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Parents Who Left College and Children's Postsecondary Educational Attainment

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Abstract

More than one in five US adolescents resides in a household where neither parent holds a postsecondary degree but at least one parent spent some time in college. We consider how a distinctive combination of cultural and economic resources in college leaver families enables or constrains young adults' educational pathways. Greater resources in college leaver families explains about half of the advantage in any college enrollment and four-year college enrollment for young adults in these families compared to those from families where neither parent attended college. But this resource advantage is relatively small compared to families where either parent holds at least a Bachelor's degree, and given any enrollment, children from college leaver families are no more likely to finish college than are their peers whose parents never attended. Results are robust to various specifications of parents' college leaver status. Data are from the Panel Study of Income Dynamics Child Development Supplement and Transition into Adulthood Supplement (N=2,334).

Keywords

educational attainment; family resources; intergenerational inequality

Sixteen percent of working-age adults in the United States have attended college but left without completing an Associate's or Bachelor's degree (Ryan and Bauman 2016). Children raised in families where at least one parent was a college leaver occupy a distinctive and potentially precarious position with regard to the family resources they may draw upon as they chart their own educational pathways. On the one hand, economic resources in college leaver families typically exceed those of families where neither parent has attended college and are comparable to families where at least one parent has earned an Associate's degree (Isaacs et al. 2012; Julian and Kominski 2011). Further, parents who attended some college can provide effective first-hand knowledge about how to select, apply to, and enroll in postsecondary institutions (Lareau and Cox 2011), and they may draw upon their own curtailed educational experiences to motivate their children's persistence. On the other hand, to the extent that parents who left college without a degree perceive few gains to their own

postsecondary educational attainment, they may be less inclined to invest in and motivate their children's postsecondary education compared to peers who never attended or who attended and completed at least a two-year degree program (Braxton and Hirschy 2005; Tinto 1986). An assessment of how these countervailing factors relate to the educational pathways of children of college leavers can inform the development of targeted strategies to increase their rates of college enrollment, retention, and completion.

We explicate the postsecondary educational trajectories of young adults whose parents left college without completing a two-year or four-year degree, focusing on three stages of postsecondary educational attainment: on-time college enrollment; enrollment in a two-year vs. four-year institution; and Bachelor's degree attainment by age 24. We document the distinctiveness or similarity of this group in comparison to peers whose parents had no postsecondary education and those whose parents completed an Associate's degree, Bachelor's degree, or more. We investigate two ways in which parents' college leaver status is expected to shape children's educational pathways at each juncture: through family economic resources to finance a college education and through the availability of cultural capital to create and enforce expectations about college attendance. We use data from the Panel Study of Income Dynamics and two supplemental studies: The Child Development Supplement (CDS) and the Transition into Adulthood Supplement (TAS). Together, they have followed a nationally-representative sample of US children from childhood in 1997 into contemporary early adulthood.

Background

A substantial body of research demonstrates that children whose parents did not complete college have a lower probability of doing so themselves compared to those whose parents hold a Bachelor's degree or higher. Parents' years of educational attainment measured as a linear variable is consistently positively associated with children's total number of years of schooling (Bowles 1972; Hauser and Featherman 1976) and with the likelihood of their transitioning from one level of schooling to the next (Mare 1981). Research focused on the intergenerational transmission of educational credentials such as a high school diploma or postsecondary degree (de Broucker and Underwood 1998; Lucas 2001) has documented a similar positive relationship. Thus, children of college leavers are expected to be more likely to become college leavers themselves compared to children whose parents have less educational attainment or more. In the contemporary context, then, this group, which constitutes about twenty percent of US adolescents (author estimates from the 2014 American Community Survey, Ruggles et al. 2015), may be disproportionately at risk of bearing the financial and opportunity costs associated with college attendance without receiving the deferred premiums of higher earnings and employment stability that accrue to Bachelor's degree holders.

Given this distinctive position, a focus on students whose parents were college leavers is particularly salient in the context of economic inequality associated with college completion. During the last 40 years, growth in the demand for college-educated workers in the United States has outpaced supply, driving returns to a college education to historically high levels and contributing to a profound rise in economic inequality (Goldin and Katz 2008). To

promote economic growth and reduce inequality, the former Obama administration set the goal of increasing the share of young adults (25–34 years) with a two-year college degree or more to 60 percent by 2020, 20 percentage points higher than the rate reported by the Organization for Economic Cooperation and Development in 2009 (U.S. Department of Education 2011). By 2015, however, the United States was falling short of this objective, with 46.5 percent of young adults in that year holding an Associate's degree or higher, and 36 percent holding at least a Bachelor's degree (Ryan and Bauman 2016). Over that period, the share of recent high school graduates enrolled in two-year or four-year schools and the six-year graduation rate for students at four-year institutions remained roughly constant, suggesting that any further gains in enrollment are likely to be small. Thus, additional gains in educational attainment at the population level will likely require a focus beyond college access to include student retention as well as successful transitions from two-year to four-year colleges.

To understand how parents' college leaver status constrains or expands young adults' educational attainment, we consider two sets of factors that have been hypothesized to mediate the association between parents' and children's educational attainment: family-based economic resources and parents' expressions of cultural capital during childhood. This approach resonates with recent work by Wilbur and Roscigno (2016), who considered how family disadvantage on these dimensions contributes to lower odds of college attendance and completion among students whose parents lacked a four-year college degree. Among first-generation students, we distinguish children of college leavers from those whose parents never attended college to assess whether differences in accumulated family economic and cultural resources contribute to divergent patterns of college enrollment and completion. To the extent that observable family background differences translate to distinctive outcomes, this approach can be used to refine policy, research, and institutional practices to prepare, recruit, and retain a diverse population of students who would be the first in their families to complete college.

Economic resources

Social science and education research has distinguished between the effect of earning an educational credential, such as an Associate's or Bachelor's degree, compared to the effect of an additional year of education on one's own lifetime earnings, asset accumulation, and job security. In the main, this work shows that adults who have some postsecondary education experience a gain in these outcomes compared to peers with only a high school diploma or general education degree (GED), but a premium accrues to those who hold a Bachelor's degree (Isaacs et al. 2012; Julian and Kominski 2011). Further, there is some evidence that the economic gains to degree attainment are strongest among those who are least likely to attend college (Brand and Xie 2010), although support for this relationship has been tempered by the argument that apparent heterogeneous treatment effects may be attributable to variation in selection bias over levels of the propensity to complete college (Breen et al. 2015). Thus, the family economic circumstances of children whose parents have some college may represent a real gain over children whose parents have completed only high school or a General Education Development certificate (GED), but this distinction

is marginal in comparison to the disparity in lifetime earnings between those with a four-year college degree and those without.

Income differentials by parental education are likely to contribute to variation in children's learning opportunities across the early life course. During childhood, there is a clear positive relationship between parental income (Haveman and Wilson 2007; Terenzini et al. 2001) and wealth (Conley 2001; Lovenheim and Reynolds 2012) and academic achievement. At the elementary level, residing in a lower-income household often translates into attendance at poorer performing schools, fewer supplemental educational investments and poorer performance in standardized state testing (Jargowsky 2014; Newman and Chen 2007; Reardon 2011). At the secondary level, poorer performing high schools are less likely than higher performing schools to adequately disseminate information and support for the college and financial aid process (Roderick et al. 2011). Thus, students whose parents are not college graduates are more likely to enter college with inadequate academic preparation than are children of college graduates (ACT and the Council for Opportunity in Education 2013), a circumstance that contributes to lower odds of college enrollment and persistence.

Family income disparities by parental education also contribute to real and perceived challenges to financing children's postsecondary education in less advantaged families, particularly as the rising cost of postsecondary education has outpaced inflation. These challenges may be felt most keenly among young adults from single-parent families, who are less likely to attend college or to receive financial support from a parent for college (Wojtkiewicz and Holtzman 2011), a circumstance largely attributed to persistently lower family income compared to two-parent households (Thomson et al. 1994). Since 2002–03, the cost of postsecondary education has increased 39 percent at public institutions and 27 percent at private institutions after adjusting for inflation (Isaacs et al. 2012; National Center for Education Statistics 2015).³ Despite the disproportionate increase in costs, the majority of financing for tuition and related expenses continues to be borne privately. Approximately 65 percent of the cost of undergraduate tuition and expenses was covered by a combination of parent and student income, savings, and borrowing and by contributions from kin in 2016–17 (Sallie Mae 2017). Thus, while parents who were college leavers may have higher income, savings, and other assets compared to parents who never attended college, families may perceive these resources as inadequate to support an adult child's postsecondary education.

Cultural resources

From the perspective of economic resources, then, parents' educational credentials may be more consequential than parents' time in college for facilitating children's college enrollment and completion. From the perspective of the cultural capital that inheres in families, in contrast, any time parents spent in college may prepare children to enter and complete college themselves if parents' own schooling positively influences whether and how they shape children's learning environment and transmit educational aspirations and expectations to children.

³Over the longer run, increases in financial aid have offset the rising 'sticker price' on college tuition, meaning that net tuition has risen at a slower pace than posted tuition.

We consider cultural resources in the framework established by Annette Lareau and colleagues, who have documented social class variation in parents' self-concept as agents in their children's education and socialization. This class variation is manifested in the distinction between *concerted cultivation*, more frequently carried out by upper-income families with college-educated parents, and *the accomplishment of natural growth*, more frequently observed in working class families where parents have limited or no college experience (Cheadle 2008; Cheadle and Amato 2011; Lareau 2000, 2011; Roksa and Potter 2011). Concerted cultivation is marked by values and behaviors that lead parents to structure and monitor their children's development through frequent parent-child communication, participation in structured activities, and strategic action on a child's behalf to accommodate the child's particular needs and strengths. The accomplishment of natural growth, on the other hand, describes a parenting orientation where children are socialized through engagement with peers that is less frequently mediated by parental intervention or structuring activities (Lareau 2011).

We argue that parents who left college without a degree potentially complicate the implied dichotomy between concerted cultivation and the accomplishment of natural growth as a mechanism to explain children's educational attainment (also see Hamilton 2016). Where parents lack any postsecondary education, their own uncertainty about the college search process and about the real cost of tuition given family financial circumstances may constrain children's planning for college net of their own academic preparation (Lareau and Cox 2011). In contrast, parents who are college leavers have navigated their own primary and secondary education with sufficient skill and aptitude to transition to college, and they possess firsthand knowledge about the structure and normative expectations college students encounter with regard to academic achievement, social integration, and accountability. This experience may help college leaver parents and their children to engage in more purposeful college search processes (Hossler et al. 1999; McDonough 1997), to apply to more competitive colleges (Bowen et al. 2009; Hoxby and Avery 2012; Radford 2013), and to better estimate the costs of college attendance (Grodsky and Jones 2007) compared to peers whose parents had no prior exposure to college.

Thus, parents who attended college at all may be equally well-equipped compared to their peers who completed a degree to orient their children toward college attendance and to support their persistence (Lareau and Cox 2011; Hamilton 2016). Further, they may hold particularly strong aspirations for their children's educational attainment if their own departure from college arose from unplanned circumstances such as illness or an economic shock, or if they perceive their children's college completion as a means to redress their own foreshortened schooling trajectories (Rondini 2016). Conversely, if parents left college in part because they were not able to accumulate the strategic knowledge to negotiate their own educational trajectories, they might be less well-equipped to facilitate their children's college planning or less motivated to encourage their children's college attendance compared both to their peers who completed college and those who were never exposed to college (Braxton and Hirschy 2005; Tinto 1986; Deil-Amen and Rosenbaum 2003). Over time, support for children's college attendance may evolve as parents reflect upon how their own life course pathways have been enhanced or constrained by college-leaving (Rondini 2016). Further, college leaver parents' social location in adulthood with regard to family

structure, race, ethnicity, nativity, and other axes of identity may complicate their perspective on whether children's meaningful upward social mobility is achievable (e.g., Hochschild 1995) and expected (Kao and Tienda 1998; Feliciano 2006; Goyette and Xie 1999). For example, many newcomers to the U.S. hold conflicting views about their children's full incorporation into American society and their ability to move up the socioeconomic ladder. While they are optimistic about the potential for their children to succeed academically, they are skeptical or ambivalent about their prospects for assimilating into American mainstream culture, which is considered to be an important prerequisite for upward social mobility (Louie 2012; Portes and Zhou 1993). Hence, college leaver parents' aspirations and other family cultural resources may have a distinctive impact on children's postsecondary educational attainment depending on other salient dimensions of identity.

We identify resources that align with two forms of cultural capital that are hypothesized to be convertible into educational qualifications (Bourdieu 1986): embodied and objectified cultural capital. Embodied cultural capital includes attributes that are learned and internalized through direct experience and that become habits of mind and body. We view parents' embodied capital as represented by values about childrearing and learning, aspirations and expectations for children's educational attainment, and parent-child interaction around schooling and education. Together, these characteristics capture the multiple domains of parental involvement in children's learning that current scholarship suggests are predictive of academic achievement (Domina 2005; Hoge et al. 1997; Robinson and Harris 2014; Roksa and Potter 2011; Jeynes 2005). We anticipate that greater involvement will be associated with higher levels of educational attainment for young adults, with this involvement being influenced by family structure. Young adults raised by both parents in the home typically benefit from increased participation in their schooling and greater access to parental resources that facilitate positive educational outcomes (Jeynes 2005). Objectified capital includes material used to acquire embodied capital or to cultivate a perceived sense of competence or expertise, such as books, musical instruments, and games (Bradley et al. 2001a; Bradley et al. 2001b). We expect that greater access to these resources will also be positively predictive of young adults' educational attainment.

Parents' Associate's degree attainment

Within the framework elaborated above, we highlight the comparison to families where at least one parent earned an Associate's degree, a group that may provide the nearest counterfactual for considering how parents' college leaver status shapes children's educational pathways. Parents who are college leavers have earned income on par with those who hold an Associate's degree (Isaacs et al. 2012; Julian and Kominski 2011) and share a history of exposure to postsecondary institutions. Given these commonalities, their children may be expected to experience similar postsecondary educational outcomes. However, parents who hold an Associate's degree diverge from college leavers in at least two ways that may be consequential for children's educational pathways. First, parents who earned an Associate's degree may be distinguished from college leavers on pre-existing characteristics that motivated their degree completion and that they have transmitted to their children through genetic or environmental means. Thus, even after accounting for parents' observable characteristics, children whose parents hold an Associate's degree may be more likely to

enter and remain in college compared to children whose parents are college leavers. Second, to the extent that parents perceive that the labor market is responsive to an Associate's degree as a credential for employment, children whose parents hold an Associate's degree may perceive gains to college completion that are not apparent to children of college leavers, and thus may have internalized higher educational aspirations for themselves.

Pathways to four-year college completion

Graduation from a four-year college or university depends on a sequence of transitions and events, including secondary school completion (either by earning a diploma or a GED), initial enrollment in any type of postsecondary institution, including two-year or four-year degree-granting institutions; eventual enrollment in a four-year institution; and completion as indicated by Bachelor's degree attainment. We focus on three events. The first is on-time college enrollment among those who earned a high school diploma or GED, defined as enrolling in a two-year or four-year college institution within six months of earning a high school diploma or completing a GED. We focus on on-time enrollment because it is predictive of eventual four-year college completion (Bozick and DeLuca 2005) and because the age variability in our sample would otherwise complicate an analysis of ever being enrolled. Conditional on any enrollment, we consider whether a student ever enrolled at a four-year vs. a two-year institution and whether a student graduated with at least a Bachelor's degree by age 24. The sample for the latter two outcomes includes all students who ever enrolled, regardless of on-time status. Results were similar when we restricted these analyses only to those who began college on time.

We consider the distinction between attendance at two-year and four-year institutions because while two-year institutions provide crucial access to higher education for economically and academically disadvantaged students (Alfonso 2006; Cohen and Brawer 2003; Ma and Baum 2016; Rouse 1995), research largely suggests a negative effect of ever attending a community college on bachelor's degree attainment (Ganderton and Santos 1995; Pascarella et al. 2005; Wang 2009). Unadjusted differences based on the 1992 high school class of the National Education Longitudinal Study (NELS) indicate that only 20 percent of students who enrolled at a community college earned a bachelor's degree in eight years (Alfonso 2006). On the other hand, 71 percent of those who enrolled in a four-year college attained a bachelor's degree during the same time period. Even when controlling for variables such as non-traditional enrollment pathways, educational expectations, and self-selection, two-year college attendance significantly reduces the probability of attaining a bachelor's degree, as compared to attendance at four-year institutions (Alfonso 2006; Christie and Huteson 2003; Rouse 1995; Whitaker and Pascarella 1994). Thus, students seeking a Bachelor's degree who enroll in two-year institutions continue to be at a disadvantage in reaching their education goals compared to those who enter a four-year college or university directly (Pascarella et al. 2005).

Data and Method

We use data from The Panel Study of Income Dynamics (PSID) and two of its supplemental studies, the Child Development Supplement (CDS) and the Transition into Adulthood

Supplement (TAS). PSID began in 1968 as a nationally-representative sample of approximately 4,800 households. Original respondents and their descendants have been followed annually until 1997 and biennially since then. To maintain population representativeness, a sample refresher in 1997 added approximately 500 households headed by immigrants who had entered the United States since 1968. At each wave, the household head or the spouse or cohabiting partner of the head reports on family household composition, employment, earned and unearned income, assets, debt, educational attainment, expenditures, housing characteristics, and health and health care in the household. In 2015, the study collected information on almost 25,000 individuals in approximately 9,000 households.

Beginning in 1997, the PSID Child Development Supplement (CDS) collected information on up to two children aged 0 to 12 years per household through interviews with primary and secondary caregivers and with older children and through assessments and interviewer observations. Children and their caregivers were re-interviewed in 2002 and 2007, or until children reached age 18. Beginning in 2005, the Transition to Adulthood Supplement (TAS) absorbed children from the original CDS cohort when they reached age 18 or left high school and has continued to follow respondents biennially as they have completed their school, entered the labor force, and formed families. In 2013, TAS respondents were between 18 and 27 years old. Our analytic sample includes children who responded to at least one wave of the Transition to Adulthood Supplement between 2005 and 2013 and who provided information on their educational status and attainment (N=2,334). This includes approximately 79 percent of the age-eligible original CDS sample. Young adults who were not observed at least once in TAS were younger on average, more often non-white, and from families with lower household income at birth. Weighted statistics are representative of young adults born between 1985 and 1997 who were residing in the United States in 1997.

Dependent variables

TAS respondents reported at each wave whether they began to attend any college within six months of high school graduation/GED receipt, whether they were attending or had attended a two-year or four-year college, and whether and when they earned a degree from a two-year or four-year institution. We use respondents' most recent reports on these indicators to create the three outcome measures described above: whether a young adult enrolled in college on-time; whether a student ever attended a four-year college, given any college enrollment (vs. a two-year community college only); and whether a student earned a Bachelor's degree by age 24 given any enrollment. All analyses were restricted to young adults who had finished high school or earned a GED.⁴

Parents' college leaver status

The primary independent variable is parental educational attainment. We used the highest level of completed schooling achieved by either parent. Where the parent was ever a household head or the spouse or partner of the head (92 percent of children), we used

⁴By definition, the sample for the analysis of Bachelor's degree completion included only young adults who were observed at age 24 or older. In supplementary analyses (results not shown), we estimated the odds of college entry and attending a four-year institution only for young adults 24 and older. Results were substantively similar to those presented here.

information about their completed years of schooling and highest degree earned at the time they became the head or spouse/partner in the household. Educational attainment for the household head and spouse/partner was treated as time-invariant until 2009, when updated information on their educational attainment was collected. While our preference would be to use that updated measure, we do not have observations for the parents of all children in our sample at the 2009 PSID main interview. For other adults living in a household, educational attainment was updated at each wave. In such cases, we use reported educational attainment when a child was 15 or 16 years old. We obtained similar results when we used parents' educational attainment at birth for this small subset of cases. There is no report of whether a parent who has never been a household head or spouse/partner holds an Associate's degree. A small number of such cases (fewer than 10) had 14 or 15 years of completed education. We code these parents as having completed some college rather than having earned an Associate's degree, which may be erroneous in some cases. Where a child resided with only one parent in adolescence and the other parent's educational attainment was never recorded, we used the known educational attainment of the coresident parent.

The measure of parents' highest level of educational attainment includes four categories: no college attendance (parents who completed less than high school or who earned a high school diploma or GED certificate); some college with no degree (college leavers); Associate's degree; and Bachelor's degree or higher. The distribution of parents' highest educational attainment is shown in Table 1. Results were similar when the categories that were collapsed here were considered separately.

Explanatory variables

We consider whether parents' college leaver status is associated with distinctive patterns in children's on-time college enrollment, four-year college attendance, and four-year college completion by age 24. We then ask whether any distinctive patterns can be explained by accounting for family resources. Family economic resources are measured by the family's income-to-needs ratio at a child's birth and in adolescence (age 15 or 16 years) and by whether the household head owned the home in which the child resided during adolescence. The income-to-needs ratio divides reported household income for the preceding calendar year by the poverty threshold adjusted for family size in that year. Income-to-needs at birth represents economic resources available to facilitate children's early learning, while income-to-needs in adolescence represents immediate constraints on a family's capacity to pay for children's postsecondary education. Home ownership is contrasted with either renting or neither owning nor renting. Accounting for the value of other household assets did not improve the explanatory power of our multivariate models or attenuate associations of interest.

We included five measures to account for cultural resources. First, we constructed an index of parental involvement in children's schooling constructed from the earliest response a child's primary caregiver provided to eight items in the CDS interview, typically when children were between 6 and 12 years old. These items included how often the primary caregiver talked with the child about activities and events at school of interest to the child, topics studied in class, and experiences at school (ranging from never=1 to regularly=4); and

how often the primary caregiver volunteered at the school, had an informal conversation with the child's teacher or school principal, attended an event like a concert at the school, and attended a PTA or other school organizational meeting (ranging from never in this school year=1 to more than once =3). Response options varied between waves for these items. Responses from later waves were recoded to correspond to the coding scheme provided at wave 1. We summed responses to the eight items, yielding a scale ranging from 0 (no parental involvement in schooling) to 16 (regular discussions about school with the child and frequent involvement in school activities).

To measure material and interactional expressions of cultural capital at home, we used the constructed scale produced by the Panel Study for Income Dynamics from items included in the Home Observation for Measurement of the Environment-Short Form (HOME-SF) (Bradley et al. 2001b; Bradley et al. 2001a) at the first wave of CDS. The HOME-SF measures cognitive stimulation and emotional support parents provide to children as reported by the primary caregiver and observed by the interviewer during the in-home visit. Question wording varied depending on child age, but content broadly measured parent-child interaction style and shared activities; parents' style of discipline; access to books, periodicals, and educational material in the home; and parents' expectations for children's self-care (Panel Study of Income Dynamics 2010). Scores on the scale ranged from 0 to 17 with a higher score indicating greater cognitive stimulation and emotional support.

Three indicators measured educational aspirations for children. First, the primary caregiver reported on how much schooling she or he would like the focal child to complete, ranging from less than high school to completion of a doctoral program. We collapsed these response options into a dichotomous variable coded 1 if the caregiver wanted the child to finish a four-year college or more and 0 otherwise. Second, caregivers also reported on how much education they *expected* children to complete. We included an indicator of whether parental *expectations* were lower than the caregiver's educational *aspirations* for the child. Primary caregivers reported on educational aspirations and expectations for children who were at least 10 years old beginning at the second wave of CDS. We use the earliest available report. Third, we used the earliest available report of children's own educational aspirations, first collected when children were 12 years or older.

Control variables

We considered the association of family economic and cultural resources net of three indicators of the focal child's cognitive and academic achievement and educational aspirations. The Letter-Word and Applied Problems components from the WJ-R Tests of Achievement were administered to children 3 years and older at each wave of CDS; we used age-standardized scores from the earliest administration. In adolescence, respondents reported their high school grade point average (GPA). Because the scale for GPAs varied across schools, we converted each student's GPA relative to the maximum GPA in his or her school and constructed an indicator of whether a student's GPA was in the bottom quartile or top quartile compared to falling within the second and third quartiles. We also included an indicator of whether a respondent did not know or could not recall his or her GPA because

we expected this would be associated with lower odds of eventual college attendance and completion.

Parents' individual attributes such as cognitive, personality, and socioemotional characteristics also likely contribute to their own and their children's educational, occupational, and income trajectories (Heckman and Kautz 2012 ; Heckman 2008). We expect that parents who accumulated at least some postsecondary education will have greater personal resources compared to parents who finished only high school or left high school without graduating, and these resources might have been present even before their own college entry. Further, we expect that in combination, at least part of the association of resources and parents' personal attributes with children's educational attainment will operate indirectly through their shared association with indicators of children's early academic achievement and orientation toward attending college. Therefore, in baseline and full models, we accounted for four indicators of the primary caregiver's cognitive and noncognitive resources that are expected to be associated with his or her own educational attainment and that may have been transmitted to children through genetic or environmental means. These included the caregiver's raw score on the Passage Comprehension assessment included in the Woodcock Johnson-Revised (WJ-R) Tests of Achievement that was administered at the first wave of CDS and scores on the Rosenberg self-esteem scale, the Pearlin locus of control scale, and the K-6 non-specific psychological distress scale (Kessler et al. 2003). All models also controlled for child age at the first wave of CDS in 1997, gender, and self-reported race/ethnicity; the number of children in the family at age 15 or 16; whether the parent was single, cohabiting or married and whether the child's parent was the head of the household when the child was 15 or 16 years old; and whether the child's family was initially included in the low-income oversample or in the 1997 immigrant refresher sample versus the sample drawn from the general population in 1968.

All covariates except for demographic characteristics included missing data on at least some observations.⁵ We used multiple imputation with chained equations in Stata 14 to restore cases with missing data and to improve the generalizability of our findings. The imputation model included all dependent and independent variables in our full models as well as family wealth measured in adolescence, a family-level identifier shared by all related individuals in the sample, and stratum and clustering indicators. Our multivariate regressions used multiply imputed datasets where covariates include imputed values but dependent variables are not imputed (von Hippel 2007).

Analytic strategy

We used logistic regression to examine the relationship between parents' educational attainment and children's college experience. Baseline models estimated separately the odds of on-time college enrollment, attendance at a four-year vs. two-year institution, and four-year college degree completion by age 24 conditioning only on a vector of parent education dummies and the control variables described above. Full models incorporated indicators of

⁵The highest volumes of missing data occurred on the following variables: child's own educational aspirations (29.2% missing); the primary caregiver's performance on the WJ-R passage comprehension test (23.1%); caregiver's educational aspirations for the child (15.1%); child Woodcock-Johnson scores (9.8%); and high school GPA (7.7%).

family economic and cultural resources and indicators of students' early academic and cognitive achievement. To interpret the mediating effect of the economic and cultural resources included in the full models, we used the Karlson, Hohm and Breen (KHB) method for decomposing total effects (Kohler et al. 2011). This approach summarizes the percentage change in the estimated magnitude of key associations of interest (in this case, parental educational attainment) after taking hypothesized mediators into account.

All estimates include robust standard errors and were weighted using the probability weight provided in the wave of the Transition into Adulthood Supplement from which an individual respondent's values on the dependent variables were drawn to account for the study's complex sampling design and for attrition. We note that the analytic sample included 321 sibling pairs, and observations between siblings are non-independent. We ran all models clustering on family unit identifiers rather than on the indicators of PSID's multistage sampling design and obtained similar results.

Results

Descriptive statistics

Table 1 describes the distribution of our dependent and independent variables by parents' highest level of education. Asterisks represent group differences compared to the college leaver category that are statistically significant at $p < .05$. About 30 percent of young adults in our sample had at least one parent who was a college leaver; that is, at least one parent spent some time in college, but neither parent finished a postsecondary degree.⁶ As expected, children's educational attainment generally increased as parental education increased, but youth whose parents had some college more closely resembled their peers whose parents had less education where type of institution and degree completion are considered. Considering the proportion of students who enrolled in any college on time (within six months of high school completion), youth whose parents were college leavers (51.3 percent) fall nearly halfway between those whose parents have no college education (37.7 percent) and those where at least one parent has at least a Bachelor's degree (71.4 percent). Conditional on any college attendance, the subsequent educational trajectories of youth whose parents attend some college hew more toward their peers whose parents never attended college. About 72 percent of students whose parents were college leavers ever enrolled in a four-year institution (vs. a two-year institution), a statistically significant difference of approximately 10 percentage points compared to youth whose parents never attended college (62 percent) but almost 20 percentage points lower compared to youth whose parents held a Bachelor's degree (90 percent). By age 24, 21 percent of students whose parents left college had completed college themselves, a figure that is statistically equivalent to that for young adults whose parents never attended college (18.2 percent) and

⁶In comparison, using the 2014 American Community Survey, we found that approximately 22 percent of youth 16 to 18 years old had parents with the same level of educational attainment. We note two differences between our analytic sample and these contemporary estimates. First, the young adults in our sample were born a decade earlier than contemporary adolescents. This discrepancy may reflect rising college graduation rates among parents of youth born into these different cohorts. Second, PSID does not include families headed by immigrants who entered the United States since 1997. To the extent that the educational attainment of recent immigrants is characterized by a bimodal distribution, such families may be clustered at the bottom and top of the educational attainment spectrum, leaving a smaller share of contemporary families in the college leaver category.

far less than that for youth whose parent(s) finished a Bachelor's degree (55.1 percent). Across outcomes, youth whose parents attended some college without earning a degree and those whose parents earned an Associate's degree were statistically equivalent. In sum, descriptive results suggest that children whose parents left college without a degree have a strong likelihood of doing the same; they are more likely than peers whose parents never attended college to pursue some postsecondary education, but no more likely to finish.

Compared to youth whose parents spent no time in college, those whose parents left college were more advantaged on indicators of family economic resources at birth and in adolescence. In addition, these families more often expected children to complete college and parents reported higher levels of school involvement and resources in the home that are expected to promote learning, a pattern consistent with the expectation that cultural resources in college leaver families fall in a middle ground position between the theorized poles of concerted cultivation and accomplishment of natural growth. College leaver families had similar economic profiles to families where at least one parent held an Associate's degree but less frequent college aspirations for children and lower parent involvement. Group differences were small compared to the magnitude of difference in the comparison to youth whose parents completed a Bachelor's degree. Overall, compared to children whose parents did not attend college, those whose parents did attend have a consistent but relatively small advantage on economic and cultural resources that are expected to be predictive of postsecondary educational trajectories.

Multivariate results

Table 2 displays the results from weighted logistic regressions predicting the three student outcomes: on-time college enrollment, institution type, and college completion. For each outcome, the first column summarizes odds ratios and t-statistics estimated from a baseline model that included indicators of parental education and the sociodemographic and personal characteristics of a child's primary caregiver. The second column summarizes results from models that incorporated family economic and cultural resources and children's academic preparation. Parents who were college leavers serve as the reference category for assessing the association of parents' educational attainment with children's educational trajectories.

The baseline model for each outcome demonstrates that group differences in children's college experience by parental education persist after taking sociodemographic characteristics into account. Youth whose parents were college leavers were significantly more likely to begin any college compared to youth whose parents had less education, but were also less likely to begin compared to those whose parents had a Bachelor's degree or more. They were about as likely to begin as those whose parent held an Associate's degree. Among students who began college, the baseline model shows a similar pattern in predicting whether a student enrolled in a four-year vs. two-year institution. Among young adults age 24 and older who ever attended a postsecondary institution, those whose parents had some college were statistically similar to youth whose parents had less education or who had an Associate's degree in their likelihood of finishing college, while the odds of college completion were 3.3 times higher among youth whose parents had a Bachelor's degree or higher.

The full models describe the association between parental education and children's college experience after taking family economic and cultural resources into account. As in the baseline model, youth whose parents had some college were more likely than their peers whose parents had less education to enroll in any institution. Family economic resources were powerfully predictive of college trajectories: Income-to-needs at birth positively predicted each outcome, and family home ownership in mid-adolescence also predicted college enrollment. Cultural resources were less consistent, but provided some evidence that concerted cultivation practices in childhood carry over to children's postsecondary educational trajectories. Children's own educational aspirations positively predicted on-time enrollment and enrollment in a four-year college or university, but did not predict four-year college completion. Parents' aspirations were not associated with any outcome net of children's aspirations, suggesting that parents' own aspirations operate through their transmission to children's aspirations to shape children's trajectories up to the point of college entry (Sewell et al. 1969). Children's aspirations on their own, however, may be insufficient to enable college completion. Parental involvement during childhood predicted on-time college enrollment. A higher score on the HOME scale – that is, where there was greater availability of learning resources and an emotionally supportive environment in childhood – was predictive of Bachelor's degree completion by age 24.

Table 3 describes the average partial effect of parental educational attainment in the reduced (baseline) and full models estimated using the Karlson, Hohm and Breen (KHB) method for decomposing total effects (Kohler et al. 2011). The average partial effect represents the difference in the predicted probability that a child experienced the outcome event when a parent had a given level of educational attainment compared to having left college without a degree. The percentage change in the average partial effect between the reduced (baseline) and full models indicates the difference in how much of the variance is explained by parental education for each outcome of interest before and after taking family economic and cultural resources into account, controlling for parent and child demographic characteristics and children's academic preparation.

Change in the average partial effects reported from the KHB decomposition show that family economic and cultural resources explained a considerable amount of the variance in the likelihood of on-time college enrollment and enrollment in a four-year institution between youth whose parents were college leavers and those whose parents never attended college, but these two groups had similar odds of Bachelor's degree completion even before taking economic and cultural resources into account. In contrast, cultural and economic factors significantly attenuated group differences between college leavers and those whose parent held a Bachelor's degree or higher on each of the three outcomes. The first panel of Table 3 shows that the reduced model estimated that the probability of on-time college enrollment for a youth whose parents had never attended college was 10.8 percentage points lower than that for a youth whose parents spent some time in college. After taking family resources into account in the full model, the average partial effect was reduced to 5.5 percentage points. Thus, the difference in the size of average partial effects in the reduced and full models indicates that 49 percent of the gap in college enrollment between those whose parents never attended college and those whose parents left college was explained by family resources included in the full model. Family resources explained about 58 percent of

the gap in on-time college enrollment among children of college leavers compared to youth with at least one parent who held a Bachelor's degree. The pattern of attenuation was similar but less pronounced when predicting whether a student enrolled in a four-year as opposed to a two-year institution (Panel 2). The average partial effect for college completion where a parent had no college experience compared to some time in college was statistically nonsignificant (Panel 3). In contrast, for those whose parents had a Bachelor's degree or higher, the probability of completing college by age 24 was 25.4 percentage points higher compared to those whose parents were college leavers in the reduced model and 13.4 percentage points higher in the full model, a difference of 47 percent.

Sensitivity analysis

In the preceding analysis, college leaver status was determined by whether a parent had spent any time in a postsecondary institution without distinguishing the number of years completed or the type of institution attended. This approach may conceal meaningful heterogeneity in the educational trajectories of youth whose parents were college leavers if each additional year of parental education or parents' attendance at a four-year compared to a two-year institution is associated with distinctive educational pathways for children.

We evaluated two alternative approaches to measuring parents' time in college. First, we disaggregated the category of college leavers by the number of years of college completed (1, 2, or 3 years). Those who completed less than one year of college were treated as having completed high school or less. Where parents had completed two or three years of postsecondary education, children were marginally more likely to enter college on-time compared to where parents had completed one year of college. Children whose parents had more than one year of college were no more likely to enter a four-year compared to a two-year institution or to complete a Bachelor's degree by age 24 compared to those whose parents completed one year.

We also considered the type of institution parents attended. The PSID interview obtains the names of postsecondary institutions attended by household heads and spouses/partners, and these responses are coded to the Integrated Postsecondary Education Data System (IPEDS). We merged these codes to the IPEDS database of institutional characteristics and used the indicator of highest degree awarded by the institution to distinguish two-year from four-year undergraduate institutions. We then separated parents who were college leavers into those who ever attended a four-year institution and those who attended a two-year institution only. Approximately 75 percent of parents who were college leavers attended a four-year college. Children whose parents attended a four-year institution were no more likely to enroll in college on-time, to attend a four-year college, or to graduate with a Bachelor's degree by age 24 compared to youth whose parents attended a two-year institution at conventional levels of statistical significance.

Third, we used propensity score matching methods (*teffects psmatch* in Stata 14) to estimate the average treatment effect of a parent's college leaver status by comparing the educational trajectories of children with otherwise similar family and parent histories. Measures in the matching model included college leaver status (treatment), child's race, child's sex, child's age, head's age, sample type, PCG Woodcock-Johnson scores, income-to-needs at birth,

parent's educational aspirations, and whether parent's educational aspirations exceeded their expectations. In a sample balanced on these family background characteristics, those whose parents were college leavers remained marginally more likely to enter college compared to those whose parents had a high school education or less ($p=.055$) but were no more likely to enter or graduate from a four-year institution. These students also remained less likely to graduate from a four-year institution compared to those whose parents held a Bachelor's degree. In sum, the results of our main analysis are largely robust to the sensitivity checks considered here.

Discussion

We asked how family economic and cultural resources contribute to students' distinctive college educational trajectories when parents attended college but left without earning any type of degree compared to families where parents acquired more education or less. This question has both theoretical and practical importance. From a scholarly perspective, parents whose time in college did not culminate in a credential offer a novel position from which to evaluate competing social science theories about why parents' educational attainment matters for children's educational trajectories. Practically, it emphasizes the ambiguous status held by the more than one in five contemporary adolescents whose parents have some college but no degree. While they are not uniformly regarded as first-generation college students in research, policy, and practice (Toutkoushian et al, 2018), these students may experience similar challenges to college completion. We highlight three main findings.

First, students whose parents are college leavers have educational trajectories that set them apart from students whose parents have less education or more. In particular, these students are more likely than peers whose parents never entered college to enroll at a four-year college or university themselves, but they are no more likely to complete a Bachelor's degree six years after high school graduation. Thus, children of college leavers are characterized by a distinctive pairing of opportunity and risk: they have greater access to the premiums that accrue to Bachelor's degree earners through their enrollment in four-year institutions, but their low rates of degree completion by age 24 mean they are also at a heightened risk of leaving college with financial debt and foregone opportunity costs. Certainly, these students may persist or return to complete a Bachelor's degree after age 24, but college completion rates more than six years beyond initial enrollment are low (Ginder et al. 2015), and when we restricted our analysis of college completion to young adults age 26 and older, results were similar to those shown here. Yet children of college leavers are included only inconsistently in programmatic efforts to support college enrollment and retention among underrepresented student populations (Chaney 2010; Chen and Carroll 2005; Saenz et al. 2007). These students and the institutions where they enroll may benefit from targeted strategies to capitalize on the relatively high rates of enrollment among children of college leavers to ensure that they have adequate academic preparation, financial resources, and support from family, peers, staff, and faculty to persist to college completion.

Second, accounting for family economic and cultural resources explained between about half and three-fifths of the difference in the predicted probability of any college enrollment among those whose parents were college leavers compared to those whose parents had less

education or more. Collectively, these resources were about equally effective in explaining the positive association between parents' college completion and a child's own probability of completing a Bachelor's degree by age 24. This pattern suggests that time in college endows parents with cultural and economic resources that are more likely to launch their children's college trajectories compared to children whose parents did not attend college. But once children are in college, these resources are insufficient to ensure their persistence without the premium that accrues to families headed by parents with a Bachelor's degree or more. A direction for future research is to consider whether this pattern is the result of level differences – that is, group differences in the distribution of cultural and economic resources by parental education – or to differences in effect such that parents' resources benefit students differently depending on the social location in which parents are embedded. Even among children of college leavers, parents' social location varies in terms of family income, marital status, race, ethnicity, and nativity, and this variation may carry over to differences in how parents develop, express, and put into practice their views about the viability and merit of college enrollment and completion as a mechanism for children's social mobility (Goyette and Xie 1999; Kao and Tienda 1998; Hochschild 1995; Rondini 2016).

Third, we found that the educational pathways of children of college leavers and those whose parents hold an Associate's degree are similar. To some extent, this conclusion appears to be a straightforward reinforcement of the standard practice in social science research to classify both groups in the common category of having "some college." In that case, we note that it may be prudent to extend college enrollment and retention efforts beyond college leavers to those whose parents already hold a two-year degree. At the same time, college leaver parents are likely distinct from those who hold an Associate's degree in their high level of attendance at four-year colleges and for the varied reasons they might have been diverted out of college, including financial constraints, care to family members, health, and opportunities for employment. Future research within the college leaver population to distinguish years of education, credential attainment, and co-occurring life course events may further isolate the independent effect of these markers on the intergenerational transmission of educational attainment and to develop effective strategies to promote college completion in this diverse population.

We acknowledge some limitations and propose future directions to this project. First, sample sizes are relatively small, particularly among young adults age 24 and older. Nevertheless, we obtained stable estimates of the association between parental educational attainment and each phase of young adults' educational trajectories. It may be the case that young adults' college completion rates will continue to rise as they age. Thus, outcomes measured at age 24 may underestimate rates of eventual college completion among children of college leavers if they enter college late or enroll part-time or discontinuously. We note, however, that nearly 90 percent of young adults in a 2011 cohort of recent college graduates were 25 years of age or younger (Spren 2013). Second, we have not considered the circumstances under which parents left college without a degree. Future work should consider variation in parents' reasons for leaving school that may yield different returns to parents' economic and cultural resources as well as to expectations, strategies, and constraints in parents' efforts to prepare students for college. Third, our accounting of children's academic preparation is not exhaustive, excluding factors such as courses taken in high school or school quality and

aspects of young adults' college experience. Finally, our models included a variety of relevant child, parental, and family-level characteristics as well as a robust set of controls but, as with any observational study, the associations we observe may be spurious to the extent that we have not accounted for common underlying background factors that shape both parents' and children's educational attainment.

Despite these limitations, we have documented that the relatively large share of contemporary young adults whose parents attended college but left without a degree are at risk of repeating this educational trajectory themselves despite being modestly more advantaged on family economic and cultural resources compared to youth whose parents never attended college. Strategies targeted at such students at each stage of their educational careers to encourage their enrollment and persistence in postsecondary institutions may carry substantial payoff for graduation rates in the short-term and for social mobility in the long-run.

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References

- ACT and the Council for Opportunity in Education. 2013 "The Condition of College & Career Readiness 2013: First-Generation Students" Iowa City: ACT.
- Alfonso Mariana. 2006 The impact of community college attendance on baccalaureate attainment. *Research in Higher Education* 47: 8: 873–903.
- Bourdieu Pierre. 1986 "The forms of capital," In Richardson John (ed), *Handbook of theory and research for the sociology of education*: pp. 241–258. New York: Greenwood Press.
- Bowen William G., Chingos Matthew M., and McPherson Michael. 2009 *Crossing the Finish Line* Princeton: Princeton University Press.
- Bowles Samuel. 1972 Schooling and Inequality from Generation to Generation. *The Journal of Political Economy* 803: S219–S251.
- Bozick Robert, and DeLuca Stefanie. 2005 Better Late Than Never? Delayed Enrollment in the High School to College Transition. *Social Forces* 84: 1: 531–554.
- Bradley RH, Corwyn RF, Burchinal M, McAdoo HP, and Coll CG. 2001a The home environments of children in the United States part II: Relations with behavioral development through age thirteen. *Child Development* 72: 6: 1868–1886. [PubMed: 11768150]
- Bradley RH, Corwyn RF, McAdoo HP, and Coll CG. 2001b The home environments of children in the United States part I: Variations by age, ethnicity, and poverty status. *Child Development* 72: 6: 1844–1867. [PubMed: 11768149]
- Brand JE, and Xie Y. 2010 Who Benefits Most from College? Evidence for Negative Selection in Heterogeneous Economic Returns to Higher Education. *American Sociological Review* 75: 2: 273–302. [PubMed: 20454549]
- Braxton John M., and Hirschy Amy S.. 2005 "Theoretical Developments in the Study of College Student Departure," In Seidman Alan (ed), *College Student Retention: Formula for Student Success* Westport, CT: Praeger Publishers.
- Breen Richard, Choi Seongsoo, and Holm Anders. 2015 Heterogeneous Causal Effects and Sample Selection Bias. *Sociological Science* 2: 351–369.

- Chaney Bradford W. 2010 "National Evaluation of Student Support Services: Examination of Student Outcomes After Six Years: Final Report." Washington, DC: Office of Planning, Evaluation, and Policy Development, US Department of Education.
- Cheadle JE 2008 Educational investment, family context, and children's math and reading growth from kindergarten through the third grade. *Sociology of Education* 81: 1: 1–31.
- Cheadle JE, and Amato PR. 2011 A Quantitative Assessment of Lareau's Qualitative Conclusions About Class, Race, and Parenting. *Journal of Family Issues* 32: 5: 679–706.
- Chen Xianglei, and Carroll C. Dennis. 2005 "First-Generation Students in Postsecondary Education: A Look at Their College Transcripts. Postsecondary Education Descriptive Analysis Report. NCES 2005–171" Washington, DC: National Center for Education Statistics.
- Christie Ray L., and Hutcheson Philo. 2003 Net effects of institutional type on baccalaureate degree attainment of "traditional" students. *Community College Review* 31: 2: 1–20.
- Cohen Arthur M., and Brawer Florence B.. 2003 *The American community college*: John Wiley & Sons.
- Conley Dalton. 2001 Capital for College: Parental Assets and Postsecondary Schooling. *Sociology of Education* 74: 1: 59–72.
- de Broucker Paige, and Underwood Kristen. 1998 Intergenerational education mobility: An international comparison with a focus on postsecondary education. *Education Quarterly Review* 5: 2: 30–51.
- Deil-Amen R, and Rosenbaum JE. 2003 The social prerequisites of success: Can college structure reduce the need for social know-how? *Annals of the American Academy of Political and Social Science* 586: 120–143.
- Domina Thurston. 2005 Leveling the Home Advantage: Assessing the Effectiveness of Parental Involvement in Elementary School. *Sociology of Education* 78: 3: 223–249
- Feliciano Cynthia. 2006 Beyond the Family: The Influence of Premigration Group Status on the Educational Expectations of Immigrants' Children. *Sociology of Education* 79: 4: 281–303.
- Ganderton Philip T., and Santos Richard. 1995 Hispanic college attendance and completion: Evidence from the high school and beyond surveys. *Economics of Education Review* 14: 1: 35–46.
- Ginder Scott A., Kelly-Reid Janice E., and Mann Farrah B.. 2015 "Graduation Rates for Selected Cohorts, 2006–11; Student Financial Aid, Academic Year 2013–14; and Admissions in Postsecondary Institutions, Fall 2014: First Look (Provisional Data) (NCES 2015–181)" Washington, DC: U.S. Department of Education.
- Goldin Claudia Dale, and Katz Lawrence F.. 2008 *The race between education and technology* Cambridge, Mass: Belknap Press of Harvard University Press.
- Goyette Kimberly, and Xie Yu. 1999 Educational Expectations of Asian American Youths: Determinants and Ethnic Differences. *Sociology of Education* 72: 1: 22–36.
- Grodsky Eric, and Jones Melanie T.. 2007 Real and Imagined Barriers to College Entry: Perceptions of Cost. *Social Science Research* 36: 745–766.
- Hamilton Laura T. 2016 *Parenting to a Degree: How Family Matters for College Women's Success* Chicago, IL: The University of Chicago Press.
- Hauser Robert, and Featherman David L.. 1976 Equality of Schooling: Trends and Prospects. *Sociology of Education* 49: 2: 99–120.
- Haveman Robert, and Wilson Kathryn. 2007 "Economic Inequality in College Access, Matriculation, and Graduation," In Dickert-Conlin Stacy and Rubenstein Ross (eds), *Economic Inequality and Higher Education: Access, Persistence, and Success*: pp. 17–43. New York: Russell Sage Foundation.
- Heckman James J. 2008 "Schools, Skills, and Synapses" Cambridge, MA: National Bureau for Economic Research.
- Heckman James J., and Kautz Tim D.. 2012 "Hard Evidence on Soft Skills" Cambridge, MA National Bureau of Economic Research.
- Hochschild Jennifer L. 1995 *Facing Up to the American Dream: Race, Class, and the Soul of the Nation* Princeton, NJ: Princeton University Press.

- Hoge Dean R., Smit Edna K., and Crist John T.. 1997 Four Family Process Factors Predicting Academic Achievement in Sixth and Seventh Grade. *Education Research Quarterly*
- Hossler Don, Vesper Nick, and Schmit Jack L.. 1999 *Going to college : how social, economic, and educational factors influence the decisions students make* Baltimore, Md: Johns Hopkins University Press.
- Hoxby Caroline M., and Avery Christopher. 2012 “The Missing “One-Offs”: The Hidden Supply of High-Achieving, Low Income Students” Cambridge, MA: National Bureau for Economic Research.
- Isaacs Julia B., Sawhill Isabel V., and Haskins Ronb. 2012 *Getting Ahead or Losing Ground: Economic Mobility in America* Washington, DC: Brookings Institution.
- Jargowsky Paul A. 2014 “Segregation, Neighborhoods, and Schools,” In Lareau Annette and Goyette Kimberly (eds), *Choosing Homes, Choosing Schools*: pp. 97–136. New York: Russell Sage Foundation.
- Jeynes William H. 2005 Effects of Parental Involvement and Family Structure on the Academic Achievement of Adolescents. *Marriage & Family Review* 37: 3: 99–116.
- Julian Tiffany, and Kominski Robert. 2011 “Education and Synthetic Work-Life Earnings Estimates” Washington, DC: U.S. Census Bureau.
- Kao Grace, and Tienda Marta. 1998 Educational Aspirations of Minority Youth. *American Journal of Education* 106: 3: 349–384.
- Kessler RC, Barker PR, Colpe LJ, and et al. 2003 Screening for serious mental illness in the general population. *Archives of General Psychiatry* 60: 2: 184–189. [PubMed: 12578436]
- Kohler Ulrich, Bernt Karlson Kristian, and Holm Anders. 2011 Comparing coefficients of nested nonlinear probability models. *The Stata Journal* 11: 3: 420–438.
- Lareau Annette. 2000 *Home Advantage: Social Class and Parental Intervention in Elementary Education* Lanham, MD: Rowman and Littlefield.
- Lareau Annette. 2011 *Unequal Childhoods Class, Race, and Family Life*, 2nd Edition. Berkeley: Univ California Press.
- Lareau Annette, and Cox Amanda. 2011 “Social Class and the Transition to Adulthood: Differences in Parents’ Interactions with Institutions,” In Carlson Marcia and England Paula (eds), *Social Class and Changing Families in an Unequal America*: pp. 134–164. Palo Alto, CA: Stanford University Press.
- Louie Vivian (2012). *Keeping the Immigrant Bargain: The Costs and Rewards of Success in America* New York: Russell Sage Foundation.
- Lovenheim Michael F., and Reynolds C. Lockwood. 2012 “The Effect of Housing Wealth on College Choice: Evidence from the Housing Boom,” NBER Working Paper Series
- Lucas SR 2001 Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American Journal of Sociology* 106: 6: 1642–1690.
- Ma Jennifer, and Baum Sandy. 2016 “Trends in Community Colleges: Enrollment, Prices, Student Debt, and Completion” New York: The College Board.
- Mare RD 1981 Change and Stability in Educational Stratification. *American Sociological Review* 46: 1: 72–87.
- McDonough Patricia M. 1997 *Choosing Colleges: How Social Class and Schools Structure Opportunity* Albany: State University of New York Press.
- National Center for Education Statistics. 2015 *Digest of Education Statistics, 2013* (NCES 2015–011) Washington, DC: U.S. Department of Education.
- Newman Katherine, and Tan Chen Victor. 2007 *The Missing Class: Portraits of the Near Poor in America* Boston: Beacon Press.
- Panel Study of Income Dynamics. 2010 “Child Development Supplement User’s Guide for CDS-II” Ann Arbor, MI: Institute for Social Research.
- Pascarella Ernest T., Terenzini Patrick T., and Feldman Kenneth A.. 2005 *How college affects students* Vol. 2: Jossey-Bass San Francisco, CA.
- Portes Alejandro and Zhou Min. 1993 The New Second Generation: Segmented Assimilation and its Variants. *The ANNALS of the American Academy of Political and Social Science* 530:74–96.

- Radford Alexandria Walton. 2013 *Top Student, Top School? How Social Class Shapes Where Valedictorians Go to College* Chicago: University of Chicago Press.
- Reardon Sean. 2011 "The Widening Academic Achievement Gap Between the Rich and the Poor: New Evidence and Possible Explanations" In Duncan Greg J. and Murnane Richard J. (eds), *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances* New York: Russell Sage.
- Robinson Keith, and Harris Angel. 2014 *The Broken Compass: Parental Involvement with Children's Education* Cambridge, MA: Harvard University Press
- Roderick Melissa, Coca Vanessa, and Nagaoka Jenny. 2011 Potholes on the road to college high school effects in shaping urban students' participation in college application, four-year college enrollment, and college match. *Sociology of Education* 84: 3: 178–211.
- Roksa J, and Potter D. 2011 Parenting and Academic Achievement: Intergenerational Transmission of Educational Advantage. *Sociology of Education* 84: 4: 299–321.
- Rondini Ashley C. 2016 Healing the Hidden Injuries of Class? Redemption Narratives, Aspirational Proxies, and Parents of Low-Income, First-Generation College Students. *Sociological Forum* 31: 1: 96–116.
- Rouse Cecilia Elena. 1995 Democratization or diversion? The effect of community colleges on educational attainment. *Journal of Business & Economic Statistics* 13: 2: 217–224.
- Ruggles Steven, Genadek Katie, Goeken Ronald, Grover Josiah, and Sobek Matthew. 2015 "Integrated Public Use Microdata Series: Version 6.0 [Machine-readable database]," In University of Minnesota (ed). Minneapolis.
- Ryan Camille L., and Bauman Kurt. 2016 "Educational Attainment in the United States: 2015" Washington, DC: U.S. Census Bureau, Department of Commerce.
- Saenz Victor B., Hurtado Sylvia, Barrera Doug, Wolf De'Sha, and Yeung Fanny. 2007 "First in my Family: A Profile of First-Generation College Students at Four-Year Institutions Since 1971" Los Angeles, CA: Higher Education Research Institute.
- Mae Sallie. 2017 "How America Pays for College" Newark, DE: Sallie Mae Bank.
- Sewell William H., Haller Archibald O., and Portes Alejandro. 1969 The educational and early occupational attainment process. *American sociological review*: 82–92.
- Spreen Thomas Luke. 2013 Recent college graduates in the U.S. labor force: data from the Current Population Survey. *Monthly Labor Review*: 3–13.
- Terenzini Patrick T., Cabrera Alberto F., and Bernal Elena M.. 2001 "Swimming Against the Tide: The Poor in American Higher Education" New York: College Entrance Examination Board.
- Thomson E, Hanson TL, and McLanahan SS. 1994 Family Structure and Child Well-Being: Economic Resources vs. Parental Behaviors. *Social Forces* 73: 1: 221–242.
- Tinto Vincent. 1986 "Theories of college student departure revisited," In Smart John C. (ed), *Higher Education: Handbook of Theory and Research*: pp. 359–384. New York: Agathon.
- Toutkoushian Robert K., Stollberg Robert A., and Slaton Kelly A.. 2018 Talking 'Bout My Generation: Defining "First-Generation College Students" in Higher Education Research. Presented at Association for the Study of Higher Education - 40th Annual Conference Denver, CO.
- U.S. Department of Education. 2011 "Meeting the Nation's 2020 Goal: State Targets for Increasing the Number and Percentage of College Graduates with Degrees" Washington, DC.
- von Hippel Paul T. 2007 Regression with Missing Ys: An Improved Strategy for Analyzing Multiply Imputed Data. *Sociological Methodology* 2007, Vol 37 37: 83–117.
- Wang Xueli. 2009 Baccalaureate attainment and college persistence of community college transfer students at four-year institutions. *Research in Higher Education* 50: 6: 570–588.
- Whitaker David G., and Pascarella Ernest T.. 1994 Two-year college attendance and socioeconomic attainment: Some additional evidence. *The Journal of Higher Education*: 194–210.
- Wilbur Tabitha G., and Roscigno Vincent J.. 2016 First-generation Disadvantage and College Enrollment/Completion. *Socius* 2: 2378023116664351.
- Wojtkiewicz Roger A., and Holtzman Mellisa. 2011 Family Structure and College Graduation: Is the Stepparent Effect More Negative than the Single Parent Effect? *Sociological Spectrum* 31: 4: 498–521.

Table 1.

Descriptive statistics by parent's level of education, Panel Study of Income Dynamics Child Development Supplement and Transition into Adulthood Supplement, 1997–2013

	PSID Parents' Education			
	No College	College Leaver	Associate's degree	Bachelor's degree or higher
On-time enrollment	0.377 *	0.513	0.536	0.714 *
Ever attend 4-year college, given any college enrollment	0.620 *	0.716	0.756	0.900 *
Complete a Bachelor's degree by age 24, given any college enrollment	0.182	0.207	0.271	0.551 *
<i>Race/ethnicity</i>				
White	0.361 *	0.440	0.551	0.696 *
Black	0.524 *	0.418	0.341	0.195 *
Hispanic	0.075	0.097	0.029	0.037
Other	0.016	0.008	0.014	0.043 *
Race DK	0.024 *	0.036	0.065	0.030 *
Female	0.524	0.490	0.558	0.527
Age at CDS I	7.36 *	7.038	6.790	6.948
Head's age when child was 16	43.555	43.307	45.488 *	47.634 *
Head is child's parent	0.938 *	0.955	0.935	0.975
<i>1968 sample membership</i>				
Survey Research Center (SRC) sample	0.440 *	0.514	0.601	0.753 *
Survey of Economic Opportunity (SEO) sample	0.477 *	0.390	0.362	0.160 *
1997 immigrant refresher sample	0.083	0.096	0.036	0.087
Primary caregiver self-esteem	3.384 *	3.460	3.449	3.498 *
Primary caregiver distress scale	4.191	4.193	3.995	3.470 *
Primary caregiver locus of control	1.974	1.890	1.825	1.799 *
Primary caregiver Woodcock-Johnson score (Passage Comprehension)	28.451 *	31.084	31.845	33.848 *
No. of children in household at 16	2.163 *	2.118	1.945 *	1.998
<i>Household head's union status at 16 (vs. married)</i>				
Head is single at 16	0.435 *	0.342	0.227	0.166 *
Head is cohabiting at 16	0.034 *	0.045	0.040	0.030 *
<i>High school (HS) grade point average (GPA)</i>				
HS GPA in bottom quartile	0.302 *	0.316	0.203	0.195 *
HS GPA in 2nd-3rd quartile	0.325 *	0.366	0.413	0.464 *
HS GPA in top quartile	0.171 *	0.188	0.275 *	0.286 *
Does not know HS GPA	0.201 *	0.130	0.109	0.056 *
Child Woodcock Johnson Applied Problems Score	100.585 *	105.163	106.021	114.553 *

	PSID Parents' Education			
	No College	College Leaver	Associate's degree	Bachelor's degree or higher
Child Woodcock Johnson Letter-Word Score	99.555 *	104.873	106.928	113.618 *
Economic Resources				
Income-to-needs at birth	2.076 *	2.933	3.410	5.242 *
Income-to-needs at age16	2.600 *	3.562	4.231	7.050 *
Head is homeowner	0.606 *	0.704	0.742	0.873 *
Cultural Resources				
<i>Educational Aspirations</i>				
Child aspirations >=college	0.695 *	0.772	0.898 *	0.923 *
Parent aspirations >=college	0.754 *	0.879	0.868	0.962 *
Parent aspirations exceed expectations	0.491	0.461	0.493	0.364 *
Parental involvement	8.305 *	8.975	9.943 *	10.821 *
HOME scale	10.952 *	11.632	11.701	12.699 *
N	939	718	138	539

* p<0.05

NOTE: Asterisks represent group differences compared to the college leaver category that are statistically significant at p<.05. Descriptive results were weighted using the probability weight provided in the wave of the TAS from which an individual respondent's values on the dependent variables were drawn. Robust standard errors account for the study's complex sampling design. DK= Don't Know; No.=Number.

Table 2.

Odds ratios and t-statistics for logistic regressions of on-time college enrollment, college type, and Bachelor's degree completion by age 24, Panel Study of Income Dynamics Child Development Supplement and Transition into Adulthood Supplement, 1997–2013

VARIABLES	On-time enrollment		Ever attended 4-year college, given any postsecondary enrollment		Completed Bachelor's degree by age 24, given any postsecondary enrollment	
	Baseline Model	Full Model	Baseline Model	Full Model	Baseline Model	Full Model
<i>Parent's Education (vs. College Leaver)</i>						
No college	0.642 ** (−3.896)	0.765 * (−2.474)	0.687 ** (−2.766)	0.781 † (−1.665)	0.921 (−0.357)	1.039 (0.153)
Associate's degree	1.020 (0.104)	0.903 (−0.635)	1.271 (0.966)	1.177 (0.626)	1.070 (0.188)	0.760 (−0.766)
Bachelor's degree or higher	1.912 ** (4.418)	1.352 † (1.954)	3.382 ** (6.802)	2.451 ** (4.954)	3.324 ** (6.594)	2.216 ** (3.558)
<i>Race/ethnicity (vs. White)</i>						
Black	0.629 * (−2.005)	0.866 (−0.576)	0.572 * (−2.425)	0.925 (−0.302)	0.461 * (−1.852)	0.722 (−0.692)
Hispanic	0.823 (−0.665)	1.060 (0.179)	0.673 (−1.058)	0.980 (−0.047)	0.533 (−1.122)	0.948 (−0.086)
Other	0.566 † (−1.751)	0.660 (−1.070)	1.089 (0.159)	1.706 (0.925)	0.840 (−0.275)	0.868 (−0.221)
Race DK	0.531 * (−2.125)	0.601 (−1.501)	0.665 (−1.320)	0.828 (−0.548)	0.449 (−1.42)	0.538 (−1.08)
Female	1.378 ** (3.649)	1.253 * (2.402)	0.976 (−0.191)	0.925 (−0.595)	1.742 ** (4.421)	1.754 ** (3.958)
Age at CDS I	0.940 ** (−5.232)	0.915 ** (−5.364)	1.094 ** (4.604)	1.101 ** (3.660)	1.094 (1.580)	1.158 * (2.198)
Head's age when child was 16	1.024 ** (3.445)	1.009 (1.302)	1.007 (0.763)	0.993 (−0.730)	1.030 * (1.998)	1.021 (1.033)
Head is child's parent	1.254 (0.979)	0.941 (−0.242)	0.914 (−0.273)	0.651 (−1.209)	2.193 (1.135)	1.539 (0.629)
<i>1968 Sample membership (vs. Survey Research Center sample)</i>						
Survey of Economic Opportunity (SEO) sample	1.468 (1.607)	1.398 (1.307)	1.789 ** (2.665)	1.828 ** (2.790)	1.311 (0.634)	1.493 (0.822)
1997 immigrant refresher sample	2.370 ** (3.052)	2.165 * (2.456)	1.738 (1.568)	1.377 (0.809)	1.381 (0.624)	1.594 (0.879)
Primary caregiver self-esteem	1.209 (1.262)	1.087 (0.540)	1.252 (1.521)	1.171 (0.966)	0.991 (−0.038)	0.850 (−0.698)
Primary caregiver distress scale	0.975 †	0.990	1.016	1.037 †	0.960	0.994

VARIABLES	On-time enrollment		Ever attended 4-year college, given any postsecondary enrollment		Completed Bachelor's degree by age 24, given any postsecondary enrollment	
	Baseline Model	Full Model	Baseline Model	Full Model	Baseline Model	Full Model
	(-1.846)	(-0.673)	(0.899)	(1.754)	(-1.405)	(-0.205)
Primary caregiver locus of control	0.977	1.031	1.104	1.162 [†]	1.024	0.986
	(-0.414)	(0.527)	(1.220)	(1.785)	(0.227)	(-0.134)
Primary caregiver Woodcock-Johnson score (Passage Comprehension)	1.036 ^{**}	1.004	1.033 [*]	1.007	1.049 [*]	1.006
	(3.373)	(0.339)	(2.355)	(0.472)	(2.122)	(0.261)
No. of children in household at 16		0.949		0.981		1.054
		(-0.997)		(-0.275)		(0.422)
<i>Household head's union status</i>						
Head is single at 16		0.972		0.808		0.783
		(-0.211)		(-1.509)		(-0.920)
Head is cohabiting at 16		0.586 [*]		1.328		0.422
		(-2.046)		(0.796)		
<i>High School (HS) grade point average (GPA) (vs. 2nd-3rd quartile)</i>						
Bottom quartile		0.647 ^{**}		0.589 ^{**}		0.536 ^{**}
		(-3.698)		(-4.211)		(-3.000)
Top quartile		0.599 ^{**}		0.842		1.467
		(-3.339)		(-0.900)		(1.559)
Does not know HS GPA		0.181 ^{**}		0.303 ^{**}		0.072 ^{**}
		(-9.512)		(-5.742)		(-2.976)
Child Woodcock-Johnson Applied Problems score		0.999		1.016 ^{**}		1.020 [*]
		(-0.363)		(3.575)		(2.588)
Child Woodcock-Johnson Letter-Word score		1.011 ^{**}		1.007		1.008
		(3.164)		(1.636)		(1.490)
Economic Resources						
Income-to-needs at birth		1.070 [*]		1.109 ^{**}		1.095 [*]
		(2.509)		(3.110)		(2.455)
Income-to-needs at 16		1.033		1.007		1.007
		(1.316)		(0.356)		(0.550)
Head is homeowner		1.358 ^{**}		1.150		1.295
		(2.947)		(0.985)		(0.903)
Cultural Resources						
Child educational aspirations >=college		1.666 ^{**}		1.462 [*]		1.325
		(3.537)		(2.145)		(0.799)

VARIABLES	On-time enrollment		Ever attended 4-year college, given any postsecondary enrollment		Completed Bachelor's degree by age 24, given any postsecondary enrollment	
	Baseline Model	Full Model	Baseline Model	Full Model	Baseline Model	Full Model
Parent educational aspiration for child >=college		1.304 (1.540)		1.288 (1.177)		0.820 (-0.469)
Parent educational aspirations exceed expectations		1.084 (0.864)		0.856 (-1.113)		1.442 * (1.994)
Parental involvement		1.027 [†] (1.666)		1.006 (0.314)		1.054 (1.610)
HOME scale		1.025 (0.954)		1.009 (0.321)		1.084 * (1.799)
Constant	0.081 ** (-2.907)	0.087 * (-2.486)	0.136 [†] (-1.867)	0.032 * (-2.457)	0.003 ** (-3.308)	0.000 ** (-4.265)
Observations	2,334	2,334	1,825	1,825	895	895
t-statistics in parentheses						

NOTE: Asterisks represent group differences compared to the college leaver category that are statistically significant at $p < .05$. Descriptive results were weighted using the probability weight provided in the wave of the TAS from which an individual respondent's values on the dependent variables were drawn. Robust standard errors account for the study's complex sampling design. DK= Don't Know; No.=Number.

*
 $p < 0.05$

**
 $p < 0.01$

[†]
 $p < 0.10$

Table 3.

Average partial effects of economic and cultural resources on children's educational attainment, Panel Study of Income Dynamics Child Development Supplement and Transition into Adulthood Supplement, 1997–2013

Parent's educational attainment	No college	Associate's degree	Bachelor's degree or higher
<i>Child had on-time college enrollment</i>			
Reduced model	−0.108** (0.024)	0.007 (0.042)	0.145** (0.027)
Full model	−0.055* (0.024)	−0.021 (0.042)	0.061* (0.029)
Percentage change	−49.0%	−400.00%	−57.9%
Observations	2,334	2,334	2,334
<i>Child ever attended 4-year college</i>			
Reduced model	−0.079** (0.027)	0.049 (0.041)	0.179** (0.024)
Full model	−0.046† (0.026)	0.028 (0.043)	0.131** (0.027)
Percentage change	−41.8%	−42.9%	−26.8%
Observations	1,825	1,825	1,825
<i>Child completed a Bachelor's degree by age 24</i>			
Reduced model	−0.022 (0.034)	0.006 (0.054)	0.254** (0.041)
Full model	0.006 (0.036)	−0.040 (0.051)	0.134** (0.041)
Percentage change	−72.7%	−766.67%	−47.2%
Observations	895	895	895
Standard errors in parentheses			
* p<0.05			
** p<0.01			
† p<0.1			

NOTE: Table 3 describes the average partial effect of parental educational attainment on college enrollment, college type, and Bachelor's degree completion by age 24 in the reduced (baseline) and full models, estimated using the Karlson, Hohm and Breen (KHB) method for decomposing total effects (Kohler, Karlson and Holm 2011).