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## Maternal education, divorce, and changes in economic resources: Evidence from Germany

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Liliya Leopold and Thomas Leopold

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Maternal Education, Divorce, and Changes in Economic Resources:  
Evidence from Germany

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## ABSTRACT

This study investigated the effects of divorce on educational gaps in mothers' economic resources. The results shed new light on two opposing theoretical positions that have informed research on social inequality in the consequences of divorce. Recent extensions of the "diverging destinies" perspective posit that divorce is more consequential among the disadvantaged than among the privileged. The notion of "divorce as an equalizer" posits the reverse. Based on data from the German SOEP, we estimated correlated random-effects models to examine educational gaps in divorce-related changes of mothers' household income and risk of poverty. The results are inconsistent with the diverging destinies perspective, as educational gaps in mothers' economic resources did not widen after divorce. Instead, we found partial support for the competing notion of divorce as an equalizer, as higher educated mothers experienced larger declines in household income. Educational gaps in the risk of poverty remained constant.

## INTRODUCTION

Children suffer in numerous ways from parental divorce. Negative consequences include lower socioeconomic attainment, lower subjective well-being, declines in mental and physical health, increases in risky health behaviors, and even heightened mortality (Amato et al., 1995; Amato, 2010; Cherlin et al., 1998; Larson & Halfon, 2013). These effects, of course, apply only on average. If parents can mobilize resources to protect their children from the consequences of divorce, negative effects on child outcomes may be dampened or even absent. If parents are deprived of these resources, however, children are exposed to a greater risk of experiencing the negative effects of divorce.

In view of that, recent research has shifted the focus from estimating average effects of divorce on child outcomes to exploring socioeconomic differences in these effects. This expanding line of investigation is guided by the idea that divorce-related changes in the resources of parents – particularly of mothers – mediate the effects of divorce on children. To test this proposition, studies have examined whether divorce is more consequential for children of parents in higher or lower social positions (Augustine, 2014; Bernardi & Radl, 2014; Grätz, 2015; Fischer, 2007; Mandemakers & Kalmijn, 2014).

So far, this research has not produced consistent results. Some studies have shown that children from disadvantaged families suffer more from divorce than children from affluent families (Albertini & Dronkers, 2009; Grätz, 2015; Mandemakers & Kalmijn, 2014). This evidence is consistent with the notion of “diverging destinies.” This perspective posits that divorce increases social inequality in parental resources and, in turn, in child outcomes (Augustine, 2014; McLanahan, 2004).

Other studies have reported the opposite pattern, indicating that children from disadvantaged families suffered less from divorce than their privileged counterparts (Bernardi &

Radl, 2014; Fischer, 2007). This evidence supports the notion of “divorce as an equalizer.” This perspective posits that divorce reduces social inequality in parental resources and, in turn, in child outcomes (Bernardi et al., 2014; Biblarz and Raftery, 1993).

In the present study, we address three deficits of previous research to shed more light on these theoretical positions and the contrasting empirical findings associated with these positions. First, and most important, studies on socioeconomic differences in the effects of divorce have focused on the child as a unit of analysis. Yet, the expectations about heterogeneous outcomes at the level of children are based on contrasting assumptions about changes occurring at the level of parents. Most notably, parents’ loss of resources, and socioeconomic differences herein, constitute a main mechanism mediating heterogeneous effects of divorce on child outcomes (Bernardi & Radl, 2014; Mandemakers & Kalmijn, 2014). Given their central role, the near absence of studies on parental resources represents an important gap in research about social inequality in the effects of divorce. To fill this gap, the presents study examines educational gaps in the resources of higher and lower educated mothers before and after divorce.

Second, the few studies that have investigated heterogeneous effects of divorce at the parental level have covered only a limited range of relevant resources (Beck et al., 2010; Cooper et al., 2009). Most notable is the lack of findings on divorce-related changes in economic resources. Economic resources are considered a crucial mediator for the effects of family structure on child outcomes (Thomson & McLanahan, 1994, McLanahan & Sandefur, 1994; Strohschein, 2012) and figure prominently in research on social inequality in the consequences of divorce for children (Bernardi & Radl, 2014; Bernardi et al., 2014; Fischer 2009; Mandemakers & Kalmijn, 2014). In the present study, we address this gap by focusing on educational differences in the effects of divorce on economic outcomes in mothers. Specifically, we followed higher, intermediate, and lower educated mothers to examine how gaps in (a) post-government

household income and (b) risk of poverty changed across the transition from a marital union to divorce and throughout post-divorce years.

Third, the data used in previous studies on change in parents' resources covered only the short-term effects of divorce. The expectation of heterogeneous effects across the social spectrum, however, implies that the differential consequences of divorce for parents emerge not only in the short term, but also in the long-term. In the present study, we used data from the German Socio-economic Panel Study (SOEP) to examine educational differences in the effects of divorce on mothers' economic resources both in short term and in the long term, drawing on an extensive observation window that covers up to thirty annual waves. In the empirical analysis, we estimated correlated random-effects models for panel data (Mundlak, 1978; Wooldridge, 2010). These models combine the advantages of within-estimators (i.e., fixed-effects) for educational differences in the effects of divorce on mothers' economic resources with between-estimators (i.e., random-effects) for educational differences in these resources measured before divorce.

#### THEORETICAL BACKGROUND

Divorce is one of the most stressful life events. It not only disrupts families but also involves declines in parents' economic, psychological, and social resources, which, in turn, limit their ability to care for their children (George, 1993; Cooper et al., 2009; McManus & DiPrete, 2001). According to Peterson's (1996) estimates, women from the U.S. experience declines of approximately one third of their pre-divorce standard of living. Recovery is typically slow and remains incomplete even several years after a divorce (Andreß et al., 2006; Smock et al., 1999). The loss of economic resources is most consequential for mothers who cross the poverty line after divorce and face difficulties in meeting their own and their children's needs (Gershoff et al., 2007).



Moreover, declines in economic resources often necessitate residential moves and downgrades in the quality of housing, both of which may constitute powerful secondary stressors related to divorce. For example, residential moves may lead to the loss of community resources available to mothers and their children (Hanson et al., 1998). These include ties to peers and formal organizations, which have been established before divorce and constitute an important source of social support, information, and opportunities for economic and psychological recovery (Coleman, 1988). Related to these stressors, the psychological well-being of mothers has been shown to decline substantially after divorce (Carlson, 2006; Lucas et al., 2003). Studies have documented declines in mental health, internalizing problems such as depression, and a reduced capacity to spend time with children in the presence of competing demands for childcare, housework, and market work (Amato, 1998).

Looking at child outcomes, these changes have been linked to lower educational attainment, declines in mental health, and declines in physical health not only in the periods surrounding divorce, but also many years later (Amato et al., 1995; Cherlin et al., 1998). Most of these effects have been attributed to parents' loss of economic resources rather than to changes in parental behavior (Thompson & McLanahan, 1994; Jonsson & Gähler, 1997).

### *“Diverging Destinies” or “Divorce as an Equalizer”?*

In recent years, analysts have increasingly recognized that the absolute and relative impact of divorce is not uniform across the social spectrum. Accordingly, the focus has shifted from estimating average effects of divorce to heterogeneity in these effects (Augustine, 2014; Bernardi & Radl, 2014).

The “diverging destinies” perspective has emerged from broader social changes that have occurred across the second demographic transition. Initial formulations of this argument focused

on changes in the exposure to adverse life events. In the U.S., rates of divorce increased particularly among lower educated mothers, rendering them a primary risk group for experiencing the negative consequences associated with this transition (McLanahan, 2004). Recent studies have extended this argument, positing that divorce is not only more prevalent, but also more consequential among lower educated mothers (Augustine, 2014; Mandemakers & Kalmijn, 2014). According to this view, lower educated mothers are most vulnerable to factors that intensify the economic, social, and psychological consequences of divorce. These include higher economic dependency on their partners, greater losses in household income, and an elevated risk of crossing the poverty line after separation (Mandemakers & Kalmijn, 2014). Stronger economic deprivation, in turn, may increase parenting stress and reduce mental health, well-being, and involvement with children.

Moreover, lower educated mothers can draw on fewer resources to recover from these negative consequences of divorce, given their lower levels of human capital, social capital, and cognitive abilities that foster coping (Augustine, Cavanagh, & Crosnoe, 2009). Higher educated mothers, in contrast, are not only less likely to experience economic deprivation after divorce, but can also mobilize more resources to compensate for losses and to recover more swiftly (Augustine, 2014).

An opposing view, labeled “divorce as an equalizer,” is rooted in the work of Biblarz and Raftery (1993). These authors found that the negative effects of parental divorce on occupational attainment were greater for children of higher socio-economic background, suggesting that increasing rates of divorce may reduce social inequality. Several studies have built on this idea. The basic argument focuses on the presence or absence of floor effects: Because the higher educated have accumulated more economic resources before divorce, they also have more to lose. These losses include protection against poverty, opportunities to spend quality time with children,

and involvement of a high-resource father. According to the “divorce as an equalizer” perspective, lower educated mothers are less vulnerable to divorce-related declines in these resources, given that they often experience economic deprivation already before divorce. As a result, there is little room for further losses (Bernardi & Radl, 2014). This is particularly true for generous welfare states in which various social policies protect their citizens against financial hardship.

### *Previous evidence*

Only two studies have directly assessed educational differences in the consequences of family disruption for mothers’ resources (Beck et al., 2010; Cooper et al., 2009). The results are mixed. Data from the Fragile Families and Child Wellbeing Study on mothers of children aged zero to five showed that in terms of parenting stress, lower educated mothers responded more negatively to family disruption, and especially to divorce (Cooper et al., 2009). A second study used the same data to examine educational differences in the consequences of family instability for parenting stress and literacy activities with children (Beck et al., 2010). This study reported similar results for parenting stress, but found that higher educated mothers were more negatively affected by family instability in terms of literacy activities with their children.

Given their focus on educational differences in change of mothers’ resources, these studies provide initial insight into some of processes hypothesized by the perspectives of “diverging destinies” and “divorce as an equalizer.” They not only indicate substantial educational differences in the effects of divorce on maternal resources, but also show that the educational gradient in the consequences of divorce may not be uniform across different types of maternal resources.

Yet, despite their merits, these studies are not sufficient to examine key arguments advanced by the two opposing perspectives. First, the outcome measures covered only a limited range of relevant resources. Educational differences in the effects of divorce on mothers' economic resources – the central factor highlighted by both perspectives – have not been considered. Second, the analysis of divorce effects covered a limited time span, capturing only the short-term effects of divorce and separation on changes in maternal resources. Yet, both the “diverging destinies” perspective and the “divorce as an equalizer” perspective emphasize the lasting consequences of divorce not only for mothers but also for their children. An empirical assessment of these arguments needs to consider how educational differences in the effects of divorce on maternal resources develop in the longer term.

In addition to the few direct studies on educational differences in mothers' resources, further insight into both perspectives can be gained from the larger literature on socioeconomic heterogeneity in the effects of divorce and separation on child outcomes. Many of these studies have explicitly stated that differential losses in parental resources constitute the main mechanism driving heterogeneity in the effects of divorce on children. Among the factors linking parental divorce to adverse outcomes in children are loss of economic resources, risk of poverty, residential moves, and declines in mothers' psychological well-being and involvement with children (Augustine, 2014; Bernardi & Radl, 2014; Fisher, 2007; Mandemakers & Kalmijn, 2014).

The evidence found for child outcomes is mixed. Some analysts have supported the “diverging destinies” perspective, showing that children of lower educated mothers are more negatively affected by divorce in terms of early reading and math skills (Augustine, 2014), attendance of a higher secondary school track (Grätz, 2015; Fisher, 2007), and psychological well-being (Mandamakers & Kalmijn, 2014). Others have supported the “divorce as an

equalizer” perspective, suggesting that children of the higher educated suffer more from divorce, as they experience disproportionate declines in the probability of attaining tertiary degrees (Bernardi & Radl, 2014) and entering the service class (Bernardi et al., 2014).

The inconsistent empirical picture produced by these studies on child outcomes may reflect the complex and the dynamic character of the mechanisms mediating the effects of divorce at the parental level. First, different types of maternal resources are not equally predictive for child outcomes (Thomson & McLanahan, 1994). Second, educational differences in the consequences of divorce depend on the type of resource considered (Beck et al., 2010). Third, higher and lower educated mothers may differ not only in the immediate impact of divorce but also in their ability to recover (Augustine, 2014). A research focus on educational differences in the consequences of divorce for mothers’ economic resources not only captures relevant changes across the divorce process more directly, but also sheds light on one of the key mechanisms that may account for heterogeneity in divorce effects on children.

## METHOD

### *Data*

Our analysis was based on data from 30 waves (1984 – 2013) of the German Socio-Economic Panel Study (SOEP, version 30, doi:10.5684/soep.v30; Wagner, Frick, & Schupp, 2007). The SOEP is a household panel survey in which each household member aged 17 and older is interviewed separately. For our purposes, these data yielded two analytical benefits. First, the large sample size allowed us to examine not only average effects of divorce, but also educational heterogeneity in these effects. Second, as one of the longest running panel studies (conducted annually since 1984), the SOEP offers a large window of closely-spaced observations ideally suited to study the consequences of divorce in the short term and in the longer term.

## *Sample*

To define an analytical sample, we selected all observations of West German mothers ages 18 to 60 who were living with at least one child younger than 18. These observations comprised two subsamples: an *event sample* of mothers who divorced across the observation window ( $N = 448$  mothers observed across  $N = 5,750$  person-years); and a *control sample* of mothers who remained continuously married and living with their partner ( $N = 5,930$  mothers observed across  $N = 42,504$  person-years). We defined the transition to divorce as a change of marital status from “married and living together” to “divorced” or to “married but separated.” This definition identifies the year of separation, which is not necessarily the year of legal divorce. In the following, we refer to this year as the year of divorce although a change of the legal status from married to divorced may often be delayed due to an obligatory year of separation before divorce. For mothers who divorced more than once across their observation window, we examined only the first divorce recorded in the data.

## *Measures*

### *Measures of mothers' economic resources*

We used two outcome variables to investigate change in mothers' economic resources. As our main measure, we used a variable for *annual post-government household income*. This variable is calculated by the SOEP group as the sum of total family income from labor earnings, asset flows, retirement income, private transfers, public transfers, and social security pensions minus family taxes. Private transfers include alimony and child support payments. Public transfers include housing allowances, child benefits, subsistence assistance, and maternity benefits (Grabka, 2013). We equalized this income measure using the square root scale (i.e., elasticity parameter of 0.5). Other equivalence scales such as the OECD modified scale yielded almost identical results. As

our observation period covered three decades, we used the consumer price index to adjust the equivalized income variable for inflation (reference year 2011).

Second, based on this measure, we created an additional indicator to identify panel observations in which mothers were at *risk of poverty*. To determine a poverty line, we followed the European Union approach, in which the poverty line is set at 60 % of the median equivalent income. Based on the full sample of West Germans in the SOEP ( $N = 337,470$  observations), we calculated the poverty line separately for every survey year. Next, we created a binary indicator variable equaling one if income was below this line. In our data, the poverty indicator carved off the bottom 13% of the income distribution of the full sample and the bottom 11% of the income distribution of our analytic sample.

#### *Measures of time before and after divorce*

To examine changes in mothers' economic resources across the transition to divorce, we modelled both outcomes as a function of time before and after divorce. To measure time, we used a set of dummy variables that distinguished between eight periods: (a) 3 or more years before divorce (reference period); (b) 2 to 1 years before divorce; (c) 1 to 0 years before divorce; (d) 0 to 1 years after divorce; (e) 1 to 2 years after divorce; (f) 2 to 4 years after divorce; (g) 4 to 6 years after divorce; and (h) more than 6 years after divorce. These measures jointly represented the effect of time on the outcomes, enabling us to study change and stability before and after divorce. The larger intervals used in post-divorce periods ensured that we could draw on a sufficient number of observations across all time points.

### *Measures of education*

We assigned mothers to three educational categories defined on the basis of the CASMIN classification. Our education variable captured the highest educational degree reported by a mother within her observation period. The bottom category “lower education” comprised mothers holding lower (*Hauptschule*) and intermediate (*Realschule*) secondary degrees without having completed vocational qualification (CASMIN 1a, 1b, 2b). In Germany, people who attended these school types without completing vocational training constitute the most disadvantaged group on the labor market (Solga, 2002). The middle category “intermediate education” included lower and intermediate secondary degrees with completed vocational qualification as well as higher secondary degrees (*Abitur*) (CASMIN 1c, 2a and 2c). The top category “higher education” included respondents holding higher secondary degrees combined with vocational training and/or tertiary degrees (CASMIN 2c\_voc, 3a, 3b).

Table 1 provides a descriptive overview separately by sample status (event sample versus control sample) and educational group (lower, intermediate, or higher).

- Table 1 -

### *Statistical Model*

The aims of our study posed two analytical requirements. First, to estimate the effects of divorce on mothers’ economic resources, we needed to account for stable characteristics of mothers that may be correlated with the indicator variables for divorce. The fixed-effects estimator meets this requirement because it controls for all time-constant characteristics of mothers, regardless of whether these were measured or not. Second, to assess whether educational differences in mothers’ resources diverged, converged, or remained stable across the divorce process, we



needed an estimate for initial educational differences in the reference period before divorce. This required a random-effects approach, given that a fixed-effects model is unable to estimate the effects of a time-constant variable such as mothers' education.

A model that meets both requirements is the correlated random-effects model (Mundlak, 1978; Wooldridge, 2009) for annual panel observations (level 1) nested within mothers (level 2). This model is closely related to the hybrid model (Allison, 2009). It provides fixed-effects estimates for the effects of divorce (i.e., within-effects) but at the same time allows for the inclusion of time-constant variables such as education (i.e., between-effects). A correlated random-effects model is given by

$$y_{it} = \beta_0 + \beta_1 x_{it} + \beta_2 c_i + \pi \bar{x}_i + \gamma_i + e_{it}$$

where subscript  $i$  denotes individuals and subscript  $t$  denotes panel observations;  $x_{it}$  is a time-changing variable that varies between individuals and over time,  $c_i$  is a time-constant variable that varies only between individuals, and  $e_{it}$  is the level 1 error. The cluster mean  $\bar{x}_i$  picks up any correlation between the level 1 variable  $x_{it}$  and the level 2 error  $\mu_i$ . Hence, the correlated random-effects model relaxes the assumption that the level 2 error  $\mu_i$  is uncorrelated with the level 1 variables. The model posits that  $\mu_i = \pi \bar{x}_i + \gamma_i$ , where  $\pi$  is the difference of within-effects and between-effects (Schunck, 2013). In the correlated random-effects model, the within-effect  $\beta_1$  of a time-changing variable  $x_{it}$  is estimated jointly with the between-effect  $\beta_2$  of a time-constant variable  $c_i$ .

### *Model Specification*

Our main question was whether initial educational differences in economic resources diverged, converged, or remained stable as mothers moved from the pre-divorce period across the transition to divorce and throughout post-divorce years. To model these changes, we combined within-

estimates for the effects of time before and after divorce with between-estimates for initial educational differences. To obtain estimates for educational differences in the effects of divorce, we interacted the divorce measures with the indicator variables for intermediate and higher education (lower education was the reference).

We did not control for factors such as age at marriage, age at divorce, and age of the youngest child before divorce. These controls would net out educational gradients in demographic behavior, yielding estimates for a synthetic scenario in which educational groups do not differ in their timing of marriage, parenthood, and divorce.

In testing for heterogeneous effects of divorce over time, however, differences between educational groups in their life-cycle profiles of the outcome measures (i.e., time effects unrelated to divorce) constituted a potential source of bias. To account for this, we included controls for age and age squared and added interactions between the age variables and the indicators for educational levels. These controls accounted for possible differences between lower, intermediate, and higher educated mothers in their linear or curvilinear age profiles of household income and risk of poverty.

The use of a control sample contributed to the estimation of age effects, as these effects were not confounded with time before and after divorce in the control sample. Given our analytical focus on mothers who experienced divorce, however, it was important to account for differences between the control sample and the event sample in terms of initial gaps in resources between higher, intermediate, and lower educated mothers. That is, educational differences in initial household income and initial risk of poverty might differ between mothers who went on to divorce across their observation window and those who did not. To account for this possibility, we added an indicator variable for sample status (event or control) and interacted this variable with the measures for education.

We specified the model identically for both outcomes. To address positive skew in the distribution of the income variable (Model 1), we used its natural log in the estimation. For the dichotomous indicator for risk of poverty (Model 2), we estimated a linear probability model. In additional analyses, we re-estimated this model as a population-averaged logistic regression model and obtained similar results.

Each model additionally controlled for within-person means over time in all time-changing variables, including the interactions between time-constant and time-changing variables (Schunck, 2013, p. 72). Therefore, all estimates for time-changing variables constituted fixed-effects estimates. Given our interest in these estimates, results for the additional control variables are not shown.

## RESULTS

The results of both models are presented in Table 2. We transformed the coefficients of the binary variables included in Model 1 into semi-elasticities, so that all coefficients from this model can be interpreted as the expected percentage change in household income for a one-unit change in the predictors, holding all other predictors constant. In Model 2, the coefficients denote the expected change (in percentage points) in the probability of crossing the poverty line.

- Table 2 -

For ease of interpretation, we visualized the results from both models in Figure 1. The figure shows the marginal effects of the indicators for time before and after divorce for different levels of education, conditional on belonging to the event sample and holding all other variables at their means. In order to evaluate changes in absolute income experienced across the divorce

process, we transformed the coefficients from Model 1, which was estimated for a logged income variable, back to a linear scale of annual household income measured in Euros.

- Figure 1 -

The curves shown in Figure 1 provide answers to our guiding questions, indicating whether initial educational gaps in mothers' economic resources widened after divorce ("divergent destinies"), narrowed after divorce ("divorce as an equalizer"), or remained constant. In the top panel of Figure 1, we present the estimates of income and risk of poverty for each educational group. In the bottom panel of Figure 1, we additionally show how the absolute gaps between lower educated mothers (dashed reference line) and mothers from the other educational groups changed across the divorce process.

Looking at changes in household income, the results shown in Figure 1 lend qualified empirical support for the notion of divorce as an equalizer. In the reference period, indicating initial gaps, the household income of higher educated mothers' income exceeded that of lower educated mothers by approximately 9,000 Euros (Figure 1, top left plot) or 58.4 % ( $0.645 - 0.061$ , see Model 1). The income of mothers holding intermediate degrees was still approximately 7,000 Euros, or 39.8 %, higher. In the year of divorce, mothers from every educational group experienced substantial losses. Yet, these losses were considerably larger for mothers holding higher and intermediate educational degrees. In absolute terms, mothers of higher and intermediate education declined by more than 10,000 Euros in the year of divorce, whereas lower educated mothers dropped by approximately 6,000 Euros compared to the reference period (Figure 1, top left-hand plot). As a result, absolute income gaps were approximately cut in half (Figure 1, bottom left-hand plot). In relative terms (Model 1), lower

educated mothers lost approximately 40 % of their reference income, whereas those with intermediate education lost more than half of their reference income ( $-0.404 - 0.123 = -0.527$ ), and the higher educated lost almost half of their reference income ( $-0.404 - 0.079 = -0.483$ ).

A major advantage of our long-term panel data was that they allowed us to track further changes in these gaps. Two years after divorce, income gaps between the educational groups remained compressed, as all mothers recovered only slowly from their losses experienced immediately after divorce. In subsequent years, however, economic recovery of the higher educated gained additional momentum compared to the other groups. As a result, initial income gaps between the higher educated and the lower educated were almost re-established six years after divorce (Figure 1, bottom left-hand plot), although neither group had returned to their initial levels. The gap between intermediate and lower educated mothers, in contrast, remained smaller throughout the observation period, as mothers holding intermediate degrees recovered more slowly than their higher educated counterparts.

A limitation of the results presented so far is that a focus on changes in income treats all losses as equal. However, the consequences of divorce in terms of crossing a critical lower threshold may be much more severe. Furthermore, gaps between educational groups may look different considering that the lower educated are much closer to the poverty line already in the reference period. We addressed this possibility in Model 2, illustrated in the right-hand plots of the Figure 1, in which we look at change in mothers' economic resources from a different angle, predicting the probability of crossing the poverty line. The interpretation of these findings is analogous to those on the income variable: widening gaps are consistent with the divergent destinies perspective, whereas narrowing gaps support the notion of divorce as an equalizer.

In contrast to the results on income, we found no empirical support for either perspective. The central findings from Model 2 is that educational gaps in the risk of poverty do not change

substantially across the divorce process. This is illustrated by the largely parallel curves in the top right-hand plot of Figure 1 and the largely horizontal curves illustrating changes in educational gaps in the bottom right-hand plot of Figure 1. In the year of divorce, all educational groups experienced a large increase in the probability of crossing the poverty line. Based on Model 2, the estimated increase amounted to approximately 40 percentage points among lower and higher educated mothers and approximately 50 percentage points ( $0.382 + 0.108 = 0.49$ ) among mothers holding intermediate degrees.

In subsequent years, the probability of staying below the poverty line remained at an elevated level of heightened level of almost 70 % among the lower educated, whereas mothers of intermediate and higher education recovered slightly. Six years after divorce, the gap between lower and higher educated mother was similar to its initial size, although neither group had returned to their initial levels. Similar to the results found for income, downward moves relative to the other groups were most visible for mothers of intermediate education, who started out closer to the higher educated in the reference period and ended up closer to the lower educated at the end of the observation window.

## DISCUSSION

In this study, we examined the effects of divorce on educational gaps in mothers' economic resources. Our results shed new light on two opposing theoretical positions that have informed recent research on social inequality in the consequences of divorce. Recent extensions of the "diverging destinies" perspective have posited that divorce is more consequential among the disadvantaged. This group is not only considered to be most vulnerable to the economic consequences of divorce, but also least able to mobilize resources in order to recover from these losses (Augustine, 2014). According to the notion of "divorce as an equalizer," in contrast,

divorce is more consequential among the privileged, because people in higher social positions have more to lose (Bernardi et al., 2014).

Our empirical analysis yielded two central findings. First, the results are inconsistent with the diverging destinies perspective, as the gaps between lower and higher educated mothers did not widen across the divorce process. This applied regardless of whether the economic consequences of divorce were measured in terms of losses in household income or increases in the risk of crossing the poverty line.

Second, our results support the competing notion of divorce as an equalizer, but this support is only partial. Most notably, compared to pre-divorce periods, absolute gaps in household income between higher and lower educated mothers were cut in half following divorce. Relative losses of household income were also larger among the higher educated. However, two important qualifications to these findings apply. First, the pattern of divorce as an equalizer did not extend to the longer term: Two years after divorce, economic recovery accelerated among higher educated mothers; six years after divorce, their income advantage compared to lower educated mothers had returned to pre-divorce levels. Second, our analyses on changes in the risk of poverty showed less heterogeneity across educational groups. For higher and lower educated mothers, this risk increased substantially, and to a similar extent. Following divorce, it declined gradually, and again to a similar extent.

Previous research on heterogeneous effects of divorce has almost exclusively focused on child outcomes (Augustine, 2014; Bernardi & Radl, 2014; Grätz, 2015; Fischer, 2007; Mandemakers & Kalmijn, 2014). Yet, these analysts have invoked contrasting assumptions about changes occurring at the parental level. In this respect, economic resources figure prominently as one of the main mechanisms assumed to mediate the effects of divorce on outcomes in children. If the custodial parent can mobilize these resources to protect children against the risk of poverty

or other stressors, negative effects on outcomes such as children's health, well-being, and educational attainment are expected to be smaller or even absent. Conversely, the negative effects of absolute or relative economic deprivation, and the associated stressors in other domains of life, may spill over from parents to children (Mandemakers & Kalmijn, 2014).

Although the present study does not speak directly to this mechanism, our findings cast doubt on its relevance for explaining differential effects observed for child outcomes. Overall, educational variability in the impact of divorce on mothers' economic resources was surprisingly small, suggesting that differential exposure to the related stressors can only explain a minor, if any, part of heterogeneous effects observed in children. Moreover, if mechanisms related to economic resources are still put forth to motivate the expectation of heterogeneous effects on child outcomes, it is important to clarify how this might occur.

For example, if relative deprivation plays a larger role than absolute deprivation, our results could substantiate the claim that disproportionate losses in household income, or a more abrupt transition from material comfort to poverty, may entail more negative effects among those in higher social positions, supporting the notion of divorce as an equalizer. In this regard, our findings for Germany point to mothers holding intermediate degrees as a prime risk group for relative deprivation. As these mothers have often married upward (Blossfeld, 2009) and lack the human capital to recover to the previous standard of living after divorce, they experienced the greatest losses in the long term. The only study which has addressed heterogeneous effects of divorce on child outcomes in Germany (Grätz, 2015), distinguished only between children of higher educated parents and all other educational groups. The question of whether children of mothers holding intermediate degrees suffered more from divorce thus remains to be answered.

There are four important limitations to the present study that warrant future investigation. First, although our focus on economic resources captured one of the most prominent mechanisms



assumed to mediate heterogeneous effects of divorce on children, we did not examine change in other resources such as cultural and social factors. Arguably the most crucial factor among these is parental involvement with children (Hanson et al., 1998). This concerns non-resident fathers' decline in contact with children as well as competing demands put on mothers' time with children (Amato, 1998). Similar to economic resources, there is still a lack of studies examining at the level of parents whether the consequences of divorce on parental involvement with children in terms of parental support, control and supervision vary along socioeconomic lines.

Second, even in the economic domain that we studied, we did not examine all relevant factors that may account for heterogeneous effects of divorce on child outcomes. For example, our indicator of poverty did not capture the duration and intensity of poverty. In this respect, research has suggested that persistent poverty has larger negative effects on IQ, educational achievement, and socioemotional functioning than transient episodes of poverty (McLoyd, 1998).

Third, we have criticized previous research on child outcomes for assuming that parents' economic resources mediate heterogeneous effects, but not examining these resources directly at the parental level. Consequently, we took a step back and examined a key mechanism hypothesized to operate at this level. However, our study did not yet establish the connection with the child level on which the most intensely studied outcomes of divorce reside. An important objective for future research is to draw this missing link in analyses that include both levels of analysis. For example, heterogeneous effects of divorce on children's educational attainment could be explained by changes in resources measured at the parental level across the divorce process. The scope of genealogical panel surveys such as the SOEP will soon yield sufficient case numbers to allow for such analyses.

Finally, our results are limited to the West German context. Therefore, the findings speak most directly to studies of socioeconomic variability on the effects of divorce on children from

this context. Grätz (2015) posited that the negative effects of parental separation on children's educational attainment are stronger in disadvantaged families, seemingly supporting the diverging destinies perspective. However, his empirical evidence did not consistently support this claim. Moreover, there are several aspects specific to the German context that may at least partially offset the social forces that are commonly assumed to produce diverging destinies.

Most notably, the West German welfare state has long been organized around a male-breadwinner model that encouraged gender specialization by combining tax incentives with low coverage of public childcare (DiPrete, 2002). Under these conditions, women have typically left the labor force to focus on childcare instead (Sainsbury, 1999). In contrast to U.S. patterns, lower and higher educated women in Germany are equally likely to take extended leaves after motherhood (Drobnič et al., 1999). Given that the employment context of divorce does not differ much between higher and lower educated mothers in West Germany, educational differences in mothers' loss of economic resources and in their ability to recover from these losses might be less pronounced than in other developed societies. Moreover, the German welfare state protects individuals from the risk of poverty, ensuring a comparatively high standard of living regardless of employment, family, or health status (DiPrete 2002). This may foster floor effects among lower educated mothers, who may be eligible to welfare already before divorce.

Taken together, these considerations suggest that institutional and cultural factors that are specific to the West German context may undermine or even offset some of the processes highlighted the "diverging destinies" argument, and contribute to floor effects highlighted by the notion of "divorce as an equalizer". In view of that, we recommend that further studies reexamine both perspectives based on data drawn from different national contexts.

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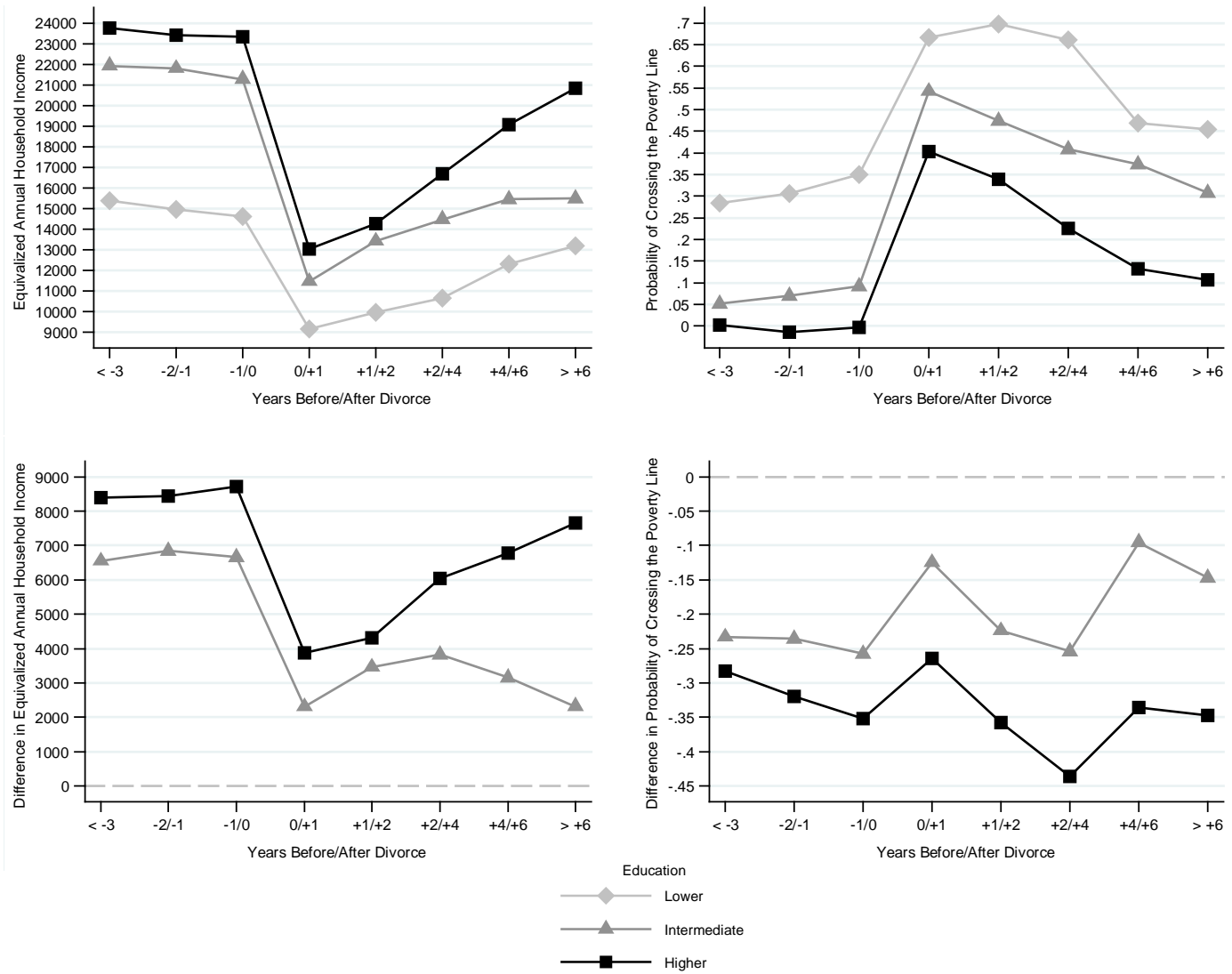


FIGURE 1. DIVORCE AND CHANGES IN MOTHERS' HOUSEHOLD INCOME AND RISK OF POVERTY

Note: Graphs are based on Model 1 (household income) and Model 2 (risk of poverty). Marginal effects are shown for the indicators of time before and after divorce for different levels of education, conditional on belonging to the event sample and holding all other variables at their means.

TABLE 1. DESCRIPTIVE STATISTICS

Education <sup>c</sup>		Event sample <sup>a</sup>			Control sample <sup>b</sup>		
		Lower	Intermediate	Higher	Lower	Intermediate	Higher
Age	<i>M</i>	36.01	36.48	39.16	38.64	38.58	39.94
	<i>SD</i>	8.99	7.16	6.65	9.12	7.22	6.74
	<i>Min</i>	17	18	24	17	18	20
	<i>Max</i>	60	60	58	60	60	60
Age at divorce	<i>M</i>	36.20	36.80	39.29			
	<i>SD</i>	9.04	6.76	6.77			
	<i>Min</i>	18	22	26			
	<i>Max</i>	58	56	54			
Year of divorce	<i>M</i>	1998.2	1999.2	2000.6			
	<i>SD</i>	7.46	7.43	6.73			
	<i>Min</i>	1985	1985	1986			
	<i>Max</i>	2013	2013	2013			
Household income <sup>d</sup>	<i>M</i>	15316.7	17966.4	23896.3	16993.5	21956.2	28930.5
	<i>SD</i>	7210.6	9451.4	13202.2	7035.5	9375.3	14393.1
	<i>Min</i>	2219.3	2030.5	2813.8	2042.6	2149.9	2836.3
	<i>Max</i>	53167.8	166795.4	130338.3	131429.2	228331.5	284673.6
Risk of poverty <sup>e</sup>	<i>M</i>	0.38	0.26	0.13	0.19	0.06	0.03
	<i>Min</i>	0	0	0	0	0	0
	<i>Max</i>	1	1	1	1	1	1
<i>N</i> (observations)		1,136	3,402	1,212	10,714	23,646	8,144
<i>N</i> (individuals)		95	261	92	1,579	3,131	1,220

*Note:* SOEP 1984–2013, release 2014. Samples include West German mothers aged 17 to 60 and living with at least one child younger than 18. <sup>a</sup> Mothers who divorced across the observation period. <sup>b</sup> Mothers who remained married across the observation period. <sup>c</sup> Lower = secondary degrees without having completed vocational qualification (CASMIN 1a, 1b, 2b); intermediate = lower and intermediate secondary degrees with completed vocational qualification or higher secondary degrees (CASMIN 1c, 2a and 2c); higher = higher secondary degrees combined with vocational training and/or tertiary degrees (CASMIN 2c\_voc, 3a, 3b). <sup>d</sup> Post-government household income calculated by the SOEP group as the sum of total family income from labor earnings, asset flows, retirement income, private transfers, public transfers, and social security pensions minus family taxes; equalized by a square root scale; adjusted for inflation (reference year 2011). <sup>e</sup> Having less than 60 % of the median equivalent income; poverty line calculated separately for every survey year based on the full sample of West Germans ( $N = 337,470$  observations).



TABLE 2. CORRELATED RANDOM-EFFECTS MODELS FOR CHANGE IN MOTHERS' ECONOMIC RESOURCES

	Model 1			Model 2		
	Household Income (log)			Risk of Poverty		
	Coef.	95% CI		Coef.	95% CI	
Divorce (ref.: >= 3 years before)						
2 to 1 years before	-0.028	[-0.082	0.031 ]	0.021	[-0.039	0.081 ]
1 to 0 years before	-0.050	[-0.101	0.004 ]	0.064*	[ 0.008	0.121 ]
0 to 1 years after	-0.404***	[-0.437	-0.369 ]	0.382***	[ 0.324	0.441 ]
1 to 2 years after	-0.352***	[-0.390	-0.311 ]	0.413***	[ 0.350	0.475 ]
2 to 4 years after	-0.307***	[-0.342	-0.271 ]	0.377***	[ 0.324	0.430 ]
4 to 6 years after	-0.200***	[-0.245	-0.153 ]	0.184***	[ 0.125	0.243 ]
> 6 years after	-0.143***	[-0.189	-0.095 ]	0.170***	[ 0.114	0.226 ]
Education (ref.: Lower)						
Intermediate	0.301***	[ 0.275	0.327 ]	-0.122***	[-0.135	-0.108 ]
Higher	0.645***	[ 0.605	0.689 ]	-0.153***	[-0.170	-0.135 ]
Divorce x Education						
2 to 1 years before x Intermediate	0.022	[-0.045	0.094 ]	-0.003	[-0.073	0.066 ]
1 to 0 years before x Intermediate	0.021	[-0.043	0.089 ]	-0.025	[-0.091	0.041 ]
0 to 1 years after x Intermediate	-0.123***	[-0.179	-0.062 ]	0.108**	[ 0.040	0.176 ]
1 to 2 years after x Intermediate	-0.055	[-0.120	0.014 ]	0.009	[-0.064	0.082 ]
2 to 4 years after x Intermediate	-0.048	[-0.103	0.012 ]	-0.021	[-0.083	0.041 ]
4 to 6 years after x Intermediate	-0.119***	[-0.176	-0.058 ]	0.137***	[ 0.068	0.207 ]
> 6 years after x Intermediate	-0.176***	[-0.226	-0.123 ]	0.086**	[ 0.022	0.150 ]
2 to 1 years before x Higher	0.012	[-0.068	0.099 ]	-0.037	[-0.121	0.047 ]
1 to 0 years before x Higher	0.034	[-0.045	0.117 ]	-0.069	[-0.149	0.012 ]
0 to 1 years after x Higher	-0.079*	[-0.150	-0.002 ]	0.019	[-0.064	0.101 ]
1 to 2 years after x Higher	-0.074	[-0.150	0.009 ]	-0.075	[-0.162	0.013 ]
2 to 4 years after x Higher	0.014	[-0.056	0.090 ]	-0.153***	[-0.227	-0.079 ]
4 to 6 years after x Higher	0.003	[-0.074	0.087 ]	-0.053	[-0.136	0.029 ]
> 6 years after x Higher	0.023	[-0.051	0.102 ]	-0.065	[-0.141	0.012 ]
Age (mean-centered)	0.016***	[ 0.011	0.021 ]	-0.021***	[-0.025	-0.016 ]
Age x Education						
Age x Intermediate	0.002	[-0.005	0.009 ]	0.005	[-0.002	0.012 ]
Age x Higher	0.026***	[ 0.015	0.036 ]	0.000	[-0.011	0.011 ]
Age squared (mean-centered)	0.000	[-0.000	0.000 ]	0.000***	[ 0.000	0.000 ]
Age squared x Education						
Age squared x Intermediate	0.000	[-0.000	0.000 ]	-0.000	[-0.000	0.000 ]
Age squared x Higher	-0.000***	[-0.000	-0.000 ]	0.000	[-0.000	0.000 ]
Event sample (ref.: Control sample)	-0.022	[-0.213	0.214 ]	0.092	[-0.045	0.230 ]
Event sample x Education						
Event sample x Intermediate	0.097	[-0.143	0.404 ]	-0.111	[-0.268	0.045 ]
Event sample x Higher	-0.061	[-0.313	0.283 ]	-0.130	[-0.328	0.068 ]
Constant	9.660***	[ 9.644	9.677 ]	0.192***	[ 0.181	0.204 ]
N (observations)		48,197			48,197	
N (individuals)		6,376			6,376	

Note: SOEP 1984–2013, release 2014. All coefficients  $c$  of the dummy variables shown in Model 1 are transformed into semi-elasticities by  $\exp(c) - 1$ . Models control for within-person means of time-changing variables. See Table 1 for details on the variables. \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ .