Are the effects of divorce on psychological distress modified by family background?

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ABSTRACT

This paper investigates whether an adverse family background amplifies the distressing effects of divorce. We use several waves (at age 0, 7, 11, 16, 33, and 42) of the British National Child Development Study to study the effect of divorce on psychological distress in middle adulthood (between ages 33 and 42). We measure family background with indicators such as father's social class, poverty and parental divorce. We find a pattern of significant interactions between divorce and indicators of disadvantage consistent with the idea that an adverse family background amplifies the distressing effects of divorce. The family background influence remains even if we take current socio-economic resources into account. Especially women with fewer socio-economic resources (own and parental) appear to be vulnerable to divorce.

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1. Introduction

In the research tradition examining the effects of life course transitions, the consequences of divorce for psychological distress take a prominent position (Amato & Cheadle, 2005; Wade & Pevalin, 2004; Willitts, Benzeval, & Stansfeld, 2004; Wu & Hart, 2002). Studies generally find that divorce leads to psychological distress. Recent research recognizes a number of sources of heterogeneity in the consequences of divorce: transitions might be modified by the quality of the relationship that one leaves (Hawkins & Booth, 2005; Kalmijn & Monden, 2006; Liu & Chen, 2006; Waite, Luo, & Lewin, 2009; Wheaton, 1990), by the level of socio-economic resources that one has (Liu & Chen, 2006; McLeod & Kessler, 1990; Wang & Amato, 2000), by the presence and age of children in the household (Williams & Dunne-Bryant, 2006), and by norms and values regarding marriage (Simon & Marcussen, 1999). The

effects of marital transitions over the life course may also differ between men and women (e.g., Simon, 2002; Williams & Dunne-Bryant, 2006).

A second strand of research in the life course literature, namely that into the "long arm" of childhood adversity, shows that people from an adverse family background suffer more psychological distress later in life (Gotlib & Wheaton, 1997). Evidence suggests that children whose parents are in lower social classes (Cheung, 2002; Gilman, Kawachi, Fitzmaurice, & Buka, 2002; Harper et al., 2002), whose parents are lower educated (Harper et al., 2002), who are from poor families (Sadowski, Ugarte, Kolvin, Kaplan, & Barnes, 1999), or whose parents divorced (McLeod, 1991; Rodgers, 1994; Ross & Mirowsky, 1999; Sigle-Rushton, Hobcraft, & Kiernan, 2005; Storksen, Roysamb, Gjessing, Moum, & Tambs, 2007), suffer more psychological distress later in life than individuals with a more advantageous family background.

The study of effects of life course transitions and of disparities in psychological distress may be integrated if an adverse family background makes people more vulnerable to the effects of transitions later in the life course, such as divorce. Family background may affect vulnerability because it influences the level of available adulthood

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resources that may help in buffering the disruptive influences of a divorce. First, people's adult social position is to a considerable extent determined by their family background. As a consequence, people with an adverse family background tend to have fewer resources to buffer the effects of a set-back. Studies showing a link between people's own socio-economic resources and vulnerability to negative life events (Liu & Chen, 2006; McLeod & Kessler, 1990; Wang & Amato, 2000) are in line with this argument, as they indirectly point to the importance of the family background. Second, people with an adverse background are less likely to benefit from social capital embodied in their parents in adulthood. Parents remain an important source of support to their adult children (McIlvane, Ajrouch, & Antonucci, 2007; Rossi & Rossi, 1990; Spitze, Logan, Deane, & Zerger, 1994), especially when their children are in need. People with an adverse family background (in terms of economic and social resources) benefit less from their parents, even in adulthood. Studies show, in particular, that people whose parents divorced, or who grew up with a single parent have less contact with both parents and can count less on their (step)parent(s) later in life (Amato, 2000; Amato & Cheadle, 2005). Parental support, in part determined by the family background, may thus lessen the negative impact of a divorce.

Few studies have investigated whether family background conditions the effect of disruptive life events, such as divorce. Moreover, these studies yielded mixed findings. Landerman, George, and Blazer (1991) find for a representative community sample in the USA that people whose parents divorced or separated during childhood suffered more from the effects of negative life events in the past year (more alcohol problems and psychiatric disorders) than people whose parents stayed together. Rodgers (1994) investigated whether an interaction effect existed between parental divorce and the experience of a number of life events on mental health in a UK birth cohort followed since 1946. He found that women whose parents divorced suffered more from their own divorce than women whose parents did not divorce. He did not find such an interaction effect for men. Storksen et al. (2007), however, presented opposite results using Norwegian data. They found no interaction effect for women but find that for men parental divorce worsens the effects of own divorce. McLeod (1991) using a sample of married people in the US did not find significant interactions between parental divorce and parental death in childhood with the effects of own divorce on mental health. Comijs et al. (2007) investigated whether childhood adversity modifies the effect of negative life events on depression in a panel study of Dutch older adults and do not find interaction effects.

These studies mainly focused on parental divorce or growing up in a single parent family. No study we are aware of links childhood socio-economic conditions to psychological vulnerability to divorce later in the life course. Furthermore, a potential interaction effect of parental divorce would be better investigated if childhood socio-economic conditions were simultaneously interacted, as there is a strong association between parental divorce and childhood economic conditions. Both in turn,

may influence socio-economic attainment and the parent–child relationship in adulthood.

We investigate the modifying effect of family background for life course transitions in more detail. The research question we pose is: To what extent does an adverse family background make people more vulnerable to the effects of a divorce? We expect that an adverse family background increases the effects of divorce on psychological distress. We put this hypothesis to the test using the National Child Development Study (NCDS), one of the large UK birth cohort studies. In addition, we test whether current socio-economic resources (educational level) can explain heterogeneity in the effect of divorce by family background. We investigate the effects of divorce on psychological distress in middle adulthood (between ages 33 and 42).

The NCDS has extensive prospective information on the childhood circumstances of respondents. Our study covers measures of socio-economic circumstances and whether the family remained intact and examines their potential interplay with divorce. Family background measures are described in more detail in Section 3.

2. Theory

2.1. Effect of divorce on psychological distress

Many studies document the negative effects of a divorce on well-being. These associations may be explained by selection mechanisms (psychologically distressed people are predisposed to union dissolution) and/or by a causal effect (divorce causes psychological distress). Two theories argue for a causal effect of divorce on distress. They both predict a negative effect of divorce on psychological well-being but they differ with regard to the causes and, in particular, the duration of the effect. The crisis model of divorce posits that divorce leads to a temporary increase in psychological distress due to the stresses and difficulties surrounding the process of divorce (feelings of loss, stress of separation, difficulties in finding new accommodation, arranging custody for children, etc.). The chronic strain or role theory perspective argues that a divorce affects people's life course so that it changes people's position to one with fewer resources and more stress (Johnson & Wu, 2002; Waite et al., 2009; Williams & Dunne-Bryant, 2006). More specifically, divorce may lead to psychological distress, because it entails the loss of social support, of social influence and control by the partner on health related behavior, and of economies of scale (Wu & Hart, 2002). Those who remarry after a divorce experience a decline in distress, as the level of resources (material and emotional) is restored (Johnson & Wu, 2002). Divorcees who remain without a partner may continue to experience higher levels of psychological distress. In our analysis we, therefore, also consider remarriage.

Family background may affect the impact of divorce on distress in two ways: first family background influences parental support that adult children may receive in adulthood and, second, it influences children's socio-economic attainment and thus the resources adult children have. Below we discuss both mechanisms. We spent most attention on the first mechanism – parental support – as

we are not aware of prior studies that investigate whether parental support moderates the influence of divorce on psychological distress. The influence of family background on the impact of divorce via people's own socio-economic resources is subsequently discussed.

2.2. Divorce and parental support

People who can turn to their parents in times of crises are better off than those who cannot or whose parents can only provide little support. However, little research investigates whether parental support is related to adult children's psychological distress; most research addresses the well-being of young children, young adult children or elderly parents. Umberson (1992) is an exception, she reports that more exchange of social support with the mother, less relationship strain with the father and mother, and a higher frequency of contact with the mother, was related to lower psychological distress of their adult children.

Support from parents may be helpful in coping with the problems people face during the period surrounding the divorce and afterwards (when the adult child has become a lone parent, for instance). A number of studies in the USA with small samples of parents with divorced/divorcing adult children show that parents help their divorced children ranging from advice, emotional support, to financial and practical help (Greenberg & Becker, 1988; Hamon, 1995; Johnson, 1988). In the UK, Kiernan (1997) explored whom people mostly relied on for emotional and financial support in retrospective accounts of marital and non-marital break-ups in young adulthood (between 23 and 33) using the same data as we do. People received emotional support in 86% of the break-ups: of these people, 44% relied mostly on their parents and 36% mostly on friends. Half of them received financial assistance; the two primary sources were parents (40%) and social security (24%).[1]

Besides, studies showing that parents help over the course of the divorce, research into intergenerational support and contact shows that parent–child relationships for married and divorced adult children differ markedly (Dykstra, 1997; Sarkisian & Gerstel, 2008; Spitze et al., 1994). Findings from these studies indicate that parents can be seen as a resource to divorcing children. After a divorce, adult children may move back in with their parents, as is suggested by studies in the USA that show that divorced adult children are much more likely to co-reside with their parents compared to married adult children (Sarkisian & Gerstel, 2008; Spitze et al., 1994; Ward, Logan, & Spitze, 1992). Returning to the parental nest may not be the ideal situation from the point of view of the adult child, but it nonetheless demonstrates the relevance of parents for adult children. These surveys further show that the divorced have more contact (Sarkisian & Gerstel, 2008; Spitze et al., 1994; Ward et al., 1992), receive more emotional support (Sarkisian & Gerstel, 2008), more instrumental support (Sarkisian & Gerstel, 2008; Spitze et al., 1994) and more financial help (Sarkisian & Gerstel, 2008) than adult children

who are married. These findings suggest that parental support is important for people dealing with the consequence of a divorce.

2.3. Family background and parental support

Little is known about which characteristics of the family determine whether parents actually provide support for their divorced children (most research uses adult children's marital status as an independent variable and does not present stratified analyses or interactions). We expect that an adverse family background decreases the support that adult children receive. We consider two aspects of family background: socio-economic resources and parental divorce/single-parenthood. Each is shortly discussed below.

Recent surveys in the USA and the UK offer insight into the role of parental socio-economic resources in parental support of adult children. Parents who have more economic resources (Ermisch, 2004; Furstenberg, Hoffman, & Shrestha, 1995; Grundy, 2005; McGarry & Schoeni, 1995; Sarkisian & Gerstel, 2008), who are better educated (Ermisch, 2004; McGarry & Schoeni, 1995), and who are homeowners (Grundy, 2005) give their adult children more financial assistance. For other types of assistance the geographical distance between parents and children is important. A more advantaged family background tends to increase the geographical distance between parents and children, as children move away from the parental home to pursue higher education and they may accept jobs further away. A greater distance in turn, may decrease the flow of support. Ermisch (2004) shows that in the UK, parental economic resources increase the likelihood of parents to give instrumental support to their adult children controlling for the distance between parent and child, otherwise there does not appear to be a relationship. Parental education did not influence support giving, regardless of distance. Grundy (2005) shows that home-owning parents are more likely to provide instrumental support to their adult children (childcare, domestic help, paper/maintenance, lifts and shopping) in the UK (she did not control for distance). In sum, people from more affluent family backgrounds may expect more parental instrumental and financial support in their adult life.

Clear evidence regarding the effects of parental divorce and separation on intergenerational relationships exists. Adult children have less contact and fewer supportive exchanges with divorced and single parents than with married parents (Amato, 2000; Dykstra, 1997; Ermisch, 2004; Furstenberg et al., 1995; Grundy, 2005; Lye, 1996; Sarkisian & Gerstel, 2008; Spitze et al., 1994). Kiernan (1997), for NCDS data, shows that parental divorce decreased support in case of adult child relationship break-up: women with divorced parents relied in 49% on their parents, but only 36% did so if the parents were divorced. For men there were no such differences. Concerning financial support from the parents, fewer parents supported their children when the parents were divorced (21% versus 15%) and more adult children relied on government income assistance in that case (12% versus 16%). The last finding may indicate that the divorced parents were less willing, less able to help, and/or the children were

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[1] Own calculations based on Table 22, page 35.

unwilling to ask for help. Unfortunately, Kiernan did not consider socio-economic circumstances of the parents.

2.4. Family background and own resources

The negative consequences of divorce can be partly cushioned by own socio-economic recourse. Numerous studies report links between own socio-economic resources (education, income, occupational status) and psychological distress (e.g., Kim & Durden, 2007; Miech, Power, & Eaton, 2007). Resources supposedly insulate people against shocks and resources available to those higher on the socio-economic ladder make life less stressful. A number of studies investigate whether socio-economic resources moderate the effects of divorce on psychological distress (Liu & Chen, 2006; McLeod & Kessler, 1990; Wang & Amato, 2000), but few are longitudinal (Johnson & Wu, 2002). These studies suggest that lower socio-economic status increases the impact of divorce on psychological distress. Liu and Chen (2006), for instance, find that mothers who were poor during the union suffered more depressive symptoms after divorce than non-poor mothers. In addition, they find that poor mothers who exit a marriage with high marital conflict experience increased symptoms after a break-up, whereas non-poor mothers exiting such a marriage experience reduced symptoms (which is consistent with other studies into marital quality and divorce). Apparently, socio-economic resources can be a strong moderator of the impact of divorce. As parental background has a substantial effect on a person's resources in adulthood, we expect people from more adverse backgrounds to experience larger increases in distress from divorce.

In order to exclude the possibility that interactions with family background are mainly driven by the strong link between family background and socio-economic resources in adulthood, we will also present models that include interactions with the respondent's own socio-economic resources in the form of personal educational level.

2.5. Gender differences

The effects of divorce and of interactions with family background may differ between men and women. A number of research findings indicate that men and women may differ in the type of support needed surrounding a divorce and in help-seeking behavior. Women are most in (financial) need after a divorce, as they tend to suffer the most losses in income compared to men, and women are more often the custodial parent (Williams & Dunne-Bryant, 2006). Research reports a difference between men and women in receiving support: women are more likely to receive help than men. Probably because they are most in need of (financial) help and women in general are more likely to seek outside help. Men are more in need of emotional support but may be less likely to seek it. Spitze et al. (1994) report that divorced daughters who had custody had more contact with their parents and received more parental help with childcare than married daughters. Sarkisian and Gerstel (2008) report a better parent–child relationship quality for divorced daughters but not for sons. Kiernan (1997) further analyzed whether received

help differed by sex. In 92% of the break-ups women reported to receive emotional support (48% of them relied on parents), only 80% of the men who broke up relied on support (40% on parents). For financial support the differences between the sexes in received help are larger (women 61%, men 32%), but if they receive help men and women are as likely to turn to their parents (both 41%). We have no a priori expectations for differences in the effect of divorce and/or interactions with family background, but in light of these findings we decided to analyze men and women separately.

3. Data and methods

The National Child Development Study (NCDS) follows a sample of nearly all children (>98%) born in England, Wales and Scotland in the week of 3 to 9 March 1958 (Power & Elliott, 2006). Information on 17.634 children was gathered at age 0. Follow-ups took place when the respondents were 7, 11, 16, 23, 33 and 42. Immigrants born in the same week have been added to the sample at ages 7, 11 and 16. This study targets respondents who were living in the UK by age 11 ($N = 16,879$), so later migrants were excluded.

The analysis focuses on middle adulthood and uses the 9802 respondents who participated at both the age of 33 and 42. Considering the very long periods of follow-up, attrition in the NCDS has been low. Respondents who did not participate at some age were re-contacted at later ages. Permanent refusal to participate was very low in the NCDS (just 13% by the age of 42).

Respondents who experienced the death of a partner during or before the study period were excluded from the analyses ($N = 77$). So, we observe 9725 respondents. This amounts to 61% of those alive and not permanently emigrated by 42. In a second step, we select all respondents who were married at baseline (at 33) and who had a valid score on the dependent variable (further missing information will be imputed, see below for details). The analytical sample is reduced to 6884 respondents (3632 women and 3252 men).

Ancillary analyses of the probability of being observed in the 33–42 period using childhood predictors revealed that respondents from the more advantaged segments of British society are overrepresented.

4. Operationalisation

4.1. Psychological distress

Psychological distress is measured in the NCDS with the Malaise Inventory. The Malaise Inventory contains 24 statements on symptoms of anxiety, depression and psychosomatic distress with which respondents either agree or disagree. Examples of items are: "Do you often feel miserable or depressed?", "Do you often get worried about things?", and "Are you scared to be alone when there are no friends near you?". The inventory is administered at the ages of 33 and 42 (at age 33 a self-completion question-naire hand-out, at age 42 self-completion on a computer). The item whether respondents 'ever had a nervous breakdown' has been excluded because that item can

logically only increase over time and is therefore not a good measure of overall change in psychological distress. Rodgers, Pickles, Power, Collishaw, and Maughan (1999) found that one general factor of psychological distress underlies the Malaise scale (for 24 items). We calculated tetrachoric correlations (correlation for dichotomous items, assuming normally distributed latent variables) between the 23 items at each age and performed factor analysis (principal components) on the correlation matrices. Results yield clear one-factor solutions, factor loadings vary between .3 and .8 (also see Rodgers et al., 1999). The factor scores have been computed at each age. For those respondents who answered fewer than the 23 items, but answered at least 20 items, we extrapolated their scores to 23 items. Kuder–Richardson reliabilities (Cronbach's alpha for dichotomous items) were .80 at age 33 and .83 at age 42.

The change in psychological distress between the waves is measured by looking at the difference in the malaise scores between two subsequent waves. A higher change score indicates an increase in psychological distress.

4.2. Divorce and remarriage

Information given by respondents when they were 33 and 42 was used to reconstruct the marital career. We considered marriages that lasted for at least half a year. At age 42 (in 1999/2000) respondents participated in a CAPI interview, which asked about their relationships back to 1991 (when they were 33). Information from this interview was used to create a relationship history for the period 33–42.

The long time interval between the ages 33 and 42 waves of the NCDS (9 years) complicates the analyses. Research using panels with shorter intervals suggests that the effects of marital dissolution on life satisfaction and psychological distress may change over time (Andress & Brockel, 2007; Johnson & Wu, 2002). We therefore decided to differentiate between recent divorces and marital dissolutions more distant in time. In addition, it could be that the moderating effect family background changes over time as people's needs after a divorce may change.

We define 'recent divorces' as the divorces occurring in the past 5 years (so about age 37 or older, 5 years before being interviewed at age 42) and the 'distant divorces' occurring before that period (between 33 and 37). 89.5% of the sample remained continuously married, so about a tenth divorced. 7.9% divorced recently (termed 'recent divorce'), of which 8.6% had remarried. 2.6% divorced longer ago ('distant divorce'), of which 26.4% had remarried.

5. Family background

We use the following family background indicators: whether the family stayed intact during childhood and three measures of socio-economic resources (mother's educational level, father's social class, and economic deprivation). Mother's educational level provides information on resources attributable to the mother, father's social class to that of the father, and the economic deprivation index provides a general measure of socio-economic standing. The four measures combined provide a comprehensive picture of family background.

5.1. Parental divorce and broken family

For ages 7, 11, and 16 information is available of both the 'mother figure' and the 'father figure' (whether a natural parent, adoptive, stepfather, foster-parent, an uncle, etc.). At the age of 0 we just know whether there was a father present or not. At ages 11 and 16 questions were asked about why the mother/father figure was not the natural or adoptive one. At the age of 33 respondents were asked whether their parents ever divorced and how old they were at the time of divorce. These sources were used to categorize the respondents into three groups: first those from an intact family with two natural/adoptive parents until the age of 16; second those who ever experienced parental divorce before their 17th (a divorce reported at wave 11, 16, and/or 33 using the age of divorce information); and third those from a broken family (at wave 0, 7, 11 or 16 a family form other than two natural/ adoptive parents, but no evidence of divorce at wave 11, 16, and 33). The third group, termed 'other broken family', forms a mixture of children who experienced less favorable family circumstances, such as those children who were ever put into care/custody, who were raised by a single parent after parental death, etc.

5.2. Mother's educational level

Mother's educational level was measured whether the mother continued in education past the minimum age of school-leaving age (reported at age 0). The minimum age of leaving full-time education was raised from 14 to 15 in 1944 in the United Kingdom.

5.3. Economic deprivation

Information from the NCDS wave at the age 16 was used to create an index of economic deprivation. The following items were used:

(1) Crowded housing: The family resided in housing with more than 1.5 people per room.
(2) Received assistance: The family received government welfare assistance (the "national assistance benefit" was listed as a source of income in the last year).
(3) Financial hardship: The family suffered financial hardship in the last year.
(4) Free school meals: Any child received free school meals.

Respondents scored a point for each circumstance that hinted at economic troubles. This resulted in an index, ranging from 0 to 4. This index was standardized as an indicator of economic deprivation.

5.4. Father's/male head's social class

The NCDS contains information on the current or most recent occupation of the father/male head when the respondent was 16 years old. The father's social class is classified according to the UK Registrar General's Office classification of occupations, which is based on the skill needed for the job (Rose, 1995). The classes are: I

Table 1
Descriptives of the variables and % imputed.

	Mean	Range	s.d.	% Imputed
Change in psychological distress	.019	(−4.37–4.87)	.602	0
Female (ref.)	–	–	–	–
Male	.472	(0–1)	–	0
Continuously married (ref.)	–	–	–	–
Recent divorce, in past 5 years	.079	(0–1)	–	<.1
Distant divorce, >5 years ago	.026	(0–1)	–	<.1
Remarried, recent divorce	.007	(0–1)	–	<.1
Remarried, distant divorce	.007	(0–1)	–	<.1
Family background				
Intact family (ref.)	–	–	–	–
Parental divorce	.096	(0–1)	–	30.8
"Other broken" family	.078	(0–1)	–	30.8
Mother continued education past min. school-leaving age (ref.)	–	–	–	–
Mother did not continue	.262	(0–1)	–	4.4
Non-manual class father (ref.)	–	–	–	–
Manual class father	.620	(0–1)	–	30.7
Economic deprivation (std.)	0	(−.413–5.53)	1	27.6
Educational level (std.)	0	(−1.43–1.91)	1	2.0
Controls				
No disability → no disability (ref.)	–	–	–	–
No disability → disability	.096	(0–1)	–	.2
Disability → no disability	.029	(0–1)	–	.2
Disability → disability	.024	(0–1)	–	.2
Active → active (ref.)	–	–	–	–
Active → idle	.063	(0–1)	–	.6
Idle → idle	.057	(0–1)	–	.6
Idle → active	.135	(0–1)	–	.6

Note: s.d. not displayed for dummy variables.

professional, II intermediate (managerial/technical), IIIa skilled non-manual, IIIb skilled manual, IV semi-skilled manual and V unskilled. In order to observe a sufficient number of divorces per group, we collapsed the social classes into non-manual (I, II and IIIa) versus manual (IIIb, IV and V).

5.5. Controls

We control for deteriorations in the respondent's health between waves, as disability has been shown to affect mental health (e.g., Turner & Noh, 1988) and a worse health of one of the partners may increase the risk of divorce (Meadows, McLanahan, & Jeanne, 2008; Wilson & Waddoups, 2002). The interviews at 33 and 42 asked the respondents whether they suffer from any longstanding disability or illness that limits their daily activity and when it started. Dummy variables were coded to capture transitions between not being disabled to becoming disabled and back.

Changes in respondent's employment between waves are also taken into account, as many studies show strong links between leaving and entering employment on the one hand and mental health on the other hand (Montgomery, Cook, Bartley, & Wadsworth, 1999; Thomas, Benzeval, & Stansfeld, 2005). The respondent's employment status was coded into active and idle categories. The active state includes employment and full-time study. Idle

varies from domestic workers, women on pregnancy leave to unemployment. Dummy variables were created to indicate whether people stay active, become idle, stay idle, and become active.

Table 1 provides information on the distributions of the variables used in the analysis.

6. Analytic strategy

We model the effect of divorce on psychological distress over time. We use as the dependent variable the difference in psychological distress between two waves and our main independent variable refers to changes that occurred between the two time points. The models include time invariant predictors (family background indicators and educational level of the respondent) on the right hand side of the regression equation.[2] This variant is chosen because we want to include family background also as main effects in the models, to control for the possibility that people with different backgrounds are on different mental health trajectories (Finkel, 1995).

We start with a base model, which includes the effects of life course transitions. In a second step, we estimate five

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[2] e.g.: $\Delta Y_{(Y \text{ at } 42-Y \text{ at } 33)} = \beta_0 + \beta_1 X_{\text{divorce}} + \beta_2 X_{\text{parental divorce}} + \beta_3 X_{\text{divorce}\times \text{parental divorce}} + \beta'X'$.

models that include the main effects of one indicator of family background and its interaction with divorce. In a third step, we estimate models that include all the indicators of family background and interactions with divorce simultaneously. In a fourth step, we control for the respondents' current educational level.

Family background information was taken from the NCDS childhood waves (wave at age 16, except whether the family remained intact and mother's educational level). A substantial number of respondents lack complete information at age 16 (about 30%, see Table 1), but very detailed information is available in other childhood waves (at age 0, 7, and 11). We therefore imputed missing values using information from the earlier waves (for a description of the technique, see van Buuren, Boshuizen, & Knook, 1999). We generated 10 imputed complete data sets using the ICE multiple imputation package in Stata for young and middle adulthood (ICE, see: Carlin, Galati, & Royston, 2008) (see Appendix A for details). The models are estimated separately for men and women using OLS regression. Estimates from the imputed datasets are combined according to Rubin's rules for multiply imputed data using the MIM package in Stata (MIM, see Carlin et al., 2008).

7. Results

We first state the incidence of divorce and remarriage by respondent's sex (note that we start with an all married sample). 7.2% of the women experienced a divorce in the last 5 years, 8.6% of the men. Of the recently divorced, 6.5% of the women had remarried and of the men 10.7%. More distant divorces occurred for 3.0% of the women and 2.2%

Table 2
OLS regressions of change in psychological distress for women (all married sample at baseline).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Continuously married (ref.)	–	–	–	–	–	–
Recent divorce, in past 5 years	.16***	.10**	−.04	.01	.17***	−.12
Distant divorce, more >5 years ago	−.03	−.01	−.12	−.07	−.03	−.11
Remarried, divorce in past 5 years	−.23	−.21	−.19	−.24	−.23	−.19
Remarried, divorce >5 years ago	.14	.13	.14	.14	.15	.14
Controls						
No disability → no disability (ref.)	–	–	–	–	–	–
No disability → disability	.24***	.24***	.24***	.24***	.24***	.24***
Disability → no disability	−.23***	−.23***	−.24***	−.23***	−.23***	−.23***
Disability → disability	.12*	.12	.11	.12*	.12*	.12
Active → active (ref.)	–	–	–	–	–	–
Active → idle	.12***	.12***	.13***	.12***	.12***	.12***
Idle → idle	.03	.03	.02	.02	.03	.02
Idle → active	−.00	−.00	−.00	−.00	−.00	−.00
Family background						
Intact family (ref.)	–	–	–	–	–	–
Parental divorce	−.03	−.05	−.03	−.03	−.03	−.04
"Other broken" family	.01	−.00	.01	.01	.01	−.00
Mother continued education past min. school-leaving age (ref.)	–	–	–	–	–	–
Mother did not continue	.01	.01	.01	.01	.01	−.01
Non-manual class father (ref.)	–	–	–	–	–	–
Manual class father	−.01	−.01	−.01	−.03	−.01	−.02
Economic deprivation (std.)	−.04***	−.04***	−.04***	−.04***	−.05***	−.05***
Educational level (std.)	.02**	.02**	.03**	.02**	.02*	.02*
Interactions with divorce						
Parental divorce × recent divorce		.17				.10
"Other broken" fam. × recent divorce		.26**				.20
Parental divorce × distant divorce		−.02				−.03
"Other broken" fam. × distant divorce		−.20				−.22
Mother did not cont. × recent divorce			.27***			.20*
Mother did not cont. × distant divorce			.11			.09
Manual class father × recent divorce				.24***		.15
Manual class father × distant divorce				.07		.05
Econ. depr. (std.) × recent divorce					.14**	.09
Econ. depr. (std.) × distant divorce					.03	.04
Constant	−.03	−.02	−.01	−.01	−.03	−.00
N	3632	3632	3632	3632	3632	3632
R^2	.031	.033	.033	.033	.034	.037

Note: Combined estimates from imputed datasets (10 imputations) using Rubin's rules.
   * $p < .1$, two-tailed.   ** $p < .05$, two-tailed.   *** $p < .01$, two-tailed.

of the men. In this group, about a quarter of the women were remarried and almost a third of the men.

7.1. Main effects

Table 2 shows the OLS models of change in psychological distress for women. The OLS models for the men are depicted in Table 3. The first model shows the basic model of change regressed on marital changes, family background variables, personal educational level, and the controls. Models 2–5 add interactions of divorce and an indicator of family background separately. Model 6 shows the model with the interactions added simultaneously. Tables 4 and 5 present, for women and men, respectively, models that also include interactions with personal educational level.

We first discuss the effect of relationship transitions for women (Table 2, model 1) and for men (Table 3, model 1). Women who recently divorced experienced an increase in psychological distress. More distant divorces do not significantly raise psychological distress. However, this is an average effect that may hide considerable heterogeneity. Remarriage is not associated with a reduction in distress for women. For men, relationship transitions do not seem to influence change in psychological distress as the main effects of divorce and remarriage are not significant. Note again that these are average effects.

Before we move on to investigate possible heterogeneity in the effect of divorce related to family background we discuss the other main effects of model 1. Women and men who experienced the onset of a disability suffered a

Table 3
OLS regressions of change in psychological distress for men (all married sample at baseline).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Continuously married (ref.)	–	–	–	–	–	–
Recent divorce, in past 5 years	.03	−.01	.00	.10	.02	.05
Distant divorce, more >5 years ago	−.12	−.14	−.13	−.19*	−.15*	−.13
Remarried, divorce in past 5 years	−.10	−.10	−.11	−.10	−.10	−.09
Remarried, divorce >5 years ago	.07	.07	.07	.08	.12	.12
Controls						
No disability → no disability (ref.)	–	–	–	–	–	–
No disability → disability	.21***	.21***	.21***	.21***	.22***	.22***
Disability → no disability	−.11*	−.11*	−.11*	−.11*	−.11**	−.11*
Disability → disability	.19***	.19***	.19***	.19***	.19***	.19***
Active → active (ref.)	–	–	–	–	–	–
Active → idle	.32***	.32***	.32***	.32***	.32***	.32***
Idle → idle	−.09	−.09	−.09	−.09	−.10	−.10
Idle → active	.02	.01	.02	.02	.02	.02
Family background						
Intact family (ref.)	–	–	–	–	–	–
Parental divorce	−.04	−.06	−.04	−.04	−.04	−.05
"Other broken" family	.03	.00	.03	.03	.03	.00
Mother continued education past min. school-leaving age (ref.)	–	–	–	–	–	–
Mother did not continue	−.01	−.01	−.01	−.01	−.01	−.01
Non-manual class father (ref.)	–	–	–	–	–	–
Manual class father	−.00	.00	−.00	.01	.00	.01
Economic deprivation (std.)	−.01	−.01	−.01	−.01	−.02	−.02
Educational level (std.)	.02**	.02**	.02**	.02**	.02**	.02**
Interactions with divorce						
Parental divorce × recent divorce		.30**				.29**
"Other broken" fam. × recent divorce		.15				.09
Parental divorce × distant divorce		.07				−.02
"Other broken" fam. × distant divorce		.08				.01
Mother did not cont. × recent divorce			.03			.04
Mother did not cont. × distant divorce			.01			−.05
Manual class father × recent divorce				−.11		−.14*
Manual class father × distant divorce				.12		.05
Econ. depr. (std.) × recent divorce					.06*	.06*
Econ. depr. (std.) × distant divorce					.12*	.12*
Constant	.00	.00	.00	−.00	.00	−.00
N	3252	3252	3252	3252	3252	3252
R^2	.041	.043	.041	.042	.044	.047

Note: Combined estimates from imputed datasets (10 imputations) using Rubin's rules.
* $p < .1$, two-tailed. ** $p < .05$, two-tailed. *** $p < .01$, two-tailed.

Table 4
OLS regressions of change in psychological distress for women (all married sample at baseline). Interaction with educational level added.

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Continuously married (ref.)	–	–	–	–	–	–
Recent divorce, in past 5 years	.14***	.09*	−.02	.03	.15***	−.09
Distant divorce, more >5 years ago	−.05	−.03	−.10	−.06	−.05	−.06
Remarried, divorce in past 5 years	−.23	−.21	−.20	−.23	−.22	−.19
Remarried, divorce >5 years ago	.14	.13	.14	.14	.14	.14
Controls						
No disability → no disability (ref.)	–	–	–	–	–	–
No disability → disability	.24***	.24***	.24***	.24***	.24***	.24***
Disability → no disability	−.24***	−.24***	−.24***	−.23***	−.24***	−.24***
Disability → disability	.11	.11	.11	.12	.12	.11
Active → active (ref.)	–	–	–	–	–	–
Active → idle	.12***	.12***	.13***	.12***	.12***	.12***
Idle → idle	.03	.03	.02	.02	.02	.02
Idle → active	−.00	−.00	−.00	−.01	−.00	−.00
Family background						
Intact family (ref.)	–	–	–	–	–	–
Parental divorce	−.03	−.05	−.03	−.03	−.03	−.04
"Other broken" family	.01	−.00	.01	.01	.01	.00
Mother continued education past min. school-leaving age (ref.)	–	–	–	–	–	–
Mother did not continue	.01	.01	−.01	.01	.01	−.00
Non-manual class father (ref.)	–	–	–	–	–	–
Manual class father	−.01	−.01	−.01	−.02	−.01	−.02
Economic deprivation (std.)	−.04***	−.04***	−.04***	−.04***	−.05***	−.05***
Educational level (std.)	.03***	.00	.00	.00	.00	.03**
Interactions with divorce						
Parental divorce × recent divorce		.15				.09
"Other broken" fam. × recent divorce		.25**				.20
Parental divorce × distant divorce		−.03				−.03
"Other broken" fam. × distant divorce		−.23				−.23
Mother did not cont. × recent divorce			.22**			.18
Mother did not cont. × distant divorce			.06			.04
Manual class father × recent divorce				.19**		.13
Manual class father × distant divorce				.01		.00
Econ. depr. (std.) × recent divorce					.13**	.09
Econ. depr. (std.) × distant divorce					.01	.02
Educational level (std.) × recent divorce	−.10**	−.10**	−.07	−.07	−.09*	−.04
Educational level (std.) × distant divorce	−.09	−.10	−.08	−.09	−.09	−.08
Constant	−.02	−.02	−.01	−.02	−.02	−.01
N	3632	3632	3632	3632	3632	3632
R^2	.033	.035	.034	.034	.035	.038

Note: Combined estimates from imputed datasets (10 imputations) using Rubin's rules.
* $p < .1$, two-tailed.   ** $p < .05$, two-tailed.   *** $p < .01$, two-tailed.

marked increase in psychological distress. Those who were no longer disabled at 42 but who were at 33 reported a decrease in distress, but women experienced a sharper decline than men. People who remained disabled over the period from 33 to 42 reported an increase in distress but this was somewhat smaller than becoming disabled. Moves between active (employed or full-time study) or idle (unemployed or out of the labor force) states were associated with change in psychological distress. Women and men who moved from being active to idle suffered an increase in distress. People who moved from idle to active state and those who stayed idle did not experience changes in psychological distress compared to people who stayed active. The family background main effects indicators hardly influence the change in psychological distress; only

women whose family background was characterized by more economic deprivation experienced a decrease in distress over the period of 33–42. Men and women who had a higher level of education at 33 report a slight increase in psychological distress over time.

7.2. Heterogeneity: women

The full and separate family background models that include interactions with recent and distant divorce for women are shown in Tables 2 and 4. All four indicators of an adverse family background significantly moderate the impact of a recent divorce. In line with our main hypothesis, women from a 'broken family' suffer more from a recent divorce than women from intact families.

Table 5
OLS regressions of change in psychological distress for men (all married sample at baseline). Interaction with educational level added.

	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Continuously married (ref.)	–	–	–	–	–	–
Recent divorce, in past 5 years	.03	−.00	−.03	.09	.03	.02
Distant divorce, more >5 years ago	−.11	−.12	−.09	−.17	−.14[*]	−.13
Remarried, divorce in past 5 years	−.10	−.10	−.11	−.10	−.10	−.10
Remarried, divorce >5 years ago	.06	.07	.06	.07	.12	.12
Controls						
No disability → no disability (ref.)	–	–	–	–	–	–
No disability → disability	.21[***]	.21[***]	.21[***]	.21[***]	.21[***]	.21[***]
Disability → no disability	−.11[**]	−.11[*]	−.11[**]	−.11[**]	−.12[**]	−.12[**]
Disability → disability	.19[***]	.19[***]	.19[***]	.19[***]	.19[***]	.19[***]
Active → active (ref.)	–	–	–	–	–	–
Active → idle	.33[***]	.32[***]	.32[***]	.33[***]	.33[***]	.33[***]
Idle → idle	−.09	−.09	−.09	−.09	−.10	−.10
Idle → active	.01	.01	.01	.01	.02	.02
Family background						
Intact family (ref.)	–	–	–	–	–	–
Parental divorce	−.04	−.06	−.04	−.04	−.04	−.05
"Other broken" family	.03	−.00	.02	.02	.03	.00
Mother continued education past min. school-leaving age (ref.)	–	–	–	–	–	–
Mother did not continue	−.01	−.01	−.02	−.01	−.01	−.02
Non-manual class father (ref.)	–	–	–	–	–	–
Manual class father	−.00	−.00	−.00	.00	−.00	.01
Economic deprivation (std.)	−.01	−.01	−.01	−.01	−.02	−.02
Educational level (std.)	.02[*]	.00	.00	.00	.00	.02
Interactions with divorce						
Parental divorce × recent divorce		.30[**]				.28[*]
"Other broken" fam. × recent divorce		.15				.08
Parental divorce × distant divorce		.05				−.02
"Other broken" fam. × distant divorce		.07				.01
Mother did not cont. × recent divorce			.08			.08
Mother did not cont. × distant divorce			−.02			−.05
Manual class father × recent divorce				−.08		−.12
Manual class father × distant divorce				.10		.05
Econ. depr. (std.) × recent divorce					.07[**]	.07[*]
Econ. depr. (std.) × distant divorce					.12[*]	.12
Educational level (std.) × recent divorce	.07[*]	.07[*]	.08[**]	.06	.09[**]	.08[**]
Educational level (std.) × distant divorce	−.05	−.05	−.05	−.04	−.00	−.00
Constant	.00	.01	.01	−.00	.00	.00
N	3252	3252	3252	3252	3252	3252
R^2	.043	.045	.043	.043	.046	.048

Note: Combined estimates from imputed datasets (10 imputations) using Rubin's rules.
 [*] $p < .1$, two-tailed. [**] $p < .05$, two-tailed. [***] $p < .01$, two-tailed.

Women whose mothers did not continue education after the minimum school-leaving age suffer more from their own recent divorce. Further support for our main hypothesis comes from the finding that women whose fathers were manual workers suffered more from recent divorce than women with non-manual fathers. In addition, women from more economically deprived backgrounds suffered more from recent divorce. The magnitude and significance of these moderating effects diminishes in the full model (model 6) compared to the separate models for each indicator, probably because these indicators are correlated measures of family background. Mother's educational level and father's social class appear to be the more robust indicators, as the main effect of recent

divorce is not significant, i.e. the effect of divorce for women with mothers who continued in school or with fathers who had non-manual occupations (models 3 and 4). Interactions with divorces more distant in time are all insignificant, so for women distant divorces do not seem to influence psychological distress in general and also not for subgroups defined by family background.

Table 4 shows similar models but now also includes an interaction with personal educational level to test the possibility that family background indicators are merely proxies for personal socio-economic resources. Model 7 shows that better educated women suffer less from recent divorces. Again, we do not find an interaction with distant divorces. Models 8–11 show that the addition of educa-

tional level does not really affect the family background interactions: the separate interactions are only slightly reduced. Interestingly, in models 9 and 10 the interaction effect of educational level is reduced and no longer significant, so personal educational level no longer buffers when mother's education or father's occupation are added.

7.3. Heterogeneity: men

Even though, on average men do not appear to suffer from divorce (model 1), the other models of Table 3 tell a different story. They reveal striking heterogeneity in the effect of a recent divorce. Men with divorced parents appear to do suffer from their recent divorce, whereas men from an intact family do not. In the full model with the other family background indicators this effect remains. Furthermore, the significant positive interactions (be it only at the 10% level) between recent and distant divorce with economic deprivation show an additional source of heterogeneity.

The full model shows that men whose fathers had a manual occupation who experience a recent divorce suffer less when we control for the other family background interactions, which contradicts our main hypothesis. The effect is only at the 10% level and not found in the separate model. Overall, these findings lend support to our hypothesis: On average men do not suffer from divorce, but those from divorced families and those with a poorer background do appear to suffer from divorce.

Models that also include the interaction with personal educational level for men are shown in Table 5. Model 7 shows that better educated men suffer more from recent divorces, contrary to the findings for women. We do not find an interaction with distant divorces. The addition of educational level does not really affect the family background interactions similar to what we saw for women, as can be seen by comparing models 8–12 with models 2–6. Only the interaction effects between distant divorce and economic deprivation and the interaction between recent divorce and father's social class disappear in the full model.

8. Conclusions

We investigated whether family background moderates the effect of divorce on psychological distress. The analysis brought together the study of life course transitions and social stratification. We used a large prospective cohort of individuals in the UK followed from birth to their early forties to study the effect of divorce in middle adulthood (33–42). The large number of respondents ensured that enough divorces were observed to estimate reliable interaction effects. Additionally, the NCDS data contained prospective information on a broad range of family background indicators. We differentiated between recent divorces (occurring in the past 5 years) and more distant divorces.

We found that the experience of divorce is associated with an increase in psychological distress for women, but not for men. Furthermore, the distressing effect of divorce

was limited to recent divorces. These are average effects, however, which may hide considerable heterogeneity and we tested whether family background moderates the effect of recent and distant divorces on psychological distress.

In our examination of possible interactions of divorce with family background a clear pattern emerges. In line with our main hypothesis, people from an adverse family background suffered more psychological distress from divorce than people from a more favorable family background. These effects, however, were restricted to recent divorces (those occurring in the past 5 years), as the moderating impact of an adverse family background was not found for divorces more distant in time. For recent divorce, we found an effect for all indicators of a more adverse family background: those who grew up in a non-intact family (parental divorce and for other reasons), whose mothers did not continue school after the minimum school-leaving age, whose fathers were manual workers, and those from an economically deprived background. While we failed to find support for our hypothesis for divorces more distant in time, we find strong evidence regarding recent divorces in support of our hypothesis.

Furthermore, we explored whether moderating effects differed by sex. For women, the average effects of a divorce are stronger than for men. There appear to be some differences between men and women in the extent to which family background moderates the impact of recent divorces. An adverse family background moderates the impact of divorce for both sexes, but the moderating effects seem to be stronger for women than for men. Both women and men suffer more from divorce if they come from a non-intact family. A family background of lower socio-economic resources (lower educated mother, father manual worker, poverty) appears to be especially negative for women if they divorce but not so much for men. Women are more geared towards family and suffer larger socio-economic set-back after divorce, which may explain the greater importance of family background for them.

In addition, we tested whether current socio-economic resources were the driving force behind the moderating influence of family background. The inclusion of educational level did not really change the influence of family background. Interestingly, higher educated women suffered less from divorce, whereas higher educated men suffered more. Taken together with the finding that family background mattered more for women than for men, this lends more support to the idea that women with fewer socio-economic resources (own and parental) are more vulnerable after divorce. The opposing findings of women and men regarding educational level are not so easily explained and are an interesting opportunity for further research.

Our analysis has important strengths, such as the prospective design and the large number of divorces, but it also has a few drawbacks that leave open a number of possible improvements. The long time interval between the ages 33 and 42 waves of the NCDS (9 years) complicates the analyses. We differentiated between

Table A1
Information on missing values of family background variables (N = 6684), per variable N and % non-missing).

	Age 0		Age 7		Age 11		Age 16		Age 33	
	N	%	N	%	N	%	N	%	N	%
Complete family history up until 16 (divorce, 'other broken' family)							**4762**	**71**		
Mother unmarried	*6601*	*96*								
Whether current broken family			*6175*	*90*	*5956*	*87*	*5244*	*76*		
Whether current divorce					*8353*	*87*	*7280*	*76*		
Retrospective parental divorce									*6810*	*99*
Mother's min. education	**6583**	**96**					5138	75		
Father's min. education			5968	87			5034	73		
Social class father	6329	92	5989	87	5756	84	**4772**	**69**		
Social class mother's grandfather	5449	79								
Social class father's grandfather	5072	74								
Economic deprivation index							**4983**	**72**		
Financial hardship			*5361*	*78*	*5768*	*84*	*5120*	*74*		
Free school meal					*5868*	*85*	*5163*	*75*		
National assistance			*5514*	*80*	*5821*	*85*	*5209*	*76*		
Crowded housing	*6441*	*94*	*5919*	*86*	*5936*	*86*	*5177*	*75*		

Bold = variable used in analysis, except for "complete family history up until age 16" and the economic deprivation index, both of which are constructed after the imputation process (constructed from relevant variables in italics). All other variables used in imputation process.

recent and distant divorces to take the long time interval into account, but this cannot fully solve the problems introduced by the wide spacing of measurements in time. Perhaps parental resources are mainly helpful to soften the direct short-term effects of divorce. In addition, the NCDS lacks detailed information on the current situation of the parents and on the current relationship of the respondent with his/her parents. Such information would have allowed us to test the potential buffering effects of family background through parental support and resources more directly. We leave it to future research to address these questions.

This study has tried to shed more light on heterogeneity in the effect of divorce on psychological distress by exploring whether a more adverse family background makes people more vulnerable to the effects of divorce. The findings help to widen our understanding of why divorce has a greater impact for some than for others. In addition, the evidence presented in this paper suggests that differential vulnerability related to family background to the effects of negative events, such as divorce, may be a pathway through which disparities in mental health come about. The study offers some evidence for differential vulnerability, but more research is needed. For example: using data with a shorter time interval between waves and more direct measurements of current contact with parents. It is also important to look for other possible factors, which may moderate the effects of negative life events, for instance the respondents' own expectations.

We started out with a simple and, in our view, compelling hypothesis: people from an adverse family background suffer more from a divorce than people from a more favorable family background. We find that the experience of divorce is a traumatic experience, especially for men and women with an adverse family background. It is up to future research to find out

why and how family background shapes the impact of divorce.

Appendix A

Table A1 lists selected variables relevant to family background in the NCDS in the different childhood waves. For most missing information at age 16, we have information in earlier waves. Correlations between socio-economic indicators on the same dimension between different childhood waves average around .60, with waves more distant in time showing lower correlations. This suggests that using other childhood waves to impute missing information is a valid strategy (van Buuren et al., 1999). There is very few missing information on the adult variables, so they are not listed (these are imputed too).

We proceeded as follows. We used the ICE subcommand in Stata (Carlin et al., 2008) to create 10 imputed datasets. ICE uses data augmentation to create multiply imputed datasets. We used the target sample (respondents who were living in the UK by age 11 (N = 16,879)) because information from the entire sample may help to obtain better imputations of the family background variables. We included the family background indicators (described in the operationalisation section; see the variables in bold from Table A1), a number of additional childhood variables to improve the imputations (see Table A1), and the variables in adulthood for each of the age 33 and 42 waves (dependent variable, relationship status and history, and the controls).

Next, we dropped the observations which in the original data did not fit our selection criteria (missing information on dependent variable, not married at baseline). And in each of the imputed datasets we created the family background indicators, as described in the operationalisation.

Finally, we used the MIM subcommand of Stata (Carlin et al., 2008) to fit linear regression models in each imputed dataset and to combine the estimates using Rubin's rules.

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