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Gendered Diverging Destinies: Changing Family Structures and the Reproduction of Educational Inequalities Among Sons and Daughters in the United States

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ABSTRACT The prevalence of nontraditional family structures has increased over time, particularly among socioeconomically disadvantaged families. Because children's socioeconomic attainments are positively associated with growing up in a two-parent household, changing family structures are considered to have strengthened the reproduction of social inequalities across generations. However, several studies have shown that childhood family structure relates differently to educational outcomes for sons than for daughters. Therefore, we ask whether there are gender differences in the extent to which changing family structures have contributed to the college attainment gap between children from lower and higher socioeconomic backgrounds. We use data from the National Longitudinal Survey of Youth 1979 and 1997 cohorts to estimate extended Oaxaca–Blinder decomposition models that take into account cross-cohort changes in the prevalence of family structures and heterogeneity in the effects of childhood family structure on college attainment. We find that the argument that changes in family structures contributed to diverging destinies in college attainment holds for daughters but not for sons. This result is due to the different changes over time in the effects of childhood family structure by gender and socioeconomic background.

KEYWORDS Inequality of opportunity • Family structure • Education • Gender • Social stratification

Introduction

Families in the United States have changed profoundly over the last decades. The percentage of children living with a single parent increased from roughly 12% in 1970 to 27% by 2018 (Smock and Schwartz 2020), and many children live in other "nontraditional" family structures today (defined as children not living with two biological parents), including stepparent families (Brown et al. 2016; Cavanagh and Fomby 2019). Changes over time in the prevalence of nontraditional family structures have been especially pronounced among poor and less educated mothers (McLanahan 2004; McLanahan and Jacobsen 2015; Rackin and Gibson-Davis 2018), and living in a household with a nontraditional family structure is negatively associated with

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child outcomes (Amato 2000, 2010; McLanahan et al. 2013). Therefore, various authors have argued that childhood family structures play an increasingly salient role in the reproduction of inequalities across generations (Cherlin 2014; McLanahan and Percheski 2008; Putnam 2016). This argument is part of a broader thesis positing that changes associated with the second demographic transition have contributed to "diverging destinies" between children from different socioeconomic backgrounds (McLanahan 2004; McLanahan and Jacobsen 2015).

Parallel to this body of literature, other research suggests that family structure matters more for educational outcomes of sons than of daughters. The same-sex hypothesis postulates that the absence of a parent of the same sex in the household is specifically detrimental for children, but this claim has found little empirical support (Biblarz and Stacey 2010; Powell and Downey 1997). Departing from this hypothesis, recent studies suggest that the academic achievement of sons is generally more sensitive to the characteristics of their family and school environment than the achievement of daughters (Autor et al. 2019; DiPrete and Buchmann 2013; Legewie and DiPrete 2012). In addition, evidence suggests that sons are more likely to have behavioral problems at young ages (Goldin et al. 2006) and to develop anti-school attitudes in the process of the construction of masculine gender identities (Legewie and DiPrete 2012), increasing the importance of the resources of their family and school environment for school outcomes. Because nontraditional families often have less access to a variety of resources than families with two biological parents, family structure is expected to have a larger impact on sons' educational outcomes (Autor et al. 2019; DiPrete and Buchmann 2013; Legewie and DiPrete 2012).

In this article, we build on the body of research that studies the role family structure plays in the reproduction of inequality across generations (Alamillo 2016; Duncan et al. 2017; McLanahan 2004; McLanahan and Percheski 2008) and incorporate the notion of potential gender differences in the importance of family structure for educational outcomes. We ask two research questions. First, are there gender differences in how much changing family structures contributed to changes across cohorts in the college attainment gap between children with lower educated mothers and those with higher educated mothers? Second, and more generally, is the diverging destinies thesis equally valid for sons and daughters?

To address these questions, we use a conceptual framework based on (1) the *prevalence* of nontraditional families, (2) the *penalty* for educational outcomes related to growing up in a nontraditional family, and (3) *heterogeneity* in this penalty by parental gender and parental socioeconomic status (SES). The diverging destinies hypothesis proposes that the increasing prevalence of nontraditional family structures, particularly among socioeconomically disadvantaged families, has led to increased social background differences in children's attainments (McLanahan 2004; McLanahan and Jacobsen 2015). However, if the penalty related to growing up in a nontraditional family is systematically different for sons than for daughters and for children with low- versus high-SES parents, the role of family structure in strengthening social background differences in attainments might differ too.

In our empirical analysis, we use the National Longitudinal Survey of Youth 1979 and 1997 cohorts, born in the early 1970s and 1980s in the United States. These two cohorts cover a period when family structures and educational attainment changed dramatically. More than 70% of children still lived with both their parents during adolescence in the first cohort, but only half did so in the second cohort. Tertiary degree

attainment increased from 24% to 33% across cohorts. We employ an extended Blinder–Oaxaca method to decompose changes over time in the college attainment gap between children with lower and higher educated mothers into the part that is explained by changing family structures and the part that remains unexplained. This approach also enables us to further quantify the separate contributions of changes across cohorts in the prevalence of nontraditional families, changes in the penalty related to growing up in a nontraditional family, and heterogeneity in these penalties.

Our conclusions differ considerably from previous research on whether changes in family structures contributed to diverging destinies between children from different socioeconomic groups. Earlier studies provided a general narrative that family structure changes have intensified social background differences in educational outcomes of children (McLanahan 2004; McLanahan and Percheski 2008) or argued that their influence is small to negligible based on empirical estimates (Alamillo 2016; Bernardi and Boertien 2017; Duncan et al. 2017). Our findings show that changes in family structures across cohorts increased the gap in college attainment between daughters with lower educated mothers and those with higher educated mothers (although this result is only marginally statistically significant) but decreased the gap in educational outcomes for sons. In other words, we find that changes in family structures might have contributed to diverging destinies for daughters but reduced attainment gaps for sons.

Prevalence, Penalty, and Heterogeneity: An Analytical Framework

In its simplest form, the argument that changes in family structure strengthened the reproduction of inequality across generations depends on two conditions that hold for the U.S. context (McLanahan and Percheski 2008). First, the share of children growing up in a nontraditional family has increased over the last decades, especially among children in the lower socioeconomic strata (Ellwood and Jencks 2004; Martin 2006; Matysiak et al. 2014; McLanahan and Percheski 2008; Rackin and Gibson-Davis 2018; Thomson et al. 2014). Second, growing up in a nontraditional family is negatively related to children's final educational attainment (Amato 2010; McLanahan and Sandefur 1994; McLanahan et al. 2013). Following earlier research on poverty (Brady et al. 2017), we characterize the first condition as referring to differences in the *prevalence* of family structures and consider the second condition to refer to the *penalty* associated with growing up in a nontraditional family structure. Recent research findings suggest that a third condition should be considered: namely, that the effects of family structure can vary with parental SES (Alamillo 2016; Augustine 2014; Brand et al. 2019; Martin 2012). We characterize this argument as one about *heterogeneity in penalties*.

The notion of prevalence is pivotal for the general argument that changing family structures contributed to the reproduction of inequality across generations. However, it is largely irrelevant in explaining gender differences in the role of family structure because the prevalence of nontraditional families generally does not differ between sons and daughters.[1] The notion of heterogeneity in penalties is more essential, given that the effects of family structure on educational outcomes can differ by gender and

[1] Children's gender appears to have a small effect on separation probabilities (Raley and Bianchi 2006) and other family characteristics, such as marriage (Lundberg and Rose 2003). These effects, however, are likely to be too minor to affect gender differences in the prevalence of family structures.

parental SES. In the remainder of this literature review, we therefore focus on how and why the association between family structure and educational attainment might differ across groups.

Childhood Family Structure and Educational Outcomes

Previous research has shown that, on average, individuals who grew up in a nontraditional family structure fare slightly to moderately worse on a variety of child and adult outcomes than individuals who grew up in a two-biological-parent family (Amato 2000, 2010). Associations between family structure and some outcomes, such as cognitive ability, are small; the relationship between family structure and other outcomes, such as educational attainment and psychological well-being, is stronger (Lee and McLanahan 2015; McLanahan et al. 2013). Scholars have debated the extent to which these associations reflect causal effects or capture the influence of other preexisting socioeconomic disadvantages. Once accounting for sources of endogeneity, most studies have found that the effects of family structure are attenuated but persist (McLanahan et al. 2013).

Two main types of explanations for the negative association between growing up in a nontraditional family and educational outcomes, which are not necessarily mutually exclusive, are crisis models and resource models. Crisis models focus on children's adjustments to new family structures. Most children living in a nontraditional family experienced a parental separation, which might expose them to parental conflict and require children to adjust emotionally to a new family arrangement (Cherlin 1999; Kalmijn et al. 2007; Pryor and Rodgers 2001; Thomson et al. 1994). Emotional crises associated with parental separation can negatively impact school performance and, consequently, final educational attainment. Several authors have suggested that the stability of family structures, rather than particular characteristics of given family forms, is what matters for child development (Bzostek and Berger 2017; Fomby and Osborne 2017; Lee and McLanahan 2015; Mariani et al. 2017; Waldfogel et al. 2010).

Resource models suggest that differences in parenting styles and financial resources are primarily responsible for family structure differences in child outcomes (Amato 2010; McLanahan and Sandefur 1994; Seltzer 2000). Several studies have shown that lower levels of economic resources are largely responsible for the lower educational outcomes of children growing up in a nontraditional family (Jonsson and Gähler 1997; McLanahan and Sandefur 1994; Thomson et al. 1994).

Gender Differences in the Impact of Family Structure on Educational Outcomes

The importance of childhood family structure can differ by gender if the connections between family structure, crises, resources, and educational outcomes vary between sons and daughters. The so-called same-sex hypothesis (Biblarz and Raftery 1999; Powell and Downey 1997) posits that children benefit particularly from the input of parents of the same sex because of purported closer parent–child relationships between same-sex dyads and the possibly greater role of same-sex parents as role

models and authority figures (Powell and Downey 1997). Because most children in nontraditional families do not live with their biological fathers, the increasing prevalence of nontraditional families is expected to have especially affected sons' outcomes (Downey et al. 1998). However, very little empirical evidence supports the notion that children benefit more from the input of parents of the same sex than from that of parents of a different sex (Biblarz and Stacey 2010).

A separate body of literature has focused instead on how sons' outcomes depend more on their neighborhood, school, and family characteristics than daughters' outcomes (Autor et al. 2019; Bertrand and Pan 2013; Brenøe and Lundberg 2018; Buchmann and DiPrete 2006; Chetty et al. 2016; Legewie and DiPrete 2012). One explanation for this observation derives from boys' higher propensity toward behavioral problems beginning at young ages. For instance, boys have more school disciplinary problems and are less likely to do homework than girls (Jacob 2002). The reasons for these behavioral differences are unclear but might derive from later ages of maturation for boys than for girls (Goldin et al. 2006). The greater incidence of such behavioral problems could require more parental investments in sons than daughters. Factors that affect parents' capacity to invest in their children, such as family structure, are in that case more consequential for sons (Autor et al. 2019).

Another explanation for why environmental characteristics, including family structure, matter more for sons than daughters is similar but focuses on the construction of gender identities (DiPrete and Buchmann 2013; Legewie and DiPrete 2012). Studies taking this perspective suggest that although some conceptions of masculinity include anti-school attitudes and behaviors, conceptions of femininity vary less in the extent to which academic performance is valued (e.g., Legewie and DiPrete 2012). In the process of constructing masculine gender identities, adolescent boys are therefore at greater risk of developing attitudes and behaviors that lead to disengagement from school. Environments that promote academic performance and effort, and thereby shelter against disengagement from school, are more beneficial for boys than for girls (DiPrete and Buchmann 2013).

Studies focusing on educational achievement, noncognitive skills, and high school completion have indeed reported larger negative effects of growing up in a nontraditional family structure for sons than for daughters (Autor et al. 2019; Bertrand and Pan 2013; Buchmann and DiPrete 2006; Chetty et al. 2016). Evidence is less uniform for gender differences in the effects on higher levels of educational attainment (Duncan et al. 2017; Lundberg 2017) and noneducational child outcomes (Amato 2001).

Socioeconomic Differences in the Impact of Family Structure on Educational Outcomes

The importance of emotional adjustment to crises and the loss of parental resources for educational outcomes can also differ by families' SES (Augustine 2014; Martin 2012). Such heterogeneity in penalties by parental SES can reduce or amplify the contribution of changing family structures to inequality of opportunity (Bloome 2017). Put in extremes, if growing up in a nontraditional family affects the outcomes of only those children with high parental SES, the increasing prevalence of nontraditional family structures might reduce inequality of opportunity, even if disadvantaged children more commonly live in nontraditional families. Conversely, if childhood family structures

matter for the outcomes of only individuals with low parental SES, the role of family structures in creating inequality of educational outcomes might be greater than expected.

There are two main perspectives on whether and how the impact of growing up in a nontraditional family varies with parental SES. On the one hand, high-SES families might have more resources to buffer their children from the negative consequences of a union dissolution (Grätz 2015). On the other hand, children whose parents have more resources might have more to lose from the absence of a parent in the household than other children (Bernardi and Radl 2014). If economic resources and other forms of parents' capital are best accessed through coresidence, children of high-SES parents will lose access to relatively more resources than children with low-SES parents when a parent is not coresiding. For instance, financing a college education might be more difficult for parents who have to maintain two separate households (Bernardi and Boertien 2016), and intensive parenting strategies might be more complicated within single-parent families (Lareau 2002). That is, the transmission of social, economic, and human capital might be stronger among two-parent families than in family forms in which one parent is absent from the childhood home (Coleman 1988). With some exceptions (e.g., Augustine 2014), studies directly examining heterogeneity in penalties by parental SES have found that children from higher SES backgrounds are more affected by growing up in a nontraditional family than children from lower SES backgrounds (Bernardi and Boertien 2017; Martin 2012; McLanahan and Sandefur 1994).

Previous studies quantified the cross-sectional contribution of variation in family structures to social background differences in educational attainment using Oaxaca–Blinder decomposition methods (and in this article, we use an extension of this method to study change over time). These studies found that the impact of the larger penalties observed for children with higher educated parents cancels out the impact of the lower prevalence of nontraditional families among higher educated parents. In other words, once heterogeneity in penalties is taken into account, family structure barely explains any differences in educational attainment between children with low parental SES and those with high parental SES (Alamillo 2016; Bernardi and Boertien 2017).

Variation in Nontraditional Family Structures

The relationship between family structure and educational attainment is complicated further by the specific characteristics of nontraditional family types. For instance, the presence of a stepparent can lead to role ambiguity within families (Sweeney 2010) but increases the parental resources available (King 2006). Living with a stepparent can also have different effects on outcomes for sons than for daughters (King 2009). Similarly, nonresident parents' increased involvement in child-rearing over time has positive effects on child outcomes (Bjarnason and Amarsson 2011), which might have changed the relative importance of both the crisis and resource mechanisms over time. A full consideration of family structure types and how their characteristics relate to educational outcomes for sons and daughters from different social

backgrounds is an important refinement that goes beyond the scope of this article; we return to this issue in the Discussion section.

Hypotheses

In short, previous research has shown that the negative impact of growing up in a nontraditional family on educational outcomes tends to be larger for high-SES children. Negative impacts are also expected to be larger for sons, whose academic achievement is more sensitive to their family environment. Hence, if parental resources vary with family structure among high-SES families particularly, and if boys' college attainment is affected more by parental resources than girls' attainment, we can expect that growing up in a nontraditional family entails the largest penalty for the educational outcomes of sons from high-SES families. In contrast, penalties might vary less by family SES for daughters. The larger the penalties for the educational outcomes of children from high-SES backgrounds are relative to the penalties for children from low-SES backgrounds, the less likely family structure will strengthen social background differences in educational outcomes (Alamillo 2016; Bernardi and Boertien 2017; Bloome 2017). If the attainment of boys, but not girls, from high-SES backgrounds is particularly affected by family structure, this leads to the main hypothesis of our study: changes in family structures across cohorts are less likely to have led to diverging destinies for sons compared with daughters.

Data and Methods

Data

We employ data from two cohorts of the National Longitudinal Survey of Youth (NLSY)—1979 (NLSY79) and 1997 (NLSY97).[2] The NLSY cohorts are nationally representative samples of adolescents who were aged 14–22 in 1979 and 12–18 in 1997, respectively. Response rates for all individuals eligible for interview in the first survey round were 87% for the 1979 cohort and 91% for the 1997 cohort. By the last waves of data used here—1994 for the 1979 cohort and 2015 for the 1997 cohort—89% and nearly 80% (respectively) of the samples interviewed in Round 1 were still present. Black and Hispanic adolescents were oversampled in the study; we use sample weights in the analysis.

We exclude respondents who lived with adoptive parents from our sample because they might experience additional obstacles to educational attainment that are unrelated to the family structure and SES of their adoptive family. For our main analysis, we discard cases with missing information on the variables used (excluding 16.5% of the sample for the NLSY79 and 10.9% of cases for the NLSY97). In robustness checks, we use multiple imputations to deal with missing values. The final sample sizes used are 7,422 for the NLSY79 and 6,379 for the NLSY97.

[2] The replication code (Stata) is available in online Appendix F.

Variables

Bachelor's degree attainment by the time of the survey is our main educational attainment variable, measured when respondents reached their early 30s for both cohorts (in 1994 for the 1979 cohort and in 2015 for the 1997 cohort). In robustness checks, we also look at high school completion (having a high school diploma or GED) and years of education completed at the time of the survey.

Mother's highest level of education is our main indicator of parental SES. Even though mothers' educational careers can be affected by family structure changes at their children's young ages, alternative measures (e.g., income and occupation at the time of the survey) are even more responsive to family structure changes. We use mother's education rather than father's education because the latter is more often missing (9% for fathers vs. 2% for mothers), especially for those in nontraditional families. Changes in the distribution of maternal education across cohorts can change the meaning of specific educational categories and the extent to which they proxy the broader socioeconomic position of the household. For example, not having a high school diploma or GED might be a clearer indicator of broader socioeconomic disadvantage in recent cohorts. Therefore, we create three maternal education categories of similar size for each cohort (bottom, middle, and top). At the bottom of the maternal education distribution are those who completed grade 8 or less for the 1979 cohort (16.5%) and grade 11 or less for the 1997 cohort (18.3%). At the top of the distribution are mothers who completed at least one year of college for the 1979 cohort (21.3%) and at least four years of college for the 1997 cohort (20.7%). Hence, the bottom and top categories roughly resemble the lowest and highest quintile of maternal education within each cohort.

The main independent variable of the analysis is childhood family structure. For both data sets, family structure was measured at age 17. We consider four main categories of family structure: (1) living with both biological parents, (2) living with a parent and a stepparent, (3) living with a single parent, and (4) not living with any biological parent. This rather crude classification of family structure is the main limitation of our analysis. Unfortunately, the NLSY97 provides only patchy retrospective information on childhood family structure, preventing us from constructing comparable measures capturing more complex childhood family structure trajectories. Repeated family transitions are more common among socioeconomically disadvantaged groups (Brown et al. 2016). Thus, larger penalties related to childhood family structures among individuals with lower educated mothers eventually might partly reflect the effects of more family transitions experienced. For the 1979 cohort, we perform an additional analysis for the NLSY79 data using more detailed childhood family structure histories (see the online Appendix A). We elaborate on this issue further in the Discussion section.

Control variables included in the analysis are region (Northeast, North Central, South, and West), age, gender, and ethnicity (Black; Hispanic; mixed race, non-Hispanic; and other, non-Black/non-Hispanic). Descriptive statistics for these variables by sample are displayed in Table 1.

Prevalence, Penalties, and the Decomposition Procedure

Studying gender differences in the contribution of changing family structures to the parental SES gap in college attainment requires examining differences in both

Table 1 Descriptive statistics of the samples used

	NLSY79		NLSY97	
Variable	Daughters	Sons	Daughters	Sons
Outcome Variables				
Bachelor's degree completion (%)	24.0	24.2	37.8	28.9***
High school/GED completion (%)	91.1	89.5*	94.0	92.6*
Years of education (mean)	13.4	13.4	14.5	13.8***
Family Structure at Age 17 (%)				
Living with both biological parents	70.9	73.3*	49.4	54.0***
Living with a parent and stepparent	8.0	6.9	14.1	14.3
Living with a single parent	14.3	15.1	29.4	26.8*
Not living with any parent	6.8	4.7***	7.1	4.9***
Maternal Education (%)				
Bottom quintile	17.1	15.8	18.6	18.1
Middle	62.2	62.3	61.4	60.7
Top quintile	20.7	21.9	20.0	21.2
Control Variables				
Respondent's age at interview (mean)	33.2	33.1	32.9	33.0
Black (%)	13.3	13.3	15.3	14.6
Hispanic (%)	5.9	6.3	11.9	13.0
Mixed race (non-Hispanic) (%)	N/A	N/A	1.1	1.1
Other/non-Black, non-Hispanic (%)	80.8	80.4	71.7	71.3
N	3,790	3,632	3,228	3,151

Notes: Sample weights are included. N/A=response category is not available in the 1979 wave. Respondents' age is assessed in the year that education is measured. Lower educated mothers are those in the bottom 17% of the NLSY cohort maternal educational distribution; middle educated mothers are those in the middle of the NLSY cohort maternal educational distribution; and higher educated mothers are those in the top 21% of the NLSY cohort maternal educational distribution. Asterisks indicate statistically significant differences between sons and daughters within the same cohort.

*$p<.05$; ***$p<.001$

prevalence and penalties. We document differences in prevalence through descriptive statistics and examine differences in penalties using linear probability models (LPMs) explaining respondents' bachelor's degree attainment. We estimate the combined impact of changes in prevalence *and* penalties by employing an extended Blinder–Oaxaca decomposition approach (Kim 2010; Smith and Welch 1989). We perform the decomposition analysis separately for sons and daughters because the decomposition allows studying the attainment gap between only two groups: in this case, children with lower educated mothers and those with higher educated mothers.[3]

The objective of the decomposition is to explain changes in D, which represents the absolute difference in college attainment (Y) between individuals with higher educated mothers (h) and those with lower educated mothers (l):

$$D = Y_h - Y_l. \quad (1)$$

[3] In additional analyses, we use a pooled sample of sons and daughters.

ΔD represents the absolute change in this group difference between periods 0 and 1:

$$\Delta D = (Y_{h1} - Y_{l1}) - (Y_{h0} - Y_{l0}). \tag{2}$$

In other words, ΔD operationalizes the extent to which social background differences in college attainment changed across cohorts.

We consider four types of childhood family structure and define four dummy variables distinguishing those who, at age 17, were living in a family with two biological parents ($f0$), with a single biological parent ($f1$), with a biological parent and a stepparent ($f2$), or without biological parents ($f3$).

We then define $\overline{X}_s$ as the weighted share of individuals i living in each childhood family structure type fs (with $s = 0, 1, 2, 3$), where ω_i indicates normalized sample weights provided with the data:

$$\overline{X}_s = \frac{\sum_{i=1}^{n} \omega_i fs_i}{n}. \tag{3}$$

We estimate LPMs to estimate the probability of bachelor's degree attainment:

$$Y_i = \alpha + \beta_1 f1_i + \beta_2 f2_i + \beta_3 f3_i + \delta \mathbf{x}_i' + \varepsilon_i. \tag{4}$$

In Eq. (4), α expresses the average bachelor's degree attainment for those who lived in a two-parent family. In all analyses, we include controls for race, gender, and age ($\delta \mathbf{x}_i'$).[4]

In addition, $\overline{X}_s$ (with $s = 1, 2, 3$) corresponds to the prevalence of each type of family structure, and β_s corresponds to their associated penalty compared with living in a two-biological-parent family (the reference category in Eq. (4)). Both $\overline{X}_s$ and Eq. (4) are estimated separately for each maternal education group (lower and higher) and cohort (cohort 0 and cohort 1). For instance, $\overline{X}_{sh0}$ expresses the prevalence of family type s among those with higher educated mothers in cohort 0, whereas β_{sl1} expresses the penalty for those living in family type s with lower educated mothers in cohort 1.

We then decompose the change in social background differences in college attainment between cohort 0 and cohort 1(ΔD) as follows (for more details, see Kim 2010):

$$\Delta D = \underbrace{(\alpha_{h1} - \alpha_{h0}) - (\alpha_{l1} - \alpha_{l0})}_{\textit{Intercept effect}} \tag{5a}$$

$$+ \underbrace{\sum_S \left\{ \left[\left(\beta_{sh1} + \beta_{sh0} \right)/2 \right] - \left[\left(\beta_{sl1} + \beta_{sl0} \right)/2 \right] \right\} \left\{ \left[\left(\overline{X}_{sh1} - \overline{X}_{sh0} \right)/2 \right] + \left[\left(\overline{X}_{sl1} - \overline{X}_{sl0} \right)/2 \right] \right\}}_{\textit{Effect of general changes in prevalence}} \tag{5b}$$

$$+ \underbrace{\sum_S \left[\left(\overline{X}_{sh1} - \overline{X}_{sh0} \right) - \left(\overline{X}_{sl1} - \overline{X}_{sl0} \right) \right] \left[\left(\beta_{sh1} + \beta_{sh0} + \beta_{sl1} + \beta_{sl0} \right)/4 \right]}_{\textit{Effect of differences in changing prevalence between maternal education groups}} \tag{5c}$$

[4] We include covariates using effect coding for categorical variables (Jann 2008:9). Our approach differs slightly from Kim's in that we do not apply the averaging method for coefficients (Kim 2010:627) in the case of our main mediating variable: family structure. We use having lived in a two-parent family as the reference category. Therefore, $\sum_s$ sums over the various nontraditional family structures, and betas indicate the effect, with two-parent families as the reference. Using effect coding also for family structure would calculate a counterfactual that might be well suited for quantifying changes in discrimination (i.e., the goal of Kim's approach), but it has a less clear interpretation in our case. See online Appendix B for a more detailed explanation.

$$+\underbrace{\Sigma_S\left\{\left[\left(\bar{X}_{sh1}+\bar{X}_{sh0}\right)/2\right]-\left[\left(\bar{X}_{sl1}+\bar{X}_{sl0}\right)\right]/2\right\}\left\{\left[\left(\beta_{sh1}-\beta_{sh0}\right)+\left(\beta_{sl1}-\beta_{sl0}\right)\right]/2\right\}}_{\textit{Effect of general changes in penalties}} \quad (5d)$$

$$+\underbrace{\Sigma_S\left[\left(\beta_{sh1}-\beta_{sh0}\right)-\left(\beta_{sl1}-\beta_{sl0}\right)\right]\left[\left(\bar{X}_{sh1}+\bar{X}_{sh0}+X_{sl1}+\bar{X}_{sl0}\right)/4\right]}_{\textit{Effect of changing heterogeneity in penalties by maternal education}}. \quad (5e)$$

Part (5a) of this equation expresses the changes over time in group differences that cannot be accounted for by changes in the prevalence of family structures and related penalties, labeled the *intercept effect*. Parts (5b) through (5e) together quantify the overall change in the contribution of childhood family structures to the cross-cohort change in group differences (ΔD).

Part (5b) captures the effect of the average cross-cohort changes in the prevalence of the various nontraditional family structures. If the penalty related to growing up in a given family structure is stronger for a specific group, increases in the prevalence of this family structure type will have a greater impact on that group's outcomes. In other words, if both groups experience a change from 10% to 50% nontraditional families, the change will be more consequential for the group with the higher penalty of growing up in a nontraditional family structure. Therefore, this component multiplies the average cross-cohort change in the prevalence of nontraditional families, $\left[(\bar{X}_{sh1}-\bar{X}_{sh0})+(\bar{X}_{sl1}-\bar{X}_{sl0})\right]/2$, by the average differences in penalties related to family structures between maternal education groups, $\left[(\beta_{sh1}+\beta_{sh0})/2\right]-\left[(\beta_{sl1}+\beta_{sl0})/2\right]$.

Part (5c) measures the impact of the unequal changes in the prevalence of family structure types according to maternal education, $\left[(\bar{X}_{sh1}-\bar{X}_{sh0})-(\bar{X}_{sl1}-\bar{X}_{sl0})\right]$, weighted by the average penalty of growing up in a given family structure across all groups and cohorts, $\left[(\beta_{sh1}+\beta_{sh0}+\beta_{sl1}+\beta_{sl0})/4\right]$. This component represents the diverging destinies prediction in its simplest form: the concentration of increases in nontraditional family structures among lower educated mothers amplified the parental SES gap in college attainment.

The penalties related to nontraditional childhood family structures can change across cohorts. Average changes in penalties across cohorts affect group differences because they will be more consequential for groups with higher shares of individuals living in households with nontraditional family structures. Hence, part (5d) weighs the average change in penalties across cohorts, $\left[(\beta_{sh1}+\beta_{sh0})/2\right]-\left[(\beta_{sl1}+\beta_{sl0})/2\right]$, by maternal education differences in the prevalence of family structures, $\left[(\bar{X}_{sh1}-\bar{X}_{sh0})-(\bar{X}_{sl1}-\bar{X}_{sl0})\right]/2$.

Finally, component (5e) takes into account that also differences in penalties between maternal education groups can change across cohorts. It weighs the change in differences in penalties between maternal education groups, $\left[(\beta_{sh1}-\beta_{sh0})-(\beta_{sl1}-\beta_{sl0})\right]$, by the average prevalence of the family structure type across groups and cohorts, $\left[(\bar{X}_{sh1}+\bar{X}_{sh0}+\bar{X}_{sl1}+\bar{X}_{sl0})/4\right]$.

The decomposition analysis relies on a relatively large number of estimated terms. To test the robustness of the results to individual observations, we estimate standard errors and confidence intervals for all terms of the decomposition using a bootstrapping method (based on 500 replications using bootstrap resampling weights; Efron and Tibshirani 1993).

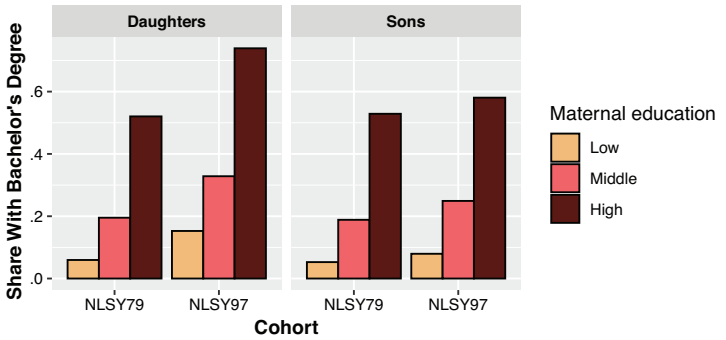

Fig. 1 Bachelor's degree attainment by cohort, gender, and maternal education. Lower educated mothers are those who did not complete grade 12; middle educated mothers are those who completed grade 12 but less than four years of college; and higher educated mothers are those who completed four or more years of college.

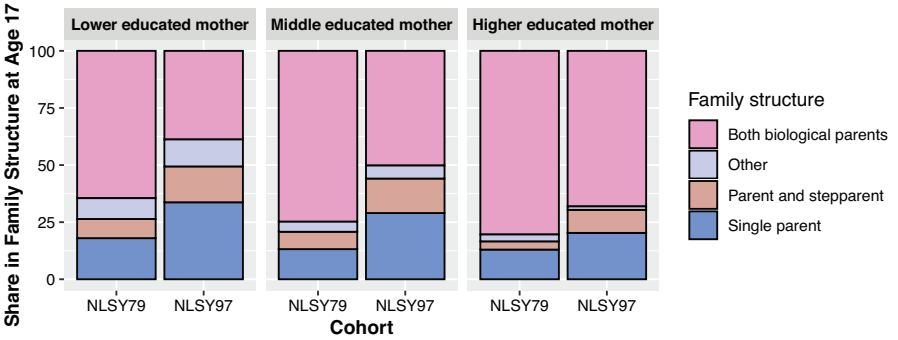

Fig. 2 Family structure at age 17, by cohort and mother's education. Lower educated mothers are those who did not complete grade 12; middle educated mothers are those who completed grade 12 but less than four years of college; and higher educated mothers are those who completed four or more years of college.

Results

Figure 1 displays changes in college attainment across cohorts by maternal education and gender. Attainment increased across all groups but especially among daughters. The attainment gap between sons with lower educated mothers and those with higher educated mothers increased slightly, from a 47.6-percentage-point difference for the 1979 cohort to a 50.1-point difference for the 1997 cohort. For daughters, the increase in the gap was larger, from a 46.1- to a 58.6-percentage-point difference across cohorts. The main question to be answered in this empirical section is to what extent these changes in the gaps in bachelor's degree attainment can be explained by changes in the prevalence of family structures and related penalties.

Figure 2 shows changes in the prevalence of four broad categories of family structure across both cohorts. The prevalence of families with two biological parents declined, and nontraditional family structures became more common among all groups considered. The decline in families with two biological parents was more pronounced among individuals with lower educated mothers, and the gap in this prevalence between children of higher educated mothers and those with lower educated

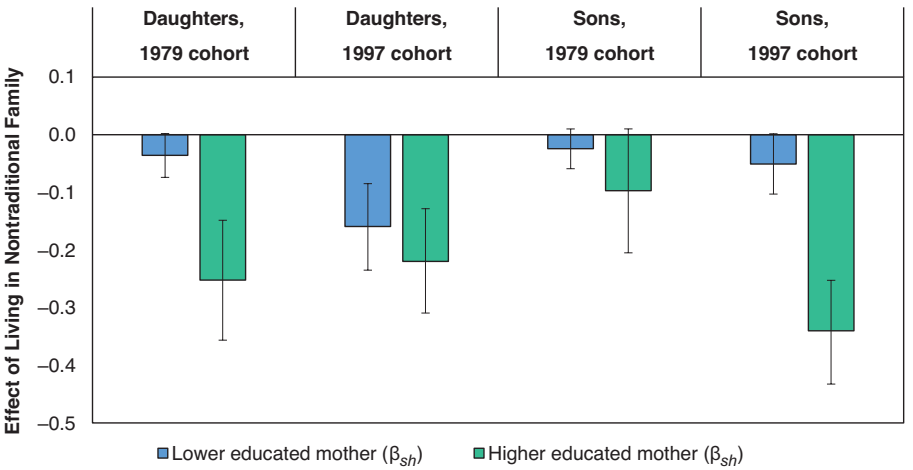

Fig. 3 Penalties related to living in a nontraditional family according to maternal education, gender, and cohort. OLS coefficients are from eight separate models explaining bachelor's degree attainment—one model for each group defined by maternal education, gender, and cohort. Controls are included for age, ethnicity, and religion. Whiskers indicate 95% confidence intervals.

mothers increased from 13 to 29 percentage points across cohorts. Among children living in a nontraditional family, 9% of the 1979 cohort lived with their biological father, compared with 10% for the 1997 cohort (not shown).

The contribution of changes in family structures to attainment gaps also depends on the penalties related to living in a nontraditional family. Figure 3 displays predicted differences in bachelor's degree attainment between children who lived in a two-biological-parent family at age 17 and children who did not. These predicted differences are taken from LPM models for each group separately by gender, maternal education, and cohort, controlling for age, ethnicity, and region. We find that children who lived with two biological parents were more likely to attain a bachelor's degree than children who lived in a nontraditional family among all groups, but there is great heterogeneity in the size of this difference across groups.

For the 1979 cohort, penalties observed are statistically significant only for daughters with higher educated mothers. Statistically significant penalties are visible for all groups of the 1997 cohort. Effect sizes increased across cohorts, particularly for sons with higher educated mothers (with the difference increasing from 10 to 34 percentage points across cohorts). For the 1979 cohort, we find quite minor differences in penalties between sons with lower educated mothers and sons with higher educated mothers. In the most recent cohort, the penalty related to having lived in a nontraditional family is much larger for sons with higher educated mothers than for sons with lower educated mothers. For daughters, effects related to family structure became more similar across cohorts for daughters with lower educated mothers and those with higher educated mothers.

Table 2 presents results from a model pooling observations across all groups (cohort, maternal education, and gender). The model provides insights into statistical significance and illustrates what we miss when we do not take gender differences in effects into account. Model 1 confirms statistically significant cross-cohort increases in the average penalty related to growing up in a nontraditional family and a higher penalty related to growing up in a nontraditional family for those with a higher

Table 2 Linear probability models explaining bachelor's degree attainment

	Model 1		Model 2	
Variable	Coef.	SE	Coef.	SE
Nontraditional Family (ref. = two-parent family)	–0.02†	0.01	–0.01	0.02
Daughter (ref. = son)	0.04***	0.01	0.01	0.02
Cohort 1997 (ref. = 1979 cohort)	0.12***	0.02	0.06*	0.03
Mother's Education (ref. = lower educated)				
Middle educated	0.14***	0.01	0.14***	0.02
Higher educated	0.49***	0.02	0.49***	0.03
Nontraditional Family × Cohort 1997	–0.08***	0.03	–0.05	0.03
Nontraditional Family × Middle Educated Mother	–0.06***	0.02	–0.06*	0.03
Nontraditional Family × Higher Educated Mother	–0.17***	0.04	–0.11*	0.06
Middle Educated Mother × Cohort 1997	0.05	0.03	0.05	0.03
Higher Educated Mother × Cohort 1997	0.06	0.04	0.06	0.05
Nontraditional Family × Middle Educated Mother × Cohort 1997	–0.01	0.04	–0.03	0.05
Nontraditional Family × Higher Educated Mother × Cohort 1997	0.00	0.06	–0.15*	0.08
Nontraditional Family × Daughter			–0.02	0.03
Cohort 1997 × Daughter			0.12***	0.04
Middle Educated Mother × Daughter			–0.00	0.03
Higher Educated Mother × Daughter			0.01	0.04
Nontraditional Family × Cohort 1997 × Daughter			–0.08	0.05
Nontraditional Family × Middle Educated Mother × Daughter			–0.00	0.03
Nontraditional Family × Higher Educated Mother × Daughter			–0.13†	0.08
Middle Educated Mother × Cohort 1997 × Daughter			–0.02	0.05
Higher Educated Mother × Cohort 1997 × Daughter			–0.01	0.07
Nontraditional Family × Middle Educated Mother × Cohort 1997 × Daughter			0.03	0.07
Nontraditional Family × Higher Educated Mother × Cohort 1997 × Daughter			0.33***	0.11
Constant	0.02	0.02	0.04*	0.02
N			13,801	

Notes: Controls included are age, region, and ethnicity. Sample weights are included. Bootstrap standard errors are based on 500 replication weights.

†$p < .10$; *$p < .05$; ***$p < .001$

educated mother. Model 2 adds interaction effects with gender, where the changes in penalties over time (observed in Figure 3) become visible. The core finding of this model is that the effect of family structure increased significantly more for sons with higher educated mothers than for sons with lower educated mothers (three-way interaction between family structure, maternal education, and cohort), but the opposite is the case for daughters (as shown by the direction and size of the four-way interaction between family structure, maternal education, cohort, and gender).

Decomposition Analysis

The extent to which family structure can explain cross-cohort changes in social background differences in college attainment depends on the relative importance of

Table 3 Decomposition analysis for various outcome variables, with bootstrapped 95% confidence intervals shown in brackets

	Outcome		
	Bachelor's Degree	High School Completion	Years of Education
Sons			
Maternal education gap *D* in 1979	0.476	0.257	3.43
Change in gap Δ*D*	0.025	−0.070	0.46
Eq. (5a): changing intercept	0.088	−0.075*	0.48
	[−0.003, 0.168]	[−0.141, −0.005]	[−0.07, 1.05]
Eq. (5b): changing prevalence	−0.030*	0.004	−0.08
	[−0.045, −0.015]	[−0.009, 0.013]	[−0.18, 0.01]
Eq. (5c): changing prevalence by SES	0.021*	0.006*	0.15*
	[0.010, 0.034]	[0.001, 0.013]	[0.07, 0.26]
Eq. (5d): changing penalties	0.022*	−0.013*	0.17*
	[0.003, 0.041]	[−0.028, −0.001]	[0.04, 0.29]
Eq. (5e): changing penalties by SES	−0.075*	0.007	−0.26
	[−0.129, −0.016]	[−0.038, 0.055]	[−0.58, 0.07]
Total contribution, (5b)−(5e)	−0.063	−0.005	−0.02
Total contribution as % of gap *D* in 1979	−13.2	−1.8	−0.1
Daughters			
Maternal education gap *D* in 1979	0.461	0.227	3.24
Change in gap Δ*D*	0.125	−0.064	0.84
Eq. (5a): changing intercept	0.056	−0.114*	0.22
	[−0.034, 0.156]	[−0.166, −0.059]	[−0.29, 0.83]
Eq. (5b): changing prevalence	−0.025*	0.024*	0.01
	[−0.042, −0.008]	[0.012, 0.036]	[−0.08, 0.11]
Eq. (5c): changing prevalence by SES	0.025*	0.014*	0.16*
	[0.009, 0.043]	[0.006, 0.024]	[0.07, 0.28]
Eq. (5d): changing penalties	0.009	0.010	0.05
	[−0.020, 0.035]	[−0.012, 0.036]	[−0.13, 0.24]
Eq. (5e): changing penalties by SES	0.061	0.003	0.39*
	[−0.002, 0.128]	[−0.044, 0.047]	[0.03, 0.79]
Total contribution, (5b)−(5e)	0.070	0.066	0.62
Total contribution as % of gap *D* in 1979	15.2	22.2	19.1

Notes: Controls included are maternal education, age, region, and ethnicity; ethnicity is excluded in the subsample models. Sample weights are included. *D* is the difference in outcomes between individuals with higher educated mothers and those with lower educated mothers in 1979; Δ*D* is the absolute change in *D* between the 1997 and 1979 cohorts. (5a) = intercept effect; (5b) = difference due to the average change in prevalence of family structures; (5c) = difference due to the change in socioeconomic prevalence differences; (5d) = difference due to the change over time in average penalties; and (5e) = difference due to the change in the socioeconomic difference in penalties. SES = socioeconomic status.

*$p < .05$

changes in prevalence and penalties. The decomposition analysis allows us to take both trends into account (Table 3). In 1979, the absolute gaps in bachelor's degree attainment between children with higher educated mothers and those with lower educated mothers was 47.6 percentage points for sons and 46.1 percentage points for daughters. The increase in these gaps across cohorts was 2.5 and 12.5 percentage points for sons and daughters, respectively. Component (5a) indicates the part of

Table 4 Detailed estimates of terms used in the decomposition analysis (Eq. (5)) of Table 3

	Lower Educated Mothers (*l*)		Higher Educated Mothers (*h*)	
	Cohort 1979 (0)	Cohort 1997 (1)	Cohort 1979 (0)	Cohort 1997 (1)
Sons				
Shares ($\bar{X}_s$)				
Two biological parents	.66	.42	.78	.69
Biological parent and stepparent	.07	.16	.05	.10
Biological single parent	.19	.33	.14	.19
No biological parent	.08	.09	.03	.02
Penalties (β_s) (ref. = two-parent family)				
Biological parent and stepparent	−0.05*	−0.05	−0.15	−0.30***
	(0.02)	(0.04)	(0.09)	(0.07)
Biological single parent	−0.01	−0.04	−0.05	−0.37***
	(0.02)	(0.03)	(0.07)	(0.05)
No biological parent	−0.04*	−0.08**	−0.22†	−0.25
	(0.02)	(0.03)	(0.11)	(0.17)
n	881	718	638	563
Daughters				
Shares ($\bar{X}_s$)				
Two biological parents	.63	.36	.79	.67
Biological parent and stepparent	.08	.15	.05	.10
Biological single parent	.16	.34	.14	.21
No biological parent	.13	.14	.03	.01
Penalties (β_s) (ref. = two-parent family)				
Biological parent and stepparent	−0.06**	−0.17***	−0.39***	−0.31***
	(0.02)	(0.09)	(0.07)	(0.07)
Biological single parent	−0.03	−0.14***	−0.16**	−0.17**
	(0.02)	(0.07)	(0.06)	(0.05)
No biological parent	−0.03	−0.18***	−0.46***	−0.36*
	(0.03)	(0.11)	(0.08)	(0.18)
n	977	788	617	528

Notes: Shares reflect the weighted share of each family structure type within each subgroup (Eq. (3)). Penalties are taken from separate linear probability models with controls for maternal education, age, region, and ethnicity (Eq. (4)). Sample weights are included. Standard errors are shown in parentheses.

$^{\dagger}p<.10$; *$p<.05$; **$p<.01$; ***$p<.001$

these cohort differences in gaps that is not explained by changes in the prevalence and penalties related to childhood family structures. Components (5b) through (5e) indicate the parts related to family structure that contributed to maternal education gaps in college attainment. We discuss the contribution of each component separately.

The proportions of children living in the various childhood family structures used in the decomposition analysis (the $\bar{X}_s$ terms of Eq. (5)) are equivalent to the numbers presented in Figure 2 but are calculated separately for sons and daughters. The beta

terms (β_s) used are equivalent to the numbers presented in Figure 3 but are calculated for detailed family structure categories. Table 4 displays the numbers used in the decomposition analysis.

Effect of General Changes in the Prevalence of Nontraditional Families

Component (5b) quantifies the contribution of the average increase in the prevalence of nontraditional families across cohorts to the maternal education gap in college attainment. Because penalties related to nontraditional family structures are greater for children with higher educated mothers, increases in the prevalence of nontraditional families across cohorts reduced maternal education gaps in attainment. This component was related to a 3.0-percentage-point reduction in the college attainment gap for sons compared with a 2.5-percentage-point reduction for daughters; both contributions are statistically significant.

Effect of the Changing Maternal Education Gap in the Prevalence of Nontraditional Families

Component (5c) operationalizes the diverging destinies argument regarding family structure in its simplest form. It quantifies changes in the attainment gap that can be attributed to differences in the increase in nontraditional families among families with lower educated mothers and those with higher educated mothers (Figure 2). The more pronounced increase in nontraditional families among children with lower educated mothers augmented the gap in bachelor's degree attainment by 2.1 percentage points for sons and by 2.5 percentage points for daughters. These figures correspond, respectively, to 4% and 5% increases in the bachelor's degree attainment gap; both contributions are statistically significant.

Effect of General Changes in Penalties

Component (5d) quantifies the contribution of average increases in the penalties related to childhood family structure across cohorts. Because nontraditional families are more common among children with lower educated mothers, increases in effect sizes across cohorts augment attainment gaps between maternal education groups. For sons, increasing penalties across cohorts are estimated to have increased the maternal education gap by 2.2 percentage points—5% of the initial gap in 1979—and this contribution is statistically significant. For daughters, the corresponding estimate is 0.9 percentage points—2% of the gap in 1979—but is not statistically significant.

Effect of Changing Heterogeneity in Penalties by Maternal Education

The final component (5e) takes into account that the penalties related to childhood family structure did not change uniformly for all groups. Increases in effects were much more pronounced for sons with higher educated mothers than for sons with lower educated mothers (as also observed in Figure 3). This trend is estimated to have reduced

the maternal education gap in bachelor's degree attainment by 7.5 percentage points. In contrast, for daughters, the penalties related to nontraditional family structures increased only for those with lower educated mothers, putting them at an additional disadvantage compared with daughters who had higher educated mothers. This trend increased the maternal education gap in years of education by 6.1 percentage points. These contributions correspond to −16% and 13% of the initial maternal education gaps observed in 1979. The contribution of this component is statistically significant at the 95% level for sons but is only marginally significant for daughters ($p = .056$). The difference in the contribution of this component between sons and daughters is statistically significant, as evidenced by the nonoverlapping confidence intervals.

The Overall Contribution of Changes in Family Structures to Inequality in Outcomes

Components (5b)–(5e) combined indicate how changes across cohorts in the prevalence of family structures and related penalties contributed to maternal education gaps in bachelor's degree attainment. For sons, the overall contribution is estimated at a 6.3-percentage-point *reduction* in the gap between maternal education groups across cohorts—13% of the initial gap in 1979. For daughters, all components together are estimated to have increased the maternal education gap in bachelor's degree attainment by 7.0 percentage points across cohorts—15% of the initial gap observed in 1979. This result for daughters is substantively large, but it relies on a coefficient that is not statistically significant at the 5% level. This contrast in results between sons and daughters is primarily produced by component (5e). This component depends, first, on the average prevalence of nontraditional families across groups and cohorts, which differs little between sons and daughters (Table 4). Second, the component depends on how the differences between children with lower educated mothers and those with higher educated mothers in the effects of growing up in a nontraditional family changed across cohorts. The detailed overview of the terms underlying the decomposition shows that the main gender difference lies in how penalties (β_s) changed depending on maternal education (and specifically for children who lived with a single parent or a single parent and stepparent). In the Discussion section, we review possible explanations for these distinct trends in penalties between sons, daughters, and socioeconomic groups.

Endogeneity

Would our conclusions change if we could account for endogeneity? Associations of childhood family structure with educational outcomes have been found to overestimate actual causal effects (McLanahan et al. 2013). Many of the events marking the transition into nontraditional family structures, such as separation or childbearing outside of a union, are driven by disadvantageous circumstances or related to factors such as conflict, stress, or a lack of resources (Edin and Kafalas 2005; Lyngstad and Jalovaara 2010). It is therefore unlikely that selection into nontraditional families is positive and that the average penalties in our analysis underestimate actual causal effects. Selection

would particularly affect component (5c) regarding the differential change in the prevalence of childhood family structure across cohorts, which depends on the average associations of childhood family structure with college attainment. Therefore, estimates for this component should be regarded as upper-bound estimates. If the actual importance of this component is below these upper bounds, the overall conclusion for daughters would weaken but the conclusion would be strengthened for sons.

We can be relatively confident that endogeneity is not driving the results for changes over time in how penalties differ according to maternal education, component (5e), which is the component most relevant for our conclusions. Maternal education differences in penalties were similar for sons and daughters in the 1979 cohort but changed in opposite directions across cohorts (see Table 3). Gender differences in effects (and trends therein) are complicated to explain based on endogeneity because sons and daughters generally share the same families. In an additional analysis, we estimate sibling fixed-effects models that account for time-constant unobserved family characteristics. We discuss the details and results of this analysis in the online Appendix C. Even though sibling fixed-effects models must be interpreted with caution (Sigle-Rushton et al. 2014), the pattern of socioeconomic heterogeneity in penalties among brothers and sisters is in line with the results of Figure 3 based on the complete sample: childhood family structure mattered more for the college attainment of daughters with higher educated mothers than for that of their brothers in the 1979 cohort. However, childhood family structure mattered more for sons with higher educated mothers than for their sisters in the 1997 cohort.

Robustness Checks

Table 3 also summarizes the results for alternative outcomes. The results for daughters using other measures of educational attainment are similar to our main results. For sons, the equalizing role of family structures is not visible for high school completion and years of education across cohorts, primarily because differences in the effects of family structure between maternal education groups did not increase much over time for these educational outcomes, particularly for high school completion.

Table D1 in the online appendix presents results for different subsamples. The main deviation from our main results is observed for Hispanic daughters, for whom we find an equalizing influence of family structure changes. Note, however, that cell sizes are small for some of the subsamples studied (with a minimum cell size of 45 cases) and that the results are not statistically significant. These results primarily serve as an illustration that family structure might play a different role depending on race and ethnicity (Cross 2020). Future research using larger samples is required.

Results reported in the online Appendix D show that our main results are robust to using (1) absolute instead of relative levels of maternal education, (2) multiple imputations of missing information, (3) fathers' education instead of mothers' education (while also using multiple imputations), and (4) limiting the analysis to respondents living with their biological mother (even though results for daughters become slightly weaker).

Finally, we address a possible concern that our observation window does not cover the complete period in which important changes in family structures took place. Even though this counterfactual situation does not fit any concrete historical period cor-

rectly, we simulate a scenario in which everybody grew up in a two-biological-parent family. Similar to our main results, these simulations (online Appendix E) indicate that family structure accounts for 3 percentage points of the maternal education gap in bachelor's degree attainment for daughters (5% of the observed gap in 1997) but that the gap for sons would be 8 percentage points greater if everyone grew up in two-biological-parent families (15% of the observed gap in 1997).

Discussion

About 15 years ago, Sara McLanahan (2004) formulated the diverging destinies thesis, according to which trends related to the second demographic transition intensified social-class disparities in family resources. Given that the first generations of children whose families experienced these changes have come of age, we asked to what extent changes in childhood family structures translated into increased socioeconomic background inequalities in final educational attainment for sons and daughters. We used data from the NLSY to compare a cohort that grew up primarily in two-parent families with a cohort in which half of the respondents lived in a nontraditional family at age 17. We performed an extended Oaxaca–Blinder decomposition analysis based on the distinction between the prevalence of family structures and penalties related to growing up in a nontraditional family. The results revealed that changes in family structure across cohorts indeed increased maternal education differences in bachelor's degree attainment by 15% for daughters (although the difference is only marginally statistically significant, requiring confirmation from future research), but *reduced* inequalities in bachelor's degree attainment by 13% for sons. Hence, we argue that the validity of the argument that changing family structures contributed to diverging destinies varies by gender and is not valid for sons during the period studied.

The results of this study support neither the general narrative that family structure changes have intensified socioeconomic inequality of opportunity nor earlier findings that the influence of these changes is small to negligible (Alamillo 2016; Bernardi and Boertien 2017; Duncan et al. 2017). These differences in conclusions can be attributed primarily to the lack of attention to heterogeneous effects by socioeconomic background (Duncan et al. 2017) and gender (Alamillo 2016; Bernardi and Boertien 2017) in earlier research (see Cooper and Pugh 2020 for a similar argument).[5] How did including these considerations lead to conclusions that differ from those of earlier research?

Our key finding is that the effects of growing up in a nontraditional family changed very differently across cohorts for sons and daughters. Sons from higher educated backgrounds experienced the greatest increases in penalties related to having lived in a nontraditional family, which narrowed the gap in college attainment between sons with lower educated mothers and those with higher educated mothers. This observation can be aligned with previous research suggesting that individuals from advantaged backgrounds have more to lose from living in a nontraditional family (Biblarz and Raftery 1999; Bloome 2017; Martin 2012). The transmission of human capital

[5] As shown in Table D2 in the online appendix, we find no contribution of changes in family structures to parental educational attainment gaps once we pool the samples of sons and daughters.

from parents to children is more complicated for parents not residing with their children in the same household (Coleman 1988). If time-intensive parenting strategies have become more important for educational outcomes across cohorts (Kalil et al. 2012; Lareau 2002), obstacles to intensive parenting (e.g., being the only coresident parent) will have increasingly larger effects on outcomes. A similar argument can be made for the transmission of advantage through economic pathways. If college attainment increasingly depends on parents' economic resources (Duncan et al. 2017; Pfeffer 2018; Schneider et al. 2018), events that reduce parental income and wealth (e.g., parental separation) might have become increasingly consequential across cohorts (Bernardi and Boertien 2016).

However, sons and daughters grow up in the same households. If sons from higher socioeconomic backgrounds have increasingly more to lose from not coresiding with both parents than sons from lower socioeconomic backgrounds, why did we not observe the same for daughters? Earlier research has documented that sons' educational outcomes depend more on the academic environment at school and at home than daughters' outcomes (Autor et al. 2019; Brenøe and Lundberg 2018; Buchmann and DiPrete 2006; Chetty et al. 2016; Legewie and DiPrete 2012) and that the importance of fathers' education for sons' outcomes has increased over time (Buchmann and DiPrete 2006). A possible explanation for this greater importance of school and home environments refers to the construction of gender identities in adolescence, with larger variation in how important academic achievement is for masculine identities than for feminine identities (DiPrete and Buchmann 2013; Legewie and DiPrete 2012). More specifically, anti-school attitudes and behaviors are part of some conceptions of masculine identity, but this is less true for femininity. Hence, socioeconomically advantaged sons might have the most to lose from not coresiding with one of their parents because they are relatively less sheltered from the risk of developing anti-school attitudes.

At the same time, the effects of family structure increased considerably across cohorts for daughters with lower educated mothers too. This trend is largely responsible for the possible contribution of family structure to the diverging destinies observed for daughters. Hence, the complete story is more complex than suggested by the existing theoretical explanations that focus mainly on sons' attainments. If childhood family structure weakens the intergenerational transmission of educational advantage for sons because of its relationship with parental resources, the mechanisms through which educational advantage is transmitted from parents to daughters remain unclear. Future research can further investigate the mechanisms underlying these results. Overall, this study underlines that more attention should be directed at why there is heterogeneity in effects, rather than maintaining a sole focus on the prevalence of family structure types (see also Williams and Baker 2021).

Our results also speak to the debate on the gender reversal in educational attainment. The argument that changes in family structures can explain the reversal in the gender gap (Bertrand and Pan 2013; DiPrete and Buchmann 2013) has been challenged by a recent study. Lundberg (2017) used Add Health data to look at the educational attainment of respondents born between 1976 and 1984. The findings showed that the effects of family structure on educational attainment do not differ by gender, a result we also observed when not interacting gender with parental education (see Table E2 in the online appendix). Our analysis shows that rather than changes in the prevalence of family structures, it is the changes in the penalty of growing up in a

nontraditional family that contribute to increased gender differences in educational attainment. We leave the question of how much of the gender gap reversal can be explained by changing effects of childhood family structures to future research.

Limitations

Our analysis has two major limitations. First, our findings are limited to educational attainment. Studying other outcomes, such as income or occupation attainment, could provide a more complete picture of the role of family structure in the reproduction of inequality. Second, data limitations prevented us from taking into account more complex family structure trajectories, as well as the number of family transitions experienced during childhood. The latter factor has received increasing attention in the literature (Cavanagh and Fomby 2019). Children from the 1997 cohort who lived in a nontraditional family at age 17 are more likely to have experienced several family structure transitions than children from the 1979 cohort who lived in a nontraditional family (Brown et al. 2016). This difference might explain why the penalty related to having lived in a nontraditional family generally increased across cohorts. However, the number of family transitions increased especially among children from lower socioeconomic backgrounds (Brown et al. 2016), whereas increases in effect sizes were most pronounced for socioeconomically advantaged sons. Furthermore, an analysis looking at more complex family structure trajectories for the 1979 cohort (see the online Appendix A) did not show larger penalties related to trajectories involving at least two transitions than to trajectories with at most one transition. Nonetheless, future research looking at more detailed family structure types could be fruitful. An additional analysis separating the role of single-parent families, stepparent families, and other nontraditional families shows that changes in effect sizes related to single-parent families are primarily responsible for results for sons, whereas the importance of the various nontraditional family types is more equal for daughters (see Table D3 of the online appendix).

Conclusion

The results of this paper are difficult to align with a general argument that changes in family structure have increased socioeconomic background inequality in college attainment. Our results for sons are in line with Coleman's (1988) argument that nontraditional family structures pose challenges to the transmission of advantage from parents to children and are effectively an equalizer (for a similar argument on the general effects of family structure on income mobility, see Bloome 2017). Conversely, for daughters, we found that changes in family structures contributed to diverging destinies, largely because the importance of family structure for college attainment increased across cohorts for daughters with lower educated mothers. Hence, the results of this article emphasize that how different social groups (in our case, defined by gender and SES) are affected by events and situations is equally important for understanding inequality of opportunity as understanding why the prevalence of such events and situations is socioeconomically stratified. ■

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