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Research Article

Variation in the educational consequences of parental death and divorce: The role of family and country characteristics

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Variation in the educational consequences of parental death and divorce: The role of family and country characteristics

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Abstract

BACKGROUND AND OBJECTIVE

Ample research demonstrates that experiencing parental death or divorce harms children's educational attainment. Less is known about variation herein, both between parental death and divorce and across social contexts. We investigated how family and national contexts moderate the educational consequences of these adverse events. At the family level, we studied whether the educational consequences of parental death and divorce are larger for children of higher-educated parents. At the national level, we investigated the buffering role of welfare benefits as well as the amplifying impact of a selective educational system and the divorce rate. Moreover, we examined the interplay between family and country contexts.

METHODS AND RESULTS

Using multilevel regression models with data from 17 countries from the Generations and Gender Survey, we found that parental divorce had a larger impact than parental death. Furthermore, the impact of parental divorce was largest for children of higher-educated parents. Less selective educational systems and provision of single-parent benefits reduced the educational consequences of parental death, specifically for children of lower-educated parents.

CONCLUSIONS

Our results indicate that although both parental death and divorce harm children's educational attainment, their impacts differ across family and country contexts. The consequences of divorce strongly depend on the resources available in a family, while the effects of parental death are mitigated by educational and welfare policies.

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Our study underscores the relevance of differentiating between specific adverse events and considering the social context to understand the consequences of adversity for children's educational attainment.

1. Introduction

Many children grow up in an incomplete family due to the death of a parent or parental divorce or separation.⁵ Children who experience such an adverse event receive less parental support, which may lead to developmental problems and poorer well-being (Cavanagh and Huston 2006). One potential consequence of parental death or divorce is lower educational outcomes (Amato and Anthony 2014). Whether this manifests, however, may depend on a child's social environment. Nonetheless, prior research on the effect of context on the educational consequences of parental death or divorce is fragmented, and the results are mixed (Bernardi and Boertien 2017). The present study brings together previous findings and theory from this field to draw a more comprehensive picture of the effect of social context to determine the educational consequences of parental death or divorce for the affected children. Using retrospective data from the Generations and Gender Survey (GGS) on people in four birth cohorts in 17 European countries, we set out to answer the following questions: To what extent do parental death and divorce limit children's educational attainment, and how do characteristics of the family and country context moderate this impact?

Family environment largely shapes the educational opportunities available to children. It is therefore important to consider factors in children's family life that may moderate the impact of adverse events. In this regard, parents' level of education appears key, as a higher education provides parents with financial and nonfinancial resources to advance their children's educational careers (Breen and Jonsson 2005). Nonetheless, previous work on the influence of parental education on the impact of parental death or divorce points in two opposite directions (Bernardi and Boertien 2017). Some studies find that parental education serves as a buffer against the negative impact of growing up in a single-parent household (Augustine 2014; Grätz 2015; Havermans, Swicegood, and Matthijs 2020). Other studies point to larger consequences of parental death or divorce among children of higher-educated parents, as these children experience a larger reduction in resource availability after such an adverse family event (Bernardi and Radl 2014; Martin 2012; Prix and Erola 2017). In an overview study, Bernardi and Boertien

⁵ In the remainder of this article, we use the term 'parental divorce' to refer to formal divorce of married parents as well as informal separation.

(2017) suggested that these contradictory findings might be due to the studies being conducted in different countries. In the present study of the educational consequences of parental death and divorce, we therefore paid specific attention to cross-country variation in the moderating effect of parental education.

The country-comparative nature of our study, moreover, provides an opportunity to shed light on the under-studied role of national characteristics in amplifying or reducing the educational consequences of parental death and divorce (Kreidl, Štípková, and Hubatková 2017; Radl, Salazar, and Cebolla-Boado 2017). Specifically, we focused on three country-level factors identified in previous research as possible moderators: welfare state support for vulnerable families, selectivity of the educational system, and the national divorce rate. With respect to these earlier studies, our research makes three advancements.

The first advancement lies in our use of final educational attainment as the outcome under study. Two prior studies found that financial support policies for single-parent families improved the school performance of secondary school students growing up in a single-parent family (Hampden-Thompson 2013; Pong, Dronkers, and Hampden-Thompson 2003). Since higher education requires more financial resources than performing well in secondary school, the question is whether such benefits are sufficient to reduce inequalities in final educational attainment. Two other studies, using GGS data, examined the selectivity of countries' educational systems and the national divorce rate, finding that these characteristics did play a role in the likelihood of children attaining a tertiary degree (Bernardi and Radl 2014; Kreidl, Štípková, and Hubatková 2017). However, the effects found in these studies were small, perhaps due to the specificity of the outcome variable of interest (tertiary degree attainment). Indeed, the group of students able to enrol in tertiary education is already relatively selective, meaning that there may be little variation in the effects of adverse family events on educational attainment at this level. By focusing on children's final educational attainment across all educational levels, our study contributes to a better understanding of how country characteristics affect the educational consequences of parental death and divorce.

The second advancement lies in our investigation of the moderating role of both family and country, providing insight into for whom and when contexts matter. If the moderating role of the family context is found to differ between countries, this implies an interplay between family-level and country-level characteristics (Bernardi and Boertien 2017). Earlier research on the moderating role of country-level characteristics provides potential directions for such interplay. According to Hampden-Thompson (2013), family support policies may reduce the disadvantage of growing up in a single-parent household, mainly because they protect low-income single-mother households from poverty. Such benefits, therefore, may be less influential for children of highly educated parents, as they are less likely to fall into poverty after an adverse family event.

Similarly, Bernardi and Radl (2014) exploratively found that the moderating role of educational system selectivity differed for children of lower- and higher-educated parents. To provide clarity on differences in the effects of these factors, we developed and tested hypotheses on the moderating role of three country-level factors: educational selectivity, benefits for single parents, and the divorce rate. We also investigated how the effects differed between children from low- and high-income families.

Finally, the study contributes to research on adverse family events in general by considering the difference between parental death and divorce. Most research on (variation in) the educational consequences of adverse family events has focused on children who experienced divorce or grew up in a single-parent household (Bernardi and Boertien 2017). Few studies have distinguished between and compared children who experienced parental death and divorce (Hampden-Thompson 2013; Sapharas et al. 2016; Steele, Sigle-Rushton, and Kravdal 2009). Nevertheless, these events may have different consequences for children's educational careers, and these consequences may also be differently affected by the context in which children grow up (McLanahan, Tach, and Schneider 2013). Our study therefore examines the impact of parental death and divorce on children's educational attainment, as well as how differences in family and country contexts affect these educational outcomes.

With these advancements, our study contributes to a better understanding of variation in the impact of parental death and divorce across contexts, in addition to providing policymakers information with which to better support vulnerable children in their educational careers.

2. Theory and hypotheses

Educational attainment is affected by the context in which children grow up, in various ways. Classical work in sociology has convincingly argued how children benefit from parental financial, cultural, and social resources (Bourdieu 1986), whereas studies in developmental psychology point to the detrimental consequences of adverse events for children's education (Felitti et al. 1998). By combining insights from both theoretical traditions, we deduced hypotheses on how parental death or divorce might hinder children's educational attainment and what aspects of children's immediate environment might amplify or diminish possible negative consequences.

2.1 Educational consequences of parental death or divorce

Theoretical considerations suggest that the changed family environment after an adverse event such as a parental death or divorce may harm children's educational performance in at least two ways. Most importantly, based on the extended family stress model, an adverse event is likely to cause emotional stress among family members (Conger et al. 2010). For example, the emotional and relational pain caused by divorce can lead to a parenting style that is harsher, less consistent, and less involved, which may negatively affect children's educational performance (Martin 2012). Furthermore, resource dilution theory (Blake 1981; Steelman and Powell 1989) implies that children who experience a parental death or divorce have less access to parental resources and support because the number of parents in the household is reduced from two to one, thus also diminishing the time, energy, and financial resources available for parenting. Due to their reduced resources, single parents have less opportunity to stimulate their children's cognitive, social-emotional, and motivational development (Havermans, Botterman, and Matthijs 2014; McLanahan, Tach, and Schneider 2013; Powell et al. 2016).

Parental death and divorce may not be equally harmful to all children's educational attainment. Although both experiences lead to family stress, due to either the loss of a parent or conflict between parents, the reduction of resources may be less profound for children who face parental death (Biblarz and Gottainer 2000). This is because in families where a parent has died, children often receive support from extended family members and friends of the deceased parent, who take over some parenting duties and support children's educational attainment (Albertini and Dronkers 2009; Sapharas et al. 2016; Steele, Sigle-Rushton, and Kravdal 2009). Children of divorced parents, however, tend to have much less contact with their nonresident parent, as well as that parent's family and friends over time, providing less opportunity to compensate for the loss in parental resources and support (Steele, Sigle-Rushton, and Kravdal 2009; Westphal, Poortman, and Van der Lippe 2015). Our first baseline hypothesis therefore reads: *Children who experienced (a) parental death or (b) parental divorce attain lower educational levels than children who did not experience these events, and (c) the effect is larger for children who experienced a parental divorce than for children who experienced the death of a parent.*

Both the family stress model and resource dilution theory regard parental death and divorce as long-term, powerful, and influential processes, encompassing more than the events themselves. That is, children with divorced parents are likely to have experienced predivorce marital conflict, and children who experienced parental death may have lived in a household with a sick parent in need of care. These pre-event circumstances contribute to the expected negative educational consequences. In our study, we therefore considered the overall impact of growing up in a family in which a parental death or divorce occurred, not just the causal effects of the events themselves.

2.2 The moderating role of parents' level of education

Cultural capital and rational action theories on parental educational support suggest that an advantageous family environment provides children with considerable opportunity to attain a high educational level (Bourdieu 1986; Breen and Jonsson 2005). Prior research convincingly shows that children of higher-educated parents benefit from their parents' financial and nonfinancial resources in their own educational careers (Erola, Jalonen, and Lehti 2016; De Graaf, De Graaf, and Kraaykamp 2000). Parental financial resources allow parents to invest in their children's education, including financing the direct and indirect costs of attaining higher education (Breen and Jonsson 2005). Furthermore, higher-educated parents tend to actively promote their children's development and educational performance through activities such as reading, instruction within the home, and involvement in children's schooling (Carolan and Wasserman 2015; Kloosterman et al. 2011; Lareau 2015).

When faced with adversity like death or divorce, higher-educated parents may use their resources to enhance their children's resilience and counter possible negative consequences (Eriksson et al. 2010). For instance, higher-educated parents may pay for extra tutoring or obtain psychological support for their children (Eriksson et al. 2010; Augustine 2014; Grätz 2015; Havermans et al. 2020). Similarly, higher-educated parents' nonfinancial resources may enable them to better cope with stress and uncertainty after a divorce or loss of a partner and to maintain a positive parenting style (Augustine 2014; Beck et al. 2010). Children of higher-educated parents may thus experience less stress and negative educational consequences associated with an adverse family event (Grätz 2015).

The alternative theoretical notion of reduced advantage presumes that a parental death or divorce diminishes opportunities for children to benefit from their parents' resources (Bernardi and Boertien 2017; Bernardi and Radl 2014; Bussemakers and Kraaykamp 2020). First, as implied by resource dilution theory, parental death or divorce may reduce the financial resources available within a family (Beck et al. 2010; Bernardi and Boertien 2017). Second, as indicated by family stress theories, widowed and divorced parents may be less able to maintain a positive and stimulating parenting style due to the stress and worry associated with being a single parent (Bernardi and Boertien 2017; Martin 2012). In line with these theoretical notions, the experience of parental death or divorce could affect children of higher-educated parents most, as they have most to lose in terms of financial and nonfinancial resources, while lower-educated parents have fewer parental resources to start with (a so-called floor effect) (Bernardi and Radl 2014). Due to their reduced advantage, children of higher-educated parents may experience a stronger impact of an adverse family event on their educational attainment (Bernardi and Radl 2014; Bussemakers and Kraaykamp 2020).

We expect that the mechanism of reduced advantage will be most important (Bussemakers and Kraaykamp 2020). An event like parental death or divorce leads to the absence of a parent, as well as the absence of most of their resources and support, for which the remaining parent cannot fully compensate. We expect the mechanism of reduced advantage to be more prominent among children who experience a parental divorce compared to those who experience parental death because as outlined earlier, children of divorce are likely to experience a greater loss of resources. This leads to our second hypothesis: *Children of higher-educated parents who experienced (a) parental death or (b) parental divorce experience greater educational consequences of these events than children of lower-educated parents, and (c) the difference is most pronounced for parental divorce.*

2.3 The moderating role of the educational system

Bronfenbrenner (1979) and Coleman (1988) found that social environment affects people's development and interactions. With regard to educational inequality, studies show that differences in countries' educational systems, welfare policies, and normative climate shape the opportunities available to children (van Doorn, Pop, and Wolbers 2011; Tieben, Hofäcker, and Biedinger 2013; Van de Werfhorst and Mijs 2010). We were interested in whether these factors also affect the magnitude of the impact of parental death or divorce on children's educational attainment.

First we considered the educational system as a relevant institutional factor. Educational systems vary considerably between countries, providing different opportunities for and constraints on children's educational careers (Chykina 2019; Pfeffer 2008). An important stratifying feature of a country's educational system is its selectivity – that is, the extent to which children are placed in different educational 'tracks' early on in their educational careers. More selective educational systems allocate children earlier to various vocational and academic tracks, with only the 'higher' tracks granting access to tertiary education. Previous research has shown that greater selectivity increases educational inequality with respect to family background (Brunello and Checchi 2007; Burger 2016; Van de Werfhorst and Mijs 2010). There are two main reasons for this. First, parents' financial and nonfinancial resources contribute to children's school performance, meaning that children of higher-educated parents are more likely to meet the criteria for placement in the higher tracks, which are those that grant access to tertiary education (Triventi et al. 2020; Van de Werfhorst and Mijs 2010). Second, in selective educational systems, parents and teachers play an important role in children's track placement. This benefits children of higher-educated parents because both parents and teachers tend to have higher expectations and aspirations for these children, and they

therefore put more effort into getting the children into higher, more academically oriented tracks, as well as keeping them there (Barg 2013; Pfeffer 2015; Triventi et al. 2020). Children of lower-educated parents are more likely to be placed in 'lower,' vocational tracks due to their oftentimes poorer school performance record, as well as due to less effort by parents and teachers to place them, or keep them, in higher tracks. In less selective educational systems, children of lower- and higher-educated parents receive the same type of education for a longer period of time (because tracking takes place when children are older), reducing the impact of parental resources and support on children's opportunities for higher education.

Because a reduction in parental resources and support is an important reason for the negative educational consequences of parental death or divorce, greater selectivity of the educational system could compound the consequences of these adverse events (Bernardi and Radl 2014). We already noted that widowed and divorced parents may have less time and energy to stimulate their children's school performance and guide their educational careers. As a result, children who experience parental death or divorce may be less likely to be placed in the higher tracks of more selective educational systems, which can further hinder their educational careers (amplifying effect).

This moderating impact of a country's educational system may differ across families. The expected amplifying impact of a more selective system may be especially large among children of higher-educated parents, as they experience the largest reduction in parental resources after parental death or divorce. Children of lower-educated parents are already generally disadvantaged in more selective educational systems, but because they lose fewer resources after parental death or divorce, such educational systems might not *further* increase the impact of these adverse events on their educational careers. Moreover, following a similar reasoning to that presented earlier, selectivity likely amplifies the impact of parental divorce more than parental death because the reduction of parental resources is expected to be more profound for children who experience parental divorce. Hence our third hypothesis: *In more selective educational systems, children who experienced (a) parental death or (b) parental divorce experience larger educational consequences of these events than children in less selective educational systems; (c) this amplifying effect of educational selectivity is larger for children of higher-educated parents, and (d) these effects are stronger for children who experienced parental divorce compared to children who experienced parental death.*

2.4 The moderating role of the welfare state

Countries differ not only in the way they arrange their educational systems but also in the formal support they provide to single-parent families and the children within them. An important way to reduce poverty and inequality is to provide monetary transfers to vulnerable groups via welfare state benefits (Brady 2005; Hampden-Thompson 2013). According to resource dilution theory, negative educational consequences of adverse events are due in part to the reduced availability of financial resources in single-parent families, which may be buffered by welfare state benefits. Indeed, numerous countries provide additional child benefits to families headed by a single parent, thus strengthening the financial position of families in which a parental death or divorce has occurred (Hampden-Thompson 2013; Pong, Dronkers, and Hampden-Thompson 2003). By reducing financial hardship and related stress in these families, welfare benefits could provide children with better opportunities to advance their educational careers (buffering effect).

Again, this impact may not be uniform across families. Welfare assistance may be particularly helpful for children of lower-educated single parents because benefits protect them against poverty (Brady 2005). Furthermore, benefits might bring their financial position more on par with that of families with non-widowed, nondivorced lower-educated parents and might provide parents sufficient financial means to invest in their children's educational careers (Hampden-Thompson 2013). For children of higher-educated parents, however, the compensation provided by welfare state benefits is likely to be less impactful. This is because these children started out with more parental resources, and after parental death or divorce, state benefits are insufficient to fully compensate for these resources. As a result, these children remain at a considerable disadvantage compared to their counterparts in families with nondivorced, non-widowed higher-educated parents.

Furthermore, single-parent benefits may have a relatively larger impact on children who experience a parental divorce compared to those who are faced with parental death, as the former tend to receive less support from within and outside the family. For children who experience a parental death, it may be less detrimental to grow up in a country without additional benefits for single-parent families, as they are likely to receive support from sources such as the extended family and friends of the deceased parent. Our fourth hypothesis therefore reads, *In countries that offer additional child benefits for single-parent families, children who experienced (a) parental death or (b) parental divorce experience smaller educational consequences of the adverse event than in countries without such additional benefits; (c) the buffering effects of single-parent benefits are larger for children of lower-educated parents, and (d) these effects are stronger for children who experienced parental divorce compared to children who experienced parental death.*

2.5 The moderating role of the prevalence of divorce

Lastly we consider the influence of divorce prevalence on the impact of divorce on educational attainment. On this, two perspectives exist (Kreidl, Štípková, and Hubatková 2017; Pong, Dronkers, and Hampden-Thompson 2003). The ‘easy separation’ perspective argues that when divorce is uncommon and less accepted, divorced parents and their children experience social stigma. This may induce feelings of isolation and stress, which is detrimental to children’s educational performance (Bradley and Corwyn 2002). Greater acceptance of divorce, translated as a higher national divorce rate, may lead to less social stigma and thus less negative consequences (Bernardi and Radl 2014).

However, as discussed earlier, parental divorce mostly affects children’s outcomes via the altered family environment (Martin 2012). In that light, the ‘low-conflict dissolution’ perspective seems more relevant. It argues that where divorce is uncommon, it mostly occurs in families with relatively high-intensity marital problems, such as violence. For children who grow up in such circumstances, the negative consequences of divorce may be relatively small because their home situations may improve after divorce. Yet as divorce becomes more widespread in a country, it may spill over to families with relatively few marital problems. In these families, divorce’s impact is relatively large, as it substantially worsens a child’s home environment (Kreidl, Štípková, and Hubatková 2017; Pong, Dronkers, and Hampden-Thompson 2003).

Altogether, due to a worsened home environment and reduced resources for more families, the consequences of divorce might be larger in countries where divorce is more prevalent (amplifying effect). Prior research has found that higher-educated parents are particularly likely to have low-conflict divorces, as they are less likely to have marital conflicts and they face fewer obstacles to divorce (Cooper and Pugh 2020). Nonetheless, low-conflict divorces are harmful to children of higher-educated parents because they cause the loss of considerable parental resources. This suggests an association between a higher national divorce rate and larger consequences of divorce among children of higher-educated parents. Therefore our fifth and final hypothesis is: (a) *In countries with a higher divorce rate, children who experience parental divorce experience larger educational consequences of divorce than in countries with a lower divorce rate, and (b) this amplifying effect of the divorce rate is larger for children of higher-educated parents.*

3. Data and measurements

3.1 Data: Generations and Gender Survey

We tested our hypotheses with data from the Generations and Gender Survey (GGS 2016). The GGS provides a collection of national surveys conducted between 2002 and 2013 on topics related to family dynamics and relationships (United Nations Economic Commission for Europe 2005). We used data from 17 countries: Austria, Belgium, Bulgaria, Czech Republic, Estonia, France, Georgia, Germany,⁶ Hungary, Italy, Lithuania, the Netherlands, Norway, Poland, Romania, Russia, and Sweden.

We focused on respondents from four ten-year birth cohorts: those born in the years 1945–1954, 1955–1964, 1965–1974, and 1975–1984 (with 62 cohorts across countries).⁷ We omitted respondents younger than age 25 at the time of survey, as some would not have completed their educational careers at that age. Furthermore, we excluded respondents born in a country other than where they lived at the time of survey because we were interested in the impact of the country context in which the respondents grew up.⁸ Additionally, we excluded respondents whose parents had never lived together or who grew up without their biological parents, to clearly distinguish between respondents who did and did not experience parental death or divorce.

3.2 Individual-level measurements

We measured respondents' educational attainment as the number of years required to complete their highest level of education. To obtain this measure, we aggregated the average number of years associated with each educational level in the different countries (based on ISCED levels 0 to 6, with a maximum of 20 years).⁹ When this aggregation was based on less than 20% of respondents with a certain level of education, we used government information obtained from Scholaro (2019) on the (current) nominal number of years required for that level. Respondents with no formal education were assigned the number of years for the lowest educational level minus one. Table A-1 provides an

⁶ Respondents were from the former FRG, as contextual information was not available for the former GDR.

⁷ Not all countries had information for four birth cohorts. In Austria, the oldest cohort was not covered by the national survey. Moreover, the youngest cohort in Lithuania, the oldest cohort in Italy, and the youngest and oldest cohorts in Russia and Georgia could not be included due to missing information on national context in the relevant period.

⁸ This information was not available for all respondents, most notably for respondents in Hungary. We decided to include these respondents in our analyses because this provided us with an additional country. Our results proved not to be sensitive to the inclusion of this group.

⁹ The France survey used slightly different categories to measure respondents' educational attainment, but as these levels were also transformed to years of education, this did not bias our results.

overview of the number of years corresponding to each educational level for each country.

For parental death, participants were asked whether their biological parents were still alive at time of the survey, and if not when they had died. Similarly, participants were asked whether their biological parents had broken up (including both divorce and separation), and if so when this happened. Using these questions, we created two categorical measures indicating whether respondents experienced these events before or during the year they turned 16. Respondents who did not experience these events during youth formed the reference category. We considered distinguishing between respondents who experienced these events before and after age 10, but additional analyses indicated that the consequences of the events and the influence of context were highly similar across age groups.

Parental educational attainment refers to the educational level of respondents' highest-educated parent, expressed in three categories: (pre-)primary education or lower (reference category), secondary education, and tertiary education. If respondents provided information on one parent only, that information was used. Due to data limitations, it was not possible to include the educational level of both parents separately.

Control variables were included for respondents' gender and age. We used multiple imputation to handle missing information on the individual-level variables in our model (1.18% missing on parental death, 2.23% missing on parental divorce, and 4.51% missing on parental education). Data were imputed using chained imputation in Stata, with 25 rounds, employing all individual and contextual variables in the model. Additionally, interaction terms with these variables were created using passive imputation. Respondents with missing information on the dependent variable (educational attainment) were removed from the analyses after the imputation procedure.

3.3 Country- and cohort-level measurements

We included four cohort-specific country-level variables in our study. Ideally, we would have preferred information referring to the situation in the country during each respondent's formative years. The multilevel-structure of our data, however, required respondents to be nested in birth cohorts covering multiple years. Therefore we selected five-year periods that best represent the situation in which respondents from each birth cohort grew up. (See Table A-2 for an overview of the time period considered for each birth cohort.)

Selectivity of a country's educational system was measured by the age at which children were first selected into different educational tracks, retrieved from Braga,

Checchi, and Meschi (2013).¹⁰ We used the age of first educational selection that was most common during the five-year period referring to each cohort's formative years in each country. For two countries (Bulgaria and Russia), information was unavailable for the first two cohorts; we therefore used the tracking age for the third cohort (Brunello and Checchi 2007). For three countries (Georgia, Lithuania, and Romania), no cohort-specific information on tracking age was available, so we took the age of children's selection into different educational tracks from Scholaro (2019).

A dichotomous variable was created to indicate whether countries provided additional welfare benefits to families headed by a single parent (aside from the regular child benefits). This information was retrieved from *Social Security Around the World* reports, in which social security policies of countries worldwide are provided from the 1950s onward (Social Security Administration n.d.). Crude divorce rates were retrieved from *Our World in Data* (Ortiz-Ospina and Roser 2020), which provides historical information about divorce rates in the countries in our analyses from sources such as the OECD and Eurostat. Lastly we controlled for educational expansion by including the share of people in each birth cohort from each country receiving a tertiary education, retrieved from the Wittgenstein Centre (2018).

3.4 Descriptive information

Unfortunately, not all countries had information on both parental death and divorce. Italy lacked information on parental death, while the surveys in Germany, Czech Republic, and Poland did not ask all respondents whether their parents were divorced. We therefore conducted separate analyses for parental death and divorce using only those countries for which we had information on each respective experience.¹¹

Tables 1a and 1b provide descriptive statistics for the variables in the two samples analysed. For parental death, we used data on 93,322 respondents from 58 country-cohort combinations in 16 countries. For parental divorce, we used data on 77,512 respondents from 49 country-cohort combinations in 14 countries.

¹⁰ We would have preferred a measure for the selectivity of the educational system that also includes information on the number of tracks and the selectivity of these tracks. However, such information was not available for the period in which most of our respondents grew up. Nonetheless, since these measures are highly correlated, age of selection appeared to be an appropriate indicator for the general selectivity of the educational system (Brunello and Checchi 2007).

¹¹ We also conducted analyses with both adverse experiences in the same models, using information from the 13 countries in which respondents were asked about both parental death and divorce. The results from these analyses did not differ substantially from our main analyses. Because the lower number of countries in these analyses reduced the reliability of the results, we decided to present only the estimates from our main analyses.

Within the respective samples, fewer people experienced parental death (6.71%) than parental divorce (8.94%). In both samples, respondents attained roughly 13 years of education on average. About 25% of the respondents had parents with a primary education or less, while about 60% had parents with secondary education and 13% had parents who had completed tertiary education. Women were overrepresented in both samples.

With respect to the contexts in which respondents grew up, we observed that educational selection occurred between ages 10 and 16. In 20 country-cohort combinations, the state provided additional child benefits for single-parent families. Divorce rates ranged from 0.24 to 4.08 divorces per 1,000 respondents in the sample with information on parental divorce (divorce rate was not included in our analyses of parental death). Table A-3 provides a categorization of the country cohorts according to these characteristics.

3.5 Analytical strategy

Before turning to the descriptive statistics, we discuss our analytical strategy. To investigate variation in the consequences of parental death or divorce across contexts, we started by analysing the impact of parental death and divorce in each country-cohort combination separately, using regression models with all individual-level predictors.

The differences were further analysed using three-level regression models, in which respondents were nested in country cohorts nested in countries. Null models indicated that in the countries with information on parental death, 8.2% of the variation in respondents' educational attainment could be attributed to the country level and 3.7% could be attributed to the country-cohort combination. For the countries with information on parental divorce, 9.6% of variation could be attributed to the country level and 3.6% to the country-cohort combination. This underscores the relevance of including the country level in our models. We estimated separate models for the main effects of parental death and divorce, their interaction with parental resources, their interaction with each of the context measures, and the three-way interactions, including both family-level and the country cohort-level moderators.

Confidence intervals were used to indicate the reliability of our estimates. For the multilevel models estimated using all country-cohort combinations, we used 95% intervals, as these are commonly used to signify the size and reliability of effect estimates. For the figures in which we present and compare effects per country cohort and family groups, we used confidence intervals of 90%, as these smaller interval bands provide a better indication of whether estimates differ from each other in size (Goldstein and Healy 1995).

Table 1a: Descriptive statistics – parental death sample

	<i>N</i>	%	Mean	S.D.	Min.	Max.
<i>Individual-level variables</i>						
<i>Dependent variable</i>						
Educational attainment	93,322		13.36	2.93	3.00	19.84
<i>Independent variables</i>						
Parental death during youth	93,322					
No (ref.)	87,060	93.29				
Yes	6,262	6.71				
Parental educational attainment	93,322					
Primary (ref.)	24,292	26.03				
Secondary	56,842	60.91				
Tertiary	12,197	13.07				
<i>Control variables</i>						
Age	93,322		43.47	10.49	25.00	68.00
Sex	93,322					
Male (ref.)	41,892	44.89				
Female	51,430	55.11				
<i>Country cohort–level variables</i>						
<i>Independent variables</i>						
Age at first selection	58		13.52	2.01	10.00	16.00
Single-parent benefits	58					
No (ref.)	38	65.52				
Yes	20	34.00				
<i>Control variables</i>						
Share tertiary educated	58		12.10	0.90	10.38	13.99

Sources: Braga, Checchi, and Meschi (2013), Brunello and Checchi (2007), GGS (2016), Ortiz-Ospina and Roser (2020), Scholaro (2019), Social Security Administration (1958–1994), Wittgenstein Centre (2018).

Table 1b: Descriptive statistics – parental divorce sample

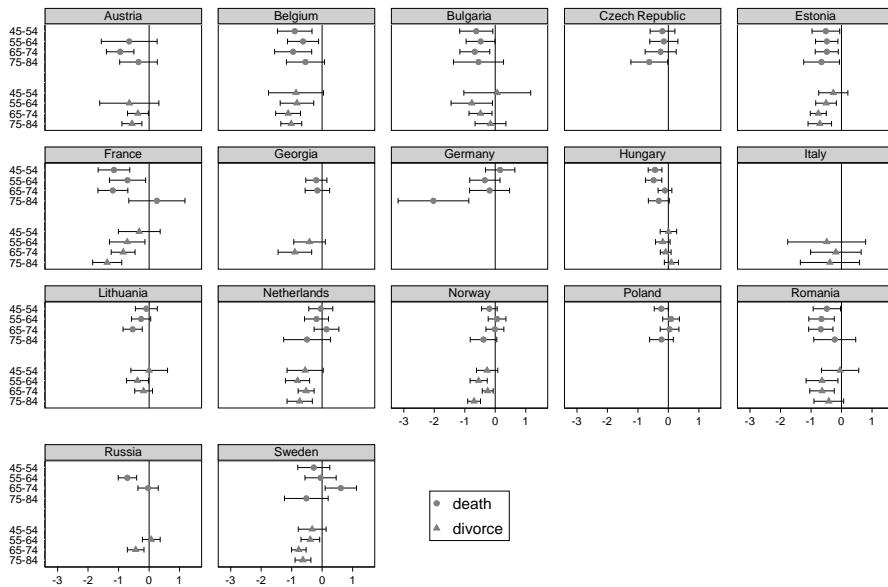
	<i>N</i>	%	Mean	S.D.	Min.	Max.
<i>Individual-level variables</i>						
<i>Dependent variable</i>						
Educational attainment	77,512		13.26	3.02	3.00	19.84
<i>Independent variables</i>						
Parental divorce during youth	77,512					
No (ref.)	70,582	91.06				
Yes	6,930	8.94				
Parental educational attainment	77,512					
Primary (ref.)	21,603	27.87				
Secondary	45,538	58.75				
Tertiary	10,371	13.38				
<i>Control variables</i>						
Age	77,512		42.37	9.98	25.00	68.00
Sex	77,512					
Male (ref.)	34,997	45.15				
Female	42,515	54.85				
<i>Country cohort-level variables</i>						
<i>Independent variables</i>						
Age at first selection	49		13.84	1.82	10.00	16.00
Single-parent benefits	49					
No (ref.)	29	59.18				
Yes	20	40.82				
Divorce rate	49		1.74	0.95	0.24	4.08
<i>Control variables</i>						
Share tertiary educated	49		11.93	0.90	10.38	13.99

Sources: Braga, Checchi, and Meschi (2013), Brunello and Checchi (2007), GGS (2016), Ortiz-Ospina and Roser (2020), Scholaro (2019), Social Security Administration (1958–1994), Wittgenstein Centre (2018)

4. Analyses and results

Figure 1 presents the effects of parental death and divorce per country cohort based on regression analyses with all individual predictors in each country-cohort combination. On average, both adverse events seem to have reduced respondents' educational attainment by about half a year. The 90% confidence intervals of parental death excluded the value 0 in 22 (out of 58) country cohorts; for divorce this held for 27 (out of 49) country-cohort combinations. Thus there was considerable variation in the educational consequences of parental death and divorce, both between countries and between cohorts in the same country. In Hungary and Poland, the consequences of the adverse events seem to have been very small, while the consequences were considerably larger in, for example, Belgium and France. In Germany and France, the consequences of these events varied across cohorts, being either large or relatively small, depending on the period in which the respondents were born. These differences are further explored below.

Figure 1: Educational consequences of parental death and divorce across countries and cohorts (90% CI)



4.1 Direct effects of adversity and the moderating influence of parental education

Table 2 presents the main effects of parental death and divorce, as well as their interaction with parental education. Models 1a and 1b show that both parental death ($B = -0.352$, $SE = 0.035$) and parental divorce ($B = -0.471$, $SE = 0.034$) negatively affected respondents' educational attainment. The effect of divorce was substantially larger than that of parental death, and this difference was significant at the conventional levels.¹² All in all, the negative effects confirm our first hypothesis: Respondents who experienced a parental death or divorce attained less education than respondents who did not experience one of these events during their youth, and the difference was larger for respondents who experienced parental divorce.

Models 2a and 2b include estimates of the interaction effects between the adverse events and parental education. Here we see that parental education moderated the impact of parental divorce but not of parental death. The interaction terms of experiencing parental death with parental education were small and not statistically significant (at conventional levels). For parental divorce, the consequences were about twice as large for respondents whose parents had tertiary education (interaction term: $B = -0.360$, $SE = 0.117$) compared to respondents whose parents had attained primary education (main effect: $B = -0.357$, $SE = 0.075$). There was no substantial difference in the impact of parental divorce between respondents whose parents had primary education and those whose parents had secondary education (interaction term: $B = -0.095$, $SE = 0.088$). We found no difference in the impact of parental death between respondents with higher-educated parents and those with lower-educated parents. Hence we must reject hypothesis 2a. Our results are in line with hypothesis 2b: Respondents with higher-educated parents experienced greater educational consequences of divorce compared to respondents with lower-educated parents. These results also corroborate hypothesis 2c, stating that the differences according to parental education are larger for parental divorce than for parental death.

¹² The t value of the difference was calculated as follows: $T = (-.352 - -.471) / \text{sqrt}(.035^2 + .034^2) = 2.44$. This provides a conservative estimate, as we assume the covariances of the effects to be zero.

Table 2: Educational consequences of parental death and divorce and moderation by family context

Model	1a		2a		1b		2b	
	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95
Intercept	11.969 (0.241)	11.496 12.442	11.971 (0.241)	11.497 12.444	12.045 (0.276)	11.505 12.585	12.034 (0.275)	11.494 12.574
Parental death	-0.352 (0.035)	-0.421 -0.284	-0.363 (0.059)	-0.478 -0.248				
Parental divorce					-0.471 (0.034)	-0.539 -0.404	-0.357 (0.075)	-0.504 -0.211
Female	0.124 (0.017)	0.091 0.158	0.124 (0.017)	0.091 0.158	0.184 (0.019)	0.147 0.221	0.184 (0.019)	0.147 0.221
Age	-0.003 (0.003)	-0.008 0.003	-0.003 (0.003)	-0.008 0.003	-0.007 (0.003)	-0.013 -0.001	-0.007 (0.003)	-0.013 -0.001
<i>Family level</i>								
<i>Parental education</i>								
Secondary	1.680 (0.023)	1.635 1.725	1.678 (0.024)	1.631 1.725	1.771 (0.025)	1.722 1.820	1.778 (0.026)	1.727 1.828
Tertiary	3.574 (0.032)	3.511 3.637	3.577 (0.033)	3.513 3.641	3.589 (0.034)	3.522 3.657	3.622 (0.036)	3.552 3.693
<i>Parental death*education</i>								
Secondary			0.033 (0.077)	-0.119 0.185				
Tertiary			-0.083 (0.132)	-0.342 0.177				
<i>Parental divorce*education</i>								
Secondary							-0.095 (0.088)	-0.268 0.078
Tertiary							-0.360 (0.117)	-0.589 -0.131
<i>Country cohort level</i>								
<i>Selection age</i>								
	0.097 (0.037)	0.025 0.169	0.097 (0.037)	0.025 0.169	0.141 (0.040)	0.063 0.219	0.141 (0.040)	0.063 0.218
<i>Single-parent benefits</i>								
	0.063 (0.175)	-0.281 0.406	0.062 (0.175)	-0.281 0.406	0.057 (0.155)	-0.246 0.360	0.057 (0.154)	-0.245 0.359
<i>Divorce rate</i>								
					-0.269 (0.075)	-0.416 -0.122	-0.268 (0.075)	-0.414 -0.121
<i>Educational expansion</i>								
	0.374 (0.095)	0.187 0.561	0.374 (0.095)	0.187 0.561	0.487 (0.096)	0.299 0.675	0.485 (0.096)	0.298 0.673
<i>N</i>	93,322		93,322		77,512		77,512	

4.2 The moderating influence of the educational system

Table 3 presents the results of the cross-level interaction effects of the adverse events and educational system. First we considered the relevance of educational selectivity for the consequences of parental death. Model 1a includes the interaction effect between tracking age and the main effect of parental death. In line with our expectations, it shows that educational tracking at a later age, indicating a less selective system, reduced the consequences of parental death (interaction effect: $B = 0.068$, $SE = 0.029$). In model 2a, we added the three-way interaction with parental death, parental education, and educational selectivity. Surprisingly, this model indicates that the buffering role of a less selective system was confined to respondents with lower-educated parents; the main

interaction of parental death and tracking age, referring to respondents with lower-educated parents, was large and positive ($B = 0.156$, $SE = 0.049$), while the three-way interactions referring to respondents with parents with secondary and tertiary education were almost equal in magnitude and negative (interactions terms: $B = -0.131$, $SE = 0.056$ and $B = -0.132$, $SE = 0.076$).

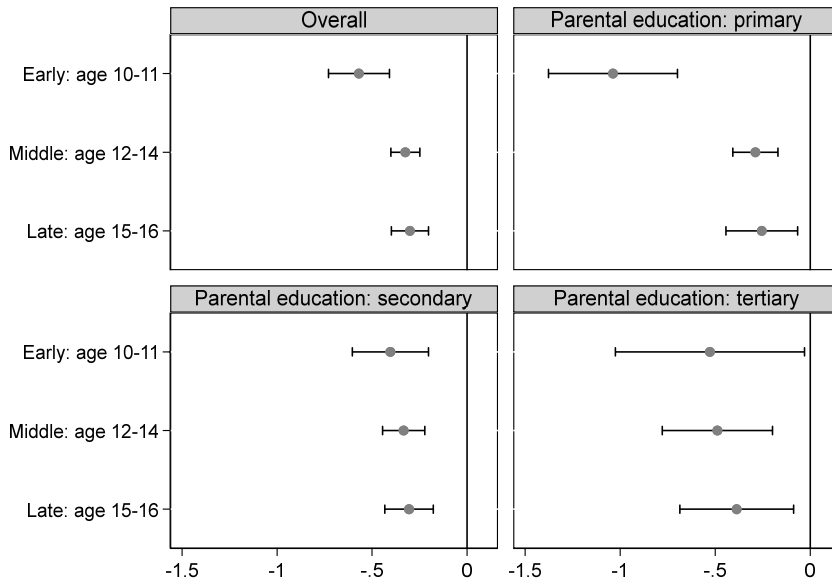
To further illustrate these differences, Figure 2 presents the consequences of parental death, estimated separately for country cohorts with early, middle, and late selection. The first panel shows the overall effect (across all levels of parental education). Here we see that the consequences of parental death were largest for children in the most selective educational systems (early tracking), driving the interaction effect found earlier. In such systems, the consequences of parental death were about twice as large as in less selective systems (middle or late tracking). The other panels show that this difference applied only to respondents with parents with primary education. For them, the consequences of parental death were larger in the most selective educational systems (early tracking), while no such pattern was found for respondents with parents with secondary or tertiary education.

Turning to the impact of parental divorce, model 2a shows that more selective educational systems did not increase the consequences of this adverse event. The interaction effect in this model was very small, negative, and not statistically significant at the conventional levels ($B = -0.012$, $SE = 0.025$). Adding the three-level interactions in model 2b did not produce a clear pattern either. We thus conclude that the consequences of parental death were larger in more selective educational systems (in line with hypothesis 3a), but no such effect was found for parental divorce (contrary to hypothesis 3b). Furthermore, the amplifying effect of the educational system was not larger for respondents with higher-educated parents, as stated in hypothesis 3c. Overall, these findings also contradict hypothesis 3d, proposing that these patterns would be more profound for parental divorce than for parental death.

Table 3: Educational consequences of parental death and divorce and moderation by educational system

Model	1a		2a		1b		2b	
	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95
Intercept	11.968 (0.241)	11.496 12.440	12.317 (0.334)	11.663 12.972	12.053 (0.276)	11.512 12.593	12.564 (0.392)	11.796 13.332
Parental death	-0.385 (0.055)	-0.492 -0.278	-0.444 (0.072)	-0.586 -0.303				
Parental divorce					-0.475 (0.047)	-0.567 -0.382	-0.572 (0.090)	-0.748 -0.396
Female	0.125 (0.017)	0.091 0.158	0.123 (0.017)	0.090 0.156	0.184 (0.019)	0.147 0.221	0.181 (0.019)	0.145 0.218
Age	-0.003 (0.003)	-0.008 0.003	-0.007 (0.003)	-0.013 -0.002	-0.007 (0.003)	-0.013 -0.001	-0.012 (0.003)	-0.018 -0.005
<i>Family level</i>								
Parental education								
Secondary	1.680 (0.023)	1.635 1.725	1.770 (0.116)	1.544 1.997	1.771 (0.025)	1.722 1.820	1.764 (0.134)	1.502 2.026
Tertiary	3.574 (0.032)	3.512 3.637	3.822 (0.189)	3.452 4.193	3.588 (0.034)	3.521 3.655	3.798 (0.228)	3.352 4.245
Parental death*education								
Secondary			0.110 (0.085)	-0.057 0.277				
Tertiary			-0.061 (0.136)	-0.327 0.206				
Parental divorce*education								
Tertiary							0.140 (0.101)	-0.057 0.338
Secondary							-0.031 (0.129)	-0.284 0.222
<i>Country cohort level</i>								
Selection age								
	0.093 (0.036)	0.022 0.165	0.240 (0.071)	0.100 0.379	0.148 (0.040)	0.069 0.227	0.270 (0.087)	0.100 0.440
Single-parent benefits	0.053 (0.174)	-0.287 0.394	-0.453 (0.295)	-1.032 0.126	0.061 (0.156)	-0.246 0.368	-0.553 (0.321)	-1.182 0.077
Divorce rate					-0.263 (0.076)	-0.412 -0.115	-0.221 (0.152)	-0.520 0.078
Educational expansion	0.370 (0.095)	0.184 0.556	0.374 (0.152)	0.076 0.673	0.489 (0.097)	0.298 0.679	0.589 (0.191)	0.214 0.964
Parental death*selection age								
	0.068 (0.029)	0.011 0.124	0.156 (0.049)	0.060 0.252				
Parental divorce*selection age								
					-0.012 (0.025)	-0.062 0.038	0.076 (0.051)	-0.025 0.177
<i>Family and country cohort level</i>								
Parental education*selection age								
Secondary			-0.130 (0.064)	-0.255 -0.005			-0.099 (0.081)	-0.257 0.059
Tertiary			-0.221 (0.102)	-0.420 -0.021			-0.234 (0.134)	-0.496 0.027
Parental death*education*selection age								
Secondary			-0.131 (0.056)	-0.239 -0.022				
Tertiary			-0.132 (0.076)	-0.282 0.017				
Parental divorce*education*selection age								
Secondary							-0.119 (0.056)	-0.228 -0.009
Tertiary							-0.066 (0.072)	-0.206 0.075
N	93,322		93,322		77,512		77,512	

Figure 2: Educational consequences of parental death in country cohorts with varying ages of selection (90% CI)



4.3 The moderating influence of the welfare state

Table 4 provides estimates of the influence of single-parent benefits, which seem to have an impact similar to that of later educational tracking. Models 1a and 1b incorporate the buffering role of welfare state benefits for the consequences of parental death. The interaction effect between single-parent benefits and parental death ($B = 1.33$, $SE = 0.116$) in model 1 was positive but not statistically significant (at conventional levels). Model 2b includes the three-way interaction with parental death, parental education, and single-parent benefits. The main interaction effect of parental death and these benefits, referring to respondents with lower-educated parents, was positive ($B = 0.382$, $SE = 0.152$) and almost the same size as the main effect ($B = -0.501$, $SE = 0.086$), indicating that parental death did not impact the educational attainment of respondents with lower-educated parents in countries that offered these benefits. However, the negative three-way interactions with single-parent benefits and parental death among respondents with parents with secondary ($B = 0.134$, $SE = 0.243$) and tertiary education ($B = 0.601$, $SE = 0.394$) indicate that this buffering role did not apply to them.

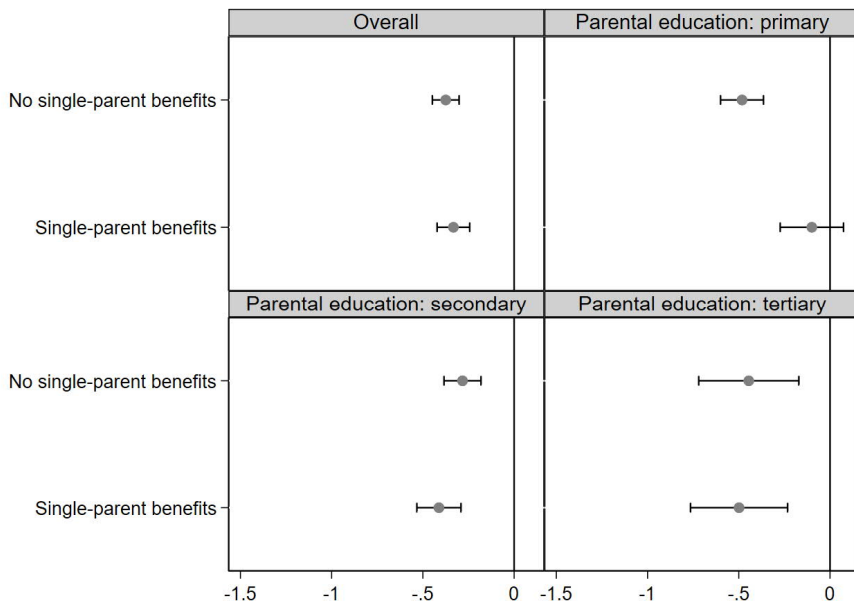
Table 4: Educational consequences of parental death and divorce and moderation by welfare state

Model	1a		2a		1b		2b	
	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95
Intercept	11.970 (0.241)	11.499 12.442	12.350 (0.335)	11.694 13.006	12.055 (0.276)	11.514 12.595	12.576 (0.394)	11.803 13.348
Parental death	-0.425 (0.070)	-0.562 -0.287	-0.501 (0.086)	-0.669 -0.333				
Parental divorce					-0.512 (0.063)	-0.636 -0.389	-0.605 (0.106)	-0.813 -0.397
Female	0.125 (0.017)	0.091 0.158	0.122 (0.017)	0.089 0.155	0.184 (0.019)	0.147 0.221	0.182 (0.019)	0.145 0.218
Age	-0.003 (0.003)	-0.008 0.003	-0.007 (0.003)	-0.013 -0.002	-0.007 (0.003)	-0.013 -0.001	-0.012 (0.003)	-0.018 -0.005
<i>Family level</i>								
<i>Parental education</i>								
Secondary	1.680 (0.023)	1.635 1.725	1.786 (0.148)	1.496 2.077	1.771 (0.025)	1.722 1.820	1.807 (0.177)	1.459 2.154
Tertiary	3.574 (0.032)	3.511 3.637	4.032 (0.242)	3.558 4.506	3.588 (0.034)	3.521 3.655	4.054 (0.305)	3.456 4.652
<i>Parental death*education</i>								
Secondary			0.185 (0.100)	-0.011 0.381				
Tertiary			-0.052 (0.177)	-0.400 0.296				
<i>Parental divorce*education</i>								
Tertiary							0.137 (0.122)	-0.102 0.377
Secondary							-0.005 (0.175)	-0.349 0.338
<i>Country cohort level</i>								
<i>Selection age</i>								
	0.095 (0.036)	0.023 0.166	0.214 (0.070)	0.076 0.352	0.147 (0.040)	0.068 0.226	0.256 (0.086)	0.088 0.425
Single-parent benefits	0.049 (0.174)	-0.292 0.390	-0.459 (0.298)	-1.044 0.126	0.056 (0.157)	-0.251 0.363	-0.541 (0.322)	-1.172 0.090
<i>Divorce rate</i>								
					-0.264 (0.076)	-0.412 -0.115	-0.225 (0.152)	-0.523 0.073
Educational expansion	0.370 (0.095)	0.184 0.556	0.405 (0.152)	0.107 0.704	0.490 (0.097)	0.300 0.680	0.604 (0.191)	0.230 0.977
<i>Parental death*benefits</i>								
	0.133 (0.116)	-0.094 0.361	0.382 (0.152)	0.084 0.679				
<i>Parental divorce*benefits</i>								
					0.079 (0.095)	-0.108 0.265	0.222 (0.182)	-0.134 0.578
<i>Family and country cohort level</i>								
<i>Parental education*benefits</i>								
Secondary			-0.134 (0.243)	-0.611 0.343			-0.138 (0.275)	-0.677 0.402
Tertiary			-0.601 (0.394)	-1.373 0.172			-0.592 (0.462)	-1.497 0.314
<i>Parental death*education*benefits</i>								
Secondary			-0.433 (0.173)	-0.773 -0.093				
Tertiary			-0.274 (0.273)	-0.808 0.261				
<i>Parental divorce*education*benefits</i>								
Secondary							-0.173 (0.196)	-0.558 0.211
Tertiary							-0.191 (0.250)	-0.682 0.300
N	93,322		93,322		77,512		77,512	

Figure 3 illustrates this, showing the consequences of parental death in country cohorts with and without single-parent benefits. The overall effect of parental death did not differ between countries with and without benefits; however, distinguishing by parental level of education, we find that benefits mattered most for respondents whose parents had primary education. They experienced a substantial negative effect of parental death in country cohorts without benefits, but this effect disappeared in country cohorts with single-parent benefits. Provision of single-parent benefits did not change the effect of parental death among respondents whose parents had a secondary or tertiary education. This confirms hypotheses 3a and 3c regarding parental death: Single-parent benefits reduced the educational consequences of parental death but only among respondents with lower-educated parents.

Regarding parental divorce, the results in models 2a and 2b point to a similar pattern, but with much smaller and nonsignificant effects. We therefore cannot confirm hypotheses 3b and 3d; that is, we found no evidence that single-parent benefits in a country reduced the educational consequences of parental divorce and also no evidence of a larger moderation effect for parental death than for divorce.

Figure 3: Educational consequences of parental death in country cohorts with and without single-parent benefits (90% CI)



4.4 The moderating influence of the divorce rate

Finally, Table 5 presents the moderating role of the divorce rate for the educational consequences of parental divorce. Model 1 includes the interaction with the divorce rate for each country–cohort combination and parental divorce, which was very small and not statistically significant at conventional levels ($B = -0.004$, $SE = 0.051$). This indicates that for the overall impact of divorce, the prevalence of divorce in a country did not matter. In model 2, we estimated the three-way interactions with parental level of education, finding these to also be small and not statistically significant at conventional levels. Given these small and nonsignificant effects, we rejected our fifth hypothesis; that is, divorce did not appear to be more harmful in contexts where it was more common, neither for respondents with lower-educated parents nor for respondents with higher-educated parents.

Table 5: Educational consequences of divorce and moderation by divorce rate

Model	1		2	
	B/ (SE)	Min95/ Max95	B/ (SE)	Min95/ Max95
Intercept	12.053 (0.276)	11.512 12.593	12.583 (0.391)	11.816 13.349
Parental divorce	-0.476 (0.049)	-0.572 -0.381	-0.515 (0.086)	-0.683 -0.347
Female	0.184 (0.019)	0.147 0.221	0.181 (0.019)	0.144 0.218
Age	-0.007 (0.003)	-0.013 -0.001	-0.012 (0.003)	-0.018 -0.005
<i>Family level</i>				
Parental education				
Secondary	1.771 (0.025)	1.722 1.820	1.736 (0.126)	1.488 1.983
Tertiary	3.588 (0.034)	3.521 3.655	3.788 (0.210)	3.376 4.200
Parental divorce*education				
Tertiary			0.094 (0.096)	-0.095 0.283
Secondary			-0.096 (0.131)	-0.354 0.162
<i>Country cohort level</i>				
Selection age	0.147 (0.040)	0.069 0.226	0.251 (0.084)	0.085 0.416
Single-parent benefits	0.061 (0.156)	-0.246 0.368	-0.517 (0.315)	-1.135 0.101
Divorce rate	-0.263 (0.076)	-0.412 -0.114	-0.185 (0.150)	-0.480 0.110
Educational expansion	0.489 (0.097)	0.299 0.679	0.574 (0.188)	0.206 0.942
Parental divorce*divorce rate	-0.004 (0.051)	-0.105 0.097	0.188 (0.109)	-0.026 0.403
<i>Family and country cohort level</i>				
Parental education*divorce rate				
Secondary			-0.004 (0.051)	-0.105 0.097
Tertiary			-0.004 (0.051)	-0.105 0.097
Parental divorce*education*divorce rate				
Secondary			-0.246 (0.118)	-0.476 -0.015
Tertiary			-0.147 (0.138)	-0.418 0.124
<i>N</i>		77,512		77,512

5. Conclusion and discussion

This study is the first to bring together the influence of family resources and country context on the educational consequences of both parental death and divorce. Our results indicate that both adverse events negatively impact children’s educational careers, but we also found substantial differences between the two. Not only were the consequences of parental divorce for children’s educational attainment larger than those of parental death,

but family and country contexts also played a role in shaping the consequences of these experiences in different ways.

The family context, specifically parental resources, seemed particularly relevant for the educational consequences of parental divorce. We found that parental divorce was more harmful for children of higher-educated parents, confirming the notion of reduced advantage from earlier studies (Bernardi and Radl 2014; Bussemakers and Kraaykamp 2020; Martin 2012). The educational consequences of parental death were found to be smaller than those of parental divorce, and overall were comparable for children of lower- and higher-educated parents. This confirms ideas from previous studies suggesting that after parental death, children may face a smaller loss in resources and obtain substantial support from family and friends, who (to some extent) take over the role of the deceased parent (Albertini and Dronkers 2009; Sapharas et al. 2016; Steele, Sigle-Rushton, and Kravdal 2009).

In contrast, characteristics of the national context did not affect the consequences of parental divorce but were found to be important for children who experienced parental death. Regarding welfare state benefits, our results confirm as well as expand on the earlier finding that single-parent benefits reduce the impact of growing up in a single-parent family on children's school performance (Hampden-Thompson 2013; Pong, Dronkers, and Hampden-Thompson 2003). Extending this finding, our results show that such benefits function as a buffer against the negative impact of an adverse event on children's final educational attainment, but only for children of lower-educated parents who experienced parental death. This is in line with the suggestion of Hampden-Thompson (2013) that single-parent benefits may be particularly effective in reducing poverty among vulnerable families by bringing their resources more on par with those of two-parent lower-educated families. For children of middle- and higher-educated parents, single-parent benefits are likely insufficient to reduce the impact of parental death. Similarly, the loss of parental resources after divorce may be too large to be compensated for by welfare benefits. Unfortunately, due to the country-comparative nature of our study, we could not study the mechanisms underlying the impact of parental death or divorce. Future research with more detailed family life data could investigate variation in the loss of parental resources after adverse family events and shed light on what types of family policies might mitigate such consequences.

Educational system selectivity was also relevant for children who experienced parental death. Our results suggest that in more selective educational systems, parental death had a stronger impact on the educational attainment of children of lower-educated parents. This pattern aligns with the explorative findings of Bernardi and Radl (2014) suggesting that educational selectivity increases the impact of divorce for children of lower-educated parents. Our results indicate that selectivity of the educational system does not affect the consequences of an adverse family event because it increases the

burden of lost parental resources, as this would have led to stronger effects among children of higher-educated parents. Instead, the explanation for our findings may be found in theories of cumulative disadvantage (DiPrete and Eirich 2006): In less selective systems, children of lower-educated parents experience some disadvantage regardless of whether they experience an adverse family event. In more selective educational systems, in contrast, the disadvantages of growing up with less parental resources and the experience of parental death or divorce may be mutually reinforcing. For parental divorce, such patterns may manifest at the top of the educational distribution, leading to less access to tertiary education, as suggested by Bernardi and Radl (2014), while for parental death, such disadvantages seem more consequential at lower education levels, as found in our study.

On a positive note, we found no evidence for the ‘low-conflict dissolution’ perspective, which argues that where divorce is more prevalent, it is more harmful to children’s educational attainment. Our findings differ from earlier research indicating that a higher national divorce rate reduces opportunities for children of divorced parents to enter tertiary education because of an increase in low-conflict divorces (Bernardi and Radl 2014; Kreidl, Štípková, and Hubatková 2017). This may be because we studied the consequences of divorce for children’s educational attainment in general instead of focusing on higher education only. A relatively select group attains tertiary education, even without experiencing parental death or divorce. Low-conflict divorces may be particularly detrimental to children’s ability to make the specific transition to tertiary education. In our study, this negative effect might have been balanced out by the positive effect of reduced social stigma for educational attainment in the lower educational strata. Future research using detailed data on the educational careers of children with and without adverse experiences may shed light on how educational selection and norms regarding adverse events affect the educational consequences of adversity.

As noted earlier, a disadvantage of the country-comparative nature of our study was that we lacked detailed information on the circumstances in which children grew up and on their educational careers. Future research could use such longitudinal data to investigate the mechanisms suggested for the found differences between parental death and divorce across contexts. Moreover, future research might investigate how the consequences of other adverse experiences, such as parental conflict and violence or child abuse and neglect, vary between families and countries.

In this study, we were able to show that children who experienced parental death or divorce attained lower levels of education, but the impact of these adverse events was not equal across social environments. This underscores the importance of recognizing how children’s family experiences affect their educational attainment. Moreover, our study suggests that educational system and welfare state policies can help the most disadvantaged, bereaved children, but they provide less support for other groups. It thus

remains important to find ways to help children from various backgrounds and with various experiences during their youth.

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Appendix

Table A-1: Educational levels and corresponding years of education across countries

ISCED	Years of education	Years of education	Years of education	Years of education	Years of education	Years of education	Years of education
	Austria	Belgium	Bulgaria	Czech Republic	Estonia	Georgia	Germany
0		5.00	3.00		6.40	5.00	
1	7.15	6.00 *	4.00 *		7.40	6.00 *	4.00 *
2	8.92	10.36	8.57	8.95	10.32	9.00 *	9.50 *
3	12.75	12.55	12.37	12.3	12.74	12.00 *	12.67
4	13.85	14.23		15.88	14.02	14.72	15.60
5	18.17	16.28	17.62	17.54	17.28	17.36	17.88
6	19.48	19.35	19.30	18.07	19.57	19.41	19.01
	Hungary	Italy	Lithuania	Netherlands	Norway	Poland	Romania
0	3.00	4.40	4.00	5.00	6.00	7.62	3.90
1	4.00 *	5.42	5.00 *	6.00 *	7.00 *	8.68	4.92
2	12.00 *	8.67	11.00 *	10.00 *	10.00 *	9.92	8.97
3	12.00 *	12.95	13.00 *	13.00 *	13.00 *	13.07	12.12
4	12.00 *		15.03		14.00 *	16.24	16.31
5	16.00 *	18.87	17.54	15.00 *	16.00 *	18.48	17.69
6			18.00	16.00 *	18.00 *	19.36	19.45
	Russia	Sweden		France			
0	3.00			0			
1	4.00 *	8.60		1-2	5.50		
2	9.00 *	10.73		3	12.56		
3	11.00 *	13.94		5	16.85		
4	13.27	16.74					
5	16.30	18.56					
6	18.44	19.84					

*Number of years of education based on government information on the educational system.

Sources: Scholano (2019); GGS (2016).

Table A-2: Time period of context characteristics for each birth cohort

Birth cohort	Measurement period country context (child benefits, age of educational selection, and divorce rate)
1945–1954	1960–1964
1955–1964	1970–1974
1965–1974	1980–1984
1975–1984	1990–1994

Table A-3: Categorization of country cohorts according to context characteristics

	Country	Birth cohort	Country	Birth cohort	Country	Birth cohort	
Educational selectivity	Early: selection age 10 or 11		Middle: selection age 12 to 14		Late: selection age 15 or 16		
	Austria	all cohorts	Belgium	all cohorts	Czech Republic	1955–1964	
	Czech Republic	1945–1954	Bulgaria	all cohorts		1965–1974	
		1975–1984	Hungary	1945–1954	Estonia	all cohorts	
	France	1945–1954		1955–1964	France	1965–1974	
		1955–1964		1965–1974		1975–1984	
	Germany	all cohorts	Italy	all cohorts	Georgia	all cohorts	
	Hungary	1975–1984	Lithuania	all cohorts	Norway	1955–1964	
			Netherlands	all cohorts		1965–1974	
			Norway	1945–1954		1975–1984	
			Poland	all cohorts	Russia	all cohorts	
			Romania	all cohorts	Sweden	all cohorts	
	Single-parent benefits	No benefits			Benefits		
		Austria	all cohorts			Bulgaria	1955–1964
Belgium		all cohorts				1965–1974	
Bulgaria		1945–1954				1975–1984	
Czech Republic		all cohorts			Estonia	all cohorts	
France		1945–1954			France	1975–1984	
		1955–1964			Georgia	all cohorts	
		1965–1974			Hungary	1975–1984	
Germany		all cohorts			Lithuania	all cohorts	
Hungary		1945–1954			Norway	all cohorts	
		1955–1964			Russia	all cohorts	
		1965–1974					
Italy		all cohorts					
Netherlands		all cohorts					
Poland		all cohorts					
Romania		all cohorts					
Sweden		all cohorts					
Divorce rate	Low: < 1.2%		Middle: 1.2–2.1%		High: > 2.1%		
	Belgium	1945–1954	Austria	all cohorts	Belgium	1975–1984	
		1955–1964	Belgium	1965–1974	Estonia	all cohorts	
	Bulgaria	1945–1954	Bulgaria	1955–1964	Hungary	1955–1964	
		1975–1984		1965–1974		1965–1974	
	France	1945–1954	France	1965–1974		1975–1984	
		1955–1964		1975–1984	Lithuania	1955–1964	
	Georgia	1955–1964	Georgia	1965–1974		1965–1974	
	Italy	all cohorts	Hungary	1945–1954	Netherlands	1975–1984	
	Lithuania	1945–1954	Netherlands	1975–1984	Norway	1975–1984	
	Netherlands	1945–1954	Norway	1965–1974	Russia	1955–1964	
		1955–1964	Romania	1945–1954		1965–1974	
	Norway	1945–1954		1965–1974	Sweden	1965–1974	
		1955–1964		1975–1984		1975–1984	
	Romania	1955–1964	Sweden	1945–1954			

Sources: Braga, Checchi, and Meschi (2013), Brunello and Checchi (2007), Ortiz-Ospina and Roser (2020), Scholaro (2019), Social Security Administration (1958–1994), Wittgenstein Centre (2018).