Parental Investments in College and Later Cash Transfers

Steven J. Haider

Michigan State University

Kathleen McGarry

University of California, Los Angeles and NBER

13 June 2016

**Abstract.** The rising cost of college tuition and the accompanying financial investments parents often make in the schooling of their children have received considerable attention. While economic theory makes important predictions about the magnitudes of these investments, the distribution across children, and the relationship with later cash transfers, there has been little empirical work examining these predictions. A particularly striking omission is the potential for differences in investments across siblings. Using data from a supplement to the Health and Retirement Study (HRS), we find that parents typically spend differentially on the schooling of siblings but no evidence that this differential spending is offset by later cash transfers.

Key words: human capital investment, inter vivos transfers

JEL codes: J24, I23

We thank Todd Elder, Jonathan Skinner, Gary Solon and seminar participants at Boston College, Cornell University, Florida International University, and the 2012 University of Michigan/Michigan State University/Western University Labor Day Conference, and the University of Wisconsin for helpful comments on a previous draft. Emails: haider@msu.edu and mcgarry@ucla.edu

**1. Introduction**

Parents invest a great deal of time, money and energy in their children from the time the children are born until long after they reach adulthood. One dimension of this support that has recently received a great deal of attention both in the popular press and policy circles is the cost of contributing to a child’s college education.[[1]](#footnote-1) However, in addition to these schooling transfers, parents also provide significant financial support to their adult children through direct cash transfers (Gale and Scholz, 1994; McGarry forthcoming). The correlation between these two types of cash transfers, their magnitudes, and their relationships with family characteristics tie directly into important economic models of human capital investment and familial behavior.

The classic work of Gary Becker (Becker 1976; Becker and Tomes 1976) posits that parents invest in the schooling of their children until the rate of return for an additional year of schooling is equal to the market rate of return. Additional transfers, if desired, are made as direct cash transfers. Behrman, Pollak and Taubman (1982), addressing similar issues in the context of a transfer model, posit two specifications for the parental utility function, one in which parents attempt to equalize the *incomes* of children (as in Becker’s investment model) and a second in which parents seek to equalize *total transfers* to children. Other studies have considered how children might strategically respond to these cash transfers, perhaps altering behavior to extract more resources (Becker 1976, Bergstrom 1989, and Bruce and Waldman 1991).

Despite the centrality of these classic models to our understanding of educational attainment and family behavior, there has been little work examining the empirical patterns of these transfers. Instead, because of data limitations, most previous research has focused on educational transfers to a particular child, ignoring both transfers to their siblings and subsequent cash transfers. Other research has examined patterns of cash transfers to adult children, typically focusing on transfers at a single point in time, while ignoring schooling-based transfers altogether. Almost no work has examined the relationship between parental transfers for schooling and subsequent cash transfers, nor have researchers examined the differences across siblings in the types and amounts of transfers received.[[2]](#footnote-2) This limited focus has meant that not only do we know little about the relative investments across siblings, but we also have little understanding about how parents substitute between the two modes of giving or about the total value of all such transfers flowing from parents to adult children.

This paper makes several contributions that begin to fill these gaps. Using the classic models as a framework for understanding behavior, we first examine the extent to which parents spend differentially on the schooling of their children. We then compare the magnitude of schooling-related transfers to that of post-schooling cash transfers. Importantly, we are able to examine these subsequent cash transfers over a period as long as 17 years. Finally, we examine the relationship between schooling and cash transfers to assess whether the latter offset differential expenditures on the former.

Our analyses draw on the rich, longitudinal information in the Health and Retirement Study (HRS), as well as an unusual data supplement to the HRS, the Human Capital and Educational Expenses Mail Survey (HUMS). The HUMS supplement collects information for a subset of HRS respondents on their contributions to the college tuition and room and board costs of each of their children. When combined with information on cash transfers collected in the various core interviews, we are able to compare schooling transfers made to a child with the value of cash transfers made to that same child over a span of a decade or more.

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 and a total of $14,792 (2008 dollars) per family for families with at least one college-going child. However, these medians mask a great deal of variation: the modal fraction of tuition covered by parents is 100 percent, followed closely by zero transfers. We also find that parents typically treat siblings unequally with respect to the dollar amount of schooling transfers. And although there does not appear to be a significant difference by the sex of the child, we find strong evidence that birth order matters, with older children receiving smaller amounts than their younger siblings. This result is consistent with a lifecycle model in which parents are more likely to be liquidity constrained earlier in their life course when their older children reach college age than when their younger children do.

With respect to post-schooling transfers, we find that, when aggregating transfers over a ten year period, cash transfers are at least as important in magnitude as parental expenditures on college. Over a longer period, cash transfers from parents are actually larger than parental expenditures on college. In addition, we find no evidence that parents use these subsequent cash transfers to offset the differences in transfers targeted at schooling: later cash transfers are unrelated to parental expenditures on the schooling of their children once we control for family fixed effects. We also find a negative relationship between a child’s earnings and the amount of cash transfers, even after controlling for schooling transfers. This finding provides support for a model in which the total resources of a child influence parental giving, rather than the amount of transfers given previously. However, consistent with prior studies, the magnitude of the coefficient on child income implies that parental transfers fall far short of fully compensating children for lower incomes.

The remainder of the paper is organized as follows. In section 1 we briefly outline the relevant models of transfer behavior and some of the empirical literature examining schooling transfers and other cash transfers. Section 2 describes our data and section 3 presents descriptive information on the distribution of schooling transfers—results which represent an important contribution to the literature on their own. In section 4 we examine the relationship between schooling transfers and later cash transfers. These analyses address our central empirical questions: to what extent do parents spend equally on the college education of their children and to what extent are any differences in schooling transfers offset by cash transfers? A final section concludes and discusses our results.

**2. Background**

The focus of our analysis is on parental expenditures for post-secondary schooling (both tuition payments and room and board), the variation in these expenditures across siblings, and the extent to which later cash transfers relate to these schooling transfers. We first highlight the main features of the most relevant theoretical models and then provide a brief review of the empirical literature. Because we are interested primarily in how parents divide transfers across siblings, we focus on the relatively few papers that study such behavior.

**2.1. Theoretical models regarding parental transfers**

In Becker’s classic educational investment model (for example, 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, and any additional desire to increase child consumption is made through direct cash transfers. If the returns to schooling vary across siblings, perhaps because of differences in ability, then parents will invest differentially in their schooling and use cash transfers to equalize the marginal utility of consumption across children.

Behrman, Pollak and Taubman (1982, 1989) expand on these notions by specifying two alternative parental utility functions: a “wealth model” in which parents care about the total resources available to each of their children (akin to Becker’s educational investment model), and a “separable earnings / transfer model” in which the earnings of each child and transfers received by each child enter as separate arguments in the parental utility function.[[3]](#footnote-3) Both models are predicated on the assumption of equal concern (i.e., parents do not prefer one child over another).[[4]](#footnote-4)

First consider the wealth model. Approximating the authors’ notation, the utility function for a parent with *n* children can be written as

(1) $U\_{p}=U\left(C\_{p},V\left(E\_{1}\left(S\_{1}\right)+rT\_{1},E\_{2}\left(S\_{2}\right)+rT\_{2},…,E\_{n}\left(S\_{n}\right)+rT\_{n}\right)\right),$

where *Cp* is the consumption of the parents; *Ei* is the earnings of child *i*, which is a function of years of schooling *Si*; *Ti*is the cash (inter vivos) transfers to child *i*; and *r* is the market rate of interest. In this specification, income from earnings and transfers enter the parental utility function in a single argument. Thus, when maximizing utility, parents will invest in the schooling of each child until the marginal return to schooling is equal to the interest rate, thus equalizing the marginal returns to schooling across children. Any additional support is given as cash transfers so as to equalize the marginal utility across children. Under the typical assumptions regarding the returns to schooling—that the returns to schooling are increasing and concave in schooling and increasing in ability—parents will make greater investments in the schooling of more able children and will provide greater cash transfers to less able children, implying that schooling transfers would be negatively correlated with later cash transfers within family. [[5]](#footnote-5)

In Behrman, Pollak and Taubman’s second specification, the “separable earnings / transfer model”, the utility function of the parents can be written as

(2) $U\_{p}=U\left(C\_{p},V\_{E}\left(E\_{1}\left(S\_{1}\right),E\_{2}\left(S\_{2}\right),…,E\_{n}\left(S\_{n}\right)\right),V\_{T}\left(T\_{1},T\_{2},…,T\_{n};r\right)\right),$

As in the previous model, schooling transfers are made to equalize the marginal utility of consumption across children, which could lead to differential schooling investments across children. However, contrary to (1), cash transfers enter as a separate argument in the utility function, and will thus be equalized across children assuming equal concern.

One can readily see the appeal of both specifications. And unsurprisingly, open ended responses in surveys to direct questions regarding the reasons for a particular division of resources provide evidence for both rationales (Light and McGarry 2004).

Unlike the models discussed thus far, several authors have developed frameworks that directly consider how children might respond to potential parental transfers.[[6]](#footnote-6) Becker’s celebrated “Rotten Kid Theorem” shows that, under certain circumstances, even selfish children will act in the best interest of the larger family (Becker 1976; Becker 1991). In contrast, “Samaritan’s dilemma” models deliver conditions under which the behavior of altruistic parents could induce children to act sub-optimally, over-consuming in an initial period because the child knows that parents will provide additional cash transfers in a later period should his income be low.[[7]](#footnote-7)

In the context of a Samaritan’s dilemma model, Bruce and Waldman (1991) demonstrate that the possibility of “tying” transfers to schooling (i.e., paying tuition costs directly) can induce children to act optimally. In their model, parents can prevent a child from over-consuming in an initial period by making first-period transfers, up to the amount that provides the efficient level of schooling, directly as tuition payments. Brown, et al. (2012) use a similar model to motivate a novel empirical test for the existence of liquidity constraints in schooling outcomes. Specifically, because parents provide first period transfers only up to the efficient level of schooling, children who received later transfers must have received the optimal schooling investment, while others are possibly liquidity constrained. The authors then provide empirical evidence that college financial aid increases the educational attainment of children who are possibly liquidity constrained.

This last model is readily extended to multi-child families with varying returns to schooling across children. In an equilibrium in which second period transfers are made to all children, the children will receive different levels of schooling transfers in the initial period and second period cash transfers will be used to equalize the marginal utility of consumption across children.[[8]](#footnote-8) This outcome is identical to the basic Becker model and helps drive our empirical analysis.

Although we restrict our attention to models of “equal concern,” in practice, it is not clear how equality should be defined. For example, parents might endeavor to equalize transfers on a per capita basis, transferring greater resources to children with children of their own (e.g. grandchildren). Similarly, the well-being of children-in-law might be valued leading to greater transfers to married children. We consider discuss these possibilities in our empirical work below.

**2.2. Past empirical findings regarding parental transfers**

Despite the importance and seemingly tractable nature of these classic models, we know of little empirical work that has examined their implications directly. The vast literature examining educational attainment (for a useful summary of this literature, see Haveman and Wolfe 1995) contains only a few studies that focus on parental investments in the schooling of their children and even fewer that examine the differences in investments *within* families. However, the cross-family differences that have been the focus of this literature do provide some insights that are also relevant here.

One such aspect is the role of liquidity constraints. If schooling investments depend on the interest rate a family faces, then families that face higher interest rates (e.g. families with lower income, lower wealth, or more borrowing needs) would be expected to invest less in schooling. Numerous studies find that college attendance increases with family financial resources (for example, Ellwood and Kane 2000; Brown, Scholz, and Seshardri 2012; Belley and Lochner 2007; Bailey and Dynarski 2011; Haider and McGarry, forthcoming), and several studies show it falls with respect to family size (for example, Lindert 1977; Behrman, Pollak, and Taubman 1989). Lochner and Monge-Naranjo (2013) provides an excellent review of the literature on liquidity constraints, including the work on structural models that test for liquidity constraints directly.

In the context of within-family comparisons, if liquidity constraints bind earlier in the life course, families might invest less in older children relative to their siblings. Alternatively, federal financial aid formulas formulaically provide greater assistance to college bound children if their older siblings are enrolled in school, potentially lessening these life-cycle liquidity issues for later born children. Both of these examples suggest that younger children within a family might face fewer constraints on college attendance.

The investment model also predicts that parents will invest more in the schooling of their children when the returns to schooling are greater. If the returns to schooling increase with a child’s ability, then so too will schooling investments. Unfortunately, our data do not contain any direct measures of child ability. However, a large 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 the liquidity constraints.[[9]](#footnote-9) Similarly, if the returns to schooling differ by the gender of the child, then parents would invest differently in the schooling of their sons and daughters even when other characteristics are held constant (Jacob 2002; Barrow and Rouse 2005; Dougherty 2005, Behrman, Pollak, and Taubman 1986).

The empirical literature examining these patterns is limited and the findings have been mixed. Behrman and Taubman (1986) and Black, et al. (2005) find higher levels of schooling for older siblings, consistent with an investment model with positive returns to ability and older children having greater ability. However, in neither case are liquidity constraints likely to be much of a factor. Black et al. examine behavior in Norway where college education is free, and Behrman and Taubman use a sample of twins who born in the early 1950s, a period when college tuition was much lower than it is currently.

Powell and Steelman (1989) find that the gender composition of the children in the family matters for 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) find that additional brothers lead to more schooling for girls but not for boys, while additional sisters reduce a girl’s level of education. Using data from Japan, Parish and Willis (1993) find important interactions between the gender of the child and birth order, particularly for older girls: older daughters appear to help their younger siblings attain more schooling by foregoing additional education themselves and working to provide direct support by marrying early and freeing-up familial resources.

With respect to cash transfers, the literature has focused on the effect of the child’s income on the probability and amount of a transfer. Early work found that higher income children received greater transfers (Cox 1987). However, more recent work based on better information on the financial resources of both parents and children has found a consistent negative relationship: lower income children significantly receive greater transfers than their siblings, but the elasticity of transfers with respect to income is extremely small (e.g., Altonji et al. 1997; McGarry and Schoeni 1995). Other than income, the important determinants of transfers are variables that are correlated with financial resources and liquidity constraints such as marital status, home ownership and age. Unsurprisingly, the financial resources of the parents are strongly (positively) related to the probability of making a transfer and to the amount.

More closely related to our own work, Brown, et al. (2006) use the HRS and find that wealthier and more altruistic parents finance greater shares of their children’s education. Expanding on these results, they turn to the Wisconsin Longitudinal Study (WLS) to examine the correlation between educational transfers and cash transfers within families and find a negative relationship. While we find results consistent with wealthier parents investing more in their children’s education, we find a very different relationship between educational transfers and cash transfers.

**3. Data**

Our empirical work uses data from the Health and Retirement Study (HRS). The HRS is a panel survey of older Americans that began in 1992 with an initial cohort of households that included at least one individual born between the years 1931 and 1941. This initial cohort consisted of approximately 12,600 respondents in 7,600 households. A companion survey, the Asset and Health Dynamics Study (AHEAD), was administered in 1993 and in 1995 to a sample of individuals born in 1923 or earlier and their spouses or partners. This older cohort was merged with the HRS in 1998. At that time, two additional cohorts were added, one consisting of individuals born in the years 1924 to 1930 (and their spouses) and the other of individuals born in the years 1942 to 1947 (and their spouses). Taken together, these cohorts provide a sample of nearly 14,400 households that in 1998 is approximately nationally representative of households with an individual aged 51 or older. Once entered into the study, individuals in all cohorts are interviewed biennially for the remainder of their lives.[[10]](#footnote-10)

The biennial core surveys collect detailed information on the income, assets, and health of the respondents. They also collect a great deal of information on each of the respondents’ children, including the child’s household income, his schooling level, employment and marital status, and importantly for this study, cash transfers from the respondents to each child.

In 2001, the HRS mailed an off-year supplemental survey to a subsample of respondents that focused on educational expenses of their children. That survey, the Human Capital and Educational Expenses Mail Survey (HUMS), asked respondents about the college attendance of each of their children and their past contributions to each child’s schooling expenses. These detailed retrospective questions allow us to examine college spending on all children in the family. Consistent with the focus of these supplemental questions on college education, the HUMS targeted those families that previously reported having a child who attended post-secondary school.

Table 1 compares the means of various household characteristics measured in the 2000 survey for the sub-sample of households that were sent the HUMS and for the full HRS sample.[[11]](#footnote-11) The sample receiving the HUMS (column 1) is better-off financially and more highly educated than the full HRS (column 2), consistent with a selection based on having at least one child with post-secondary schooling. The average income for the HUMS sample is somewhat higher than for the full sample ($70,500 compared to $65,000 in 2008 dollars) as is wealth. HUMS families have more schooling than the full sample, 12.8 versus 12.3 years, and are more likely to be married. Finally, because respondents must have at least one child to be eligible for the HUMS survey, the families in our sample have more children on average than does the population of households.

Given the overall goals of the paper, we impose several additional restrictions on our primary sample. First, we exclude children who were born before 1951 so that we have tuition information in the HUMS and those born after 1975 so that all children in our sample were at least 25 years old and likely finished with college by the 2000 survey. Second, in addition to our age cut-off we exclude children who were still in school in 2000 or 2002 because transfers for schooling, reported in HUMS, would likely be reported in the transfer questions in the core surveys as well, making it difficult to separate schooling and non-schooling transfers. Third, we exclude those families in which the parents (the HRS respondents) divorce during our window of observation; attempting to assess how transfers change in response to divorce is beyond the scope of this paper.[[12]](#footnote-12) The appendix provides more details about how we process the HRS and the HUMS and basic descriptive information about our samples.

**4. The magnitude of parental contributions to adult children**

Because there have been almost no studies using HUMS (Brown, et al. 2006 is one exception) and only a few analyzing parental investments in the schooling of children more generally, we begin our analysis with some descriptive information on schooling-related transfers. 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 respondents are quite elderly and their children likely attended college many years (or decades) before the HUMS was fielded, the survey asked respondents to report the *fraction* of each child’s tuition that they paid rather than the actual dollar amount.[[13]](#footnote-14) Similar questions were then asked about the fraction the parent contributed to room and board for those children who lived away from home while in school.

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. The HRS then used this information to obtain the relevant tuition and room and board costs from the National Center for Educational Statistics (NCES) and added these costs to the public release file. With annual measures of tuition, room and board, the dates of college attendance, and the fraction contributed towards tuition (and / or room and board), we can calculate the dollar amount of parental transfers for schooling. We stress from the outset that our calculations assume that parents report their contribution as a fraction of the posted tuition and room and board amounts (the “sticker price”), as the survey question specifies, rather than the tuition that is net of financial aid; several sensitivity checks suggest that the data are broadly consistent with this assumption.[[14]](#footnote-15)

Figures 1 and 2 display the histograms for the percentage parents reported contributing to tuition and to room and board. Here we include contributions for all children in our restricted sample who attended college (figure 1) or who attended college and lived away from home while doing so (figure 2). In each figure, the modal response is 100 percent, 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 percent, with 26 percent contributing nothing to tuition costs and 22 percent contributing nothing to room and board costs. Perhaps surprisingly, while 50 percent is also a common response, it accounts for only 11 percent of the reported tuition contributions and 10 percent of the room and board contributions.[[15]](#footnote-16) Overall, we see a substantial amount of heterogeneity for both distributions.

In table 2 we combine the information on fraction of tuition paid with data on the number of years each child attended school and school-specific costs to obtain the total parental contribution in dollar terms. We show the contributions for tuition for those children who attended college in panel A. The mean parental percentage contribution is 52.1 percent and the mean and median of years of attendance are 3.5 and 4, respectively. With the mean annual tuition charged by the schools equal to $4,751 (in 2008 dollars), the average implied amount paid by parents over the college career of a child is $8,963.[[16]](#footnote-17) Once again, there is substantial variation in the amount contributed by parents. Total tuition expenditure per child is $0 at the 25th percentile, but over $30,000 at the 90th percentile.

The contributions to room and board, reported in 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 pay a non-zero amount. This difference in the contribution for room and board is consistent with children in wealthier families being more likely both to live away from home while in school and to receive larger fractional contributions. When we restrict the sample in panel A to children who live away from home while in college (not shown), the average tuition share paid by the parent increases to 53.2 percent, a value quite similar to the 53.4 reported for room and board in panel B.

We combine contributions for tuition and for room and board in panels C and D and find that the total amount invested over a child’s college career is substantial. The mean parental contribution is $16,741 per child who attends college (panel C) and $31,698 per family with at least one child who attended college (panel D). Again, the heterogeneity in the amounts is dramatic. At the child level, the 25th percentile for contributions is $882 and the 75th percentile is $24,080, or almost 30 times greater. Similar heterogeneity exists at the family level in panel D.

In table 3, we expand our analysis from examining the magnitude of schooling transfers for just those children who attend college, to examining schooling and cash transfers for *all* children in our primary sample, regardless of college attendance. In panel A, we restrict the sample to those children for whom we have information in each wave from 2000 to 2008, the years on which we focus in the next section. Each of these five waves collects information about transfers for the preceding two years, so we can examine 10 years of transfer receipt. Note that we exclude from the sample any children who were enrolled in college during these years so as not to double count transfers for tuition.

The first row of panel A reports results for schooling transfers. Forty percent of children received a positive schooling transfer, with an overall mean of $8,432 and a conditional mean of $21,133. The subsequent row shows the same statistics for cash transfers in the two years immediately preceding the 2000 interview. Just 17 percent of children received a cash transfer in these two years, with an unconditional mean transfer being $1,540 and the conditional mean being $9,222. When we move to the total transferred over 10 years (third row), we find that 35 percent of children received a cash transfer, with an unconditional mean of $6,843 and a conditional mean of $19,407. The final row in the panel reports total parental transfers summing together both types of gifts. These total amounts attest to the substantial investments parents make in their children: 56 percent of children receive a transfer of some sort and the average amount, conditional on a positive value is $27,247.

In panel B, we take an even wider window of observation and examine transfers over the entire survey period 1992/93 to 2008, necessarily losing some observations.[[17]](#footnote-18) With this longer time frame, we find even greater giving. Forty-six percent of the children in the sample received a cash transfer compared to 35 percent who received a schooling transfer. The mean amount for total cash transfers rises to $8,538, an amount now larger than the mean schooling transfer of $6,746. However, the *conditional* mean and median of schooling transfers are still greater. Importantly, the value of transfers aggregated over longer periods, both in panels A and B, do not simply scale up according to the number of years that are covered, indicating that there is substantial variation in giving over time.

Panel C returns to those children observed for the 10 year time period used in panel A, but 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 analysis in the following sections. We lose just 314 children and the results for panels A and C are thus very similar.

These descriptive results are important for several reasons. First, given the variability in transfers over time, understanding the patterns of giving requires that we observe family behaviors over multiple years. Second, when aggregated over just 10 years, cash transfers are of similar magnitude to schooling transfers and are a significant component of parental giving. Thus, although parents often report feeling burdened by tuition payments, many continue to give generously long after the child has finished school.

**5. The patterns of parental transfers**

The models discussed in section 1 provide insights regarding the distribution of transfers across siblings and the relationship between parental investments in schooling and cash transfers. In this section we analyze these relationships directly.

**5.1. Equal giving**

In table 4 we present evidence on the extent to which parents contribute equally to their children in each of several dimensions. We define transfers to be “equal” if all amounts are within 10 percent of the family mean. Results are similar when we consider narrower and wider definitions of equality (Haider and McGarry 2012).

Panel A shows the equality of schooling transfers to those children who attend college for three different measures of schooling transfers: the percentage of annual tuition paid for by the parent, the amount of schooling transfers per year of attendance, and total schooling transfers over all years of attendance. We report the results separately for families with two, three, four, and five or more children attending college.

The first row of panel A shows the results for the fraction of families contributing equal percentages to annual tuition. In families with two college-going children, parents report paying an equal percent of the tuition for their children 74 percent of the time, with this figure falling to 38 percent in families with 5 or more children who attended college. Included in these numbers are those families in which no children received transfers for college. If we exclude these families and consider only equal giving conditional on at least one child receiving a positive transfer, the percent with equal shares paid across children falls to 42 percent for two child families and 20 percent for families with 5 or more children (results not shown in the table). Thus, many of the equal giving families are those in which parents make zero transfers to all college-going children.

One could imagine parents endeavoring to give equal dollar amounts to children in each *year* they attend college, with totals differing should they choose to attend for different periods of time. Alternatively, parents may choose to transfer equal *total* amounts regardless of the number of years for which their children attend. The second and third rows of panel A show the equality of schooling transfers per year (row two) and combined over all years of attendance (row 3), to allow for the possibility of parents equalizing transfers in either dimension. The fraction of households contributing equal amounts on an annual basis ranges from 36 percent in two-child families to just 10 percent for those with five or more children, far lower than the fraction of families with equal percentage contributions shown in the first row. When aggregated over all years, the fraction of families with equal dollar contributions is similar to the fraction making equal transfers on an annual basis for all family sizes.

In panel B, we expand our analysis of equal giving to examine the sum of schooling and later cash transfers. We now 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 is somewhat greater than in Panel A because the sample now includes those families in which no child attended college, and thus families who necessarily gave zero schooling transfers to all children.

The second and third rows of panel B examine equal giving in cash transfers of a two-year and ten-year period, respectively. For example, among two child families, 74 percent gave equally when we examine two years of transfers, and surprisingly, this amount declines to 50 percent when we examine ten years of transfers. The relatively high amount of equal giving is driven by those families that give zero, but interesting for our purposes, the amount of equal giving is lower when we move to a longer period of giving for all family sizes.

The final row of panel B examines equal giving for the sum of schooling transfers and ten years of cash transfers. In all cases, the percentage of equal transfers is lower when compared to the probability of making equal cash transfers, suggesting that a broader definition of transfers results in less, rather than more, equality. This result provides our first hint that later cash transfers do not offset schooling transfers.

As alluded to above, a difficulty with interpreting the panel B results is that the amount of equal giving can be driven by those families who do not make any transfers, giving equally by giving nothing to anyone. Although the zeroes certainly represent equal treatment in practice, in theory the parents might desire to treat children unequally by making negative transfers to some, but are unable to extract resources from those children.

In light of such issues, panel C repeats the tabulations from panel B, but includes only those families in which at least one child has a positive transfer of the relevant type (labeled “positive transfer families”). When comparing panel C to B, the amounts of equal giving declining substantially for all groups, making it is readily apparent that the high degree of equality was indeed driven by those families where parents gave nothing to any child. For example, focusing on 10-year cash transfers in the third row of panel C, only 8 percent of 3-child families gave equal amounts when at least one child received a positive amount and just 3 percent of families with 5 or more children gave equal amounts. Despite this large change in levels of equality between panel B and panel C, the same relative patterns exist: as we expand the definition of transfers to include college tuition, the amount of equality again declines.

**5.2. Explaining transfer receipt**

We next examine which children are receiving larger transfers than their siblings. To examine this issue consider the regression

(3) $Transfer\_{cf}=α+βChildX\_{cf}+δParentX\_{f}+ε\_{cf}$,

where $Transfer\_{cf} $is the transfer that child *c* in family *f* receives, $ChildX\_{cf}$ are pre-determined or coincident characteristics of the child, and $ParentX\_{f}$ are characteristics of the parents. Because transfers for schooling were made before our window of observation, we do not have many characteristics of the child to use as explanatory variables. Our child characteristics are thus limited to gender, age (birth year) and number of siblings. For the regressions for cash transfers, however, we are able to include the child’s marital status, number of children (grandchildren for the respondent), household income, and education. Because we study cash transfers over a ten-year period (based on the 2000-2008 surveys), and because these values can vary over time, we use the average value of the regressors over the same period.[[18]](#footnote-19)

We use two econometric specifications to examine the determinants of transfers. . The first is an OLS specification that includes controls for parental age, education, race / ethnicity, income and wealth. The second is a family fixed effect regression that allows us to examine giving to children net of unobserved family characteristics, such as permanent income, generosity, and attitudes towards education that are constant over time.

Table 5 presents our results. With respect to schooling transfers, the OLS specification (column 1) shows that transfers made to boys are lower than those made to girls by about $1,052, but this effect disappears in the family fixed effects specification (column 2). Taken together, these results imply that families with more boys transfer less for schooling, on average, a result consistent with the results of Powell and Steelman (1989), but also that parents do not differentiate between sons and daughters withina family.

The significant coefficient on child age (measured in 2000) is also noteworthy. Schooling transfers decline with child age at a rate of $459 (s.e.=52) per year in the OLS specification, and this decline remains relatively large at $300 (s.e.=41) per year when we look within families. These coefficients indicates that a child who reaches college four years earlier than a sibling receives $1200 (=$300 × 4) less in schooling transfers, which is substantial given mean schooling transfers of $8,530. As we noted earlier, a possible explanation for this finding is that parents are more likely to be liquidity constrained when their older children attend college, and less so for later born children. Another explanation is that older children receive more merit aid through their better academic performance, which would then require less parental support.[[19]](#footnote-20)

While we can only examine the association between the number of siblings and transfers in the OLS specification, we do find a statistically significant and relatively large negative effect: the presence of another sibling is associated with almost $900 less in both schooling transfers and in aggregated cash transfers. This finding is consistent with parents with more children having fewer resources and with there being more competition for these resources.

Columns 3 and 4 of table 4 show results for ten-year cash transfers which 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. For example, 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 difference in schooling investments by including schooling transfers as an explanatory variable. For each specification, we again show OLS results that include the same parental characteristics used in table 5 and family fixed effect results that effectively control for all family characteristics that are fixed over time. We include no additional control variables in columns 1 and 2 and add various child-level characteristics in columns 3 through 6.

The simple association between cash transfers and schooling investment in column (1) is strongly positive, consistent with what has been found elsewhere. Importantly, however, there is no such association within families. The coefficient on schooling transfers is just $9 (s.e.=23), indicating that differential schooling investments are not offset with later cash transfers. This pair of results identifies an important phenomenon: the positive relationship between schooling transfers and later cash transfers found across families (and in previous studies) is likely simply an artifact of parents who give generously for schooling continuing to give generously with later transfers. This result was not apparent in previous studies that, by necessity, focused on a single parent-child pair.[[20]](#footnote-21)

In columns 3 and 4 we include the child’s gender, age, marital status, and number of own children, but 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 result for schooling transfers with family fixed effects is once again statistically indistinguishable from zero. However, we do find that children who are younger, single, and have more of their own children receive greater transfers. All of these variables can be interpreted as reflecting that children with greater need or facing greater liquidity constraints receive larger transfers.

The final two columns additionally include measures of the child’s income and schooling attainment. Here again, the results show no relationship between schooling transfers and later cash transfers (the point estimate is just $24 per $1000 of schooling transfers, s.e.=24), but again show that parents transfer more to younger children, lower income children, and children with more children of their own. Based on the within-family results, transfers increase by $85 for each year a child is younger relative to his siblings, $734 for each additional grandchild in the family, and $47 for each $1,000 less in family income.

These results are robust to variations in our sample definitions and to alternative specifications of schooling transfers. For example, we also estimated the models in table 5 and table 6 using the *fraction* of tuition paid as our measure of schooling transfers. Once again, cash transfers are unrelated to tuition payments (a coefficient of $7.5, s.e.=12, corresponding to table 6, column 6) but decline significantly with age (a coefficient of -0.57, s.e.=0.08, corresponding to table 5, column 2). As another robustness check we estimated the relationship between cash transfers and schooling transfers using only those children ages 30 to 60 under the assumption that annual earnings later in life are a better proxy for lifetime earnings than those in their 20s (Haider and Solon, 2006). With this more restrictive age band we an estimated coefficient on schooling transfers of $9 (s.e.=29).

These regression results and the general inequality of transfers in table 4 cast doubt on models in which parents endeavor to equalize schooling transfers or later cash transfersor the sum of all transfers. However, the differential investment in the schooling of children and the compensatory nature of later cash transfers provide some support for models in which parents try to equalize consumption across children, although the degree of equalization is small relative to observed differences across children.

**6. Conclusion and discussion**

Numerous economic models have been proposed to describe the motivation for parental transfers and these models make important predictions about what sort of transfer patterns should be observed. However, empirical analyses of these patterns are quite limited. Most previous studies have necessarily focused on a single type of transfer, typically annual giving, measured at a single point in time and thus provide an incomplete picture. Even less is known about parental transfers directed at the schooling of their children. Simple descriptive information, such as the variation across siblings in the amounts parents contribute towards a college education and the association between schooling and later cash transfers, has not been available. This paper begins to fill these gaps.

We find substantial variation in schooling transfers to children across and within families, with the modal contribution being parents covering all of the costs of college and the next most common contribution being that parents cover none of the costs. Within family, few parents come close to equalizing schooling transfers across their children. Despite these unequal schooling transfers, we find no evidence that parents use other cash transfers to offset the differences in contributions to a college education. Although simple associations suggests that there is a positive relationship between schooling investments and later cash transfers (as has been demonstrated elsewhere), there is no such association when looking within families. Furthermore, we find no evidence that expanding the window of observation increases the likelihood of equal giving.

While parents do not appear to equalize transfers across children, we do find several consistent patterns in how children are treated. Younger children within a family systematically receive greater schooling transfers than do their older siblings, indicating a potentially important role for the presence of liquidity constraints at the time the child enrolls in school. We also find a consistent negative relationship between the child’s own income and cash transfers, both in a single period and over longer periods of time, indicating that cash transfers are compensatory. While the direction of this relationship is consistent with Becker’s model where parents endeavor to equalize income across children, the size of our estimated coefficients implies that the compensatory behavior is far from complete, with parents making up less than a penny per dollar of lower income.

Despite the richness of our results, we leave several questions unanswered. Given the nature of our data, we are unable to explore the potential for unequal concern across children within a family or the factors correlated with such preferences. Parents could, for example, use transfers to elicit and reward children for good behavior (for example, Bernheim, et al., 1985). Second, while we have a much broader measure of transfers than do previous studies (10 years for our primary sample and up to 17 years for a subsample), our measure still falls short of capturing total lifetime transfers, omitting investments that occur during childhood, cash transfers outside our window of observation, and bequests. Third, the appropriate definition of equal concern is not clear. For example, our results show that children with more children of their own receive greater transfers. While such an association is consistent with parents providing more resources to families with greater need, it is also consistent with parents equalizing transfers among a larger group of descendants, perhaps equalizing transfers among some weighted combination of children and grandchildren.[[21]](#footnote-22) And finally, we have limited our study to financial transfers. The transfer of time or coresidence is ignored.

We end on a perhaps optimistic note. Despite the attention paid in the popular press to the high costs of a college degree and the burden these costs place on parents, we find intriguing our result that cash transfers, measured over a ten year period subsequent to the completion of schooling, are comparable to schooling investments in both prevalence and magnitude. Extending this period of observation to the remainder of a parent’s life would only increase the relative importance of cash transfers. Thus, although the burden of paying for college is real and many parents spend substantially on a college education for their children, there is little evidence that college transfers are larger than what parents choose to transfer to their adult children over the years that follow.

**References**

Altonji, Joseph, Fumio Hayashi, and Laurence Kotlikoff. 1997. “Parental Altruism and Inter Vivos Transfers: Theory and Evidence.” *Journal of Political Economy* 105(2):1121–66.

Bailey, Martha and Susan Dynarski. 2011. “Inequality and College Entry and Completion.” In *Whither Opportunity? Rising Inequality and the Uncertain Life Chances of Low-Income Children* (eds. Greg Duncan and Richard Murnane). New York: Russell Sage.

Barrow, Lisa and Cecilia Rouse. 2005. “Do Returns to Schooling Differ by Race and Ethnicity?” *American Economic Review*, 95(2):83-87.

Becker, Gary. 1976. *The Economic Approach to Human Behavior*. Chicago: University of Chicago Press.

Becker, Gary and Nigel Tomes. 1976. “Child Endowments and the Quantity and Quality of Children.” *Journal of Political Economy*, 84(4):S143-S162.

Behrman, Jere, Robert Pollak, and Paul Taubman. 1982. “Parental Preferences and Provision for Progeny.” *Journal of Political Economy,* 90(1):52–73.

Behrman, Jere, Robert Pollak, and Paul Taubman. 1986. “Do Parents Favor Boys?” *International Economic Review,* 27(1):31-52.

Behrman, Jere, Robert Pollak, and Paul Taubman. 1989. “Family Resources, Family Size, and Access to Financing for College Education.” *Journal of Political Economy,* 97(2):398-419.

Behrman, Jere and Paul Taubman. 1986. “Birth Order, Schooling, and Earnings.” *Journal of Labor Economics,* 4 (3, part 2):S121-S145.

Belley, Philippe and Lance Lochner. 2007. “The Changing Role of Family Income and Ability in Determining Educational Achievement.” *Journal of Human Capital*, 1(1):37-89.

Bernheim, B. Douglas, Andre Shleifer, and Lawrence Summer. 1985. “The Strategic Bequest Motive.” *Journal of Political Economy,* 93(6):1045–1076.

Bergstrom, Theodore. 1989. “A Fresh Look at the Rotten Kid Theorem—and Other Household Mysteries.” *Journal of Political Economy*, 97(5):1138-1159.

Black, Sandra, Paul Devereux, and Kjell Salvanes. 2005. “The More the Merrier? The Effect of Family Size and Birth Order on Children’s Education.” *Quarterly Journal of Economics,* 120 (2):669-700.

Booth, Alison and Hiau Joo Kee. 2009. “Birth Order Matters: The Effect of Family Size and Birth Order on Educational Attainment.” *Journal of Population Economics*, 22(2):367-397.

Breland, Hunter. 1974. “Birth Order, Family Configuration, and Verbal Achievement.” *Child Development*, 45:1011-1019.

Brown, Meta, Maurizio Mazzocco, John Karl Scholz, and Ananth Sheshardi. 2006. “Tied Transfers.” Unpublished manuscript, University of Wisconsin.

Brown, Meta, John Karl Scholz, and Ananth Sheshardi. 2012. “A New Test of Borrowing Constraints for Education.” *Review of Economic Studies*, 79 (2):511-538.

Bruce, Neil and Michael Waldman. 1991. “Transfers in Kind: Why They Can Be Efficient and Nonpaternalistic.” *American Economic Review*, 81(5):1345-1351.

Butcher, Kristin and Anne Case. 1994. “The Effect of Sibling Sex Composition on Women’s Education and Earnings.” *The Quarterly Journal of Economics*, 109 (3):531-563.

Cox, Donald. 1987. “Motives for Private Income Transfers,” *Journal of Political Economy*, 95(3):509-546.

Dougherty, Christopher. 2005. “Why Are the Returns to Schooling Higher for Women than for Men?” *Journal of Human Resources*, 40(4):969-988.

Ellwood David and Thomas Kane. 2000. “Who Is Getting a College Education? Family Backgrounds and the Growing Gaps in Enrollment.” In *Securing the Future: Investing In Children from Birth to College* (eds, Sheldon Danziger and Jane Waldfogel), 283-324. New York: Russell Sage Foundation.

Haveman, Robert and Barbara Wolfe. 1995. “The Determinants of Children’s Educational Attainments: A Review of Methods and Findings.” *Journal of Economic Literature,* 33(4):1829-1878.

Haider, Steven and Kathleen McGarry. 2005. “Recent Trends in Resource Sharing Among the Poor.” in *Working and Poor*, Rebecca Blank, Sheldon Danziger and Robert Schoeni, eds. New York : Russell Sage.

Haider, Steven and Kathleen McGarry. 2012. “Parental Investments in College and Later Cash Transfers.” NBER Working Paper No. w18485.

Haider, Steven and Kathleen McGarry. forthcoming. “Post-Secondary Schooling and Parental Resources: Evidence from the PSID and HRS.” *Education Finance and Policy*.

Haider, Steven and Gary Solon. 2006. “Life-Cycle Variation in the Association between Current and Lifetime Earnings.” *American Economic Review*, 96(4):1308-1320.

Haider, Steven and Melvin Stephens. 2007. “Is There a Retirement-Consumption Puzzle? Evidence Using Subjective Retirement Expectations.” *Review of Economics and Statistics* 89(2):247-264.

Henretta, John, Beth Soldo, and Matthew Van Voorhis. no date. “Household Allocations for Children’s College Education: Evidence for the “Snow White” Effect.” Unpublished manuscript.

Hurd, Michael and Kathleen McGarry. 1995. “Evaluation of the Subjective Probabilities of Survival in the Health and Retirement Study.” *The Journal of Human Resources,* 30:S268-S292.

Jacob, Brian. 2002. “Where the Boys Aren’t: Non-Cognitive Skills, Returns to School and the Gender Gap in Higher Education.” *Economics of Education Review*, 21:589-598.

Kantarevic, Jasmin and Stephane Mechoulan. 2006. “Birth Order, Educational Attainment, and Earnings: An Investigation Using the PSID.” *The Journal of Human Resources* 41(4):755-777.

Lieber, Ron. 2011. “Balancing Debt Against College Choice.” *New York Times*, March 12, 2011. Accessed 20 May 2012: http://www.nytimes.com/2011/03/24/your-money/24TEENS.html?pagewanted=all.

Lindert, Peter. 1977. “Sibling Position and Achievement.” *The Journal of Human Resources*, 12(2):198-219.

Light, Audrey and Kathleen McGarry. 2004. “Why Parents Play Favorites: Explanations for Unequal Bequests.” The American Economic Review, 94(5):1669-1681.

Lochner, Lance and Alexander Monge-Naranjo. 2013. “Credit Constraints and Human Capital.” *Annual Review of Economics*, 4:225-256.

McGarry, Kathleen. forthcoming. “Dynamic Aspects of Family Transfers.” *Journal of Public Economics*.

McGarry, Kathleen and Robert Schoeni. 1995. “Transfer Behavior in the Health and Retirement Study: Measurement and the Redistribution of Resources within the Family.” *The Journal of Human Resources*, 30:S184-S226.

McGarry, Kathleen and Robert Schoeni, 1997. “Transfer Behavior within the Family: Results from the Asset and Health Dynamics Study.” *The Journals of Gerontology*, 52B:82-92.

Parish, William and Robert Willis. 1993. “Daughters, Education and family Budgets Taiwan Experiences.” *The Journal of Human Resources,* 28(4):863-898.

Powell, Brian and Lala Carr Steelman. 1989. “The Liability of Having Brothers: Paying for College and the Sex Composition of the Family” *Sociology of Education*, 62(2):134-147.

Ryman, Anne. 2012. “College dreams create costly debt.” *USA Today*, March 18, 2012 Accessed 30 May 2012: http://www.usatoday.com/USCP/PNI/Front%20Page/2012-03-18-pni0318met-college-billsusethisversion\_ST\_U.htm.

Sallie Mae and Ipsos. 2011. *How America Pays for College 2011*. Accessed 30 May 2012: https://www1.salliemae.com/NR/rdonlyres/BAF36839-4913-456E-8883-ACD006B950A5/14952/HowAmericaPaysforCollege\_2011.pdf.

Wilhelm, Mark. 1996. “Bequest Behavior and the Effect of Heirs’ Earnings: Testing the Altrusitic Model of Bequests.” *American Economic Review,* 86(4):874–892.

Table 1: Comparison of Households Receiving HUMS to 2000 HRS Sample

|  |  |
| --- | --- |
|  | Means(Standard errors) |
|  | HUMS |  | 2000 HRS |
| Number of observations† | 3,862 |  | 13,214 |
|  |  |  |  |
| Household income |  70,571 (1,710) |  |  64,997(1,216)  |
| Household wealth |  450,806(19,759)  |  |  401,747(10,029)  |
| Married/partnered |  0.56(0.01)  |  |  0.50(<0.01)  |
| Age\* |  65.8(0.16)  |  |  66.7(0.09)  |
| Education\* |  12.8(0.05)  |  |  12.3(0.03)  |
| Number children in 2000 |  3.37(0.03)  |  |  3.02(0.02)  |
| Nonwhite\*\*  | 0.15(0.01) |  | 0.16(<0.01) |

Notes: Dollar figures are reported in 2008 dollars. †The number of observations may differ across variables due to missing values. \* For couples, age and education are the values for the male. \*\*Nonwhite=1 if either spouse is non-white.

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)\* |
| 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† | 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)\* |
| 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† | 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 |

Note: 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 refers to the sum of tuition and room and board payments. All monetary values are in 2008 dollars. \*The number of observations differs across variables due to missing values. †Years attending college were capped at six.

Table 3: Transfers Received by Adult Children

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  | Fraction Positive | Mean | Mean>0 | Med.>0 |
| A. Observed 2000-2008 (N=5,990) |  |  |  |  |
| Schooling transfers | 0.40 | 8,432 | 21,133 | 12,705 |
| Cash transfers 2000 (2 years) | 0.17 | 1,540 | 9,222 | 3,158 |
| Cash transfers 2000-2008 (10 years) | 0.35 | 6,843 | 19,407 | 5,961 |
| Cash transfers 2000-2008 + schooling transfers | 0.56 | 15,275 | 27,247 | 12,300 |
|  |  |  |  |  |
| B. Observed 1992-2008 (N=4,032) |  |  |  |  |
| Schooling transfers | 0.35 | 6,746 | 19,008 | 11,873 |
| Cash transfers 2000 (2 years) | 0.15 | 1,249 | 8,585 | 3,644 |
| Cash transfers 2000-2008 (10 years) | 0.33 | 5,885 | 18,002 | 5,864 |
| Cash transfers 1992-2008 (17 years) | 0.46 | 10,210 | 22,288 | 8,113 |
| Cash transfers 1992-2008 + schooling transfers | 0.60 | 16,956 | 28,368 | 12,873 |
|  |  |  |  |  |
| C. Observed 2000-2008 and at least one sibling in sample (N=5,676) |  |  |  |  |
| Schooling transfers | 0.41 | 8,530 | 20,986 | 12,531 |
| Cash transfers 2000 (2 years) | 0.17 | 1,509 | 8,909 | 3,037 |
| Cash transfers 2000-2008 (10 years) | 0.36 | 6,972 | 19,456 | 5,961 |
| Cash transfers 2000-2008 + schooling transfers | 0.57 | 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(3)-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.

Table 4: Equality of Transfers among Children

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  | Children |
| Measure of parental transfer | 2 | 3 | 4 | 5+ |
| A. Transfers to college attending children, all families | N=568 | N=313 | N=121 | N=60 |
| Percent contribution to tuition | 0.74 | 0.60 | 0.45 | 0.38 |
| Schooling transfers per year  | 0.36 | 0.19 | 0.11 | 0.10 |
| Total schooling transfers  | 0.30 | 0.19 | 0.11 | 0.10 |
|  |  |  |  |  |
| B. Transfers to all children, all families | N=764 | N=567 | N=328 | N=390 |
| Total schooling transfers | 0.46 | 0.40 | 0.42 | 0.55 |
| Cash transfers 2000 (2 years) | 0.74 | 0.73 | 0.76 | 0.75 |
| Cash transfers 2000-2008 (10 years) | 0.50 | 0.47 | 0.51 | 0.50 |
| Total schooling transfers and cash transfers 2000-2008 | 0.40 | 0.33 | 0.37 | 0.45 |
|  |  |  |  |  |
| C. Transfers to all children, positive transfer families |  |  |  |  |
| Total schooling transfers | 0.16 | 0.05 | 0.01 | 0.01 |
| Cash transfers 2000 (2 years) | 0.23 | 0.19 | 0.10 | 0.10 |
| Cash transfers 2000-2008 (10 years) | 0.17 | 0.08 | 0.06 | 0.03 |
| Total schooling transfers and cash transfers 2000-2008 | 0.15 | 0.05 | 0.01 | 0.01 |

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.

Table 5: Regressions of Schooling and 2000-2008 Cash Transfers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  | Schooling transfers | Cash transfers 2000-2008 |
| Child characteristics | OLS(1) | Family FE(2) | OLS(3) | Family FE(4) |
| Male | -1052\*\*(425) | -303(378) | -1739(1288) | 168(521) |
| Age in 2000 | -459 \*\*\*(52) | -300 \*\*\*(41) | -152(106) | -92 \*(57) |
| Number of siblings | -886\*\*\*(99.5) |  | -895 \*\*\*(196) |  |
| Married |  |  | -2685 \*\*\* (1107) | -1253(907) |
| Number of own kids |  |  | 528 (375) | 727 \*\*\*(237) |
| Income ($1000s)  |  |  | -46 \*\*(20) | -47 \*\*\*(15) |
| Education |  |  | 78(259) | -76(175) |
|  |  |  |  |  |
| R2  | 0.23 | 0.75 | 0.05 | 0.94 |
| 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 allow for clustering at the family level. Parental variables (not shown) include age, education, race and Hispanic ethnicity of head, income and wealth. Significance levels are denoted as follows: \*\*\* for 1 percent level, \*\* for 5 percent level, and \* for 10 percent level.

.

Table 6: Regressions of 2000-2008 Cash Transfers

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| Child characteristics | OLS(1) | Family FE(2) | OLS(3) | Family FE(4) | OLS(5) | Family FE(6) |
| Schooling transfers ($1000s) | 472 \*\*(224) | 9(23) | 295(222) | 10(23) | 345(260) | 24(24) |
| Male |  |  | -1400(1062) | 136(521) | -1528(1154) | 171(521) |
| Age in 2000 |  |  | -43(49) | -115 \*\*(57) | -30(51) | -85 \*\*(58) |
| Number of siblings |  |  | -628 \*\*(273) |  | -790\*\*\*(199) |  |
| Married |  |  | -4924 \*\*\*(1810) | -2722 \*\*\*(798) | -2333 \*\*\*(985) | -1259(908) |
| Number of own kids |  |  | 892 \*\*\*(280) | 799 \*\*\*(236) | 651 \*\*(276) | 734 \*\*\*(237) |
| Income ($1000s)  |  |  |  |  | -53 \*\*(23) | -47 \*\*\*(15) |
| Education |  |  |  |  | -922(904) | -133(185) |
|  |  |  |  |  |  |  |
| R2 | 0.04 | 0.94 | 0.08 | 0.94 | 0.09 | 0.94 |
| 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 allow for clustering at the family level. Parental variables (not shown) include age, education, race and Hispanic ethnicity of head, income and wealth. Significance levels are denoted as follows: \*\*\* for 1 percent level, \*\* for 5 percent level, and \* for 10 percent level.

Figure 1. Histogram for Parental Contribution to Tuition Expenses



Notes: This figure is based on all children from the primary sample that attended at least some college.

Figure 2. Histogram for Parental Contribution to Room and Board Away

0

5

10

15

20

25

30

35

0

1

-

19

20

-

39

40

-

59

60

-

79

80

-

99

100

**Percent**

**Parental Percent Contribution**

Notes: This figure is based on all children from the primary sample that attended some college and lived away from home.

**Data Appendix: For Online Publication**

We invested a great deal of effort in assembling a data set with the children of the HRS respondents as the unit of analysis. We have families in our sample with up to 18 children, and data for each of these children must be linked across all waves of the study. Because the HRS data files are respondent-based, and not organized around children, the linking of child-specific data is not always straightforward. Here we briefly describe how we construct the file used in this paper.

We first restrict ourselves to HRS households that do not separate or divorce during our survey period, thus avoiding changes in transfer behavior that accompany a break-up of the household. Families in which one spouse dies are retained as are those in which the divorce occurred prior to the start of the survey. We also restrict our sample to respondents who were interviewed in 2000 and for whom we have reports on our key family and financial data.

From this subsample, we build a household roster of child ID’s and merge onto this roster several types of information for each survey year: (a) basic information on the respondent (i.e. the parent), including age, race / ethnicity, education, household income and wealth, (b) child-level information including the child’s household income, age, gender, marital status, labor force status, and transfers, and (c) information from the HUMS. Much of our respondent-level data comes from the RAND files, but we construct our own data extract for the information on the child, using HRS provided imputed values when available.

We took great care with our coding of the child’s income variable as the questions asked about income varied across waves. From 1998 onwards, the window of observation for most of our analyses, the HRS asked questions that placed a child’s income into four categories: less than $10,000, $10,000-$35,000, $35,000-$70,000 and $70,000 or more.[[22]](#footnote-23) Based on these categories, we impute a single, continuous measure of income by calculating the median value of income within each category using the year-specific Current Population Surveys (CPS); thus, all children in the income category in the same year are assigned the same specific value. We also experimented with other mechanisms for imputing income, such as using the midpoint of brackets, using exact amounts when available and the bracket median when not, and using dummy variables for each specific bracket. Our conclusions were similar.

The special HUMS mail out survey, on which we base our study, collected a wealth of information about each child’s college attendance including the specific name of the college a child attended.[[23]](#footnote-24) HRS staff then obtained tuition and room and board information for the years 1969-1999 for all colleges and universities from two databases, CASPAR and IPEDS, both maintained by the National Center for Education Statistics. The HRS team merged this information to the HUMS data based on the specific college name, years of attendance, and in-state or out-of-state tuition. To maintain confidentiality, the publicly released data contains values of tuition and room and board rounded to the nearest $1000. If the information on the cost of the college and/or room and board was not available, the HRS imputed the values based on household demographics, year of college attendance, and whether the student paid in-state tuition. There were 5,153 children in the HUMS sample who attended college during the years 1969-1999.[[24]](#footnote-25) For 4,252 (83 percent) of these children, the tuition information is based on a direct match to one of the two tuition databases. For 20 of the remaining 900 cases, the parent provided a school name that was not in the database and for the remaining 880 cases the parent did not provide information on the school’s name. For these cases, we use the HRS-provided tuition and room and board imputed values.

In addition to this measure of the “sticker price” of college attendance at a particular school, the HUMS contains direct reports on the fraction of tuition paid by parents, the number of years the child attended school, the last year for which the child was in attendance, whether the school was a public or private institution, whether the child attended as an in state or out of state student, and whether the school was a two year or four year college. This information, combined with the tuition and room and board amounts, allows us to calculate the total amount of schooling that parents paid for each child.

We make two adjustments to these data. First, for the few cases in which parents do not report the number of years of schooling the child obtained, we use the reports of years of schooling from the core HRS surveys. When both measures are available, they agree well. Second, when imputing total tuition payments from the reported annual contribution, we cap the numbers of years in school at six to minimize the potential effects of outliers. For example, one child in the sample is reported to have attended college for 26 years. This cap affects only a handful of cases. We then use the number of years of schooling along with annual tuition to determine the total amount contributed by parents over the child’s college career. We are careful in our analysis to exclude children who are still in school or who return immediately following the fielding of the HUMS.

Table A1: Means of Variables Used in Regression Analyses

(n=6,650)

|  |  |  |
| --- | --- | --- |
| Variable | Mean | Std err |
| *Transfers to child* |  |  |
|  Total schooling transfers | 8,360 | (236) |
|  2000-2008 cash transfers | 6,782 | (578) |
|  |  |  |
| *Child’s characteristics (average 2000-2008 for time varying variables)* |
|  Male | 0.51 | (0.006) |
|  Age | 40.5 | (0.10) |
|  Number of siblings | 3.58 | (0.029) |
|  Married | 0.67 | (0.005) |
|  Number of own kids | 1.75 | (0.016) |
|  Income ($1000s) | 58,320 | (360) |
|  Years of education | 13.81 | (0.027) |
|  |  |  |
| *Parent’s characteristics (average 2000-2008 for time-varying variables)* |
|  Age in 2000 | 67.73 | (0.10) |
|  Education (male in couple) | 12.25 | (0.04) |
|  Nonwhite | 0.17 | (0.005) |
|  Hispanic | 0.07 | (0.003) |
|  Household Income | 59,446 | (710) |
|  Household Wealth | 438,521 | (10,912) |

Notes: † Number of observations differs across variables due to missing values.

Dollar figures are denominated in 2008 dollars

1. See Ryman (2012) and Lieber (2011) for newspaper coverage and Sallie Mae and Ipsos (2011) for a recent report. [↑](#footnote-ref-1)
2. Brown, Mazzocco, Scholz, and Sheshardi (2012), discussed further below, is an important exception to the lack of studies focusing on transfers for a college education. McGarry and Schoeni (1995; 1997) examine the distribution of cash transfers across siblings at a point in time. McGarry (forthcoming) examines the relationship between parental transfers and the evolution of a child’s income over time. [↑](#footnote-ref-2)
3. Behrman, Pollak, and Tabuman (1982) use the term “earnings / bequest” model, but explicitly include both bequests and inter vivos transfers in their discussion. In our empirical work, we ignore bequests because too few of the respondents in our sample die over the sample period so there is little information on this type of transfer. Moreover, previous studies have repeatedly shown that bequests are overwhelming divided equally among children. For example, Wilhelm (1996) found that bequests were divided “approximately equally” in 88 percent of the cases. McGarry (1999) and Light and McGarry (2004) report similar rates of expected equal division based on reports of the provisions of existing wills. [↑](#footnote-ref-3)
4. We maintain this assumption throughout the paper. Of course, parents may favor one child over another, perhaps favoring a child who exhibits a preferred behavior or favoring sons or daughters, and such preferences could lead to unequal treatment. While we can observe differences in transfers to sons and daughters or by birth order, we cannot observe whether a child is simply more well-liked than a sibling. [↑](#footnote-ref-4)
5. An issue that arises as we move from the theory to our empirical work is the interpretation of the variation in tuition across schools. Higher tuition costs could be related to a better educational environment or to better amenities (such as newer dormitories and athletic facilities). Although such distinctions are important if we were interested in assessing the returns to a college education or whether investment is optimal, these distinctions are less important for our purposes of understanding how schooling transfers vary across siblings or how they relate to later parental transfers. [↑](#footnote-ref-5)
6. Although we do not address the behavior of children this paper, these studies are noteworthy because they have informed other recent work on college transfers. [↑](#footnote-ref-6)
7. The initial description of the Samaritan’s dilemma is credited to Buchanan (1975). Bergstrom (1989) derived conditions that are sufficient for the Rotten Kid theorem to hold, as well as conditions that lead to the Samaritan’s dilemma. Other prominent studies of the Samaritan’s dilemma include Lindbeck and Weibull (1988) and Bruce and Waldman (1990). [↑](#footnote-ref-7)
8. In those equilibria in which some children receive zero second period transfers and others receive positive second period transfers, the relationship between transfers and educational investments will be the same. If the return to schooling is higher for high ability children, it will be the children who have lower returns to education, and thus lower educational investments, who will receive second period transfers. In an equilibrium in which no children receive second period transfers, the correlation between earnings and second period transfers will be zero. Our empirical work suggests that second period transfers are common. [↑](#footnote-ref-8)
9. Several important papers have examined the relationship between birth order, educational attainment, and earnings (e.g. Behrman and Taubman 1986; Black, et al. 2005; Kantarevic and Mechoulan 2006; Booth et al. 2009). [↑](#footnote-ref-9)
10. Additional cohorts were added to the HRS in 2004 and 2010, but these respondents are excluded from our analysis because the survey supplement collecting key data on college expenditures was asked prior to their enrollment in the HRS and we therefore do not have the detailed information we need on parental expenditures on college. [↑](#footnote-ref-10)
11. The table reports the means for all those sent the HUMS questionnaire. The response rate was quite high, particularly for a mail survey. Eighty percent of households provided at least some information, and of those who did, 90 percent provided information for all of their children. 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 the paper to 2008 dollars. [↑](#footnote-ref-11)
12. We assessed the robustness of our results to numerous alternative sample restrictions, including (a) excluding any child who returned to school at any point subsequent to the HUMS survey, (b) including households who divorced during the period, and (c) including only those children who were born before 1972 and thus at least 28 year old when the HUMS data were collected. These changes added relatively few additional observations and the results of our analyses were largely unchanged. . [↑](#footnote-ref-12)
13. The specific question regarding tuition 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.)” [↑](#footnote-ref-14)
14. For example, we compared our calculated tuition payments with reported transfers from the core surveys in waves prior to 2000 for those children who were in college. Although cash transfers given while a child is attending school need not be for schooling, we assume that most would be. For the 241 children ages 18-23 enrolled in school between 1992 and 2000, the mean transfer reported in the core during their “in school” years was $21,538, whereas the mean transfer based on the HUMS questions is a surprisingly similar $21,987.The correlation between the two measures is 0.71. We find these similarities reassuring regarding the quality of our data. [↑](#footnote-ref-15)
15. Studies examining subjective probability questions in the HRS that ask respondents to report a percent between 0 and 100 have found most of the mass lying at 0, 50, and 100 percent (Hurd and McGarry, 1995; Haider and Stephens, 2007). The frequency of these focal responses for the tuition expenditures is much lower than with subject probabilities, despite the fact that 0 and 100 percent can be accurate responses in our case but are likely incorrect in the other cases (e.g., probability of living to 75 cannot truly 0 or 1). [↑](#footnote-ref-16)
16. This amount differs from the simple calculation of (0.521 × 3.5 × $4,801) because of missing values on various components for some observations. [↑](#footnote-ref-17)
17. For this panel, we lose observations for those cohorts added in 1998 and are left with just those households in the original HRS and AHEAD cohorts. [↑](#footnote-ref-18)
18. See McGarry (forthcoming) for a study regarding the year-to-year changes in transfers in response to changes in characteristics of the child. [↑](#footnote-ref-19)
19. Studies have shown, for example, that first born children are far more likely to receive National Merit Scholarships (Breland 1974). See section 2.2 and the citations therein for studies regarding the relationship between birth order and IQ. [↑](#footnote-ref-20)
20. Brown et al. (2006) is an exception. They are able to examine the relationship between schooling transfers and later cash transfers both within and between families using the Wisconsin Longitudinal Study. However, they find a negative association even within families. We have tried to reconcile our findings with theirs in several ways but have been unable to do so. We speculate that the difference in results may be due to the different study populations, with the WLS sample limited to families in its particular namesake state. [↑](#footnote-ref-21)
21. 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 20008, 9.8 percent of these transfers included a payment that was targeted at (a) all grandchildren equally or (b) all grandchildren and children equally. [↑](#footnote-ref-22)
22. Specifically, respondents were asked a series of questions as to whether a child’s income was greater or less than a particular cut-off point. These responses determine a specific bracket. Respondents could also respond “don’t know” to one or more of the questions or refuse to answer, resulting in larger brackets when responses are missing. In earlier waves the brackets differed: 1992 used brackets defined by to two cut-offs (10 and 25 thousand dollars), and the 1996 survey used brackets defined by four cut-offs (10, 35, 50, and 100 thousand dollars). In three waves (1994, 1995, and 1996), respondents were first asked to report an exact dollar amount for each child’s income and then presented with the income brackets only if they could not provide a continuous value. [↑](#footnote-ref-23)
23. This information is omitted from the public release to preserve confidentially [↑](#footnote-ref-24)
24. Although the documentation reports that the sample was selected from those “who were likely to have had at least one child (ever) 18 years of age or older,” our analysis of the data (not shown) suggests that the sample was selected from households with at least one child age 18 or older *who had obtained more than 12 years of schooling* as reported in the 2000 core survey. Ninety-four percent of our sample had at least one child with some college attendance, a figure far too high for a randomly drawn sample of all households with children. See <http://hrsonline.isr.umich.edu/modules/meta/2001/hums/desc/hums2001_dd.pdf> for a description of the sample. [↑](#footnote-ref-25)