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Parental Investments in College and Later Cash Transfers

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Abstract Parents often provide generous financial transfers to their adult children, perhaps assisting with college expenses, recognizing major life course events, or cushioning against negative financial shocks. Because resources are limited, a transfer made to one child likely affects transfers made to others in the family. Despite such possibilities, data limitations have led previous authors to focus almost exclusively on a single type of transfer made at a single point in time. Using data from the Health and Retirement Study, we examine the relationships among parental transfers for college and later cash transfers to all children within a family. We find that parents typically spend differentially on the postsecondary schooling of their children but find no evidence that this differential spending is offset by later cash transfers.

Keywords Economic demography · Human capital investment · Economics of the family · *Inter vivos* transfers

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Introduction

Parents contribute a great deal of time, money, and energy to their children, even after their children complete secondary school and move through adulthood.[1] One dimension of this support that has recently received a great deal of attention is the parent's contribution to a child's college education—attention spurred in part by the substantial increases in both college tuition and in the returns accruing to a college education.[2] In addition to (or perhaps in lieu of) transfers for college, many parents provide financial support to adult children who are no longer enrolled in school (Gale and Scholz 1994; McGarry 2016; McGarry and Schoeni 1995) and/or bequeath assets to children at death (Light and McGarry 2004; McGarry 1999; Wilhelm 1996). Regardless of the timing of transfers, these gifts from parents can be an important avenue through which inequality is transferred across generations.[3]

Because parental resources are limited, any single transfer reduces the amount available for later transfers to either the same child or his siblings. Understanding how transfers are related across time and among children is important for several reasons. First, these relationships are key to understanding the *total* transfers a child receives. For example, if parents give fewer cash transfers to children who received more for their college education, then the allocation of *total* transfers might be much different from the allocation of either cash or schooling transfers alone.

Second, the distribution of transfers within a family can provide important insights into parental preferences. For example, parents might consistently provide more resources to one child, perhaps because of demonstrated ability or need. Alternatively, parents might wish to signal equal affection or concern for children by making equal transfers regardless of underlying differences.[4] Parents' preferences with regard to transfers have important implications for many issues related to family behavior, including childbearing, investments in schooling, consumption smoothing across families members, and elder care.

Third, the relationship between types of transfers is formalized in some of the most important economic models of the family, and thus an empirical understanding of these patterns can provide insight into the relevance of these models. For example, Becker (1975) posited a model in which parents invest differentially in the schooling of their children when returns to schooling vary—investing more in children for whom the returns are the greatest—and use cash transfers to offset any resulting income differences. Such a model implies that within a family, later cash transfers would be negatively correlated with schooling transfers and with children's incomes. In contrast, Behrman et al. (1982) posited a model in which parents value the allocation of cash transfers separately from the incomes of children. With equal concern in this context,

[1] Numerous researchers have argued that the time in which parents provide significant support to their children increasingly extends well beyond the traditional adolescent years and refer to this additional life stage as "emerging adulthood" or "extended adolescence" (Arnett 2000; Danziger and Rouse 2007; Settersten et al. 2005).

[2] See Ryman (2012) and Lieber (2011) for newspaper coverage and Sallie Mae (2011) for a government report.

[3] See Piketty and Zucman (2015) for a review of the relationship between wealth and inheritances.

[4] Parents may directly value equal treatment or may value it indirectly because they fear unequal treatment will result in jealousy among siblings, as modeled in Wilhelm (1996).

we would expect to observe equal cash transfers across children within the family and no correlation between schooling investments and cash transfers.[5]

Despite the importance of examining transfers in their totality, nearly all research to date has focused on a single type of transfer made at a single point in time. Studies examining the distribution of cash transfers among children at a point in time have repeatedly found an unequal division of transfers, with lower-income children receiving larger transfers than higher-income children (Cox 1987; McGarry and Schoeni 1995, 1997). McGarry (2016) examined transfers over a longer period and found that this negative relationship between transfers and income becomes stronger when observed over a wider window. Although several studies have examined the correlates of schooling transfers (e.g., Rauscher 2016), we know of no study that has examined how schooling transfers vary within families and only one study that has examined the relationship between schooling transfers and subsequent cash transfers within families (Brown et al. 2006).

In this study, we shed light on the broader patterns of parental giving by examining three important dimensions of support. First, we examine the extent to which parents invest differentially in the schooling of their children. Second, we compare the magnitudes of schooling-related transfers to those of postschooling cash transfers. Importantly, we are able to examine these subsequent cash transfers over a period as long as 17 years, providing a more complete picture of parental giving than has been possible in the past. Finally, we examine the relationship between schooling and cash transfers to assess the extent to which differential school investments are offset by later cash transfers.

The data for our analyses come from the rich information contained in the core Health and Retirement Study (HRS), as well as an unusual data supplement called the Human Capital and Educational Expenses Mail Survey (HUMS). The HRS is a large-scale, longitudinal data collection effort of older individuals, with its first cohort interviewed in 1992. In 2001, a subsample of HRS respondents was sent a supplemental survey (HUMS) that collected information on the college attendance of each child and the respondent's contributions (if any) to the tuition and room and board costs of each child. We combine this rich information with detailed data on cash transfers collected in each of the biennial surveys to provide a complete picture of transfers throughout much of the child's early adult life.

Unsurprisingly, given the rich anecdotal evidence on the subject, we find that parents make significant contributions to the college education of their children, with a median amount of $7,897 (2008 dollars) per college-going child. When looking *within* families, we find that parents typically treat siblings *unequally* with respect to the dollar amount of schooling transfers. Although these differences are not correlated with the gender of the child, we find strong evidence that older children receive smaller amounts than their younger siblings. This result is consistent with a life cycle model in which parents are more likely to face financial constraints earlier in their lives and with the previously documented rise in college costs over time.

Despite the attention paid to the burdens of financing a college education, we find that transfers made over a 10-year period after the completion of a college education are at least as large as parental expenditures on college. Over a longer period, aggregate

[5] Other models view transfers as part of an exchange regime, in which transfers to children may be used to entice or reward a desired behavior (Bernheim et al. 1985).

cash transfers are substantially *larger* than expenditures on college. Finally, we find no evidence that parents use subsequent cash transfers to offset previous differences in schooling investments and thus do not appear to be equalizing lifetime transfers to children.

Background

We first discuss some of the classic theoretical models of familial transfers and then provide a brief review of the empirical literature regarding the allocation of transfers to children.

Theoretical Models Regarding Parental Transfers

In Becker's classic educational investment model (Becker 1975; Becker and Tomes 1976), parents invest in the schooling of children until the rate of return is equal to the market rate of return; any additional transfers are given directly as cash. If the returns to schooling vary across children, perhaps because of differences in ability or differences in labor market opportunities, then parents will invest differentially in the schooling of their children and use cash transfers to equalize consumption (or, more precisely, the marginal utility of income) across children. Thus, within a family, later cash transfers would be negatively correlated with schooling transfers and with children's incomes, assuming that children with more schooling earn higher incomes.

Behrman et al. (1982, 1989) expanded on these notions by specifying two alternative preference models, both of which are predicated on the assumption of equal concern (i.e., parents care for their children equally). The first is a wealth model in which parents care about the total resources available to each child. Such a model implies that parents value cash transfers to their children in terms of the consumption they provide, thus focusing on the total resources available to a child (the sum of a child's income and transfers) rather than the transfers themselves. As in Becker's model, parents will invest efficiently in the schooling of each child to maximize his earnings potential and use later transfers to equalize consumption across children, yielding a negative correlation between cash transfers and both schooling transfers and a child's own income.

Behrman et al.'s second model is a separable earnings/transfers model in which a child's earnings and the transfers he receives are separate arguments in the parental utility function.[6] Such a model is appropriate when parents view transfers not as a means to support the consumption of children, but rather as a gift. This specification leads parents to equalize the marginal utility of each *component* across children rather than equalizing the marginal utility of *total income*. In doing so, parents provide equal transfers even in the face of potentially large differences in schooling transfers and incomes. Thus, in contrast to the wealth model, cash transfers within a family would be uncorrelated with schooling transfers or with the child's income.

Although we have been considering models in which parents endeavor to treat their children equally, in practice, it is not clear how equality should be defined. For

[6] Behrman et al. (1982) used the term "earnings/bequest model" and explicitly included both bequests and *inter vivos* transfers in their discussion.

example, parents may define equal treatment on a per capita basis, giving more to married children or to those with more children of their own. It is also possible that equal concern does not apply. Parents may favor one child over another, perhaps preferring children who exhibit certain desired behaviors, daughters (or sons), or older (or younger) children. We consider these possibilities in our empirical work to the extent that the data allow.

Empirical Findings Relevant to the Distribution of Parental Transfers Within Families

Little empirical work has directly examined the relationships between various types of transfers or differences *within* families. Thus, we briefly review the literature on differences in cash transfers within families and then review studies examining patterns in educational attainment that provide some insights to our analysis.

The literature on cash transfers from parents to adult children has focused on the relationship between a child's income and the probability and amount of a transfer. Numerous studies have found a negative relationship: lower-income children receive significantly greater transfers than their siblings, but the elasticity of transfers with respect to income is extremely small (Altonji et al. 1997; McGarry and Schoeni 1995, 1997). Other than income, the important determinants of transfers are factors that are correlated with financial resources, such as marital status, homeownership, and age.

If schooling investments depend on the interest rate a family faces, then families facing higher interest rates (e.g., families with lower incomes, lower wealth, or greater borrowing needs) would invest less in schooling.[7] Numerous studies have found that college attendance increases with family resources (Bailey and Dynarski 2011; Belley and Lochner 2007; Conley 2001; Ellwood and Kane 2000; Haider and McGarry 2018) and decreases with family size (Behrman et al. 1989; Lindert 1977), both patterns consistent with liquidity constraints being important. In the context of within-family comparisons, liquidity constraints—which tend to bind earlier in the life course—would likely lead parents to invest less in older children relative to their siblings.

The investment model also predicts that parents will invest more in schooling when the returns are greater. If the returns to schooling increase with ability, then so too will schooling investments. Unfortunately, our data do not contain measures of ability. However, the psychological literature has found that first-born children exhibit higher IQs than later-born children, suggesting that parents might invest more in the schooling of older (higher ability) children, potentially offsetting or lessening the role of liquidity constraints.[8] Similarly, if the returns to schooling differ by the gender of the child, then parents will invest differentially in sons and daughters (Barrow and Rouse 2005; Behrman et al. 1986; Dougherty 2005; Jacob 2002).

Rauscher (2016) directly examined parental transfers for education, finding that financial transfers decline with family size but finding no evidence that boys and girls are treated differently. However, she did not examine differences within families.

[7] See Lochner and Monge-Naranjo (2012) for an excellent review of the literature on liquidity constraints and schooling.

[8] Several studies have examined the relationship between birth order, educational attainment, and earnings (Behrman and Taubman 1986; Black et al. 2005; Booth and Kee 2009; Kantarevic and Mechoulan 2006).

Other studies have examined related patterns within families but with mixed results. Behrman and Taubman (1986) and Black et al. (2005) found greater schooling for older siblings, consistent with an investment model with positive returns to ability and greater ability among older children. However, in neither case were liquidity constraints likely to be much of a factor. Black et al. used data from Norway, where college is free, and Behrman and Taubman used a sample of twins born in the early 1950s, when college tuition was much lower than today. Behavior will likely differ when college costs are greater.

Powell and Steelman (1989) found that the gender composition of siblings affects transfers: the probability of parental support for college is significantly negatively related to the number of brothers but not to the number of sisters. Conversely, Butcher and Case (1994) found that additional brothers lead to more schooling for girls but not for boys, whereas additional sisters reduce a girl's level of education. Using data from Japan, Parish and Willis (1993) found important interactions between gender and birth order: older daughters appear to increase the schooling of younger siblings by forgoing education themselves.

More closely related to our work, Brown et al. (2006) used the Wisconsin Longitudinal Study (WLS) to examine the correlation between educational transfers and cash transfers within families and found a negative relationship. We find no such relationship.[9]

A separate literature has examined the distribution of parental bequests. In contrast to the observed inequality of cash transfers, bequests are equally divided across children in the vast majority of cases (Light and McGarry 2004; McGarry 1999; Wilhelm 1996). Although we are unable to observe actual bequests for most households (bequests generally occur after both parents die), the overwhelming equality of bequests found elsewhere suggests that they will not offset differences in cash transfers.

Our study makes several important contributions. First, we document parental transfers to the education of their children and how these schooling transfers compare with upwards of 17 years of later cash transfers. These tabulations provide a substantially more complete picture of parental giving than has been possible in the past. Second, we provide the most complete evidence to date regarding the variation of schooling and total transfers within families, patterns that are related to important economic models of family behavior.

Data

Our data come from the HRS, which is a panel survey of older Americans that began in 1992 with a cohort of individuals born in the years 1931–1941 and their spouses/partners. A companion survey, the Asset and Health Dynamics Study (AHEAD), was administered in 1993 and 1995 to individuals born in 1923 or earlier and their spouses/partners. The AHEAD and HRS were merged in 1998, and two new cohorts were added, one consisting of individuals born in the years 1924–1930 (and their spouses) and another of individuals born in the years 1942–1947. Together, these cohorts

[9] Brown et al. (2006) focused on the relationship between schooling and cash transfers for only those children who received positive amounts of both types of transfers. When we impose similar sample restrictions in the HRS, we still find no relationship. Our findings are robust to other specification checks as well. Perhaps their sample, comprising a cohort of Wisconsin high school graduates, explains the difference. In a related study, Brown et al. (2012) examined the relationship between access to financial aid and schooling outcomes.

Table 1 Comparison of households receiving HUMS to 2000 HRS sample: Means

	HUMS	2000 HRS
Number of Observations[a]	3,862	13,214
Household Income	70,571	64,997
	(1,710)	(1,216)
Household Wealth	450,806	401,747
	(19,759)	(10,029)
Married/Partnered	0.56	0.50
	(0.01)	(<0.01)
Age[b]	65.8	66.7
	(0.16)	(0.09)
Education[b]	12.8	12.3
	(0.05)	(0.03)
Number Children in 2000	3.37	3.02
	(0.03)	(0.02)
Nonwhite[c]	0.15	0.16
	(0.01)	(<0.01)

Notes: Dollar figures are reported in 2008 dollars. Standard errors are shown in parentheses.

[a] The number of observations may differ across variables because of missing values.

[b] For couples, age and education are the values for the male.

[c] Nonwhite = 1 if either spouse is nonwhite.

provide a sample of nearly 14,400 households that in 1998 were approximately nationally representative of households with an individual aged 51 or older. Respondents in all cohorts are interviewed biennially for the remainder of their lives.[10]

The HRS core surveys collect detailed information on the income, assets, and health of the respondents, but they also collect a great deal of information on each of the respondents' children, including household income, employment, schooling, marital status, own children, and importantly for this study, cash transfers from the respondents to each child.

In 2001, the HRS mailed a supplemental survey, the Human Capital and Educational Expenses Mail Survey (HUMS), to a subsample of respondents. The HUMS focused on the educational experiences of each child, including parental contributions to the cost of college. Consistent with its focus on college education, the survey targeted those families that previously reported having had at least one child who attended college.

Table 1 compares the means of various household characteristics measured in the 2000 survey for the subsample of households that were sent the HUMS and for the full HRS sample.[11] The sample receiving the HUMS (column 1) is better-off financially and more highly educated than the full sample (column 2), consistent with selection based on having at least one child with postsecondary schooling. The average income

[10] Refresher cohorts were added in 2004 and 2010 but are excluded from our analysis because they were added after the HUMS was administered.

[11] The table reports the means for all those sent the HUMS questionnaire. The values in this table are weighted in order to assess the degree to which they are population-representative. Values in later tables do not use household weights. We have converted all dollar-denominated values in this study to 2008 dollars.

for the HUMS sample is somewhat higher than for the full sample ($70,500 compared with $65,000 in 2008 dollars), as is wealth. HUMS families also have more schooling (12.8 vs. 12.3 years) and are more likely to be married. Finally, because respondents must have at least one child to be eligible for the survey, the families in our sample have more children, on average, than families in the full sample.

Given the goals of this study, we impose several additional restrictions to create our primary sample.[12] First, we exclude children who were born before 1951 because they are too old to have the relevant tuition and room and board information available in the data. We also exclude children born after 1975 who would have been no older than 25 years at the time of the survey and who may therefore not have yet completed their schooling. Second, we exclude children who were in school in 2000 or 2002 and for whom schooling transfer information may be incomplete and/or confounded with cash transfers. Finally, we exclude those families in which the parents (the HRS respondents) divorced during our window of observation; attempting to assess how transfers change in response to divorce is beyond the scope of this study.[13] The online appendix provides more details about how we process the HRS and the HUMS and basic descriptive information about our sample.

The Magnitude of Parental Contributions to Adult Children

Because no published studies have used HUMS and only a few have analyzed parental investments in children's schooling more generally, we begin our analysis with some descriptive information on schooling-related transfers.[14] HUMS asked a number of questions about the child's educational background, including whether the child attended college, the number of years attended, whether the college was public or private, and whether the child attended as an in-state or out-of-state student. The survey also asked respondents about their contributions to tuition and to room and board. Because many of the children attended college years (even decades) before the HUMS was fielded, the survey asked respondents to report the *fraction* of each child's tuition and/or room and board that they paid rather than the actual dollar amount.[15]

In addition to these measures of support, the HUMS also obtained the name and location of the school each child attended during the last year in which he was enrolled in college. Although the names of schools are masked to preserve confidentiality, the HRS provides the tuition and room and board costs obtained from the National Center for Educational Statistics (NCES). With these costs and the fraction parents reportedly paid, we can calculate the dollar value of parental transfers for schooling. Our calculations assume that parents report their contribution as a fraction of the *posted* tuition

[12] We assessed the robustness of our results to numerous alternative sample restrictions, such as (1) excluding any child who returned to school at any point subsequent to the HUMS survey, (2) including households who divorced during the period, and (3) including only those children born before 1972 and thus at least 28 years old when the HUMS was administered. In each case, our results were largely unchanged, which is not surprising given our overall sample sizes were largely unchanged.

[13] See White (1992) and Furstenberg et al. (1995) for examinations of the consequences of divorce on family transfers.

[14] Brown et al. (2006) is the only study we are aware of that used the HUMS data.

[15] The specific question was, "Considering all the tuition costs for this child to attend all two- or four-year colleges, about what percentage of tuition did you pay? (Include loans taken out by the child that you agreed to pay back.)"

and room and board amounts (the "sticker price") rather than amounts net of financial aid; several checks suggest that the data are broadly consistent with this assumption.[16]

Histograms for the percentages parents contributed to tuition and to room and board are shown in Figs. 1 and 2, respectively. Here we include contributions for all children who attended college (Fig. 1) or who attended college and lived away from home while doing so (Fig. 2). In each figure, the modal response is 100 %, with about one-third of parents paying the entire cost of tuition and a similar share paying the entire cost of room and board. The next most likely response is 0 %, with 26 % contributing nothing to tuition costs and 22 % contributing nothing to room and board costs. Although 50 % is also a common response, it accounts for only 11 % of tuition contributions and 10 % of the room and board contributions.[17] Overall, we see substantial heterogeneity in both distributions.

In Table 2, we combine the information on the fraction of tuition paid with data on the school-specific costs to obtain the total parental contribution in dollar terms. As shown in panel A, the mean parental percentage contribution is 52.1 %, and the mean and median years of attendance are 3.5 and 4. With the average annual tuition charged by the schools of $4,801 (2008 dollars), the average implied amount paid by parents over the college career of a child is $10,178.[18] Once again, amounts vary substantially. Total tuition expenditure per child is $0 at the 25th percentile and $30,135 at the 90th percentile.

The contributions to room and board (panel B) are similarly varied, but the fraction paid by parents is somewhat larger than that paid for tuition, and a greater percentage of parents contribute a positive amount. This finding is consistent with children in wealthier families being more likely both to live away from home while in school and to receive larger percentage contributions. If we repeat the calculations in panel A for the subset used in panel B, the average contribution to tuition increases to 53.2 %—nearly identical to the 53.4 % reported for room and board.

In panel C, we multiply these amounts by the number of years a child attended college. The total amount invested by parents over a child's college career is substantial; the mean parental contribution for a child who attends college is $16,741. Again, we find a wide distribution of amounts. The 25th percentile for contributions is $882, but the 75th percentile is $24,080, almost 30 times greater. When aggregated across all children in the family (panel D), the average amount spent by parents with at least one child who attended college is $31,698.

In Table 3, we expand our analysis from examining schooling transfers for just those children who attend college to examining both schooling and cash transfers for *all* children in our primary sample, regardless of college attendance. We restrict the sample

[16] For example, for children who were attending college while the HRS was being fielded, we compared our calculated tuition payments made by parents based on the HUMS data with transfers to children reported in the core survey. Although transfers made while a child is attending school need not be for schooling, we assume that most would be. For the 241 children ages 18–23 for whom we can make this comparison, the mean transfer reported in the core survey during their in-school years was $21,538, whereas the mean transfer based on the HUMS questions is a strikingly similar $21,987. The correlation between the two measures is 0.71.

[17] Studies examining subjective probability questions in the HRS that ask respondents to report a percentage between 0 and 100 have found most of the mass at 0 %, 50 %, and 100 % (Haider and Stephens 2007; Hurd and McGarry 1995). The frequency of these focal responses for the tuition expenditures is much lower than with subject probabilities, despite the fact that 0 % and 100 % can be accurate responses in our case but are necessarily incorrect in the other cases (e.g., probability of living to 75 cannot truly be 0 % or 100 %).

[18] This amount differs from the simple calculation of (0.521 × 3.5 × $4,801) because of missing values on various components for some observations.

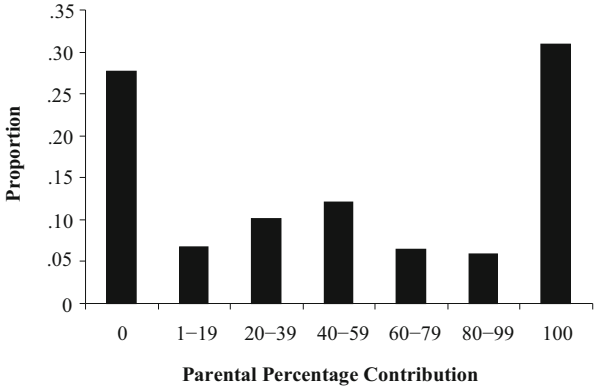

Fig. 1 Histogram for parental contribution to tuition expenses based on all children from the primary sample that attended at least some college

to (1) those who were not in school during the 2000–2008 period to avoid double-counting schooling-related transfers, and (2) children for whom we have information in each wave so that we have complete information on cash transfers during the period. Reported transfers at each survey correspond to transfers made during the preceding two years, so the five surveys measure 10 years of transfer receipt.

The first row of panel A reports results for schooling transfers: 40 % of children received a positive schooling transfer, with a mean amount of $8,432 and a conditional mean of $21,133. The subsequent row shows the same statistics for cash transfers reported in the 2000 interview and including all gifts made in the preceding two years. Just 17 % of children received a cash transfer in these two years, far fewer than received a schooling transfer at some point, and the unconditional mean is $1,540. However, conditional on a transfer being made, the mean is a substantial $9,222. When examining the total transferred over 10 years (third row), we find that 35 % of children received a cash transfer, with a mean of $6,843 and a conditional mean of $19,407—values quite close to the results for schooling. The final row reports the sum of both types of gifts. These totals attest to the substantial investments parents make in their children: 56 % of children receive a transfer of some sort, and the average amount, conditional on a positive value, is $27,247.

In panel B, we use a wider window of observation and examine transfers over the entire survey period 1992/1993 to 2008, necessarily losing observations from later cohorts and for children whose parents exited the sample during this time. With this longer time frame, we find even greater giving; 46 % of the children in the sample received a cash transfer over the 17-year period compared with 35 % who received a schooling transfer.[19] The mean amount for total cash transfers rises to $8,538, an amount now larger than the mean schooling transfer of $6,746.

Panel C returns to the larger sample used in panel A—those children observed for the 2000–2008 period—but now restricts the sample to just those children who have at least one sibling in the sample. This sample will be the basis for our within-family analyses in the following sections. We lose just 314 children with this restriction, and the results for panels A and C are thus very similar.

[19] The transfer question in the first wave asks for amounts given in the past year, whereas later waves ask for amounts during the past two years.

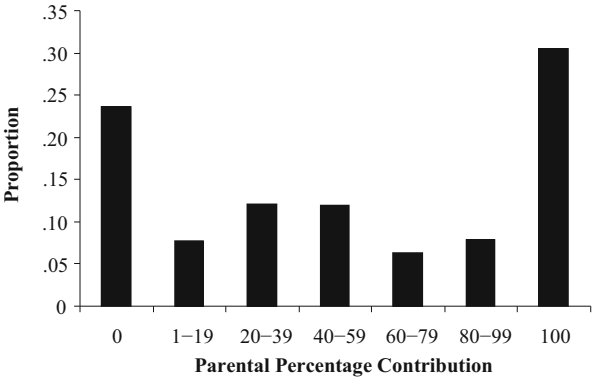

Fig. 2 Histogram for parental contribution to room and board away based on all children from the primary sample that attended some college and lived away from home

These descriptive results are important for at least two reasons. First, the amounts given over 10 or 17 years are not simple multiples of giving over two years. An accurate depiction of giving therefore requires observations over an extended period to account for year-to-year variation. Second, when aggregated over just 10 years, cash transfers to adult children are similar in magnitude to schooling transfers. Thus,

Table 2 Parental contributions to the college expenses of their children

	Mean	10th	25th	50th	75th	90th
A. Tuition for Children Attending College (N = 3,799)[a]						
Annual cost	4,801	1,012	1,728	2,811	6,400	11,777
Share paid	52.1	0	0	50	100	100
Years attending[b]	3.5	2	2	4	4	5
Total paid, all years	10,178	0	0	3,720	12,127	30,135
B. Room and Board for Children Attending College Away From Home (N = 2,626)[a]						
Annual cost	4,751	2,733	3,678	4,488	5,531	6,791
Share paid	53.4	0	10	50	100	100
Years attending[b]	3.4	2	2	4	4	5
Total paid, all years	8,963	0	1,125	6,327	14,714	21,324
C. Schooling Transfers Over All Years for Those Attending College (N = 3,799)						
Total paid, all years	16,741	0	882	7,897	24,080	45,423
D. Family Schooling Transfers Over All Years and Children, Families With at Least One Child Attending College (N = 1,842)						
Total paid, all years	31,698	0	1,728	14,792	41,746	82,637

Notes: Panels A, C, and D are based on children from the primary sample who attended college, and panel B is based on children from the primary sample who attended college and lived away from home. Schooling transfers in panels C and D refer to the sum of tuition and room and board payments. All monetary values are in 2008 dollars.

[a] The number of observations may differ across variables because of missing values.

[b] Years attending were capped at six.

Table 3 Transfers received by adult children

	Fraction Positive	Mean	Mean > 0	Median > 0
A. Observed 2000–2008 (N = 5,990)				
Schooling transfers	.40	8,432	21,133	12,705
Cash transfers 2000 (2 years)	.17	1,540	9,222	3,158
Cash transfers 2000–2008 (10 years)	.35	6,843	19,407	5,961
Cash transfers 2000–2008 + schooling transfers	.56	15,275	27,247	12,300
B. Observed 1992–2008 (N = 4,032)				
Schooling transfers	.35	6,746	19,008	11,873
Cash transfers 2000 (2 years)	.15	1,249	8,585	3,644
Cash transfers 2000–2008 (10 years)	.33	5,885	18,002	5,864
Cash transfers 1992–2008 (17 years)	.46	10,210	22,288	8,113
Cash transfers 1992–2008 + schooling transfers	.60	16,956	28,368	12,873
C. Observed 2000–2008 and at Least One Sibling in Sample (N = 5,676)				
Schooling transfers	.41	8,530	20,986	12,531
Cash transfers 2000 (2 years)	.17	1,509	8,909	3,037
Cash transfers 2000–2008 (10 years)	.36	6,972	19,456	5,961
Cash transfers 2000–2008 + schooling transfers	.57	15,502	27,241	12,259

Notes: Schooling transfers include all tuition, room, and board payments. Panel A is based on the entire primary sample. Panel B restricts the primary sample to those observed from 1992/1993–2008 and not in school prior to HUMS in order to avoid double-counting schooling transfers. In panel C, we repeat the tabulations from panel A but further restrict our sample to children with at least one sibling in the data; this sample is the same that is used in Tables 5 and 6. Dollar figures are reported in 2008 dollars.

although some parents often feel burdened by tuition payments, others continue to give generously long after the child has finished school.

The Patterns of Parental Transfers

Building on the earlier discussion of various motives for parental transfers, here we analyze the empirical relationships directly.

Equal Giving

We begin by examining equal giving with respect to schooling transfers, cash gifts, and the sum of the two. We define transfers to be equal if all amounts are within 10 % of the family mean, but results are similar when we consider alternative definitions (Haider and McGarry 2012).

Panel A of Table 4 shows the equality of schooling transfers by family size among children who attended college. The first row reports the fraction of families contributing equally with respect to the percentage of tuition paid by the parent. In families with two children who attended college, parents reported paying an equal percentage of the

Table 4 Equality of transfers among children

Measure of Parental Transfer	Number of Children			
	2	3	4	5+
A. Transfers to College-Attending Children, All Families				
N	568	313	121	60
Percentage contribution to tuition	.74	.60	.45	.38
Schooling transfers per year	.36	.19	.11	.10
Total schooling transfers	.30	.19	.11	.10
B. Transfers to All Children, All Families				
N	608	458	272	315
Total schooling transfers	.46	.40	.39	.51
Cash transfers 2000 (2 years)	.73	.73	.74	.72
Cash transfers 2000–2008 (10 years)	.48	.47	.47	.48
Total schooling transfers and cash transfers 2000–2008	.39	.33	.36	.43
C. Transfers to All Children, Positive Transfer Families				
Total schooling transfers	.16	.06	.01	.01
Cash transfers 2000 (2 years)	.22	.20	.08	.10
Cash transfers 2000–2008 (10 years)	.16	.07	.06	.03
Total schooling transfers and cash transfers 2000–2008	.16	.05	.01	.01

Notes: In panel A, families are grouped by the number of children attending college. In panels B and C, families are grouped by the number of children in the sample, not necessarily the number in the family. The sample size in panel C varies by row because each row contains only those families from panel B in which at least one child received a positive transfer for the type of transfer that is being analyzed.

tuition for their children 74 % of the time; in families with five or more children who attended college, this figure falls to 38 %.

Rather than equalizing percentage contributions, one could imagine parents endeavoring to give equal dollar amounts to children in each *year* they attend college, with totals differing should they attend for a differing numbers of years. Alternatively, parents may choose to transfer equal amounts in *total* regardless of the number of years children attend. We report per-year equality in row 2 and total equality in row 3. The fraction of households contributing equal per-year amounts ranges from 36 % in two-child families to just 10 % for those with five or more children, far less equal than when measured as a percentage. For total schooling transfers, the fraction of families with equal dollar contributions to a college education is roughly similar, ranging from 30 % to 10 %.

In panel B, we expand our analysis to include cash transfers and the sum of cash and schooling transfers. Here we include all children in the family, not just those who attended college. If parents use cash transfers to offset differences across children in schooling expenditures, we would expect greater equality with this combined measure than with schooling transfers alone. The first row again examines the amount of equal giving with respect to schooling transfers (the same measure used in the final row of panel A) but including children who did not go to college. The likelihood of equal giving here is greater than in panel A because the sample now includes those families in which no child attended college—families who necessarily gave (equal) zero schooling transfers to all children.

The second and third rows of the panel examine equal cash giving for 2- and 10-year periods. Among two-child families, 74 % gave equally when we examine two years of transfers, and surprisingly, the amount declines to 48 % for 10 years. The final row of panel B examines equal giving for the sum of schooling transfers and 10 years of cash transfers. Note that the amount of equal giving is again lower when we move to a wider definition of giving; parents do not appear to even out transfers over time or across type.

One difficulty in interpreting these results is that the amount of equal giving can be driven by those families who make no transfers and thus are giving equally by giving nothing to any child. Although the zeroes are indeed equal in practice, in theory these parents might prefer to treat children *unequally* by making negative transfers to some children. In panel C, we repeat these tabulations but include only those families in which at least one child has a positive transfer of the relevant type ("positive transfer families"). When comparing panels B and C, we find that the amounts of equal giving decline substantially. Thus, the high degree of equality in panel C was primarily driven by those families where parents gave nothing to all children. Despite the large change in levels of equality, the same patterns exist: as we expand the number of years or types of giving, the probability of equal treatment declines.

The results in Table 4 are robust to several specification checks. One concern is that our key schooling transfer measure, which is based on parents reporting the percentage of the list price that they paid, could contain significant measurement error (see footnote 16). For instance, parents could report the fraction they contributed to schooling in terms of the *net* price (exclusive of scholarships and financial aid) rather than the *list* price. To address this concern, we reproduced Table 4 for just those children who attended public institutions because the list and net prices likely differ by less than at private schools. All our estimates were quantitatively similar. A second concern is that the two-year transfer patterns we report are unique to 2000. We therefore reproduced the results for each two-year period from 2002 to 2008 and again found quantitatively similar results. A third concern is that we focus on financial transfers, but parents might equalize across financial transfers and nonfinancial transfers. Although we have limited information about nonfinancial transfers, the HRS does collect information about whether children live within 10 miles of the parents, and perhaps children who live within 10 miles are more likely to receive nonfinancial transfers, such as assistance with childcare. We therefore reproduced Table 4 for only those children who lived near their parents, and again, our results were quantitatively similar.

Explaining Transfer Receipt

We next examine which children in a family receive the largest transfers. Consider the regression

$$Transfer_{cf} = \alpha + \beta \mathbf{ChildX}_{cf} + \delta \mathbf{ParentX}_{f} + \varepsilon_{cf}, \quad (1)$$

where $Transfer_{cf}$ is the transfer that child c in family f receives, $\mathbf{ChildX}_{cf}$ is a vector of child characteristics, and $\mathbf{ParentX}_{f}$ is a vector of parent characteristics. Because schooling transfers were made prior to the collection of our data, we have few child characteristics measured contemporaneously with schooling transfers: gender, age, and

the number of siblings. For the regressions examining later cash transfers, however, we can include many additional characteristics measured concurrently: the child's marital status, number of children (grandchildren of the respondent), household income, and education, all measured at the time that transfers are reported. Because we study cash transfers over a 10-year period and the values of these variables can change over time, we use 10-year averages for each of the regressors.[20]

We model transfers using two econometric specifications: an ordinary least squares (OLS) specification that includes controls for parental age, education, race/ethnicity, income and wealth, and a family fixed-effects specification. The latter allows us to examine giving net of unobserved family characteristics that are constant over time, such as permanent income, generosity, and attitudes toward education.

Table 5 presents the results. With respect to schooling, the OLS specification (column 1) shows that transfers to boys are $1,052 less than to girls, but this effect disappears in the fixed-effects specification (column 2). Thus, parents do not appear to differentiate between sons and daughters within a family, but families with more boys have fewer schooling-related transfers, likely because of boys' lower attendance rates.

The importance of child age is also noteworthy. Schooling transfers decline with age at a rate of $459 (standard error or SE = 52) per year in the OLS specification and at $300 per year (SE = 41) in the fixed-effects specification. Thus, a child who reaches college four years earlier than a sibling receives $1,200 (= $300 × 4) less in schooling transfers, a substantial amount given mean transfers of $8,530. A possible explanation for this finding is that parents are more likely to be liquidity-constrained when their older children attend college. Alternatively, older children may receive more merit aid because of better academic performance and thus require less parental support.[21] Still another alternative is that the increasing cost of attending college has led parents to provided increased support over time.[22]

Although we can examine only the association between the number of siblings and transfers in the OLS specification, we do find a large and statistically significant effect; the presence of another sibling is associated with almost $900 less in both schooling transfers and in aggregated cash transfers.

Columns 3 and 4 of Table 5 report regression estimates for cash transfers aggregated over 10 years. The estimates are similar to the static two-year cash transfer results in previous studies (McGarry and Schoeni 1995, 1997). Focusing again on the within-family results, we find that younger children, children with more children of their own, and lower-income children tend to receive more transfers. Each grandchild adds $727 to the amount received, and a $1,000 increase in child income is associated with a $47 reduction in transfers.

In Table 6, we focus directly on the degree to which cash transfers offset differences in schooling investments by including prior schooling transfers as an explanatory variable in the cash transfer regressions. We again show OLS results controlling for the parental characteristics used in Table 5 and family fixed-effect estimates. We include no additional controls in columns 1 and 2 and add various child-level

[20] See McGarry (2016) for a study regarding the year-to-year changes in transfers in response to changes in characteristics of the child.

[21] Studies have shown, for example, that firstborn children are far more likely to receive National Merit Scholarships (Breland 1974).

[22] Tuition, room, board, and fees net of student aid at public four-year colleges and universities increased in real dollars by 26 % between 1992 and 2002 (Baum and Payea 2003).

Table 5 Regressions of schooling and 2000–2008 cash transfers: Ordinary least squares (OLS) and fixed-effects (FE) specifications

	Schooling Transfers		Cash Transfers 2000–2008	
Child Characteristics	OLS (1)	Family FE (2)	OLS (3)	Family FE (4)
Male	–1,052*	–303	–1,739	168
	(425)	(378)	(1,288)	(521)
Age in 2000	–459**	–300**	–152	–92
	(52)	(41)	(106)	(57)
Number of Siblings	–904**		–895**	
	(99.5)		(196)	
Married			–2,685**	–1,253
			(1,107)	(907)
Number of Own Kids			528	727**
			(375)	(237)
Income ($1,000s)			–46*	–47**
			(20)	(15)
Education			78	–76
			(259)	(175)
R^2	.23	.75	.05	.94
Mean of Dependent Variable	8,530		6,972	

Notes: All columns are based on the 5,676 children from the primary sample that have at least one sibling who is also in the primary sample. Standard errors, shown in parentheses, allow for clustering at the family level. Parental variables (not shown) include age, education, race and Hispanic ethnicity of head, income, and wealth.

*$p < .05$; **$p < .01$

characteristics in columns 3–6. If parents use cash transfers to offset greater expenditures on the schooling of some children, we would expect a negative coefficient on the schooling transfer variable.

When we include no additional controls, the estimated effect in the OLS specification is significantly positive, but this effect disappears when we include family fixed effects. With fixed effects, the coefficient is just $9 (SE = 23), indicating that parents do not compensate for differential schooling investments with cash transfers within families. These results highlight an important point: the positive relationship between schooling transfers and cash transfers found in OLS arises because of between-family variation.

In columns 3 and 4, we include the child's gender, age, marital status, and number of own children, but we exclude variables that are outcomes of schooling investments—income and schooling itself—to allow the entire effect of schooling investments to fall on schooling transfers. We also include parental age, education, race/ethnicity, income, and wealth. The coefficient on schooling transfers in the fixed-effects specification is once again statistically indistinguishable from zero. However, we do find that children who are younger, single, and themselves have more children receive greater transfers. These results suggest that children with greater need or facing greater liquidity constraints receive larger transfers.

Table 6 Regressions of 2000–2008 cash transfers: Ordinary least squares (OLS) and fixed-effects (FE) specifications

Child Characteristics	OLS (1)	Family FE (2)	OLS (3)	Family FE (4)	OLS (5)	Family FE (6)
Schooling Transfers ($1,000s)	472*	9	295	10	345	24
	(224)	(23)	(222)	(23)	(260)	(24)
Male			–1,400	136	–1,528	171
			(1,062)	(521)	(1,154)	(521)
Age in 2000			–43	–115*	–30	–85*
			(49)	(57)	(51)	(58)
Number of Siblings			–628*		–790**	
			(273)		(199)	
Married			–4,924**	–2,722**	–2,333**	–1,259
			(1,810)	(798)	(985)	(908)
Number of Own Kids			892 **	799**	651*	734**
			(280)	(236)	(276)	(237)
Income ($1,000s)					–53*	–47**
					(23)	(15)
Education					–922	–133
					(904)	(185)
R^2	.04	.94	.08	.94	.09	.94
Mean of Dependent Variable	6,972		6,972		6,972	

Notes: All columns are based on the 5,676 children from the primary sample that have at least one sibling who is also in the primary sample. Standard errors, shown in parentheses, allow for clustering at the family level. Parental variables (not shown) include age, education, race and Hispanic ethnicity of head, income, and wealth.

*$p < .05$; **$p < .01$

The final two columns add measures of the child's income and schooling attainment. Here again, we find no relationship between schooling and cash transfers (coefficient of $24, SE = 24), but we continue to find more transfers going to those children who tend to have more need. Based on the within-family results, transfers increase by $85 for each year a child is younger than his siblings, $734 for each additional grandchild, and $47 for each $1,000 less in family income.

Our regression results are robust to alternative specifications (not shown). Focusing on column 6 of Table 6, when we instead used the *fraction* of tuition paid as our measure of schooling transfers, cash transfers continued to be unrelated to tuition payments (coefficient of $7.5, SE = 12) and declined significantly with age (a coefficient of –0.57, SE = 0.08); this finding is reassuring because it is likely that the measurement error process for the fractional variable is quite different than that of our main schooling transfer variable.[23] The same was true when we instead specified transfers and child

[23] Measurement error is a concern because classical measurement error generally biases the estimated coefficient toward zero, and our main finding is that the coefficient on schooling transfers is estimated to be near zero. We expect there to be more measurement error in the dollar-denominated variable than in this fractional measure because the dollar amount is computed from several underlying variables, each of which likely contain some measurement error.

income in logarithms (a coefficient on cash transfers of –0.02, SE = 0.02). Finally, when we estimated the relationship between cash transfers and schooling transfers using only those children ages 30–60 under the assumption that our earnings measure for these children is more indicative of permanent income than it is for younger children, we found an estimated coefficient on schooling transfers of $9 (SE = 29).

Conclusion and Discussion

In this study, we provide evidence about parental transfers for college and how these schooling transfers relate to later cash transfers. These relationships are crucial to understanding the quantity of financial help parents provide to their children, as well as providing insights regarding some of the most influential economic models of the family. We improve on previous studies by examining both cash and schooling transfers, transfers to all children in a family, and transfers made over an extended period.

We highlight three main results. First, we find that parents make sizable contributions to their children's higher education, providing an average of almost $17,000 per college-going child. However, we also find a great deal of variation across siblings in the amount provided by parents. These differences are uncorrelated with gender but strongly related to birth order. Second, despite the large amounts given for schooling, we find that aggregate postschooling transfers easily exceed these amounts. Thus, although schooling costs are likely prohibitively high for some families, many parents transfer amounts far beyond these costs to their children. Third, we find no evidence that parents equalize transfers to children over time. Instead, parents appear to provide greater transfers to children who are younger, have lower income, and have more children of their own.

These empirical results are important not only for the patterns they reveal but also for the insights they provide regarding the theoretical models of transfer behavior discussed earlier. In particular, our results contradict the predictions of a model wherein parents seek to equalize transfers across children, such as Behrman et al.'s separable earnings/transfer model. Rather, the unequal amounts provided for college and responsiveness of later cash transfers to child income are more consistent with a model in which parents invest in the schooling of children and use later cash transfers to offset resulting income differences, as in Becker's original investment model or Behrman et al.'s wealth model.

Despite the richness of our results, data limitations cause us to leave several issues unanswered. Importantly, we cannot investigate possible explanations for unequal treatment. Parents could use transfers to elicit desired behavior (Bernheim et al. 1985) or to favor a certain child for reasons not observed in our data. Similarly, although we have a much broader measure of transfers than do previous studies (a 10-year window for our primary sample and up to 17 years for a subsample), our measure still falls short of capturing lifetime transfers, omitting investments that occur during childhood and cash transfers outside our window of observation. We are also unable to examine nonfinancial transfers, such as time transfers and shared living arrangements. Finally, any definition of "equality" is inherently subjective. Parents may give more to children with children of their own in order to equalize per capita transfers, or they may consider equal division among siblings after compensating

children for different abilities or health states. This former finding, that parents give more to children with children of their own, relates to a growing literature documenting the role of grandparents in affecting intergenerational mobility.[24]

Taken together, our study shows that much can be learned by examining a more complete picture of giving. For example, cash transfers are consistently associated with the need of a child rather than with previous giving, and these results become even stronger as we widen the window of observation. Future research should not only explore additional types of giving to assess whether this pattern remains but also examine other measures of child need in order to understand better how parents target their giving.

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[24] The HRS collects information about transfers to grandchildren of the respondents, which we include as transfers to the children. Among all transfers received by children of the respondents in each wave from 2000 to 2008, 9.8 % of these transfers included a payment that was targeted at (1) all grandchildren equally, or (2) all grandchildren and children equally. See Pfeffer and Killewald (2018) for an empirical examination, and see Solon (2014) for a theoretical discussion of the role of grandparents in intergenerational mobility.

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