigned the total household income divided by the square root of the number of household members. Our key outcome of interest, *poverty*, was a binary indicator of having an equivalized income below 60% of the year-specific median of the entire Dutch population. This measure of relative poverty is widely used and consistent with the European Commission's definition of poverty. *Gender* was coded as male or female. The measure of *children* gives the maximum number of biological, adopted or stepchildren present in the household in a given year regardless of age.

The definition of time was chosen in accordance with our analytic purposes. Life-course research typically defines time as age. However, our goal was to measure growing poverty gaps in the population at risk of experiencing a divorce. The onset of divorce risk differs across individuals as they marry at different ages. To measure time consistently across individuals, we therefore defined *time* as time since entry into marriage. Time intervals were specified in years because income taxes were filed annually.

4.3   Analytic strategy

We estimated the educational gradients in divorce risk and divorce vulnerability using life tables and regression analysis. Life tables showed the hazard of divorce at each time t, and were estimated separately for each education level. Educational differences in the hazard rates expressed the gradient in divorce risk. Next, linear probability regression analyses showed changes in poverty following divorce. To obtain the coefficients for the subsequent decomposition analyses, we tested extensively whether vulnerability followed a functional form and modeled the vulnerability process as

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \boldsymbol{\gamma} \boldsymbol{T}_{it} + \epsilon_{it} \tag{1}$$

where Y_{it} is a binary poverty indicator of individual i at time t, α the intercept, X_{1it}, X_{2it}, and X_{3it} indicators of the year before, the year of, and the years after divorce, X_{4it} time since divorce, $\boldsymbol{T}$ time since marriage dummies, and ϵ_{it} a normally distributed error term with mean zero. This means that divorce-related poverty was modeled to start one year before the divorce, allowing us to capture the consequences of separations that preceded legal divorce. The remaining indicators allowed for a sudden poverty change in the year of divorce and a linear trend in the years after divorce. These regressions were also estimated separately for each education level. Educational differences in $\boldsymbol{\beta}$ expressed the gradient in divorce vulnerability.

After estimating risk and vulnerability, we conducted a decomposition analysis to examine how these two pathways contributed to the overall poverty gap between education groups. Decomposition analysis has been applied to many phenomena, including regional differences in job mobility (Kitagawa 1955), gender and racial wage gaps (Blinder 1973; Oaxaca 1973), and socioeconomic inequalities in educational attainment (Bernardi and Boertien 2017). It estimates the extent to which outcome differences between groups can be attributed to differences in their characteristics (here: unequal risk) and to differences in the associations between characteristics and the outcome (here: unequal vulnerability). In the current study, we applied the Blinder-Oaxaca decomposition to examine how the overall poverty gap between the lower and higher education groups was driven by unequal distributions in their risk of divorce and in their vulnerability to divorce. The overall poverty gap was defined as

$$
\begin{aligned}
\mathrm{R} &= \bar{Y}_L - \bar{Y}_H \\
&= (\alpha_L + \boldsymbol{\beta}_L \bar{\boldsymbol{X}}_L + \boldsymbol{\gamma}_L \bar{\boldsymbol{T}}_L) - (\alpha_H + \boldsymbol{\beta}_H \bar{\boldsymbol{X}}_H + \boldsymbol{\gamma}_H \bar{\boldsymbol{T}}_H)
\end{aligned}
\tag{2}
$$

where the subscript L denotes the lower educated and H the higher educated, $\boldsymbol{\beta}$ the divorce vulnerability coefficients obtained from the regression analyses, and $\bar{\boldsymbol{X}}$ the divorce risk variables with scores obtained from the life tables. Educational differences in $\bar{\boldsymbol{T}}$ were due merely to different observation periods and therefore set to zero. Rearranging this equation, the overall poverty gap could be expressed as

$$
\begin{aligned}
\mathrm{R} &= (\alpha_L - \alpha_H) + (\boldsymbol{\gamma}_L - \boldsymbol{\gamma}_H)\bar{\boldsymbol{T}} \\
&\quad + \boldsymbol{\beta}_H(\bar{\boldsymbol{X}}_L - \bar{\boldsymbol{X}}_H) + (\boldsymbol{\beta}_L - \boldsymbol{\beta}_H)\bar{\boldsymbol{X}}_H + (\boldsymbol{\beta}_L - \boldsymbol{\beta}_H)(\bar{\boldsymbol{X}}_L - \bar{\boldsymbol{X}}_H)
\end{aligned}
\tag{3}
$$

where the first row represents the part of the poverty gap that is unrelated to divorce, and the second row represents the part of the poverty gap that is related to divorce. The latter can be decomposed into a divorce risk (or "endowment") gap, a divorce vulnerability (or "coefficient") gap, and an interaction term. The interaction term is difficult to interpret and

11

not of substantive interest in the current study (Jann 2008).

In addition to their contribution to the overall poverty gap, we examined how the contributions of unequal risk and vulnerability unfolded over the life course. To accomplish this, we decomposed the poverty gap at each time point since entry into marriage. In other words, we applied multiple cross-sectional Blinder-Oaxaca decompositions to longitudinal data. This allowed us to assess changes over time in the poverty gap as well as in the contributions of the risk and vulnerability gradients. We thus obtained a detailed picture of how the stratified experience of divorce shaped poverty trajectories over the life course.

Following the decompositions, we simulated three sets of counterfactual poverty trajectories for the lower educated. The first set predicted their poverty if they had had the same divorce risk as the higher educated. The second set predicted their poverty if they had had the same vulnerability to divorce as the higher educated. The last set predicted their poverty if they had had both the same risk of and the same vulnerability to divorce as the higher educated. These counterfactual poverty trajectories illustrate the main findings from the decomposition.

Our analyses did not include control variables, in line with our aim of providing population-level evidence on the associations between education, divorce and poverty "as is". To illustrate, consider the possibility that lower educated individuals marry younger and that younger age at marriage is associated with higher divorce risk. Controlling for age at marriage would cancel out this substantive difference, rendering the remaining "net" risk gradient meaningless when it comes to actual differences between education groups that underlie the gradient. In other words, we were not interested in a scenario in which different education groups were equal on all characteristics relevant to divorce, but rather in the actual, uncontrolled risk gradient resulting from differences in these characteristics. Controlling would also change the vulnerability gradient in undesirable ways. Although the relationship between divorce and poverty might be confounded by characteristics associated with educational attainment, these differences were precisely the reason for expecting a vulnerability gradient. Control variables would be appropriate only if we were interested in the mechanisms underlying educational differences in risk and vulnerability. Such underlying mechanisms were outside the scope of this study.

5 Results

5.1 Descriptive results

5.1.1 Poverty gaps

Table 2 presents descriptive statistics at entry into marriage. Educational differences were most pronounced with respect to employment, children and poverty. Lower educated individuals, and especially lower educated women, less often worked in paid employment. Lower educated individuals also had more children upon entering their first marriage. Finally, lower educated individuals had higher poverty rates. Whereas only 2% of the higher educated lived in poverty when they entered marriage, this percentage was 5% for the intermediately educated, and around 13% for the lower educated. This means that the lower educated started their marriages with poverty rates six times as high as those of the higher educated.

(Table 2 about here)

Poverty gaps between education groups grew over time. This is shown in the upper panel of Fig. 1. The lower educated were more likely to live in poverty from the outset, and their probability of living in poverty increased at a steeper rate than that of the higher educated. The higher education group had a poverty rate of 2% in the year of marriage, which increased to 3% ten years later. The corresponding increases were from 5% to 10% among the intermediate education group, and from 13% to 22% among the lower education group. As a consequence, absolute poverty gaps between education groups grew substantially over the years since marriage.

(Fig. 1 about here)

However, this general pattern masks important differences between subgroups, as shown in the middle and lower panels of Fig. 1. Lower educated parents started their marriages with higher poverty rates than lower educated childless individuals. Moreover, parents followed relatively unfavorable poverty trajectories. This is best visible among lower educated mothers. Their poverty rate almost doubled from 15% in the year of marriage to 26% ten years later, a worse trajectory than lower educated individuals in other subgroups and a much worse trajectory than higher educated individuals in all subgroups.

5.1.2 Educational gradient in risk

The first pathway contributing to the growth of poverty gaps is the negative educational gradient in the risk of divorce. Lower educated individuals may have experienced a relatively

13

steeper increase in poverty risk because they divorced more often than higher educated individuals. The three left panels of Fig. 2 show a clear educational gradient.

(Fig. 2 about here)

Three findings stand out from Fig. 2. First, the lower educated were more likely to divorce than the higher educated. Second, parents divorced less often than childless couples. Third, the educational gradient in divorce was stronger among parents than among childless couples. After 10 years, 48% of the childless higher educated individuals were divorced, compared to 54% of the childless intermediately educated individuals and 56% of the childless lower educated individuals. For parents, these percentages were 9%, 17% and 25%, respectively.

The timing of divorce also differed across subgroups. Childless couples divorced sooner and their survival rates in marriage stabilized after a few years. Parents divorced later. This becomes clearer from the right-hand panels of Fig. 2, which depict the risk of divorce conditional on survival up to that year. Among childless couples, the divorce risk increased rapidly in the first years after marriage and decreased in later years. Among parents, the divorce risk increased slowly over time. In both cases, the process exhibited a clear educational gradient across the entire time window under study. At any marital duration, the divorce risk of lower educated childless individuals was about 50% higher than the divorce risk of higher educated childless individuals. Lower educated parents were even three times as likely to divorce as higher educated parents, and this difference did not diminish over time.

5.1.3   Educational gradient in vulnerability

The other pathway that we expected to contribute to the growth of poverty gaps is a negative educational gradient in vulnerability to divorce. The data are largely in line with this expectation. Fig. 3 shows that, overall and in most subgroups, lower educated individuals were more likely to fall into poverty when a divorce occurred.

(Fig. 3 about here)

Childless men and women in all education groups had low poverty rates before they divorced. Upon divorce, poverty increased mainly among the lower educated. For example, the poverty rate of higher educated childless women increased from 3% two years before divorce to 7% in the year of legal divorce. For their intermediately educated counterparts the increase was from 4% to 12%, and for the lower educated from 8% to 18%. For parents, gender differences were large. Fathers experienced little change in poverty upon divorce, whereas

14

mothers experienced sharp increases, especially lower educated mothers. The poverty rate of higher educated mothers increased from 6% two years before divorce to 23% in the year of legal divorce. For their intermediately educated counterparts the increase was from 15% to 49%, and for the lower educated from 28% to 58%. This shows that more than half of all recently divorced lower educated mothers lived in poverty.

The gradient in vulnerability to divorce extended through the post-divorce period. Poverty gaps that opened up at divorce largely persisted during subsequent years. A linear approximation of the post-divorce period, as described by Eq. 1 in the methods section, suggests that it would take the higher educated five years, the intermediately educated six years, and the lower educated seven years to fully recovery from divorce. These educational differences in recovery applied more to childless men and women than to mothers. Whereas poverty gaps persisted among childless men and women, they compressed faster among mothers.

5.2   Formal decompositions

In the next step of our analysis, we conducted several decompositions to examine the extent to which the educational gradients in divorce risk and divorce vulnerability contributed to poverty gaps and their growth over the life course.[3] We started by decomposing the overall poverty gap between lower and higher education groups averaged over the entire observation period. The lower education group formed the reference category. Table 3 presents the results of this decomposition.

(Table 3 about here)

5.2.1   Cross-sectional results for the overall population

The left column of Table 3 shows the decomposition results for all subgroups combined. The poverty rate in this overall study population was 2.5% among the higher education group and 18.6% among the lower education group, amounting to an overall poverty gap of 16.0 percentage points (pp). Educational gradients in divorce risk and vulnerability contributed to this poverty gap in the overall study population, albeit not to a large extent. If the lower educated had had the same risk of divorce as the higher educated, their poverty rate would have dropped by 1 pp. If they had had the same vulnerability to divorce as the higher educated, their poverty rate would also have dropped by 1 pp. If they had had both the same risk and vulnerability as the higher educated, their poverty rate would have dropped

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[3]Vulnerability to divorce was modeled using a parameterized specification of time since divorce, as set out in Eq. 1 in the methods section. This specification closely approximated the vulnerability process (see Appendix Fig. 5).

by 1.4 pp. In other words, the stratified experience of divorce explained 1.4 pp (or 8.7%) of the overall poverty gap between the lower and higher education groups averaged over the entire observation period. The results for the overall population, however, mask important differences between subgroups.

5.2.2 Cross-sectional results for childless individuals

A different picture emerges when we zoom in on the subgroups. Among childless men, the poverty gap between the lower and higher education groups was 7.6 pp. Divorce contributed to this gap largely through the gradient in vulnerability. If lower educated childless men had been as invulnerable to divorce as higher educated childless men, the poverty gap would have been 2 pp smaller. If they had had the same risk of divorce as higher educated childless men, the poverty gap would diminish by 0.5 pp. This implies that the stratified experience of divorce, and in particular the vulnerability pathway, accounted for more than a quarter of the poverty gap among childless men.

The role of the gradient in vulnerability to divorce was even more important in the second subgroup considered, childless women. Their poverty gap of 7.4 pp would decrease by 3.6 pp if lower educated childless women had been as invulnerable to divorce as higher educated childless women. Similar to childless men, the gradient in risk of divorce hardly played a role in this subgroup. The stratified experience of divorce accounted for almost half of the poverty gap among childless women.

5.2.3 Cross-sectional results for parents

The results differ for parents. Among fathers, divorce hardly contributed to poverty gaps. If anything, lower educated fathers benefited economically from divorce as compared to higher educated fathers. Among mothers, however, divorce contributed substantially to poverty gaps between education groups. Both the risk and the vulnerability pathway played an important role. The poverty gap of 19 pp between higher and lower educated mothers would have decreased by 2.9 pp if lower educated mothers had had the same divorce risk as higher educated mothers. The poverty gap would have decreased by 2.5 pp if lower educated mothers had had the same vulnerability to divorce as higher educated mothers. The joint contribution of both pathways to the poverty gap was 3.6 pp, implying that the stratified experience of divorce accounted for almost one fifth of the poverty gap among mothers.

5.2.4 Longitudinal results

As a final step, we decomposed the poverty gaps at each time point to see how risk and vulnerability played out over time (see Appendix Table 5 for details). These decompositions confirmed the previous findings. The lower educated were more likely to fall into poverty upon divorce, and this gradient in vulnerability contributed substantially to overall poverty gaps. Among mothers, the higher divorce risk of lower education groups further contributed to poverty gaps. Importantly, the longitudinal decompositions showed that the importance of risk and vulnerability increased over time. That is, the continuous exposure to higher divorce risk and the accumulation of its consequences in terms of poverty widened the poverty gaps between education groups as the life course unfolded, supporting the idea of cumulative inequality.

(Fig. 4 about here)

All key results from the decompositions are illustrated in Fig. 4. The "counterfactual risk" curves indicate the changes in poverty among the lower educated if they had had the same risk of divorce as the higher educated. The "counterfactual vulnerability" curves indicate the changes in poverty among the lower educated if they had had the same vulnerability to divorce as the higher educated. The "counterfactual risk and vulnerability" curves indicate the changes among the lower educated if they had had both the same divorce risk and divorce vulnerability as the higher educated. The figure clearly shows that, in contrast to all other subgroups, the growth of poverty gaps among father was influenced neither by the gradient in divorce risk nor by the gradient in divorce vulnerability. Among childless men and women, poverty gaps grew mainly because of the gradient in vulnerability to divorce. Among mothers, both the gradient in divorce risk and the gradient in divorce vulnerability contributed to the growth of poverty gaps.

5.3 Robustness checks

We conducted several robustness checks. The first check concerned our decision to focus on legal divorce rather than household separation which may precede legal divorce. To see if this decision affected the results, we repeated the analyses using the predicted year of separation, based on changes in the number of household members other than children as reported in the tax return files. These analyses confirmed the main findings. The only notable difference was in line with our expectations: poverty no longer increased in the year before legal divorce, but instead increased upon separation (see Appendix Fig. 6).

The second check concerned child support. The Dutch revenue service does not register child support payments following divorce. Our data may therefore overestimate poverty

17

among divorced mothers. Hence, we approximated the "notional" amount of child support that the resident parents were entitled to receive from the nonresident parents, using the norms set out by the Dutch Expert Group on Alimony Norms (2013). The norms suggest a monthly payment based on the standard of living, divorcees' ability to pay, and child needs. These are in turn based on the joint income before divorce, separate incomes after divorce, and number of children involved. We approximated notional child support in each year after divorce and added or subtracted this to the divorcees' incomes. We then repeated the analyses using this income correction. This resulted in somewhat lower poverty rates among divorced mothers in all education groups and among divorced fathers with lower education (see Appendix Fig. 7). However, the differences were too small to affect our conclusions.

The third robustness check concerned the definition of poverty. Although we defined poverty as an income below 60% of the year-specific national median, a threshold of 50% is also common in the literature. We replicated our analyses using a 50% threshold. The only difference was that poverty rates were lower across the board, and our conclusions remained unaffected (see Appendix Fig. 8 and 9).

6   Conclusion

Previous research has suggested that the second demographic transition, and particularly the rise in divorce, has increased economic inequality (Haskins 2015; Lundberg et al. 2016; McLanahan 2004). According to this view, divorce is a major driver of life-course inequality between education groups. Although this is a long-standing and influential idea in the demographic and sociological literature, studies have not directly assessed the importance of divorce for economic inequality between education groups, and the growth of economic inequality over the life course.

This study represents a first step toward closing this gap, focusing on the growth of poverty gaps in Dutch marriage cohorts followed over a ten-year period. We examined the extent to which divorce explained poverty gaps between education groups and their growth over the life course. To assess the role of divorce more fully than previous studies, we considered two pathways, the gradient in risk and the gradient in vulnerability. Our results confirmed that both pathways contribute to inequality over the life course, whereby the lower educated not only more often divorce (the risk pathway), but are also hit harder by a given divorce in terms of its consequences for poverty (the vulnerability pathway). Among childless individuals, the vulnerability pathway contributed more to growing poverty gaps than the risk pathway. Among mothers, risk and vulnerability both contributed to the growth of poverty gaps. Fathers were an exception. For them, divorce did not contribute to the growth of poverty gaps between education groups.

The contribution of divorce to the growth of poverty gaps between education groups was substantial. In the 10 years following marriage, up to seven percentage points of the growth of poverty gaps between lower and higher educated childless men, childless women, and mothers were explained by educational gradients in the risk of divorce, vulnerability to divorce, or both. These findings were robust to alternative definitions of divorce and poverty. They were also robust to a correction for child support, which in reality is often underpaid (Huang et al. 2005). Overall, our findings show that divorce is a major driver of poverty gaps between education groups throughout the early and middle stages of the adult life course.

The findings demonstrate that divorce contributes to cumulative inequality between social groups (Dannefer 1987; Ferraro and Shippee 2009). They also provide insight in how economic inequalities are related to the stratification of family events. This has obvious linkages to policy perspectives, as the risk and vulnerability approach on which our study is based corresponds to social policies surrounding divorce and separation. For example, tax benefits associated with marriage are a risk-oriented policy providing incentives to stay married. Conversely, welfare benefits and regulations about spousal alimony and child support are vulnerability-oriented policies aimed to cushioning the consequences of divorce. In light of these linkages, a risk and vulnerability approach as proposed in the current study has the potential to inform policies aimed at targeting the accumulation of inequalities.

This study thus proposes an agenda for future research on the stratification of life events more generally. Theories of cumulative disadvantage and inequality highlight that not only the experiences of divorce and separation, but also of other life events such as unemployment are stratified (Wolbers 2000). This suggests that life events play a critical role in driving social inequalities. Our study shows the promise of conceptualizing these inequalities as outcomes of social gradients in risk and vulnerability.

Several questions remain. First, we conditioned our analyses on the married population. As marriage may be selective (Thornton et al. 1995), it remains to be seen whether our results generalize to other consensual unions. Second, this study did not identify causal effects of divorce on poverty. Different mechanisms could underlie such causal effects, including the age of union formation, educational homogamy, labor market participation, child custody and residence, and institutional support. Particularly relevant is the rise in shared residence arrangements after divorce (Cancian et al. 2014), which alleviates part of the economic burden carried by the main resident parent, but which is difficult to observe in administrative data. Studying these mechanisms in more detail could give further insight in the stratified experience of divorce. Third, our analysis focused on the Netherlands. This country is similar to other industrialized countries in terms of many factors, including the educational gradient in the risk of divorce. Other factors such as the gradient in vulnerability to divorce, however,

are likely to depend more on country-specific redistribution policies. Future comparative life-course analyses of risk and vulnerability can shed light on these issues.

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References

Amato, P. R., & James, S. (2010). Divorce in Europe and the United States: Commonalities and differences across nations. *Family Science*, *1*(1), 2–13. doi: 10.1080/19424620903381583

Arts, W., & Gelissen, J. (2002). Three worlds of welfare capitalism or more? A state-of-the-art report. *Journal of European Social Policy*, *12*(2), 137–158. doi: 10.1177/0952872002012002114

Atkinson, A. B., Rainwater, L., & Smeeding, T. M. (1995). *Income distribution in OECD countries: Evidence from the Luxembourg Income Study.* Paris,France: OECD.

Bernardi, F., & Boertien, D. (2016). Understanding heterogeneity in the effects of parental separation on educational attainment in Britain: Do children from lower educational backgrounds have less to lose? *European Sociological Review*, *32*(6), 807–819. doi: 10.1093/esr/jcw036

Bernardi, F., & Boertien, D. (2017). Non-intact families and diverging educational destinies: A decomposition analysis for Germany, Italy, the United Kingdom and the United States. *Social Science Research*, *63*, 181–191. doi: 10.1016/j.ssresearch.2016.09.004

Berrington, A., & Diamond, I. (1999). Marital dissolution among the 1958 British birth cohort: The role of cohabitation. *Population Studies*, *53*(1), 19–38. doi: 10.1080/00324720308066

Blinder, A. S. (1973). Wage discrimination: Reduced form and structural estimates. *Journal of Human resources*, 436–455. doi: 10.2307/144855

Brewer, M., & Nandi, A. (2014). *Partnership dissolution: How does it affect income, employment and well-being?* (Tech. Rep.). Essex, United Kingdom: ISER Working Paper Series.

Browning, M., Chiappori, P.-A., & Lewbel, A. (2013). Estimating consumption economies of scale, adult equivalence scales, and household bargaining power. *Review of Economic Studies*, *80*(4), 1267–1303. doi: 10.1093/restud/rdt019

Cancian, M., Meyer, D. R., Brown, P. R., & Cook, S. T. (2014). Who gets custody now? Dramatic changes in children's living arrangements after divorce. *Demography*, *51*(4), 1381–1396. doi: 10.1007/s13524-014-0307-8

Cooke, L. P. (2006). "Doing" gender in context: Household bargaining and risk of divorce in Germany and the United States. *American Journal of Sociology*, *112*(2), 442–472. doi: 10.1086/506417

Craig, L., & Mullan, K. (2011). How mothers and fathers share childcare: A cross-national time-use comparison. *American Sociological Review*, *76*(6), 834–861. doi: 10.1177/0003122411427673

Crimmins, E. M., Kim, J. K., & Seeman, T. E. (2009). Poverty and biological risk: The earlier "aging" of the poor. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, *64*(2), 286–292. doi: 10.1093/gerona/gln010

Dannefer, D. (1987). Aging as intracohort differentiation: Accentuation, the Matthew effect, and the life course. *Sociological Forum*, *2*(2), 211–236. doi: 10.1007/bf01124164

De Graaf, A. (2005). Scheiden: Motieven, verhuisgedrag en aard van de contacten. *CBS Bevolkingstrends*, *53*, 39–47.

De Graaf, P. M., & Kalmijn, M. (2006). Change and stability in the social determinants of divorce: A comparison of marriage cohorts in The Netherlands. *European Sociological Review*, *22*(5), 561–572. doi: 10.1093/esr/jcl010

Dickert-Conlin, S. (1999). Taxes and transfers: their effects on the decision to end a marriage. *Journal of Public Economics*, *73*(2), 217–240. doi: 10.1016/s0047-2727(99)00008-0

Duncan, G. J., Ziol-Guest, K. M., & Kalil, A. (2010). Early-childhood poverty and adult attainment, behavior, and health. *Child Development*, *81*(1), 306–325. doi: 10.1111/j.1467-8624.2009.01396.x

EuroStat. (2018). *Eurostat database.* Retrieved 15-03-2018, from `http://ec.europa.eu/eurostat/data/database`

Expert Group Alimony Norms. (2013). *Report alimony norms* (Tech. Rep.). The Hague, The Netherlands: Dutch Council of the Judiciary. Retrieved from `https://www.rechtspraak.nl/SiteCollectionDocuments/Rapport-alimentatienormen-2013-3.pdf`

Ferraro, K. F., & Shippee, T. P. (2009). Aging and cumulative inequality: How does inequality get under the skin? *The Gerontologist*, *49*(3), 333–343. doi: 10.1093/geront/gnp034

Goode, W. J. (1962). Marital satisfaction and instability: A cross-cultural analysis of divorce rates. In R. Bendix & S. M. Lipset (Eds.), *Class, status, and power* (p. 377-387). New York, United States: The Free Press.

Goode, W. J. (1963). *World revolution and family patterns.* New York, United States: The Free Press.

Gottschalk, P., & Smeeding, T. M. (1997). Cross-national comparisons of earnings and income inequality. *Journal of Economic Literature*, *35*(2), 633–687.

Härkönen, J., & Dronkers, J. (2006). Stability and change in the educational gradient of divorce: A comparison of seventeen countries. *European Sociological Review*, *22*(5), 501–517. doi: 10.1093/esr/jcl011

Haskins, R. (2015). No way out: Dealing with the consequences of changes in family composition. In *Families in an era of increasing inequality* (pp. 167–199). State College, United States: Springer.

Heimdal, K. R., & Houseknecht, S. K. (2003). Cohabiting and married couples' income organization: Approaches in Sweden and the United States. *Journal of Marriage and Family*, *65*(3), 525–538. doi: 10.1111/j.1741-3737.2003.00525.x

Hoffman, S. D., & Duncan, G. J. (1988). What are the economic consequences of divorce? *Demography*, *25*(4), 641–645. doi: 10.2307/2061328

Holden, K. C., & Smock, P. J. (1991). The economic costs of marital dissolution: Why do women bear a disproportionate cost? *Annual Review of Sociology*, *17*(1), 51–78. doi: 10.1146/annurev.soc.17.1.51

Huang, C.-C., Mincy, R. B., & Garfinkel, I. (2005). Child support obligations and low-income fathers. *Journal of Marriage and Family*, *67*(5), 1213–1225. doi: 10.1111/j.1741-3737.2005.00211.x

Jalovaara, M. (2003). The joint effects of marriage partners' socioeconomic positions on the risk of divorce. *Demography*, *40*(1), 67–81. doi: 10.2307/3180812

Jann, B. (2008). The Blinder-Oaxaca decomposition for linear regression models. *The Stata Journal*, *8*(4), 453–479.

Jansen, M., Mortelmans, D., & Snoeckx, L. (2009). Repartnering and (re) employment: Strategies to cope with the economic consequences of partnership dissolution. *Journal of Marriage and Family*, *71*(5), 1271–1293. doi: 10.1111/j.1741-3737.2009.00668.x

Jarvis, S., & Jenkins, S. P. (1999). Marital splits and income changes: Evidence from the British Household Panel Survey. *Population Studies*, *53*(2), 237–254. doi: 10.1080/00324720308077

Kalmijn, M. (2005). The effects of divorce on men's employment and social security histories. *European Journal of Population/Revue européenne de Démographie*, *21*(4), 347–366. doi: 10.1007/s10680-005-0200-7

Kennedy, S., & Ruggles, S. (2014). Breaking up is hard to count: The rise of divorce in the United States, 1980-2010. *Demography*, *51*(2), 587–598. doi: 10.1007/s13524-013-0270-9

Kitagawa, E. M. (1955). Components of a difference between two rates. *Journal of the American Statistical Association*, *50*(272), 1168–1194. doi: 10.2307/2281213

Lee, H., Andrew, M., Gebremariam, A., Lumeng, J. C., & Lee, J. M. (2014). Longitudinal associations between poverty and obesity from birth through adolescence. *American Journal of Public Health*, *104*(5), e70–e76. doi: 10.2105/ajph.2013.301806

Lesthaeghe, R., & Van de Kaa, D. J. (1986). *Twee demografische transities.* Deventer, The Netherlands: Van Loghum Slaterus.

Lundberg, S., Pollak, R. A., & Stearns, J. (2016). Family inequality: Diverging patterns in marriage, cohabitation, and childbearing. *Journal of Economic Perspectives*, *30*(2), 79–102. doi: 10.1257/

jep.30.2.79

Martin, S. (2006). Trends in marital dissolution by women's education in the United States. *Demographic Research*, *15*, 537–560. doi: 10.4054/demres.2006.15.20

Matysiak, A., Styrc, M., & Vignoli, D. (2014). The educational gradient in marital disruption: A meta-analysis of European research findings. *Population Studies*, *68*(2), 197–215. doi: 10.1080/00324728.2013.856459

Mauldin, T. A. (1991). Economic consequences of divorce or separation among women in poverty. *Journal of Divorce & Remarriage*, *14*(3-4), 163–178. doi: 10.1300/j087v14n03_10

McKeever, M., & Wolfinger, N. H. (2001). Reexamining the economic costs of marital disruption for women. *Social Science Quarterly*, *82*(1), 202–217. doi: 10.1111/0038-4941.00018

McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. *Demography*, *41*(4), 607–627. doi: 10.1353/dem.2004.0033

Mossakowski, K. N. (2008). Is the duration of poverty and unemployment a risk factor for heavy drinking? *Social Science & Medicine*, *67*(6), 947–955. doi: 10.1016/j.socscimed.2008.05.019

Mulder, C. H., Clark, W. A., & Wagner, M. (2006). Resources, living arrangements and first union formation in the United States, The Netherlands and West Germany. *European Journal of Population/Revue européenne de Démographie*, *22*(1), 3–35. doi: 10.1007/s10680-005-4768-8

Ní Bhrolcháin, M., & Beaujouan, É. (2012). Fertility postponement is largely due to rising educational enrolment. *Population Studies*, *66*(3), 311–327. doi: 10.1080/00324728.2012.697569

Oaxaca, R. (1973). Male-female wage differentials in urban labor markets. *International Economic Review*, 693–709. doi: 10.2307/2525981

OECD. (2018). *Family database.* Retrieved 01-03-2018, from `http://stats.oecd.org/Index.aspx?DataSetCode=FAMILY`

Oldham, J. T. (2008). Changes in the economic consequences of divorces, 1958–2008. *Family Law Quarterly*, *42*(3), 419–447.

Park, H., & Raymo, J. M. (2013). Divorce in Korea: Trends and educational differentials. *Journal of Marriage and Family*, *75*(1), 110–126. doi: 10.1111/j.1741-3737.2012.01024.x

Poortman, A.-R. (2000). Sex differences in the economic consequences of separation: A panel study of The Netherlands. *European Sociological Review*, *16*(4), 367–383. doi: 10.1093/esr/16.4.367

Raymo, J. M., Bumpass, L. L., & Iwasawa, M. (2004). Marital dissolution in Japan: Recent trends and patterns. *Demographic Research*, *11*, 395–420. doi: 10.4054/demres.2004.11.14

Saraceno, C., & Keck, W. (2010). Can we identify intergenerational policy regimes in europe? *European Societies*, *12*(5), 675–696. doi: 10.1080/14616696.2010.483006

Smock, P. J. (1994). Gender and the short-run economic consequences of marital disruption. *Social Forces*, *73*(1), 243–262. doi: 10.2307/2579925

Smock, P. J., Manning, W. D., & Gupta, S. (1999). The effect of marriage and divorce on women's economic well-being. *American Sociological Review*, 794–812. doi: 10.2307/2657403

Solt, F. (2016). The standardized world income inequality database. *Social Science Quarterly*, *97*(5), 1267–1281. doi: 10.1111/ssqu.12295

Statistics Netherlands. (2018a). *Maandelijkse partneralimentatie aan vrouw, 2001-2013.* Retrieved 01-03-2018, from `http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=80735NED`

Statistics Netherlands. (2018b). *Maandelijkse kinderalimentatie 2001-2013.* Retrieved 11-09-2018, from `http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=80734NED`

Statistics Netherlands. (2018c). *Arbeidsdeelname; positie in het huishouden.* Retrieved 01-03-2018, from `http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=82956NED`

Tach, L. M., & Eads, A. (2015). Trends in the economic consequences of marital and cohabitation dissolution in the United States. *Demography*, *52*(2), 401–432. doi: 10.1007/s13524-015-0374-5

Thornton, A., Axinn, W. G., & Teachman, J. D. (1995). The influence of school enrollment and accumulation on cohabitation and marriage in early adulthood. *American Sociological Review*, 762–774. doi: 10.2307/2096321

Trail, T. E., & Karney, B. R. (2012). What's (not) wrong with low-income marriages. *Journal of Marriage and Family*, *74*(3), 413–427. doi: 10.1111/j.1741-3737.2012.00977.x

UNSD. (2009). *Demographic yearbook.* Retrieved 12-07-2018, from `https://unstats.un.org/unsd/demographic/products/dyb/dyb2007/Table25.pdf`

US Census Bureau. (2018). *Survey of income and program participation (sipp), panel 2008 wave 2.* Retrieved 11-09-2018, from `https://www.census.gov/programs-surveys/sipp/data/datasets.2008.html`

Uunk, W. (2004). The economic consequences of divorce for women in the European Union: The impact of welfare state arrangements. *European Journal of Population/Revue europeenne de demographie*, *20*(3), 251–285. doi: 10.1007/s10680-004-1694-0

Vandecasteele, L. (2010). Poverty trajectories after risky life course events in different European welfare regimes. *European Societies*, *12*(2), 257–278. doi: 10.1080/14616690903056005

Vandecasteele, L. (2011). Life course risks or cumulative disadvantage? The structuring effect of social stratification determinants and life course events on poverty transitions in Europe. *European Sociological Review*, *27*(2), 246–263. doi: 10.1093/esr/jcq005

Van de Kaa, D. J. (1987). Europe's second demographic transition. *Population Bulletin*, *42*(1), 1–59.

Wolbers, M. H. (2000). The effects of level of education on mobility between employment and unemployment in the netherlands. *European Sociological Review*, *16*(2), 185–200. doi: 10.1093/esr/16.2.185

Wu, Z., & Schimmele, C. M. (2005). Repartnering after first union disruption. *Journal of Marriage and Family*, *67*(1), 27–36. doi: 10.1111/j.0022-2445.2005.00003.x

Table 1 Overview of longitudinal studies on the educational gradient in divorce vulnerability

| Paper	Country	Outcome(s)	Main effect	Gradient	Panel	Comments
Mauldin (1991)	United States	Poverty	-	Stronger for lower educated	NLSYW	Only women.
Smock (1994)	United States	Per capita income	- (women) + (men)	Stronger for lower educated	NLSY79	
Smock et al. (1999)	United States	Income-to-needs ratio, total household income	-	Weaker for lower educated	NSFH	Only women.
Poortman (2000)	Netherlands	Equivalized household income	-	Stronger for lower educated (men) No difference by education (women)	SEP	
McKeever and Wolfinger (2001)	United States	Total household income, per capita income	-	Stronger for lower educated	NSFH	Only women.
Uunk (2004)	Cross-national	Equivalized household income	-	No difference by education level	ECHP	Only women.
Jansen et al. (2009)	Cross-national	Total household income, equivalized household income	-	Weaker for lower educated	ECHP	
Vandecasteele (2010)	Cross-national	Poverty	-	Stronger for lower educated	ECHP	
Vandecasteele (2011)	Cross-national	Poverty entry	- (women) 0 (men)	Weaker for lower educated	ECHP	
Brewer and Nandi (2014)	United Kingdom	Equivalized household income, poverty	-	Stronger for lower educated	BHPS	
Tach and Eads (2015)	United States	Equivalized household income	-	Weaker for lower educated	SIPP	Only women.
Bernardi and Boertien (2016)	United Kingdom	Household income	-	Weaker for lower educated	BCS70	In footnote 9.

Note: − indicates a negative main effect of divorce on economic well-being, 0 indicates that the main effect is not statistically significant, + indicates a positive main effect of divorce on economic well-being.

Table 2 Descriptive statistics at entry into marriage

	All	Men			Women		
Variable		Lower	Intermediate	Higher	Lower	Intermediate	Higher
Age	28.66	28.51	28.83	30.09	26.45	27.16	28.82
	(3.73)	(3.98)	(3.73)	(3.11)	(4.50)	(3.90)	(3.25)
Born abroad	0.09	0.23	0.10	0.06	0.21	0.10	0.07
	(0.29)	(0.42)	(0.30)	(0.24)	(0.40)	(0.30)	(0.25)
Employed	0.92	0.85	0.94	0.98	0.67	0.87	0.96
	(0.27)	(0.36)	(0.23)	(0.15)	(0.47)	(0.34)	(0.21)
Full-time equivalent	0.85	0.84	0.92	0.95	0.56	0.74	0.85
	(0.27)	(0.32)	(0.22)	(0.15)	(0.39)	(0.31)	(0.23)
Children: 0	0.74	0.67	0.72	0.79	0.58	0.70	0.79
	(0.44)	(0.47)	(0.45)	(0.41)	(0.49)	(0.46)	(0.41)
Children: 1	0.20	0.23	0.21	0.17	0.28	0.23	0.17
	(0.40)	(0.42)	(0.41)	(0.37)	(0.45)	(0.42)	(0.38)
Children: 2	0.05	0.08	0.06	0.04	0.11	0.06	0.04
	(0.22)	(0.27)	(0.23)	(0.19)	(0.31)	(0.23)	(0.19)
Children: 3+	0.01	0.02	0.01	0.01	0.03	0.01	0.00
	(0.10)	(0.15)	(0.11)	(0.08)	(0.16)	(0.09)	(0.07)
Disposable household income	36,244	28,684	31,666	40,454	28,333	32,351	41,180
	(16,458)	(13,466)	(13,062)	(16,681)	(13,893)	(13,576)	(18,146)
Equivalized household income	23,851	17,966	20,526	27,138	17,350	20,897	27,571
	(10,605)	(7,099)	(7,681)	(10,993)	(7,646)	(8,226)	(11,799)
Below poverty line	0.04	0.12	0.05	0.02	0.14	0.05	0.02
	(0.20)	(0.32)	(0.22)	(0.12)	(0.35)	(0.22)	(0.13)
N	177,079	9,786	29,488	43,915	11,499	33,025	49,366

Note: Mean values in the study population. Standard deviations are shown in parentheses.

Fig. 1 Observed poverty trajectories
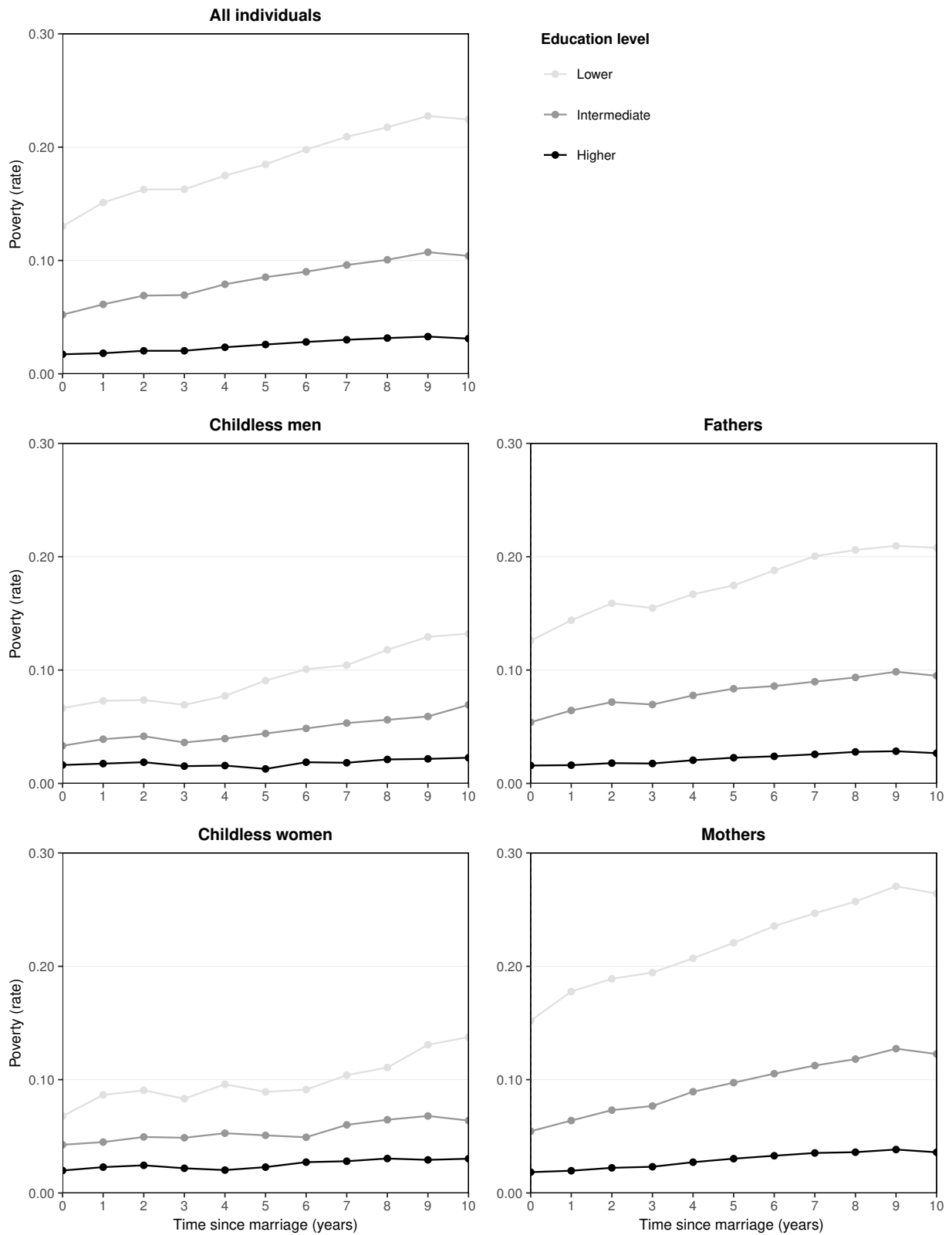
Note: The distribution over the four subgroups is 9,263 childless men (5.2%), 10,701 childless women (6.0%), 73,927 fathers (41.7%), and 83,192 mothers (47.0%).
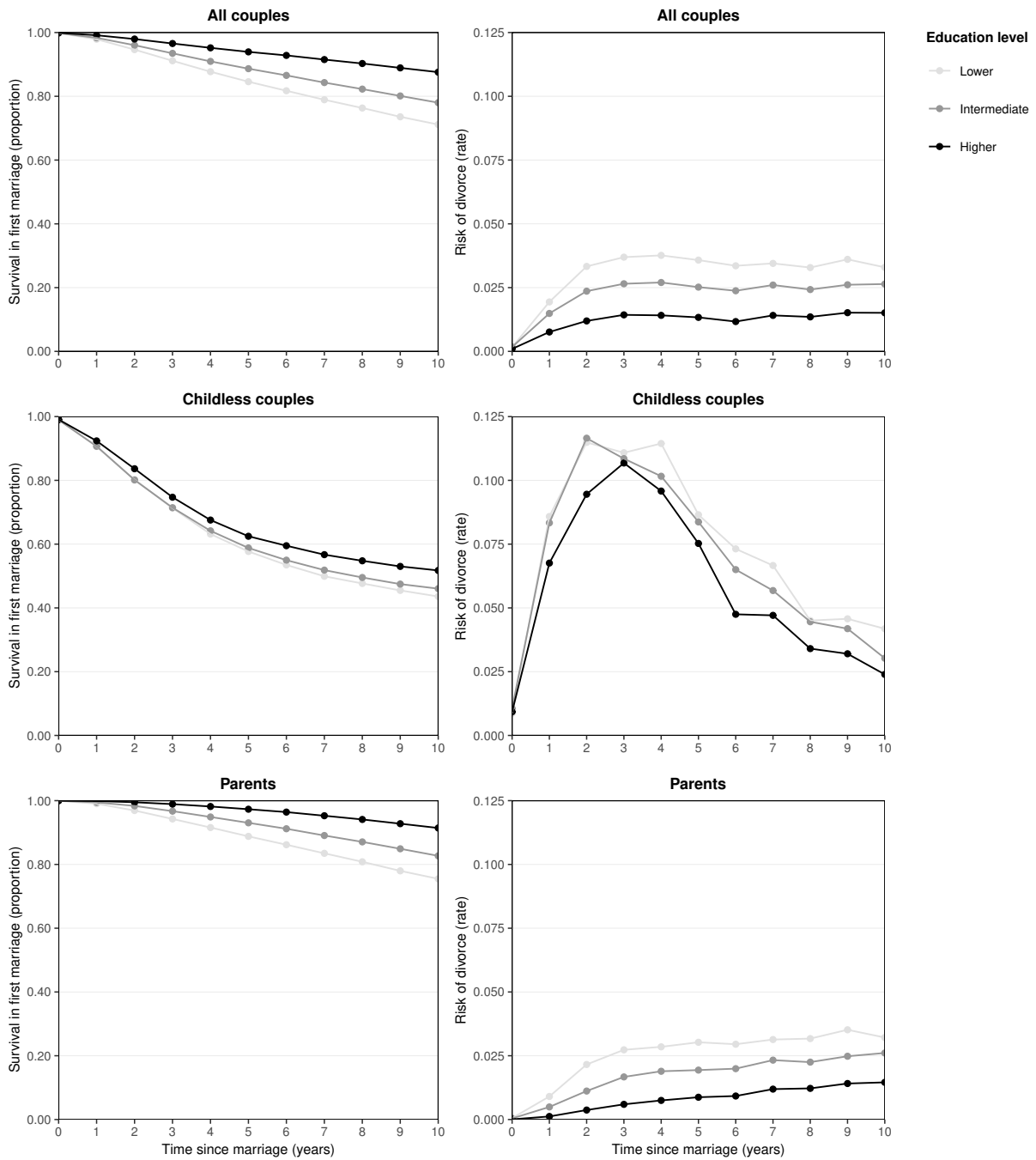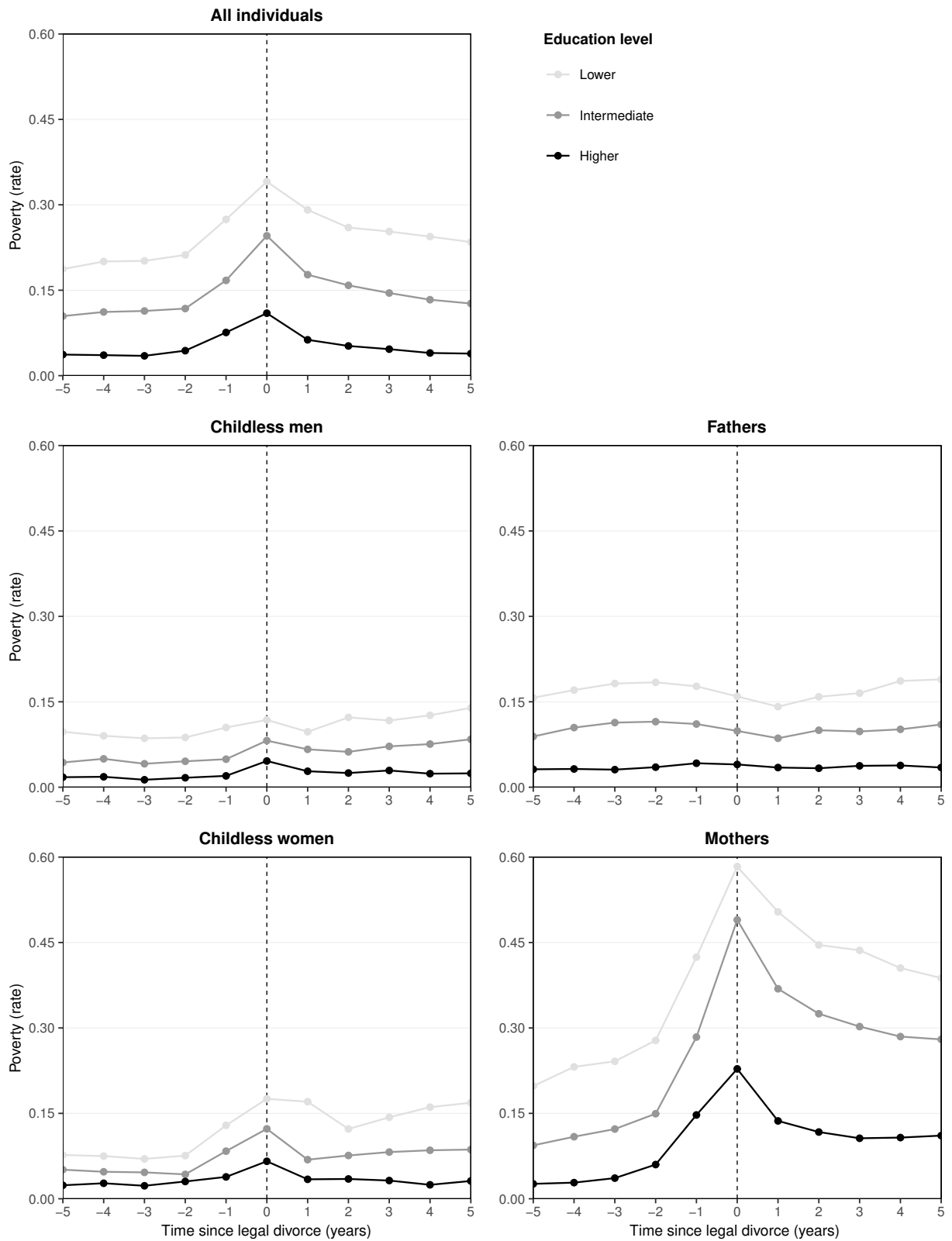
Fig. 2 Gradient in the risk of divorce

Fig. 3 Gradient in vulnerability to divorce

Note: Estimates are obtained from linear probability regressions of the binary poverty indicator on time since legal divorce dummies, holding only time marriage dummies constant.
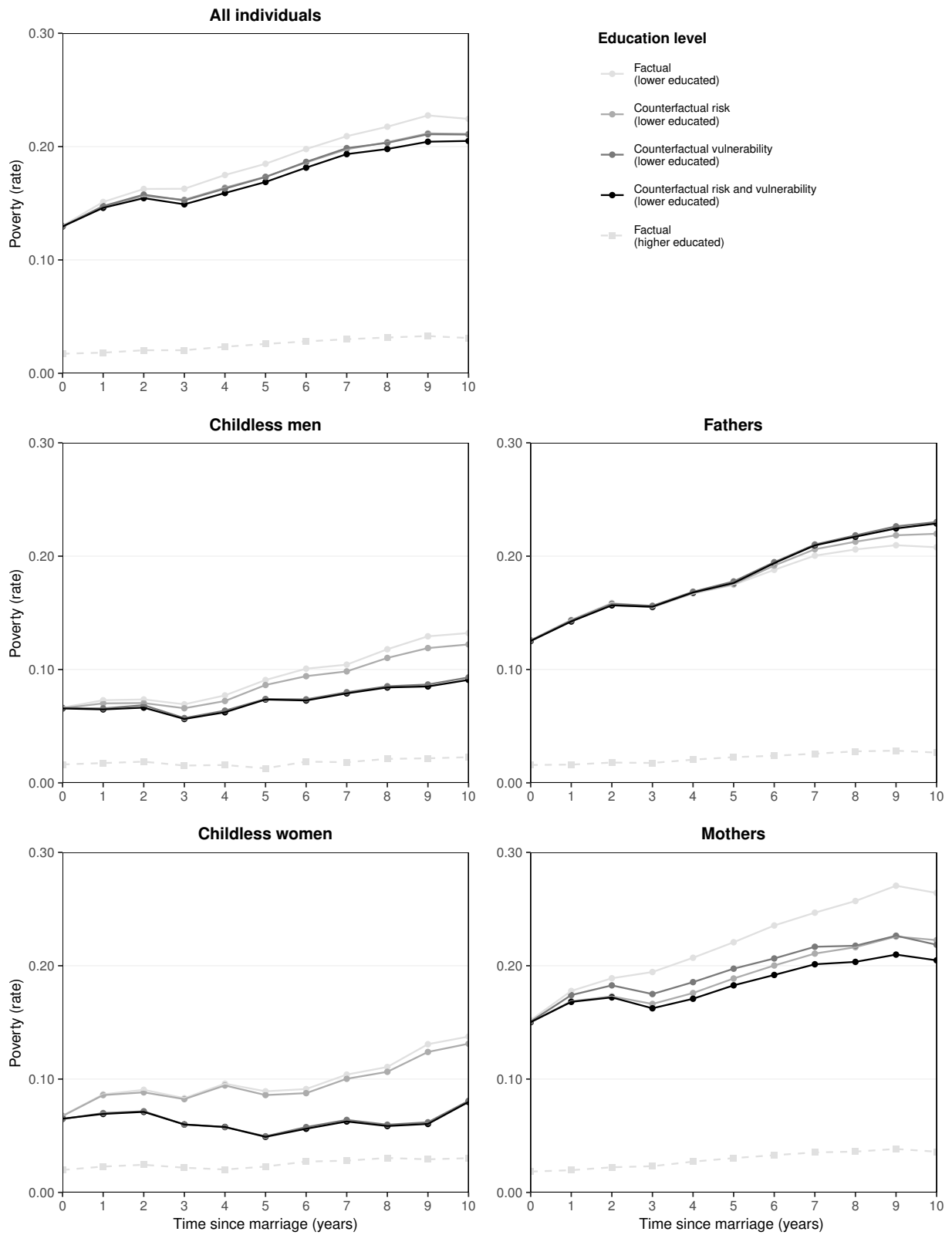
Table 3 Blinder-Oaxaca decomposition of the overall poverty gap

	All	Childless men	Childless women	Fathers	Mothers
Poverty higher edu	0.025***	0.018***	0.025***	0.022***	0.029***
	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Poverty lower edu	0.186***	0.094***	0.099***	0.176***	0.220***
	(0.002)	(0.005)	(0.004)	(0.003)	(0.003)
Poverty gap	0.160***	0.076***	0.074***	0.154***	0.191***
	(0.002)	(0.005)	(0.005)	(0.003)	(0.003)
Risk gradient	-0.010***	-0.005***	-0.003*	0.003***	-0.029***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Vulnerability gradient	-0.010***	-0.020***	-0.036***	0.006***	-0.025***
	(0.001)	(0.004)	(0.004)	(0.001)	(0.001)
Divorce total	-0.014***	-0.021***	-0.036***	0.005***	-0.036***
	(0.001)	(0.004)	(0.004)	(0.001)	(0.001)
N	114,566	5,467	6,491	48,234	54,374

Note: By construction, the divorce total is the sum of the gradient in divorce risk, the gradient in divorce vulnerability, and an interaction term. The interaction term, which accounts for the fact that gradients in divorce risk and vulnerability between lower and higher education groups exist simultaneously, is not of substantive interest to our study and therefore not shown. For simplicity, time since marriage dummies and group intercepts are not shown. Standard errors are shown in parentheses. See Appendix Table 4 for a complete overview of estimates underlying the overall decomposition.
$*p < .05; **p < .01; ***p < .001$

Fig. 4 Simulated poverty trajectories under counterfactual risk and vulnerability

Appendix

Fig. 5 Gradient in vulnerability to divorce using a parametric specification
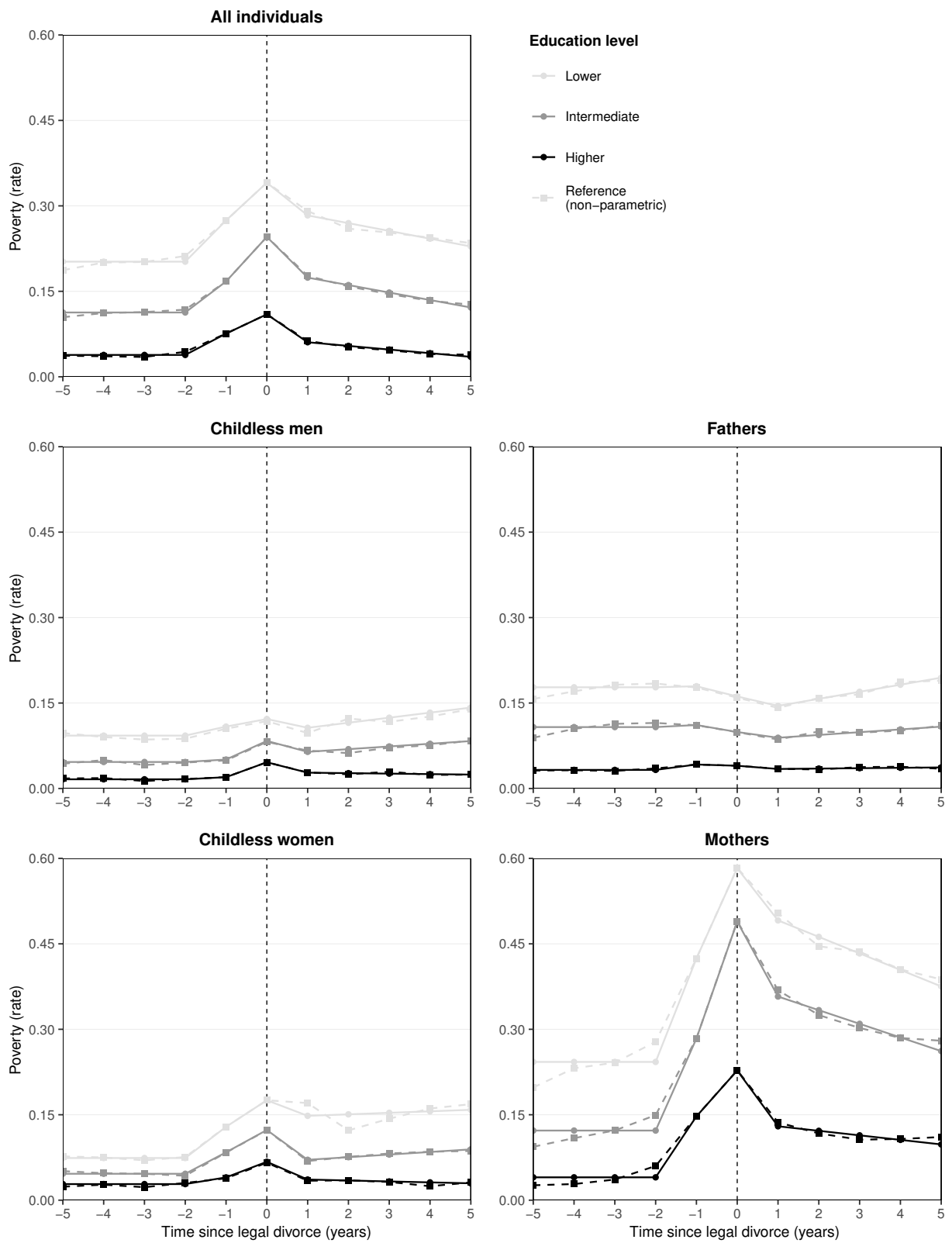
Table 4 Risk and vulnerability estimates underlying the Blinder-Oaxaca decomposition of the overall poverty gap

Variable	Lower educated		Higher educated	
	Risk ($\bar{X}$)	Vulnerability ($\hat{\beta}$)	Risk ($\bar{X}$)	Vulnerability ($\hat{\beta}$)
Year before divorce	0.013	0.104***	0.028	0.053***
	(0.000)	(0.006)	(0.000)	(0.002)
Year of divorce	0.011	0.17***	0.026	0.087***
	(0.000)	(0.006)	(0.000)	(0.003)
Year after divorce	0.049	0.117***	0.121	0.040***
	(0.001)	(0.007)	(0.002)	(0.003)
Time since divorce	0.175	-0.011***	0.442	-0.004***
	(0.002)	(0.002)	(0.007)	(0.001)
T1	0.091	0.016***	0.091	0.000
		(0.002)		(0.000)
T2	0.091	0.023***	0.091	0.000**
		(0.003)		(0.001)
T3	0.091	0.020***	0.091	0.001
		(0.003)		(0.001)
T4	0.091	0.029***	0.091	0.004***
		(0.003)		(0.001)
T5	0.091	0.037***	0.091	0.006***
		(0.003)		(0.001)
T6	0.091	0.049***	0.091	0.008***
		(0.003)		(0.001)
T7	0.091	0.059***	0.091	0.009***
		(0.003)		(0.001)
T8	0.091	0.067***	0.091	0.011***
		(0.003)		(0.001)
T9	0.091	0.076***	0.091	0.012***
		(0.004)		(0.001)
T10	0.091	0.073***	0.091	0.010***
		(0.004)		(0.001)
Constant	1	0.128***	1	0.017***
		(0.002)		(0.000)

Note: T1-T10 are time since marriage dummies. Standard errors are shown in parentheses. The risk estimates of T1-T10 have no standard errors as they are set to the grand mean. The risk estimates of the constants have no standard errors by definition. $*p < .05; **p < .01; ***p < .001$

Table 5 Blinder-Oaxaca decompositions of the poverty gaps at each time point

| | Men | | | | | | Women | | | | | |
| | W/o children | | | With children | | | W/o children | | | With children | | |
Time	R	V	T	R	V	T	R	V	T	R	V	T
0	-0.001	0.000	-0.001	-0.001	0.000	-0.001	0.000	-0.003	-0.003	-0.002	-0.001	-0.002
1	-0.003	-0.007	-0.008	-0.001	-0.001	-0.002	-0.001	-0.017	-0.017	-0.009	-0.004	-0.010
2	-0.003	-0.005	-0.007	-0.002	-0.001	-0.002	-0.002	-0.019	-0.020	-0.016	-0.006	-0.017
3	-0.003	-0.012	-0.013	0.000	0.001	0.001	-0.001	-0.023	-0.023	-0.028	-0.019	-0.032
4	-0.005	-0.013	-0.015	0.000	0.002	0.001	-0.002	-0.038	-0.038	-0.031	-0.021	-0.036
5	-0.004	-0.017	-0.017	0.001	0.003	0.002	-0.003	-0.040	-0.040	-0.032	-0.023	-0.038
6	-0.007	-0.027	-0.028	0.004	0.007	0.006	-0.004	-0.034	-0.035	-0.035	-0.029	-0.044
7	-0.006	-0.024	-0.025	0.006	0.010	0.009	-0.004	-0.040	-0.041	-0.036	-0.030	-0.046
8	-0.008	-0.033	-0.034	0.007	0.012	0.011	-0.004	-0.051	-0.052	-0.041	-0.039	-0.054
9	-0.010	-0.043	-0.044	0.009	0.017	0.015	-0.007	-0.069	-0.070	-0.045	-0.044	-0.061
10	-0.010	-0.039	-0.041	0.012	0.022	0.021	-0.006	-0.057	-0.058	-0.042	-0.046	-0.059

Note: R is the contribution of the risk gradient, V is the contribution of the vulnerability gradient, T is the total contribution of divorce.

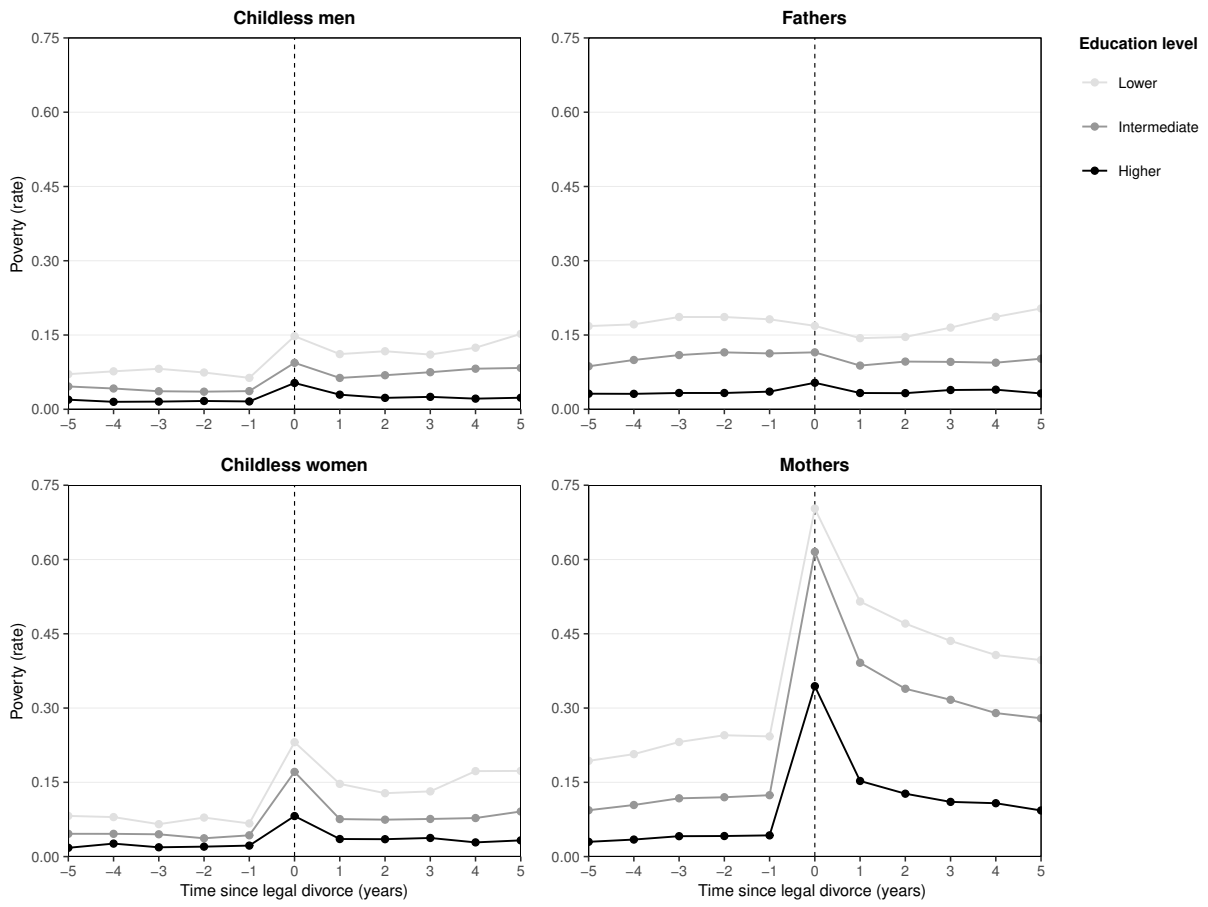**Fig. 6** Gradient in vulnerability to divorce using predicted separation

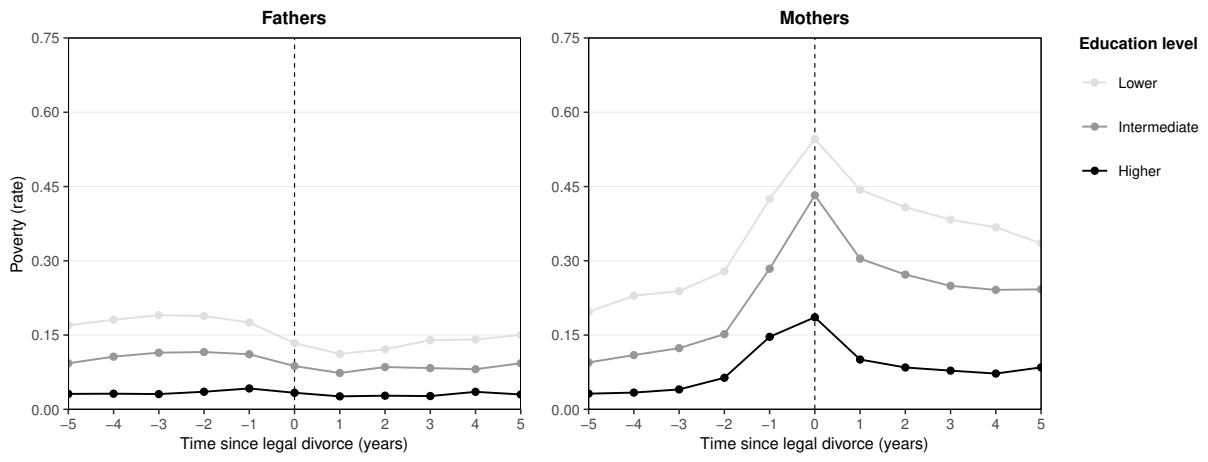**Fig. 7** Gradient in vulnerability to divorce correcting for potential child support

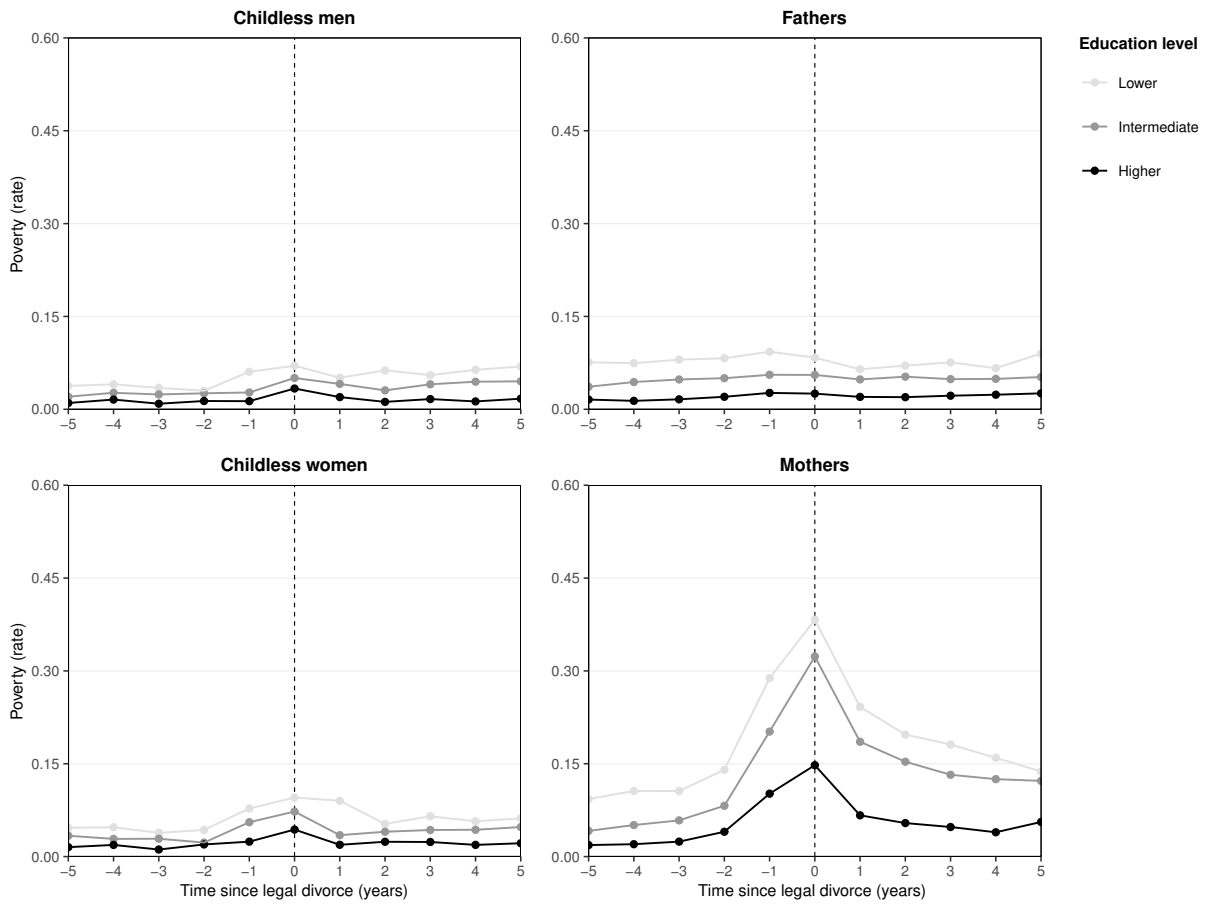**Fig. 8** Gradient in vulnerability to divorce using 50% poverty threshold

Fig. 9 Simulated poverty trajectories under counterfactual risk and vulnerability using 50% poverty threshold