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Childhood Family Structure and the Accumulation of Wealth Across the Life Course

Objective: *The aim of this article is to document how childhood family structure is related to the accumulation of wealth.*
Background: *Childhood family structure is a commonly studied determinant of child and adult outcomes, but little is known about its effects on wealth accumulation. Wealth is affected by a wide variety of factors, including human capital formation, family dynamics, and intergenerational transfers. Studying wealth therewith sheds light on how childhood family structure relates to the accumulation of advantages across life.*
Method: *Data from the 1979 National Longitudinal Survey of Youth (*N = *7,066) are employed to document wealth differences at ages 47 to 55. Growth curve models are estimated to understand at what ages these differences emerge.*
Results: *A median wealth penalty of at least $61,600 at ages 47 to 55 is observed for individuals who did not live continuously with both parents from birth to age 18, depending on the alternative childhood family trajectory considered. A subsequent mediation analysis of the "wealth penalty" related to the permanent departure of a parent from the household during childhood points at human capital formation and own family dynamics as the primary channels through which wealth differences are produced; intergenerational transfers matter rather less.*
Conclusion: *Childhood family structure has moderate effects on multiple different life domains that accrue during the life course and collectively add up to a more considerable penalty in wealth.*

Childhood family structure is related to a variety of outcomes in later life including cognitive ability, educational attainment, income, partnering behavior, and psychological well-being (Bernardi & Boertien, 2017; Cavanagh & Huston, 2006; Erola, Härkönen, & Dronkers, 2012; Gähler & Palmtag, 2015; Härkönen, Bernardi, & Boertien, 2017; Kiernan & Mensah, 2009). In this article, we focus on an underresearched outcome that, to some extent, quantifies the accumulation of various advantages and disadvantages across life: wealth. Wealth is affected by events experienced across a variety of domains in life, such as periods of unemployment, receipt of inheritances, and costly accidents. Similarly, wealth at a given point in time is influenced by income received and

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costs incurred at all different stages of life (Semyonov & Lewin-Epstein, 2013). Studying wealth therefore provides a good opportunity to increase our understanding of how family background (in our case childhood family structure) relates to the accumulation of advantages and disadvantages. Similarly, studying the influence of childhood family structure represents a novel contribution to the literature on wealth, which has received increasing attention as the distribution of wealth has become considerably more unequal during the past decades (Killewald, Pfeffer, & Schachner, 2017; Piketty, 2014).

A few studies have reported associations between childhood family structure and wealth for the United States. Amato and Keith (1991) investigated differences in the net value of individuals' homes, real estate, and businesses in 1988 (hence, not considering savings, stocks, and other forms of wealth) depending on four types of parental absence experienced during childhood. White females, White males, and Black females who experienced a parental divorce or never lived with both parents during childhood had fewer assets when compared with their counterparts who did. Evidence was less clear-cut for Black males and Hispanic respondents and cases of parental death. Keister (2004), however, found that the greater likelihood of experiencing a parental separation or divorce among Black individuals could partly explain racial differences in net worth during early adulthood. Although these studies on the United States suggest that childhood family structure and wealth are related, the size of the overall "penalties" in wealth associated with various childhood family structures is not known. Recent research by Lersch and Baxter (2015) in Australia found that respondents whose parents separated or divorced before age 15 had on average 38% less wealth in adulthood when compared with others. The extent to which these findings apply to the United States remains unclear, especially given that the consequences of childhood family structure for child outcomes appear to vary across countries (Hampden-Thompson, 2013; Pong, Dronkers, & Hampden-Thompson, 2003).

We make three major contributions in this article. First, we provide estimates of differences in wealth around age 50 according to childhood family structure in the United States. We employ data from the 1979 National Longitudinal Survey of Youth (NLSY79) and show that a median wealth penalty of at least $61,600 at ages 47 to 55 exists for individuals who did not live with both parents from birth to age 18, depending on the alternative childhood family trajectory considered.

Second, whereas previous studies relied on cross-sectional information (Amato & Keith, 1991), three waves of data (Lersch & Baxter, 2015), or followed respondents until their late 30s (Keister, 2004), we are able to follow respondents from their 20s until their early 50s. Using growth curve models, we show that the most important differences in wealth emerge between ages 40 and 50.

Third, a recent review article by Killewald et al. (2017) made a plea for studies documenting the mechanisms that connect background characteristics with wealth accumulation. In this respect, we identify the following three main routes through which childhood family structure could affect wealth accumulation: (a) human capital formation, (b) own family behavior as adults, and (c) intergenerational transfers. The only two available studies that looked at mediators of the effects of childhood family structure on wealth found that the most important role is played by own partnering and childbearing behavior (Amato & Keith, 1991; Lersch & Baxter, 2015). However, these studies were not able to look at important mediators such as earnings histories and had no or very limited information on transfers received. Our study of the mechanisms underlying the observed differences in wealth is more comprehensive due to the availability of information on earnings and transfers. In our mediation analysis, we focus on the most common childhood family structure trajectory, namely, the permanent departure of one parent from the household after birth and before age 18. We find that the primary channels that mediate its observed association with wealth are respondents' human capital and own family dynamics, whereas intergenerational transfers matter less.

Childhood Family Structure and the Accumulation of Wealth

Wealth provides many direct benefits to individuals and households such as economic security and status (Pfeffer, 2011) and is positively related to well-being outcomes including health (Thompson & Conley, 2016) and marriage (Eads & Tach, 2016). Parental wealth is also a key determinant of offspring's cognitive skills and

educational attainment (Pfeffer, 2011). Wealth is therefore an important dimension of social stratification and a key channel for the transmission of advantage across generations (Spilerman, 2000). Existing studies have documented individual differences in wealth according to a handful of socioeconomic characteristics such as age, ethnicity, sex, education, and religion (Killewald et al., 2017). At the same time, differences in wealth accumulation according to childhood family structure have been largely left unstudied.

A second gap in the wealth literature is the lack of understanding of the mechanisms that connect background characteristics to wealth (Killewald et al., 2017). Previous research has shown that individuals save and accumulate wealth until at least age 60, after which wealth accumulation declines (Killewald et al., 2017). To understand the mechanisms underlying wealth differences, one therefore has to consider processes up to advanced adulthood. In the subsequent sections we discuss the following three main channels that reflect the different ways through which individuals have been shown to accumulate wealth in previous research (Semyonov & Lewin-Epstein, 2013; Vespa & Painter, 2011, Zagorsky, 2005): (a) human capital formation and labor income, (b) own family behavior as adults, and (c) intergenerational transfers.

Human Capital Formation and Own Income Generation

Individuals can generate wealth through saving income gained in the labor market or through investing (Semyonov & Lewin-Epstein, 2013; Spilerman, 2000). If human capital is the main factor determining labor market income (Farkas, 2003), and the basis for human capital development is built in childhood (Heckman, 2000), childhood experiences are likely to matter for income generation and wealth accumulation. The lives of children not coresiding with both biological parents differ in some salient aspects from those living in other types of family structures. Children with only one coresident biological parent might have less contact with the nonresident biological parent, and single parents often have to take on the task of day-to-day parenting by themselves. In many cases, this means that single parents, usually mothers, have reduced levels of employment and earnings, which may lead to poverty or other economic stress (Biblarz & Raftery, 1999; McLanahan & Percheski, 2008). Family stress related to economic hardship has been repeatedly shown to affect child development (Conger, Conger, & Martin, 2010). Single parents might also lack the time to employ intensive parenting strategies that might be conducive of children's outcomes (Astone & McLanahan, 1991). If single parenthood is the result of a break-up between parents, children will need to emotionally adjust to such a new situation, even though parental union dissolution can also relieve children from exposure to conflict in the household (Dronkers, 1999; Fomby & Cherlin, 2007). Many of the challenges posed by single parenthood can possibly be minimized through, for instance, joint custody, public child care, and policies aimed at equalizing living conditions across families (Bjarnason & Arnarsson, 2011; Christopher, England, McLanahan, Ross, & Smeeding, 2001; Pong et al., 2003; Hampden-Thompson, 2013). Stepparents could also to some extent relieve pressures on single parents' tasks, but their presence in the household might also require new emotional adjustments to be made by children (Hetherington & Kelly, 2002; Sweeney, 2010; Thomson, Mosley, Hanson, & McLanahan, 2001).

A large body of research has documented that children who continuously lived with both biological parents throughout childhood tend to have more cognitive and noncognitive skills when compared with children who did not (Amato, 2010; Härkönen et al., 2017), even though it has been questioned whether this association reflects the causal effect of parental absence (McLanahan, Tach, & Schneider, 2013). Childhood family structure is also associated with final educational attainment. Individuals who did not continuously live with both biological parents are less likely to complete high school and to enroll in and complete college (holding grades constant), partly due to differences in parents' financial resources (Bernardi & Boertien, 2016; Thomson, Hanson, & McLanahan, 1994).

Cognitive ability, noncognitive skills, and educational credentials can thus affect wealth accumulation through their effects on labor market earnings. They can also affect the accumulation of wealth more directly through the management of economic resources because consumption patterns, saving rates, and investments are likely to differ according to skill levels

(Ameriks, Caplin, & Leahy, 2002; Lusardi & Mitchell, 2007).

Family Dynamics

Wealth can be accessed through partnering a (future) wealthy person, too. Family dynamics such as cohabitation, marriage, and separation are therefore events of interest for our topic. Previous studies have shown that family dynamics of individuals are related to the family dynamics that they experienced during childhood. First, individuals who experienced a parental divorce (Cherlin, Kiernan, & Chase-Lansdale, 1995) or did not live with both biological parents during childhood (McLanahan & Bumpass, 1988) are more likely to leave the parental home earlier due to friction, to form a union, and to have children at younger ages. Second, individuals who experienced a parental divorce are less likely to marry and therefore more often miss out on gaining wealth through partnering (Erola et al., 2012; Wolfinger, 2005). Besides the direct access partnering creates to wealth of the partner, several studies have documented the existence of an individual "wealth premium" related specifically to marriage. The accumulation of wealth happens at higher rates among married individuals when compared with cohabiting individuals, possibly due to tax benefits, higher wages, or increased incentives to save (Lersch, 2017; Vespa-Painter, 2011). On top of the lower probability to marry, individuals with divorced parents who do marry are more likely to form a union with lower educated individuals and hence gain access to less wealth upon partnering (Erola et al., 2012).

Besides its influence on family formation, childhood family structure can also affect union dissolution. In this regard, the intergenerational transmission of divorce has particularly received attention. Individuals whose parents divorced or who lived with a single parent have been found to have higher chances of divorcing themselves (Kiernan & Cherlin, 1999; McLanahan & Bumpass, 1988; Wolfinger, 2005). The intergenerational transmission of divorce could reflect shared background characteristics including attitudinal factors, but could also be due to parents giving an example to children that divorce is a workable solution to relationship problems (Wolfinger, 2005). Childhood family structure trajectories can therefore affect wealth through its effect on individuals' own relationship stability. The break-up of a marriage can affect wealth through direct divorce costs, loss of access to a partner's wealth, and an elimination of scale advantages associated with living in a couple (McManus & DiPrete, 2001, Zagorsky, 2005).

Intergenerational Transfers

A last major channel through which individuals obtain wealth is transfers of third parties, primarily individuals' own parents (Avery & Rendall, 2002; Rauscher, 2016; Semyonov & Lewin-Epstein, 2013). Such transfers can be inheritances, which normally take place in later life once parents pass away or in the form of financial help while parents are still alive. A common way for parents to assist their offspring in such a way is to pay for college tuition (Conley, 2001; Rauscher, 2016), which could lead to debt differences among college attendees.

The transfer of wealth from parents to their offspring is determined by the total amount of wealth parents have, the number of persons wealth has to be shared with, and relational factors that affect the likelihood of receiving (a given amount of) parental wealth. Just as own family dynamics, parental family dynamics affect the wealth of parents, possibly reducing the total amount of wealth available to be transferred to offspring. Parental separation and divorce can have direct effects on parents' stock of wealth (Avellar & Smock, 2005; Zagorsky, 2005). Moreover, if parents remarry, new partners (and their children) could be entitled to part of the nonresident parents' resources (Manning & Smock, 1999), reducing the wealth available for individual offspring (Keister, 2004). Finally, individuals might not have (close) contact to a parent with whom they did not live continuously in the same household (Kalmijn, 2015; Manning & Smock, 1999; Peters & Ehrenberg, 2008) and therefore become less likely to receive financial help from that parent (Pezzin & Schone, 1999).

The Accumulation of Wealth Across Time

Considerable wealth differences might also emerge without a large direct impact of the aforementioned groups of mechanisms. Wealth has the property to accumulate by itself, as returns to wealth increase with its amount (DiPrete & Eirich, 2006). Higher interest on large amounts of savings is the clearest example

of such different returns, but returns on investments also appear to depend on the size of the investments made (Piketty, 2014). It could therefore be that the aforementioned processes create relatively small differences in wealth during early adulthood, but that due to returns to wealth these evolve into large differences as time passes.

Method

We used data from the NLSY79, which follow a representative set of adolescents since they were aged 14 to 22 years. By 2012 (the last wave included), the participants were between 47 and 56 years old (https://www.nlsinfo.org/content/cohorts/nlsy79). Our analysis proceeded in three stages. First, we estimated the overall "wealth penalty" in 2012 related to various childhood family structures as compared to having lived continuously with both parents. This initial comparison of nine different childhood family structures (which we describe in detail in the next section) gave insight into whether wealth penalties were related to specific family structures (or transitions) or whether they held for alternative family structures more generally. Second, we performed a mediation analysis for these wealth differences to investigate the potential mechanisms underlying the relationship between childhood family structure and wealth accumulation. It would have been too ambitious, however, to thoroughly study how wealth differences are produced for each type of childhood family structure considered in the first part of the analysis. In our mediation analysis, we therefore focused on the most common childhood family structure trajectory: the permanent departure of a parent from the household during childhood (also referred to as parent–child separations). Third, we switched to a dynamic analysis to investigate at what ages wealth differences emerge and how they accrue across the life course (data are used for the years 1988–1990, 1992–1994, 1996, 1998, 2000, 2004, 2008, 2012).

The original NLSY79 sample included 12,686 cases. In 2012, 7,301 respondents participated in the survey. The cross-sectional analysis was restricted to these individuals, who were also required to have provided information on net worth in 2012 (excluding a further 235 cases), leading to a sample of 7,066 individuals. We used sample weights to correct for panel attrition. In the second stage of the analysis, we excluded respondents who were born to a single parent, never lived with a parent, experienced a temporary separation of parents, or of whom a parent died before age 18 (excluding 1,244 cases). In the third dynamic stage of the analysis, we included all cases that provided information on net worth at least once between ages 30 and 50 (excluding 2,511 of the original 12,686 cases; 1988 was the first year in which net worth was measured) and again concentrated on permanent parent–child separations that occurred after birth (excluding 1,776 cases, leading to 8,399 individuals providing 59,890 person-waves of information).

Measures

The dependent variable of the study was total household net worth of respondents in dollars (inflation adjusted to 2012 levels). "Net worth" represents the sum of all assets (i.e., cars, housing, pension, stocks, etc.) minus debts (i.e., credit card loans, mortgages, etc.). In 2012, the mean total net worth of households was $354,999, whereas the median was $128,000. Natural logarithm transformations are often used to account for the skewed distribution of income and wealth variables. However, log transformations require excluding negative and zero values. Studies on net worth have therefore often used IHS transformations (Killewald et al., 2017; Lersch & Baxter, 2015). We used Inverse Hyberbolic Sine (IHS) transformed wealth with a scale parameter of 1, which is the most similar to a logged transformation (Friedline, Masa, & Chowa, 2015; see also online Appendix A; the results were robust to using a scale parameter of 0.0001, which smoothens the distribution for values around 0).

The main independent variable was respondents' family structure trajectory experienced from birth until age 18 based on nine categories. We distinguished among those who had (a) lived with both biological parents from birth to age 18; (b) lived with both biological parents at birth, experienced a permanent moving out of a parent before age 18, but never lived with a stepparent; (c) lived with both biological parents at birth, experienced a permanent moving out of a parent, and lived with a stepparent; (d) lived with one biological parent at birth, but never with both biological parents or a stepparent; (e) lived with one biological parent at birth, never

with both biological parents, but lived with a stepparent; (f) did not live with either parent at birth; (g) lived with both biological parents at birth, but experienced a temporary parental separation; (h) lived with one biological parent at birth but with both biological parents at some point; (i) experienced a parental death by age 18 (all cases that fulfilled this condition were included in this category). Note that the NLSY79 only provides information on coresidence. We could therefore not distinguish between types of parental union (married or cohabiting) and whether parents moved out due to separation, divorce, or other motives.

The first channel of mediating variables captured human capital and own income generation. Main components of human capital are cognitive ability, noncognitive skills, and education (Heckman, 2000). We used Armed Forces Qualification Test (AFQT) test scores to capture cognitive ability (Measured in 1980) and included the following two measures of noncognitive skills: the Rotter Internal-External Locus of Control Scale based on four items, such as "What happens to me is my own doing" (measured in 1979) and a scale indicating various risky behaviors of respondents from 1979 to 1984 (based on 15 questions regarding drug use, illegal and violent behavior; Heckman & Kautz, 2012). We employed a categorical measure of the highest education completed by the respondent (no qualifications, GED, high school, some college, degree). To monitor the overall importance of the channel of human capital we also included a measure of the logged average wage income of the respondent across measurement points (average across 1982–2012). In the longitudinal analysis, the latter variable took on the average income recorded between 1982 and the year of measurement.

The second channel of mediating variables captured the family dynamics of respondents in adulthood. These included a measure of respondents' partnership history: (a) never married; (b) separated; (c) widowed; (d) never married, cohabiting with a lower educated partner; (e) never married, cohabiting with a college educated partner; (f) first marriage, lower educated (less than college) partner; (g) first marriage, college educated partner; (h) previously married, now cohabiting with a lower educated partner; (i) previously married, now cohabiting with a college educated partner; (j) second or higher order marriage, lower educated partner; (k) second or higher order marriage, higher educated partner. A second variable combined parenthood and age at first childbirth (no children in 2012, had a child before age 25, had a child after age 25), as children might be a major cost influencing (the timing of) wealth accumulation (Keister, 2004). In the dynamic part of the analysis, the variable indicated whether the respondent had a child at the time of measurement.

Finally, our measure of transfers was the natural log of the sum of any money transfers received by respondents from other individuals up to the year of measurement. We also controlled for whether a parent had died by the time of measurement to capture differences in expected inheritances. In additional analysis, we looked at the influence of whether someone else paid (partly) for the respondents' college attendance, but this variable had no explanatory power beyond the ones already included in the analysis. In all of the models, we controlled for ethnicity, number of siblings, maternal and paternal years of education, own age, mother's age at birth, and religion. We also looked at the role of physical and mental health (using the 12 Item Short Form Survey health scales), which has been shown to be an important determinant of wealth (Thomson & Conley, 2016). Table 1 displays descriptive statistics and the percentage of the 7,066 cases that had missing information on each variable. We multiply imputed data for missing information on all independent variables of the analysis. (A total of 20 imputations were created; all variables of Table 1 were included in the multiple imputation procedure, and this procedure included cases with missing information on net worth, too. These cases were subsequently dropped during the analysis [Johnson & Young, 2011]; a robustness check retaining these cases is displayed in Model 5 of online Appendix B.)

Analysis

The analysis proceeded in several steps. We first established overall differences in household net worth in 2012 using Ordinary Least Squares (OLS) regressions and unconditional quantile regressions at the median. We subsequently focused on having experienced a permanent departure of a parent from the household during childhood and performed a mediation analysis following the approach of Kohler, Karlson, and Holm (2011; *khb* command in Stata

Table 1. *Descriptive Statistics (Weighted) of the Sample Used in 2012* N = *7,066*

Variable	Mean	*SD*	Minimum	Maximum	% missing
Net worth in 2012 (× 1000)	354.9	690.2	−1950	3691	0[a]
Lived with both parents throughout childhood	0.66		0	1	5.4
Permanent moving-out of parent, no stepparent ever	0.11		0	1	5.4
Permanent moving-out of parent, stepparent ever	0.08		0	1	5.4
Born to single parent, no stepparent ever	0.02		0	1	5.4
Born to single parent, stepparent ever	0.02		0	1	5.4
Never lived with biological parents	0.01		0	1	5.4
Parent died before age 18	0.07		0	1	5.4
Biological parent moved out and back in	0.01		0	1	5.4
Biological parent moved in after birth	0.004		0	1	5.4
Male (ref. female)	0.51		0	1	0
Black (ref. White)	0.14		0	1	0
Hispanic	0.07		0	1	0
Education of the father (years)	11.8	3.6	0	20	14.9
Education of the mother (years)	11.6	2.8	0	20	6.3
Maternal age at birth	27.0	6.3	15	55	4.8
Own age at interview	51.6	2.3	47	56	0
Raised other Christian (ref. no religion)	0.28		0	1	0.3
Raised Baptist	0.24		0	1	0.3
Raised Catholic	0.32		0	1	0.3
Raised Jewish	0.01		0	1	0.3
Raised other religion	0.11		0	1	0.3
Number of siblings (top coded at 10)	3.3	2.2	0	10	0.2
Cognitive ability (AFQT test)	0.0	1.0	−1.5	2.0	3.8
Risky Behavior scale	0.0	1.0	−0.7	10.3	10.6
External Locus of Control Scale	0.0	1.0	−1.9	3.0	0.9
GED (ref. no qualification)	0.11		0	1	0
High school	0.34		0	1	0
Some college	0.36		0	1	0
College degree	0.12		0	1	0
Ln(average wage income 1982–2012)	10.2	1.4	0	12.7	0
Does not have children in 2012	0.20		0	1	0.2
Had a child before age 25	0.43		0	1	0.2
Had a child after age 25	0.37		0	1	0.2
Not partnered, never married in 2012	0.10		0	1	0.3
Cohabiting, lower educated partner, never married	0.01		0	1	0.3
Cohabiting, higher educated partner, never married	0.01		0	1	0.3
No partner, widowed in 2012	0.02		0	1	0.3
No partner, separated/divorced in 2012	0.21		0	1	0.3
First time married, lower educated partner 2012	0.18		0	1	0.3
First time married, higher educated partner 2012	0.25		0	1	0.3
Cohabiting, lower educated partner, previously married	0.03		0	1	0.3
Cohabiting, higher educated partner, previously married	0.01		0	1	0.3
Second time married, lower educated partner 2012	0.09		0	1	0.3
Second time married, higher educated partner 2012	0.10		0	1	0.3
Ln(transfers received up to 2012)	5.0	4.9	0	15.7	0
A parent died by 2012	0.12		0	1	0
Mental health at age 40	0.1	1.0	−5.0	1.9	1.9
Physical health at age 40	0.0	1.0	−5.4	2.3	1.9

ref. = reference; AFQT = Armed Forces Qualification Test; Ln = natural logarithm.

[a]Refers to percent of final sample, of the 7,301 cases interviewed in 2012, 2.0% provided no info on net worth.

[StataCorp., College Station, TX). This mediation analysis established what part of the total effect on wealth goes through each of the three general channels discussed previously. In the final stage of the analysis, we identified the life stages where differences in wealth emerged using growth curve models. Growth curve models are multilevel models with random intercepts and random slopes, where observations at different points in time are nested within individuals. We constructed time-varying versions of all our variables to fit this part of the analysis (unless mentioned that they were measured at a certain age or time only). Our baseline model explaining net worth N for individual i in survey year j can be expressed as the following:

$$N_{ij} = \beta_0 + \sum_{k=1}^{4} \beta_{1k} Age_{ijk} + \beta_2 X_i + u_j + e_{ij}$$

The variable *Age* was split into four equally spaced splines that allowed the growth of net worth with age to vary across the life course (31–35, 36–40, 41–45, 46–50, age 30 being the year at which initial wealth differences are measured). X represents a vector of time-constant control variables. Unobserved stable differences between individuals across years were captured by the person-specific term $u_{j.}$ (random effect), and e_{ij} is a time-varying error term. Our baseline growth curve model was estimated as a multilevel, mixed-effects model (using Stata's *xtmixed* command). Mediating variables were added one by one to this baseline model. Finally, we again employed the *khb* procedure to perform a formal mediation analysis of growth curves estimated through OLS regression (see online Appendix D).

Endogeneity

A main difficulty in research on family dynamics is endogeneity due to nonrandom selection into family structures. Disadvantaged families are more likely to be overrepresented within given family structure types (McLanahan & Percheski, 2008). It could therefore be that pre-existing disadvantages affect both wealth accumulation and childhood family structure. We addressed this possible source of endogeneity by including measures of pre-existing socioeconomic disadvantage (parental years of education, race, religion, mother's age at birth, and, in additional analysis, parental income). At the same time, we lacked measures of other possible sources of endogeneity traditionally discussed in the literature on parental separation. Notably, we did not measure family conflict, which might affect both childhood family structure and individuals' outcomes, including wealth. Therefore, we could not separate possible effects of childhood family conflict on wealth from effects of childhood family structure. Similarly, our mediation analysis relied on associations between mediators, childhood family structure, and wealth. The role of mediators should therefore not be directly interpreted as causal but, rather, as the channels that connect family structure to wealth accumulation (independently of the actual cause).

Findings

We first documented the association between childhood family structure and the wealth of respondents in 2012 (at around age 50). Model 1 of Table 2 presents the results from a regular OLS regression, Model 2 displays results from an unconditional quantile regression ran at the median, and Model 3 displays results from an OLS model using the IHS transformation of wealth. Individuals who continuously lived with both biological parents during childhood had more wealth as adults than those who did not. This observation held for all of the different nonintact childhood family structures considered. For children who experienced the permanent departure of a parent from the household, we observed a median wealth penalty of \$61,600 if a stepparent ever moved in, and of \$66,600 if they never lived with a stepparent. This corresponds to 17% and 19%, respectively, of average wealth observed in 2012 (see Table 1), which is lower than the 38% wealth penalty observed for parental separations in Australia in earlier research (Lersch & Baxter, 2015). For other childhood family structures, wealth penalties were in general higher, but additional tests revealed that differences in wealth among the different nonintact family structures were not statistically significant. The results using the IHS transformation were similar to those from the quantile regression. Additional analysis (online Appendix B) showed that these results were also robust to using listwise case deletion, were similar for different ages at parental separation, and did not change once considering

Table 2. *Models Explaining Net Worth in 2012 by Childhood Family Structure*

	Net worth in dollars (×1000) (OLS) Model 1		Net worth in dollars (×1000) (quantile 0.5) Model 2		IHS of net worth (OLS) Model 3		IHS of net worth (OLS) Model 4	
Variable	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Family history (ref. always with both parents)[a]								
Biological parent moved out, no stepparent ever	−69.8*	31.9	−66.8**	14.1	−1.56**	0.34		
Biological parent moved out, stepparent ever	−118.8**	29.1	−61.6**	17.3	−0.91*	0.40		
Born to single parent, no stepparent ever	−103.8*	42.9	−81.3**	24.4	−2.46**	0.67		
Born to single parent, stepparent ever	−149.8**	42.6	−101**	28.6	−2.55**	0.86		
Never lived with biological parents	−10.6	144.8	−123.2**	39.0	−0.94	0.80		
Parent died before age 18	−70.5*	35.1	−61.9**	16.6	−1.97**	0.44		
Biological parent moved out and back in	−158.2**	55.0	−77.3*	38.6	−1.64†	0.97		
Biological parent moved in after birth	−207.3**	64.3	-132*	60.9	−4.08†	2.29		
Biological parent moved out permanently (ref. always living with both parents)							−1.32**	0.27
Male (ref. female)	13.4	20.1	−12.4	8.5	0.23	0.19	0.27	0.20
Black (ref. White)	−146.6**	16.3	−135.8**	10.5	−3.22**	0.28	−3.45**	0.31
Hispanic	4.5	28.7	−62.3**	14.1	−1.45**	0.34	−1.79**	0.36
Education of father (years)	23.5**	3.8	8.2**	1.7	0.10**	0.04	0.10*	0.04
Education of mother (years)	27.9**	4.8	10.6**	2.1	0.17**	0.05	0.18**	0.05
Maternal age at birth	6.8**	1.8	4.4**	0.7	0.06**	0.02	0.05**	0.02
Own age at interview	17.7**	4.6	8.4**	1.9	0.15**	0.04	0.14**	0.04
Raised other Christian (ref. no religion)	34.2	50.9	32.3	22.9	0.50	0.52	0.64	0.55
Raised Baptist	−39.6	46.6	−15.2	22.8	0.34	0.53	0.32	0.57
Raised Catholic	41.0	50.6	52.2**	22.8	0.67	0.51	0.78	0.55
Raised Jewish	408.6**	173	73.7	42.2	0.85	1.03	0.71	1.08
Raised other religion	12.7	57.1	14.4	25.0	0.04	0.58	−0.13	0.62
Number of siblings	−15**	4.5	−9.5**	2.1	−0.12*	0.05	−0.10**	0.05
Constant	−1261.3**	252.2	−579.8**	104.0	−1.72	2.38	−1.36	2.50
N	7,066		7,066		7,066		5,822	

Note. Robust standard errors, missing data on independent variables multiply imputed. Sample weights are included. Model 2 unconditional quantile regression at the median, using Stata's *rifreg* command. IHS = Inverse Hyperbolic Sine; OLS = Ordinary Least Squares Regression.

[a]Additional analysis changing the reference category revealed no statistically significant differences in effects among the various nonintact family structures in Models 1 to 3 (available upon request). ref. = reference.

†$p < .1$; *$p < .05$; **$p < .01$.

wealth measured in 2008 (i.e., measured before the financial crisis).

Model 4 of Table 2 shows the IHS-transformed wealth penalty for individuals who experienced the permanent departure of a parent after childbirth and before age 18 (regardless of whether a stepparent subsequently moved in). In the remainder of the analysis, we aimed to explain this penalty by looking at the role of the three general channels that could connect childhood family structure to wealth: own human capital formation, own family dynamics, and intergenerational transfers. Column 1 of Table 3 presents the effect of each mediator considered in our analysis on wealth (i.e., each model only included one mediator). We found that cognitive ability, education, wages, being in a first marriage, transfers, and having good health were strongly associated with wealth. Column 1 of Table 3 also allowed us to benchmark the parent–child separation penalty of approximately 1.32 of IHS transformed wealth documented in Model 4 of Table 2 to effect sizes of other covariates. The effect of having experienced a permanent departure of a parent was about one third of that of having achieved a college degree.

The second column of Table 3 documents the results of the mediation analysis, indicating for each mediator and block of mediators the percentage of the "wealth penalty" they could explain. Human capital variables explained 39% of the penalty, with a major role played by education (which on its own explains 37%), followed by wages and cognitive ability. Family dynamics practically played an equally important role and explained 34% altogether. Being in a first marriage with a college-educated partner (individuals who experienced a parent–child separation were less often so) played an important mediating role (30%). The other partnership histories mattered less, indicating that it is not the lower probability to marry that matters but, rather, who one marries and whether one stays in that marriage. Lower wealth accumulation due to having a child before age 25 played a nonnegligible role, too (11%). The third channel of intergenerational transfers explained wealth accumulation in general but did not mediate the parent–child separation penalty. Altogether, the mediators explained 56% of the penalty, suggesting considerable overlap between the effects of human capital formation and own family dynamics.

Growth Curve Analysis of Wealth Accumulation

We subsequently turned to a dynamic study of wealth accumulation. Figure 1 displays predicted values based on a growth curve model explaining wealth, as displayed in Table 4 (Model 1). IHS-transformed wealth grew steadily with age, but stalled and even declined in the late 40s. This is probably due to the time period studied. Once excluding postcrisis cases, increases in wealth were observed during respondents' late 40s for individuals who lived with both parents throughout childhood (Figure C2 in the online appendix). Figure 1 also displays how wealth differences developed with age. Respondents who experienced a parent–child separation had less wealth already at age 30, and this gap grew with age. The key periods where differences emerged were during respondents' early 30s and particularly in their late 40s; during the early 40s, the gap seemed to have tightened temporarily.

To what extent could mediating variables explain the development of this wealth gap? Models 2 to 5 of Table 4 summarize growth curve models that included the following four mediating variables that appeared to be most important for our analysis: education, wages, having children, and partnership history. Additional analysis displayed in online Appendix D tested whether these four factors mediated each of the terms of the basic growth curve model (Model 1) to a statistically significant extent.

Education and wages had a positive influence on initial wealth, and given their negative relationship to having experienced a parent–child separation (Table D3 in the online appendix), they mediated part of the initial wealth penalty. Additional analysis found these mediating effects to be statistically significant with p values below .01 (Table D2 in the online appendix). Having children positively predicted initial wealth and was also positively related to having experienced a parent–child separation. The presence of children therefore initially dampened the wealth gap (statistically significant at the 99% level). However, as respondents aged, having children was related to a lower accumulation of wealth. Finally, being in a first marriage with a higher educated partner mediated initial wealth differences and childhood family structure accumulation differences during ages 30 to 35 (significant at the 95% and 99% levels, respectively). It was also the only variable that could to some extent explain childhood family

Table 3. *Percentage of Parental Departure Effect on Wealth (IHS) Explained by Mediators*

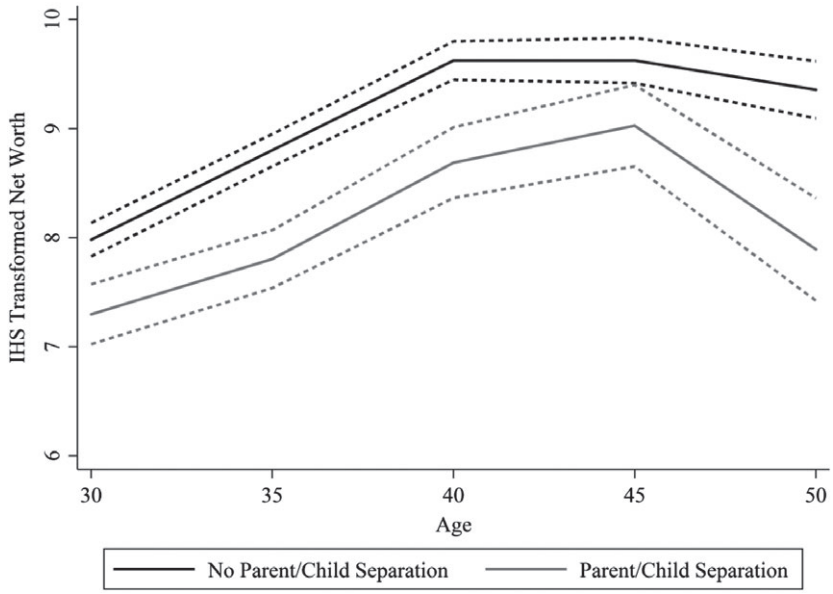
	Effect of mediator on wealth Column 1		% of parental departure penalty explained by mediator Column 2
Variable	Coefficient	*SE*	
Block: human capital			*39.3***
Cognitive test scores	1.00**	0.14	7.4**
External locus of control	−0.48**	0.11	2.4†
Risky behavior	−0.63**	0.13	10.1**
GED (ref. no education)	0.23	0.55	−2.7
High school	2.58**	0.39	9.8**
Some college	3.23**	0.40	18.8**
College degree	4.15**	0.40	11.4**
Wage income 1982–2012	1.09**	0.10	8.2*
Block: family dynamics			*34.1***
Union history (ref. single, never married)			
Cohabiting partner is lower educated	1.57	1.07	−0.3
Cohabiting partner is higher educated	2.45**	0.34	0.9
No partner, widowed	1.11**	0.34	−0.1
No partner, separated/divorced	−0.35	0.35	1.3
Married to first partner, lower educated	3.77**	0.35	1.0
Married to first partner, higher educated	4.39**	0.34	30.2**
Cohabiting partner lower educated, previously married	0.77*	0.35	−0.6
Cohabiting partner higher educated, previously married	3.00**	0.34	−0.6
Married partner lower educated, second marriage	1.93**	0.35	−4.0*
Married partner higher educated, second marriage	3.76**	0.34	−1.2
No children (ref. child after age 25)	−0.79**	0.27	−2.8*
Child before age 25	−1.35**	0.16	10.6**
Block: transfers			*−1.0*
Ln(transfers)	0.15**	0.02	−1.0
Parent died by 2012	−1.21*	0.52	0.0
Other			
Physical health	1.01**	0.13	5.4†
Mental health	0.98**	0.12	7.3*
All mediators combined			*55.7***

Note. $N = 5{,}822$. Percentages taken from decompositions of total effects into direct and indirect effects using the method of Kohler and others (2011): Indirect Effect/Total Effect × 100%. Separate models ran for each mediator, subsequently for each block, and finally for all mediators together. Based on 20 multiply imputed data sets for missing data on independent variables, robust standard errors. All models control for maternal years of education, paternal years of education, own age, maternal age at birth, number of siblings, religion, gender, and ethnicity. ref. = reference; IHS = Inverse Hyberbolic Sine. *Italics* indicate estimates for blocks of variables.

†$p < .1$; *$p < .05$; **$p < .01$.

structure accumulation differences at ages 46 to 50, but this mediating effect was not statistically significant. The results for other partnering dynamics are displayed in online Appendix D. Several of these had a small dampening effect on initial wealth differences, as individuals who experienced a parent–child separation were initially more likely to be in several partnered situations. The influence of family dynamics therefore seems to be partly a story of timing: Individuals who did not live continuously with both parents during childhood started their families earlier and therefore gain access to partners' wealth at younger ages. This initial dampening

Figure 1. Predicted Wealth Trajectories based on Growth-Curve Models.



Note. Predicted wealth based on Table 4, Model 1. Dashed lines are 95% confidence intervals. $N = 59{,}890$. IHS = Inverse Hyperbolic Sine.

influence of family dynamics on wealth differences fades as also those from "intact" families start to partner (and often marry higher educated partners).

Figure 2 shows how much of the wealth differences remained once controlling for both human capital variables and family dynamics simultaneously. Although differences in wealth trajectories between respondents with separated parents and those from intact families were considerably reduced, part of the gap remained unexplained. In particular, the mediators of the analysis could not account for how the wealth penalty grew during respondents' late 40s. We return to this issue in the discussion.

Discussion

Wealth plays a central role in the social stratification of societies, but only selected determinants of wealth accumulation have been studied so far (Killewald et al., 2017). In this article, we used data for a cohort of U.S. respondents born around the early 1960s to show that childhood family structure is an important factor related to wealth. We documented median "wealth penalties" of at least $61,600 at ages 47 to 55 as compared to respondents who lived with both biological parents during their entire childhood, depending on the family structure trajectory considered. We subsequently focused on the penalty related to the experience of a parent–child separation during childhood. A mediation analysis of this penalty revealed a role for a wide variety of processes and outcomes ranging from cognitive and noncognitive skills to education, wages, fertility, and own partnering behavior. Educational attainment and respondents' own family dynamics played a key role in mediating the observed difference between childhood family structure and wealth. Wealth differences were not equal at different stages of life. Respondents who experienced a parent–child separation during childhood accumulated less wealth, especially during ages 46 to 50.

A first main contribution of our article has been to show that childhood family structure is an important predictor of wealth. Interestingly, statistically significant differences in wealth were observed for all types of alternative childhood family structures (as compared to intact families) including parental death, temporary separations, and the experience of stepparenthood. Importantly, a wealth penalty was also

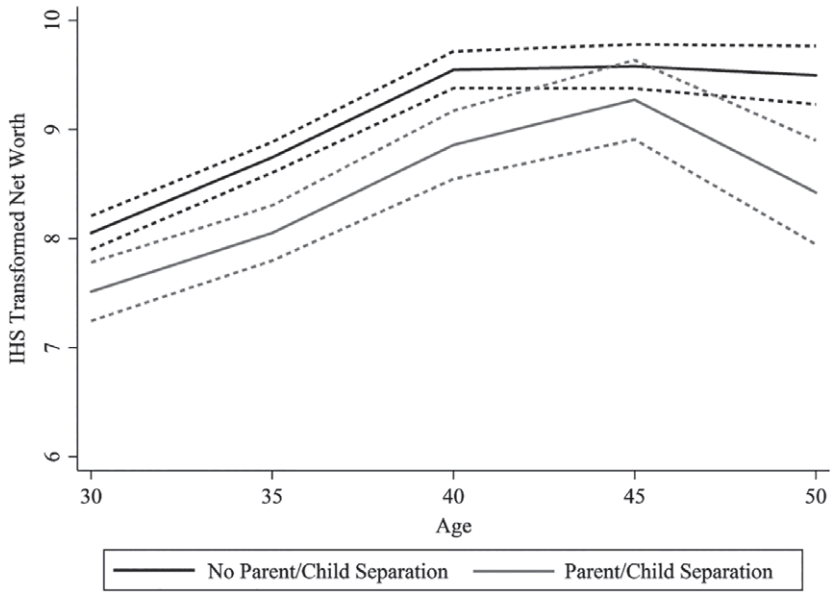
Table 4. *Summary of Growth Curve Models Explaining Net Worth* (N = *59,890*)

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*	Coefficient	*SE*
Ages 31–35	0.16**	0.02	0.15**	0.02	0.02	0.16	0.18**	0.02	0.10**	0.04
Ages 36–40	0.16**	0.02	0.16**	0.02	0.33	0.17	0.15**	0.03	0.13**	0.05
Ages 41–45	0.00	0.02	−0.01	0.03	0.48**	0.17	−0.02	0.04	−0.08	0.06
Ages 46–50	−0.05†	0.03	−0.04	0.03	−0.49*	0.20	−0.01	0.06	−0.09	0.08
Parent/child separation (ref. always with both parents)	−0.68**	0.16	−0.59**	0.16	−0.62**	0.16	−0.72**	0.16	−0.66**	0.16
Parent/Child Separation × Ages 31–35	−0.06†	0.04	−0.05	0.04	−0.06	0.04	−0.06	0.04	−0.04	0.04
Parent/Child Separation × Ages 36–40	0.01	0.04	0.02	0.04	0.01	0.04	0.01	0.04	0.00	0.04
Parent/Child Separation × Ages 41–45	0.07	0.05	0.07	0.05	0.06	0.05	0.07	0.05	0.08	0.05
Parent/Child Separation × Ages 46–50	−0.17**	0.07	−0.18**	0.07	−0.17**	0.07	−0.17*	0.07	−0.15*	0.07
Education in years			0.15**	0.02						
Education in Years × Ages 31–35			0.02**	0.01						
Education in Years × Ages 36–40			0.01	0.01						
Education in Years × Ages 41–45			0.01	0.01						
Education in Years × Ages 46–50			−0.02	0.01						
Average wages up to measurement					0.69**	0.06				
Wages × Ages 31–35					0.01	0.02				
Wages × Ages 36–40					−0.02	0.02				
Wages × Ages 41–45					−0.05**	0.02				
Wages × Ages 46–50					0.04*	0.02				
Has children in year of measurement							0.62**	0.13		
Children × Ages 31–35							−0.06†	0.03		
Children × Ages 36–40							0.02	0.04		
Children × Ages 41–45							0.03	0.05		
Children × Ages 46–50							−0.07	0.07		
Married, higher educated partner (coefficients for other partnership trajectories not shown; ref. single, never married)									2.21**	0.20
Married, Higher Educated × Ages 31–35									0.06	0.05
Married, Higher Educated × Ages 36–40									0.09	0.09
Married, Higher Educated × Ages 41–45									0.13†	0.13
Married, Higher Educated × Ages 46–50									0.12	0.10

Note. Full results including full partnering dynamics results shown in Table D1 in the online appendix. Growth curve models estimated using *xtmixed* in STATA based on 20 multiple imputations. Controls included in all models but not shown are maternal years of education, paternal years of education, own age, maternal age at birth, number of siblings, religion, gender, and ethnicity. ref. = reference.

†$p < .1$; *$p < .05$; **$p < .01$.

Figure 2. Predicted Wealth Trajectories Controlling for Education, Wages, and Own Family Dynamics.



Note. Dashed lines indicate 95% confidence intervals. Controls were maternal age at birth, paternal education, maternal education, ethnicity, religion, gender, age in 2012. Mediators were own education in years; average own ln (yearly wage in 2012 dollars) up to that age; partnership status and history; parent of child in reference year. Mediators interacted with age splines. $N = 59{,}890$. IHS = Inverse Hyperbolic Sine.

observed for individuals who grew up in a stable, single-parent family. It therefore appears unlikely that what matters for offspring's wealth is the stability of childhood family structures (Fomby & Cherlin, 2007). The adjustment to changes in family composition during childhood is therefore unlikely to be the main factor responsible for the wealth differences observed during adulthood.

A second main contribution of our article has been to look at a more extensive set of mediators when compared with previous research (Amato & Keith, 1991; Lersch & Baxter, 2015). Previous studies primarily found a role for partnering and childbearing decisions in explaining wealth gaps according to childhood family structure. We also found that own family dynamics, in particular who one marries, partly explained the lower wealth of individuals who experienced a parent–child separation. However, we also found a considerable role played by own education and wage histories (the latter factor was not measured in earlier studies). We included an improved measure of intergenerational transfers (when compared with earlier research), but surprisingly transfers did not mediate the wealth penalty. It could be that respondents were still too young (approximately age 50) to capture the full lifetime impact of transfers.

We also included measures of cognitive and noncognitive traits in our analysis. Although these appeared to mediate the wealth penalty, their role was relatively minor compared to educational attainment and own partnering behavior. Possible ways in which childhood family structure might affect educational attainment include financially driven decisions to not continue education (Bernardi & Boertien, 2016) and the desire to start a family earlier in life (McLanahan & Bumpass, 1988).

An alternative explanation for the patterns observed is endogeneity. Although causality was not among the major concerns of this article, we think our analysis provided some indications in that regard. The two usual suspects that produce endogeneity in the study of parental separation are socioeconomic disadvantage and family conflict during childhood. The socioeconomic control variables used within this article were

relatively rich. Furthermore, in additional analysis we estimated Model 4 of Table 2 with a control for (logged) family income in the first wave (1979) for a selected subsample of 4,630 individuals who lived with their parents at that time. Although the wealth differences were smaller (1.05 IHS transformed wealth, but including family income might control away both endogeneity and the causal effect of parent–child separations mediated by changes in family income), the role of explanatory factors was similar. We were not able to control for parental wealth, and therefore cannot entirely rule out the influence of unobserved socioeconomic disadvantage (but direct wealth transfers were accounted for in our study). At the same time, previous research concluded that the negative association between parental separation and educational attainment often persists once accounting for endogeneity (McLanahan et al., 2013). If the effects of parental separation on education are indeed causal, we can expect the part of the parental separation penalty that was mediated through education to also be causal. The associations presented in this article may thus overestimate the causal effect of parental separation on wealth, but they are unlikely to be entirely explained by endogeneity (especially given that education explained a large part of wealth differences).

A third main contribution of this article has been to document how wealth differences developed with age. Initial differences in wealth could already be observed when respondents were 30 years old. Part of these initial wealth differences remained unexplained in the analysis. This variation in "starting capital" could be due to differences in early saving behavior by young adults. Alternatively, it could be that persons whose parents separated transfer money to their parents once they start working, a stream of money not captured in this study. Another possibility would be unmeasured forms of economic support by parents to their children. Although we found that money transfers did not contribute to the observed parental separation gap in wealth during ages 30 to 50, such economic support could also be provided in other ways not captured by the survey. For instance, parents can provide guarantees once children get a mortgage and can function as a safety net allowing them to take more risk and invest (Charles & Hurst, 2002).

The initial wealth gap observed at age 30 grew over time, and particularly so during respondents' early 30s and late 40s. The differences in wealth started to dramatically diverge when the respondents were ages 46 to 50; a pattern we could not explain in our main analysis. We performed some additional tests to understand the growing wealth gap during ages 46 to 50. First, the financial crisis hit part of the cohort under study at these later ages and could have enlarged the differences in wealth observed up to age 45. Figure C2 in the online appendix is a replication of our growth curve analysis but restricted to observations up to 2008. This "precrisis" model also showed an unexplained increase in the parent–child separation penalty at later ages. Second, we investigated whether returns to accumulated wealth started playing an increasingly important role at later ages, but we did not find evidence in support of that hypothesis (see online Appendix E for more details). Third, we looked at changing sources of wealth accumulation across the life course. Savings, consumption patterns, or pension wealth could start playing a bigger role as individuals come closer to retirement. In general, differences in various types of assets arose with age, but especially total housing worth (the main component of individual wealth) diverged at later ages between individuals who did and did not experience the permanent moving out of a parent (see online Appendix F). Additional analysis indicated that the growing gap in housing wealth at later ages was driven by changes in the value of housing assets rather than by changes in mortgage values (see online Appendix F; additional analysis did not indicate a role for home ownership per se, i.e., as a binary variable). Given that housing wealth constitutes the great majority of overall wealth, explanations based on changes in the value of housing are likely candidates to explain the growing "wealth penalty" at later ages. For instance, individuals whose parents stayed together might have owned homes in areas where housing prices rose faster than other areas (or declined less during the crisis). Finally, a last explanation that we have not been able to test for is that during mid-adulthood transfers to parents might start playing a role. Separated parents might require more financial help from their children as they age when compared with others. Future studies could look further into the issue of growing wealth differences during individuals in their late 40s, which would

also be a relevant avenue for studies on wealth in general.

To conclude, the results of this article have documented that childhood family structure matters for wealth accumulation. Given the central role of wealth in social stratification (Spilerman, 2000) and the effects of wealth on a number of life outcomes including marriage, age at retirement, and longevity (Killewald et al., 2017), the question arises how wealth penalties related to childhood family structure could be reduced. We have discussed different channels that connect childhood family structure to net worth, and, among others, education appeared to play a key role. To minimize the wealth penalty experienced by individuals, a fruitful approach would be to minimize childhood family structure's effects on educational attainment. Previous cross-national research has shown that the association of childhood family structure with educational attainment is relatively large in the United States (Bernardi & Boertien, 2017; Pong et al., 2003) and that the lower levels of household income among single parents are a major mechanism explaining the lower educational attainment of their children (Amato, 2010). Reducing income differences across families or reducing the role of family income in access to education could therefore be an effective step to reduce later wealth disparities between groups of individuals. At the same time, given that many different mechanisms appear to jointly produce wealth differences, no single strategy is likely to be able to deal with wealth disparities entirely.

In sum, the results of this article have shown that childhood family structure is connected to a considerable accumulation of advantages (or disadvantages) across different spheres of life and across time. Experiencing the moving out of a parent during childhood is negatively related to skills, education, wages, and own family behavior as an adult. Individually each of these channels produces relatively modest penalties in terms of wealth, but together they sum up to a more considerable one. The heavily intertwined nature of advantages and disadvantages accumulated across spheres of life therefore makes childhood circumstances highly influential for adult outcomes.

Note

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Online Appendix. Additional Models and Information

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