Preliminary Draft

# Parental Investments in Education and Later Financial Transfers: A Preliminary Look

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It will come as no surprise to most readers that parents provide an enormous amount of financial resources to their children and that this support continues long after children have reached age 18 and are legally independent. Parents may contribute towards an adult child's investment in education, may make cash transfers at various points throughout the child's adult life, and may eventually transfer much of their remaining resources as bequests. Previous studies have found that these transfers can be quite large (Gale and Scholz, 1994) and thus likely play an important role in the child's well-being.[1]

The patterns of such giving, including the frequency and magnitudes of the transfers involved and the allocation of gifts within families, have attracted the interest of researchers in numerous academic areas. Economists in particular have long been interested in studying not only the prevalence of these transfers, but the motivation driving the behavior as well. On the theoretical side, researchers have developed powerful models to explain behavior, but our ability to test these models empirically has been hampered by the lack of suitable data. Most research to date has been able to focus only on a single dimension of transfers—either investment in schooling, inter vivos giving at a point in time, or bequests. This limited focus ignores the potential for parents to substitute between the various types of giving and the potential for patterns to vary across type. Not only are these dimensions of behavior interesting in their own right, but this richness can be used to test the validity of our theoretical models by testing predictions as to the optimal amount of transfers of a particular form, the distribution of transfers across siblings, and the relationship between transfers and lifetime incomes of the parties involved.

In the classic paper by Becker and Tomes (1976), parents invest in the schooling of their children until the rate of return for additional years of education is equal to the market rate of return. In this "investment model," parents who desire to transfer additional resources to their children beyond the optimal investment in schooling do so through inter vivos transfers or bequests. In expanding on these ideas, Behrman, Pollak and Taubman (1982) develop two alternative specifications for the parental utility

[1] Gale and Scholz (1994) estimate the annual flows of inter vivos transfers at $2489 billion, college transfers at $1,141 billion, and bequests as $3,708 billion. (In 2006 dollars, these amounts are $4,581 billion, $2,100 billion, and $6,824 billion.) Other work has attempted to assess the contribution of intergenerational transfers to the capital stock (e.g. Kotlikoff and Summers, 1981).

function, one in which it is the child's total wealth that enters as an argument in the parental utility function and a second in which the child's earnings enter separately from cash transfers received. In the first case, cash transfers can offset differences in earnings due to differential investment in human capital, while in the latter, the model predicts that bequests (i.e. transfers in this model) can be equal across children despite differences in earnings, if parents exhibit equal concern for their offspring.

Models of cash giving that abstract from schooling investments emphasize the relationship between the income of the recipient and the probability and amount of transfers. Altruistic-based models predict that larger transfers will be given to less well-off children. Exchange models, which assume that financial transfers are part of a quid pro quo, also predict that transfers are more likely to be made to less well-off children, but conditional on a positive transfer, the relationship can be either positive or negative.

In this paper we analyze the distribution of educational investments and inter vivos transfers from parents to their adult children. We view this study as the first step in a larger project examining the interaction of three types of parental transfers: transfers made for schooling, other inter vivos transfers, and eventual bequests. Because the data on schooling transfers are new, we begin with an examination of the amount parents invest in the schooling of their children and how this amount varies across children and within families. We then build on these descriptive results to examine whether inter vivos transfers are indeed used to offset educational investments or, conversely, whether the two forms of giving reinforce each other. In exploring these issues we consider the degree to which the observed patterns are consistent with the models proffered in the literature.

Our analysis draws on a new data supplement to the Health and Retirement Study (HRS). This 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. We combine this information with data from the survey core on later inter vivos transfers to each child and can thus compare the two types of transfers.

We find that schooling-based transfers are both quite common and large in magnitude. Approximately 60 percent of children who attended college received some financial assistance from their parents and, on average, parents paid approximately 50

percent of the tuition bill, resulting in about $9000 total tuition contributions per child.[2] We also find evidence that schooling-based transfers are more equally distributed across children within the family than inter vivos transfers, but less so than bequests. Interestingly, in examining the relationship between transfers for schooling and later inter vivos transfers, we find a weakly positive correlation between the two forms of transfers, even when looking within family. This result conflicts with some recent empirical work and merits further investigation.

Our paper is organized as follows. In section 1 we briefly outline the models of giving and some of the empirical literature. In section 2 we describe our data while section 3 provides a descriptive analysis of educational transfers to children. Section 4 compares these educational transfers to financial transfers and uses a regression to examine the correlation between inter vivos transfers and prior schooling transfers. A final section presents our conclusions and highlights our plans for future work.

## 1. Background and theory

The focus of our analysis is the extent to which educational transfers relate to other financial transfers parents make to adult children. We begin by providing a detailed review of the large literature on financial transfers, and then review more briefly the literature on parental contributions to educational expenses. Because one of our main interests is the division of transfers within family, our discussion of the educational literature aims to target studies that address this dimension of giving.[3] We find relatively few papers that do so. We end this section by sketching the theoretical framework that we use to organize our analysis.

### *1.1. The literature on parental transfers*

Parents who care about their children can provide for their children's financial well-being through the direct transfer of resources or by investing in the human capital of children to improve their earnings potential. Although human capital investments begin at birth and

[2] This figure agrees well with other work. Using data from the NLS72, Leslie (1984) finds that approximately half of educational expenses of college freshman were paid for by family and friends with the student shouldering about 25 percent and financial aid and scholarships the remainder. Other data put the fraction borne by family at just under 50 percent.

[3] See Haveman and Wolfe (1995) for a general discussion of the determinants of educational attainment.

involve the investment of time as well as other resources, here we focus our discussion of the literature on parental financial contributions to college tuition and room and board, inter vivos cash transfers, and eventual bequests.[4] Much of the earliest work on these parent-to-child transfers stems from the research of Gary Becker. Early efforts by Becker and Tomes (1976) laid the groundwork for the literature on parental investment in children's education. They proposed a model in which parents care about the income of their children and can contribute to child income through human capital investments in the child or direct cash transfers. If the cost of human capital investment varies across siblings, perhaps because the returns to additional years of schooling vary with the child's ability and ability differs across siblings, then parents will invest differentially in their children. The authors and others after them assume that the educational production function is such that the returns to education are higher for high ability children. Under such an assumption, the parents will invest more in the human capital of more able children and provide more cash transfers to less able children. In a very real sense then, cash transfers or other forms of non-human capital investment could be used to offset (at least partially) differences in educational investments.[5] Furthermore, because investment in schooling ceases when the returns to schooling reach the market rate of return, a child who receives cash transfers must have obtained the optimal level of schooling. Similarly, if all children within a family are receiving cash transfers, all must have obtained the optimal level of schooling.

Later work by Behrman, Pollak and Taubman (1982) expands on these notions and formalizes the distribution of transfers made across children assuming that parents display "equal concern" and may have "an aversion to inequality" that balances the market forces calling for unequal investment in schooling. Behrman, Pollak and Taubman offer two alternative models, a wealth model in which parents care about the total resources available to each of their children (i.e., the sum of earnings and cash transfers) and a separable earnings bequest model in which the earnings of each child and

[4] Parents certainly contribute to the well-being of their children through other means such as the transfer of time or in-kind goods such as shared food and housing and the provision of emotional support. Lei (2006) examines the provision of childcare for grandchildren among HRS respondents. Haider and McGarry (2005) note the importance of shared living arrangements among low income families .

[5] Becker and Tomes also note the potential for transfers from better to lesser endowed siblings (which could occur with or without the parent acting as an intermediary) to equalize resources across children.

the cash transfers he receives enter as separate arguments in the parental utility function. In this case, parents value cash gifts separately from investment in education and can thus make equal cash transfers and unequal investments in schooling.

Following the authors' notation, the wealth model can be written as

$$U_p = U\,(\,C_p, V(E_1 + rB_1,\ E_2 + rB_2, \ldots E_n + rB_n)\,)$$

where $C_p$ is the consumption of the parent, $E_i$ is the earnings of the $i^{th}$ child, $B_i$ is cash transfers to that child, and $r$ is the market rate of interest. Similarly, the separable earnings bequest model can be written as

$$U_p = U\,(\,C_p, V_E(E_1, E_2, \ldots E_n),\ V_B(B_1, B_2, \ldots B_n)\,).$$

In the former specification, the utility of the parent is unaffected by the composition of the child's income; income from earnings and bequests enter only in their totality. Thus the parent is willing to provide more schooling for those for whom the rate of return is larger and compensate others with cash transfers. In the separable earnings bequest specification, however, cash transfers can affect parental utility differently from the child's earnings and thus cannot be used to offset differences in earnings. With an aversion to equality, parents may make equal cash transfers.

These models generally make no distinction between inter vivos cash transfers made during the parent's lifetime (exclusive of transfers for schooling) and bequests made at their deaths; all cash transfers are broadly defined as "bequests."[6] However, empirical work examining patterns of giving has found very strong differences in the distribution of the two types of transfers across siblings. Inter vivos transfers have been shown to be compensatory, with more going to less well-off children (e.g. Altonji, Hayashi, and Kotlikoff, 1997) and with sizable differences across children within family (McGarry and Schoeni, 1995). In contrast to this compensating behavior, bequests are nearly always divided uniformly across children (Menchik 1980). Wilhelm (1996) found

[6] Altonji, Hayashi and Kotlikoff (1997) note that, if there are no liquidity constraints, parents will postpone inter vivos cash transfers and instead make bequests.

that bequests were divided "approximately equally" in 88 percent of the cases. McGarry (1999) and Light and McGarry (2004) report similar rates of equal division based on reports of the provisions of existing wills. Thus, the division of inter vivos transfers appears to be consistent with the wealth model in that transfers serve to mitigate differences in earnings, while the division of bequests appears to be consistent with the separable earnings-bequest model in that the bequest decision appears to be unrelated to earnings differences.

The natural question to ask when considering these patterns is, why do bequests appear to be divided differently from inter vivos transfers? One previously posited explanation is that the public aspect of a bequest (the written will, the probate process, etc.) implies children will know the amount that each of their siblings inherits and there may be jealousy or hurt feelings if siblings receive different amounts. For many parents, the desire to "keep the peace," even after their deaths, could lead to a will that calls for equal division (Wilhelm 1996, Bernheim and Severinov, 2003). Differences in inter vivos giving may be more easily hidden and are therefore more likely to differ across children

*1.2. The literature on parental transfers for educational expenses*

Although there is an extensive literature on parental investment in schooling that cuts across disciplines, we know of little work that has examined the allocation of educational investments within family and the degree to which investments vary across children.

The economic development literature includes a large focus on investment in schooling. Much of this work examines differences in education by the sex of the child or the sex composition of siblings. Within the United States, there is general agreement that per child investments in schooling fall with the number of siblings, but the literature on the effect of the sex of siblings is mixed.[7] For example, Powell and Steelman (1989) find that the probability of parental support for college is significantly negatively related to the number of brothers but not significantly related to the number of sisters**.** In contrast, more recent work by Butcher and Case (1994), examining years of schooling rather than parental contributions, finds that additional brothers lead to a *greater* number of years of schooling for girls but not for boys, additional sisters reduce a girl's level of education.

[7] See Parish and Willis (1993) for a nice discussion of the literature on birth order effects on schooling.

Using data from Japan, Parish and Willis (1993) find important interactions between the sex of the child and birth order, particularly for older girls. Older daughters appear to help their younger siblings attain more schooling either by working and providing support, or alternatively, by marrying early, leaving the family home, and freeing-up familial resources.

Perhaps the study most relevant to ours is Brown, Mazzocco, Scholz, and Seshadri (2005). This paper posits a model in which parents can choose either to make unrestricted financial transfers to a child or to invest in a child's educational attainment.[8] Important features of their model include non-cooperative behavior between parents and children and the uncertainty of the child's future earnings. The authors derive two empirical predictions from the model. First, the fraction of the educational expenses that a parents pay increases with parental wealth and parental altruism. Second, educational transfers should cause later financial transfers to be lower. The authors provide empirical support for the first prediction from the Health and Retirement Study, the same data we use here, and for the second prediction from the Wisconsin Longitudinal Study.

*1.3. A framework for our analysis*

The focus of our study is the degree to which parental educational transfers are different across children and the extent to which educational transfers are correlated with other financial transfers parents make to their adult children. Although we are not testing a formal model at this stage in our work, we keep the following ideas in mind when considering the results.

First, the work on efficient investment suggests unequal educational investment when returns to schooling vary. Variation in returns could be due to differences in ability, differences in labor market returns by sex, or differences in the cost of capital at various points in the parent's life. We therefore expect differences in educational investment to be correlated with proxies for these factors. Second, if parents are equalizing the marginal utility of consumption across children, we expect inter vivos transfers to vary inversely with the earnings of the child. Furthermore, if earnings are positive related to educational

[8] Brown, Mazzocco, Scholz, and Seshardi (2005) provide an excellent theoretical discussion of how their model is related to several papers that examine models of "tied" transfers, where tied transfers refer to transfers that are contingent on a particular behavior.

investments as the theoretical work posits, inter vivos transfers should then be negatively related to educational investments. Third, parents may have a preference for making equal transfers when transfers are observable. Such a preference has been noted in the empirical literature for the case of bequests but not for inter vivos transfers.[9] To the extent that schooling transfers are observable, perhaps because siblings know whether another sibling goes to college, the published tuition at the college, and the other resources available to him, then schooling transfers are likely to be more public than inter vivos cash transfers although less so than bequests. Thus, if a utility maximizing parent is weighing the disutility from the appearance of unequal gift-giving against the utility disutility from differences in resources available to her children, schooling transfers might be more equally divided than inter vivos gifts. We examine these issues in the empirical work below.

## 2. Data

Our study 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 12,652 respondents who, when appropriately weighted, provided a population representative sample of non-institutionalized individuals born between 1931 and 1941 and their spouses or partners. A companion survey, the Asset and Health Dynamics Study (AHEAD) was administered in 1993 and again in 1995 for a sample of individuals born in 1920 or earlier. 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 the other of individuals born from 1942 to 1947. Taken together the HRS provides a sample of households containing at least one person 50 or older in 1998. The full sample has been interviewed biennially since 1998.

The regular core HRS surveys collect detailed information on the income, assets, and health of the respondents, as well as some information on the respondents' children. The information pertaining to children includes the child's family income, schooling

[9] We note that studies of inter vivos transfers have nearly uniformly been limited to transfers made over a relatively short time period. To our knowledge, no study has examined aggregate transfers over the lifetimes of children to assess the degree to which lifetime transfers are more or less unequal than transfers in a given year.

level, and marital status, and, importantly for this study, cash transfers from the parent to the child.

In addition to the biennial reports of inter vivos cash transfers obtained in each core survey, the HRS mailed in 2001 a supplemental survey to a subset of respondents that focused on educational investments in children. That survey, the Human Capital and Educational Expenses Mail Survey (HUMS), asked respondents about the college attendance of each child and collected information on the parental contributions to the educational expenses of each child. Consistent with the focus of these supplemental questions being on college expenditures, households receiving the HUMS supplement appear to be a random sample of households that previously reported having a child who attended post-secondary school.[10] Table 1a compares the sub-sample of HRS households that were sent the HUMS to three samples from the HRS: the full HRS in 2000, the sub-samples consisting of those who have at least one adult child (the sampling scheme for HUMS as reported in the HRS documentation), and those with at least one child with 13 or more years of education (a reasonable alternative scheme for targeting parents who may have invested in a child's education).

Comparing the sub-sample receiving the HUMS to the full HRS, the sample receiving the HUMS (column 1) is substantially better-off financially and more highly educated than the full HRS (column 2). The average income for the HUMS sample is approximately 15 percent higher than for the full sample ($58,000 compared to just over $50,000 in 2005 dollars) and wealth is 12 percent higher.[11] The HUMS households also have greater schooling attainment than the population (12.4 versus 11.9 years), and an additional 0.3 children on average. Consistent with the effort to focus the survey on those with children who attended college, the probability that a HUMS household has a child who attended at least some college is 89 percent compared to just 67 percent in the full HRS sample.

[10] Although the documentation reports that the sample was selection from those "who were likely to have had at least one child (ever) 18 years of age or older," our analysis of the data (presented below) 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.

[11] The values in this table and throughout the paper are unweighted. We have converted all dollar figures to 2005 dollars.

If we limit the sample to those with at least one child (column 3), the means of the variables in table 1a are surprisingly similar to those for the full HRS sample. If, however, we further limit the sample to the subset of HRS respondents with at least one child who reportedly obtained 13 or more years of schooling (column 4), the means of the variables agree remarkably well with the HUMS data. As shown in the rightmost column of table 1a, the average income for the sample restricted to those with children with at least some post-secondary school is just below that for the HUMS sample and wealth is somewhat higher. There is virtually no difference in the levels of schooling of the parents or in the number of children. Thus, the HUMS sample appears to be representative of this latter population.

As with any survey, some individuals to whom the survey was administered did not respond. To assess the effect of non-response on the representativeness of the sample, table 1b compares the means of several variables for those who responded to the HUMS questionnaire with the entire sample of those to whom the survey was mailed (column 1). Although respondents (one per household) were asked to answer a series of questions about *each* of their children, occasionally they provided information for only a subset of children. We therefore further divide the set of responders into those who supplied information for all their children (column 2) and those who provided only a partial response.[12] The means for these three samples and the entire HUMS survey group are presented in table 1b.

All told, approximately 70 percent of households provided information for all of their children and another 8 percent provided partial reports (column 3). Those households who provided information on all children have substantially greater income and wealth than those who responded for just some children. The differences in wealth are particularly dramatic, with the compete responders having average wealth of well over twice that of partial responders, $484,251 compared to $215,044. Differences in average incomes are smaller, but still extremely large. These partial respondents may have lost touch with one or more children or may be displeased with a particular child's

[12] The HUMS asked respondents to provide responses to a series of questions for each of their children (up to a maximum of 10 children). We consider a parent to have provided a response for a child if the parent answered the educational attainment questions in the HUMS. We then classify a household as responding for all children if they provided this information for all children named in the 2000 roster or for the maximum allowance of 10 children.

accomplishments, leading to the failure to provide complete information. In comparison to these two groups, those who did not respond at all to the HUMS questionnaire (column 4) at all appear to have levels of financial resources roughly midway between the two types of responders.

## 3. Educational transfers: Parental contributions to their children's education

Because relatively few studies have used the HUMS data, we begin our analysis by providing some descriptive information on the reported educational transfers.[13] The HUMS asked a number of questions about whether a child attended college, years for which he attended, and whether the college was public or private, and in-state or out-of-state. It also asked parents about their contributions to tuition and to the cost of room and board. For these elderly respondents, many of whose children enrolled in school decades earlier, recalling a specific dollar amount may be difficult. Accurate reporting is further hampered by the large differences between nominal and real dollars resulting over this extremely long number of years. To deal with these potential measurement issues, it was decided to ask respondents for the *fraction* of each child's tuition that they themselves paid rather than the actual amount. Similar questions were then asked about whether the child lived away from home while in school and the fraction the parent contributed to room and board.

In addition to these contribution measures, the HUMS also obtained the name and location of the school each child attended in the last year he was enrolled. Although this identifying information is not provided in public release data, the HRS staff used the identifying information to obtain the tuition and room and board costs for the school, which is provided in the public release data. To do so, they combine the HUMS enrollment information with data from the National Science Foundation's "CASPAR"

[13] We know of just two papers that use the HUMS data, Henretta, Soldo, and Van Voorhis (no date) and Brown, Mazzocco, Scholz, and Seshadri (2005). To assess the quality of the HUMS data we therefore undertook numerous additional analyses, some of which are presented in the appendix. For example, we compared the reports of completed education for each child obtained in the HUMS data with the reports obtained in the core surveys (appendix table A2). The values agree well. Based on this and other investigations we conclude that the HUMS data are of high quality. The appendix contains additional information on the construction of our analytic samples and other pertinent data issues

database that provides tuition and room and board costs for colleges and universities throughout the country for the years 1969 – 1999, obtained from surveys conducted by the National Center for Educational Statistics (NCES).[14] In cases where the school is not in these databases or the parent does not provide information on the school, the HRS imputes tuition and room and board costs.[15] Given these costs, the years of college attendance, and the fractional parental contribution, the dollar amount of parental payments is readily calculated.[16]

In table 2 we show the basic descriptive statistics for the parental contribution for tuition (panel 1), room and board (panel 2), and the sum total of the two components (panel 3). Here we restrict our sample to the 5,845 children in HUMS who attended college at some point and who were born between 1951 and 1975 (inclusive). This latter restriction is made to focus on children who are likely to have attended and completed schooling during the years 1969 and 2001, the period of time for which tuition and room and board data are available from CASPAR.

For the children for whom we have data on parental contributions, the mean contribution is just over 50 percent and the mean annual tuition in $2,735 (in 2005 dollars). With mean attendance of 3.5 years, the mean total contribution over the child's college career was $9,073. There is, however, substantial variation in this amount with large numbers of children receiving contributions of both zero and 100 percent as emphasized by the positioning of the 25$^{th}$ and 75$^{th}$ quartiles at 0 and 100. The median dollar transfer at $1,592 is substantially below the mean, indicating that the distribution is highly skewed. The cumulative effect of these differences is most apparent in the final

[14] For the years 2000-2001, similar information is obtained from an alternative NCES source.

[15] In Table 2, we list 3,339 children who attended college and for whom some measure of tuition information is available in the HUMS. For 2,812 of these individuals (84 percent), the HUMS tuition information is obtained from a direct match to one of the two college databases. Of the remaining 527 (16 percent), 14 were cases where the parent provided a school but the school was not in the databases and 513 were cases where the parent did not provide information on the school. For these 527 cases, we use the HRS-provided tuition and room and board imputed values. See http://hrsonline.isr.umich.edu/meta/2001/hums/desc/hums_tuition_2001.pdf for details of the tuition imputation procedures used by the HRS staff.

[16] We make two adjustments to the raw data that were reported in the HUMS. First, for the few cases where parents do not report the number of years of schooling obtained, we use the reports of years of schooling from the core survey. (As we show in the appendix, when both measure are available they generally agree.) Secondly, when imputing total tuition payments from the reported annual contribution, we cap the numbers of years in school at six to minimize the potential for outliers (the maximum reported value is 26 years).

column wherein the total paid per child varies from $0 at the 25th percentile to over $26,000 at the 90th, with contributions at the 75th percentile ($10,064) being just 40 percent of those at the 90th.

The numbers for room and board are similarly large and skewed, but somewhat fewer parents report a zero contribution. This difference could indicate that parents are more willing to contribute to shelter and food than to tuition investments. However, we believe it is most likely due to the difference in samples. The sample on tuition contributions includes all children who went to college, but the sample on room and board contributions includes only children who lived away during college. If wealthier parents are more likely to have children attend school away from home while less well-off parents save money by sending the child to a local state or community college, then the latter sample would contain children who systematically come from wealthier families.[17]

If we combine contributions for tuition and room and board and examine the total burden borne by the parents over a child's college career, we see that the amounts are substantial. The mean parental contribution is $18,810 *per child* (later tables provide the total across all children). The large differences in annual tuition contributions across the distribution are even starker when measured on a total college career basis. Here the 25th percentile is just $838 while the 75th percentile is 28 times as great, at $23,387.

The entire distribution of contributions for each of these categories can be seen most clearly in figures 1 and 2, which reproduce a histogram of the percentage contributions to tuition and room and board. In both figures the modal response is 100 percent, with approximately 27 percent of parents paying the entire tuition bill and 30 percent paying the entire cost of room and board. The next most likely response is zero percent, with 27 and 25 percent respectively giving that value. This result demonstrates that a substantial fraction of parents are not contributing to the education of their children and provides some suggestion that parents are not uniformly exaggerating the extent of

[17] The notion that parents do not systematically pay for a greater share of room and board is supported by the data Parents typically report identical fractional contributions for the two expenditures. Fifty-nine percent report identical percents and the correlation between the two values 0.82

their assistance. Unsurprisingly, 50 percent is also a common response accounting for 11 percent of the reported tuition shares and 10 percent of the room and board shares.[18]

The numbers reported in table 2 and in figures 1 and 2 suggest that parental contributions vary substantially across families. In table 3 we examine the extent to which these differences are associated with family size. There has been some concern expressed in the literature that children in larger families may receive too little investment in education (e.g. Behrman, Pollak and Taubman, 1989) and there is a general consensus that educational attainment falls with the number of siblings. Although it is not clear that these patterns are a result of differences in parental contributions, table 3 does shows that schooling transfers and outcomes vary with family size. Consistent with a quality / quantity trade-off, children in smaller families spend more years in college, with the average number of years for only children being more than twice that for children in the largest families, 3 years compared to1.4 years. The annual amount of tuition paid by the parent on a per child basis also falls with the number of children, from $3,142 to $1,830. Interestingly, the relationship between the average tuition *charged* at the institution which the children attended and family size is much weaker and is only slightly larger for children in small versus large families $4,591 vs. $4,268. One might thus cautiously infer that there may not be a great a difference in the quality of the school by family size despite the difference in years attended. Furthermore, because parents of multi-children families are shouldering substantially less of the burden on a per child basis, this difference in years of schooling may indicate that children themselves are unable or unwilling to bear the cost of attending school for as long as might be preferred.[19]

It is important to note, however, that children are not necessarily bearing the entire portion of tuition beyond the parent's contribution. Rather, as is likely the case, financial aid varies with family size, reducing the burden facing the family as a whole.

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[18] Studies examining subjective probability questions in the HRS which also ask for reports of percents between 0 and 100 have found most of the mass lying at 0, 50, and 100 percent (Hurd and McGarry, 1995; Haider and Stephens, forthcoming). The frequency of focal responses for the tuition expenditures is much lower although even here, most reports are multiples of 5.

[19] Keane and Wolpin (2001) estimate tight borrowing constraints for children. Yet they find that relaxing these constraints does not affect attainment but rather affects the amount of work in which children engage while in school.

Families facing liquidity constraints may also be more aggressive in seeking out scholarship opportunities or funding from other sources.

When examining the total sum paid across all children, however, parents with more children are giving as generously, if not more so, than parents with fewer children. Parents of only children provided an average of $9,414 over the child's schooling career while those with 4 children provided nearly 65 percent more, or $15,470 to all their children. If amounts vary across children in families of various sizes, do they also vary within family? In table 4 we examine the propensity for transfers to be equal or approximately equal across children for families with at least two children but no more than five. Again, we organize our results by the number of children in the family. In two children families, parents report paying an equal percent of their children's tuitions 55 percent of the time, with this figure falling to 22 percent in families with 5 or more children. These are much higher fractions of equal giving than is the case for inter vivos transfers. Earlier work by McGarry and Schoeni (1995) found 14 percent of parents in two child families making equal inter vivos transfers to their children and even smaller numbers in the low single digits, for larger families. If we define approximately equal as within 10 percentage points, the fraction treating children approximately equally climbs to 72 percent. Again as the family size increases, these fractions fall. The next row examines differences in the actual price of school. The similarity in the real dollar cost of tuition expenditures (approximately equal is defined as within +/- 10 percent) is much lower than the fraction of tuition paid, ranging from 30 percent in two child families to 0 percent in 5 child families.[20] Thus, when we examine the actual dollar amount given, 35 percent of parents in two child families made approximately equal dollar contributions and 3 percent of parents of 5 child families did so. When aggregated over the total number of years for which a child is attending school, the fraction with approximately equal dollar contributions the fraction making similar contributions is similar, 31 percent for 2 child families and 3 percent for 5 child families. These numbers are much closer to the estimates of equal giving found for inter vivos transfers. As before, the numbers for room and board are nearly identical to those for tuition contributions.

[20] Because the measure of tuition dollars is adjusted for inflation and children were nearly always enrolled at different times and at different schools, reports of exactly equal dollar transfers are extremely unlikely and would happen solely by chance.

The substantial fraction reporting equal percentages is important to note given the structure of the survey. Recall that the survey asks parents to report the *fraction* they contributed to each child, not the amount. It is possible that this focus leads parents who wish to convey that they treat their children equally to report equal fractions when, in fact, they were endeavoring to transfer equal amounts to their children. Certainly one can construct a model in which parents choose to pay a stated fraction of tuition rather than a stated amount (for example, parents wish children to absorb some constant fraction of the cost and thus to seek an appropriate return on investment) but models based on actual dollars seem more common.

## 4. Parental Transfers Beyond Schooling

As noted in our earlier discussion, contributions to a college education are simply one form of parental giving to children. Parents can also transfer cash directly to a child and often do so long after the child has completed his education (McGarry and Schoeni, 1997). In this section we investigate these inter vivos gifts.

### *5.1 The distribution of inter vivos cash transfers*

In table 5 we examine the distribution of cash transfers and compare directly the patterns of giving observed here with investments in schooling. We limit our discussion of inter vivos transfers to those reported in the 2000 wave of the survey although stacking data for all waves led to similar conclusions. We also delete information for children currently enrolled in school in order to avoid any double counting of transfers.[21] The core HRS surveys ask parents to report transfers of $500 or more made to each child since the previous interview (approximately 2 years). In the 2000 survey, 30 percent of the families in our sample made a transfer to at least one adult child and the mean amount per child was $1,535.[22] Conditional on receiving a positive transfer, the mean per child amount

[21] Note that while we can control for enrollment at the 2000 interview and delete transfers to those enrolled, we do not know if the child was enrolled at some point in the preceding 2-year period. Some of the transfers may thus indeed by schooling-based and made while the child was enrolled even though he had left school by the interview date. We experimented with using changes between waves in schooling attainment for children but found the reports to contain sufficient noise that we did not believe we could improve on our classification.

[22] This figures are in 2005 dollars and agree well with those from other waves of the HRS.

was $5,075. As was the case with tuition-based transfers, the median of $1,858 is well below the mean, indicating substantial skewness in the distribution. Summing across all children leads to transfer amounts that are nearly twice as large, a mean of $2,930 and a conditional mean of $9,689.

We find that the likelihood of inter vivos giving declines with parental age, falling from 37 percent for parents are in their 50s to 21 percent parents in their 80s. This pattern is consistent with the income trajectories of both the parent and child in that parental income is likely falling as the parent enters her retirement years and the child's income is likely rising as he experiences earnings growth on the job. The marginal utility of a dollar for the parent is thus expected to be rising, and that for a child, falling. Gift giving opportunities such as buying a first home or having a child also decline as the child (and parent) ages.[23]

While the probability of receiving a transfer falls with parental age, the amount given increases substantially until a parental age in the 70s after which it falls slightly. This rise could reflect an increasing attention to estate planning and the use of tax-free giving among those who are making transfers at older ages (McGarry, 2000; Poterba, 2001).

For comparison, the lower portion of table 5 shows similar figures for schooling transfers. Note that these are lifetime schooling transfers (or at least transfers made for schooling at some point prior to 2001) while the inter vivos transfers refer to transfers made in the past two years. We thus expect both the probability and amount of schooling transfers to be larger than those reported in the top panel. In fact we do see that the probability of a tuition based transfer at some point is approximately 70 percent larger than the probability of an inter vivos cash transfer in 2000. The probability of a contribution for room and board is somewhat lower (not all children went away to school) but is still substantially higher than the probability of a cash transfer. Amounts are much much larger. The average per child tuition transfer was $6,245 compared to $1,535 for inter vivos transfer and the conditional tuition transfer average was over

[23] We can investigate this possibility by examining, in more detail, giving at various points in the parental wealth distribution.

$10,000. Summing over all children the amounts again double as was the case for inter vivos giving. Similar patterns are observed for payments for room and board.

When tuition and room and aboard are combined together, we see that the burden borne by parents is substantial. The average amount for tuition and room and board on a per child basis was $10,116, and it was $16,070 conditional on a positive amount. Combining transfers for all children, the tuition + room and board amounts averaged $21,208 across all families and $33,690 for families providing a positive amount. We note that the average total educational transfers across all children are approximately seven times greater than the two-year financial transfers, indicating that these educational transfers are an important component of transfers from parents to their adult children.

The information in table 6 parallels that in table 5, but views the transfers from the child's perspective. Sixteen percent of children who were not enrolled in school received a cash transfer in the two years prior to the 2000 survey and the average amount was $1,147. The conditional mean was $7,007. As was the case in table 5, the likelihood of receipt falls substantially with age, from 27 percent among those in their 20s to 14 percent for those age 40 or older, but there is no clear pattern for the amounts. Again, transfers for schooling at some point in the child's life are much more likely than the receipt of cash transfers in this single two-year period, and the amounts transferred are greater. Whether the educational transfers are larger than aggregate inter vivos transfers remains a topic for further investigation.

*5.2 The interaction of educational and other inter vivos transfers*

The standard Beckerian theory predicts that parents will invest differentially in the education of children if the returns to schooling differ. This prediction is somewhat consistent with our results on approximately equal dollar transfers, which ranged from 31 percent in two child families to just 3 percent in 5 child families. Of course there are many differences across families that are not controlled for in this cross-tabulation. Parents in larger families may have lower income and wealth and may be unable to make

such payments, or they may themselves have lower levels of education.[24] Moreover, these results ignored the fact that some of these families had some children that did not go to college.

In table 7 we examine parental educational investment at the child level controlling for numerous characteristics of the parent and child. In the simple OLS specification in column (1) we find a strong negative relationship between being male and the amount of schooling transfers, and a negative relationship with respect to age. The difference by sex is the reverse of what would be expected in an investment model in which returns to schooling are greater for males than for females, suggesting that returns to schooling may in fact be greater for females, or alternatively, that parents have a preference for transfers to daughters.[25] Interpreting the effect of age requires some care. These schooling transfers were not made in the current period at which time age is measured but could have been made a decade or more earlier when the child enrolled in college. However, because we are holding constant parental age, the older the child, the younger the parent was when the child reached college age. This result thus suggests that younger parents provide less financing for college than do older parents, a result that is consistent with the notion of parental liquidity constraints in educational financing.

The coefficients on the parental variables have the expected signs. Parents who have more education themselves and who are better off financially contribute more to the schooling of their children. Interestingly, in accord with other work we find that additional children have a strong negative effect on the amount received by any particular child.

To focus on differences in educational transfers within families, we also present a a family fixed effects analysis. In such a specification, parental variables are not identified because they do not vary within family. As we show in column (2), we find that the sex of the child is no longer a significant predictor of the schooling contribution,

[24] See Keane and Wolpin (2001) for an examination of the correlation between the schooling levels of parents and children. A useful summary of the literature on this topic is contained in Haveman and Wolfe (1995) for an overview of the literature on the correlation between child and parent educational levels

[25] For example, in the United States daughters are overwhelmingly more likely to provide care for an elderly parent. If investment in schooling is part of an exchange regime in which children reimburse parents with services provided at a later date, investment in the schooling of daughter could represent pre-payment of future home health care services. A greater familial contribution for girls was also found in Leslie (1984).

but age remains negative and significantly different from zero. Because this is a family fixed effects regression, age is measured relative to that of siblings. Thus, the result suggest that older children fare worse with respect to parental schooling investments, again consistent with older siblings reaching college age at a time when parental resources are limited, due perhaps to the shape of the earnings profile or the demands placed on resources by younger children.

In the second two columns of table 7 we conduct a similar analysis for inter vivos transfers reported in the 2000 interview. Because inter vivos transfers are measured concurrently with other attributes of the parent and child, we are able to control more accurately for possible correlates with behavior and thus include a larger set of regressors.[26]

In table 8 we address directly the relationship between past schooling investments by parents and current inter vivos transfers. To do so we regress inter vivos transfers for each child on total schooling transfers with and without family fixed effects and a set of covariates. To increase our sample size we stack observations for 2000 and 2002.[27]

We see in the simple correlation (column 1) the relationship between inter vivos transfers and schooling transfers is positive and highly significant. When we control for family fixed effects, however, the relationship remains positive, but is not significantly different from zero. When we control for numerous other characteristics of the child and parent a simple OLS specification, we continue to obtain a significant relationship. However, once again, the inclusion of family fixed effects reduces the magnitude and significance of the point estimate. This result accords with the finding in McGarry and Schoeni, 1995) that the relationship between a child's prior educational attainment and the current transfers he receives changes from positive and significant to insignificantly different from zero when family fixed effects are added. Because our results here are robust to the inclusion of the income and wealth of the parent, we view the OLS results as

[26] We note that if we limit the set of included child-specific variables to just those used in columns 1 and 2, the point estimates are nearly unchanged.

[27] Unfortunately, the 1998 core survey does not ask about current enrollment, nor do the 1993, 1995 and 1996 surveys. When we stack observations for the remaining waves in which current enrollment is obtained, we find similar results. We note, however, that if we use 2000 data alone, we do not obtain a significant coefficient on schooling transfers as we do with the stacked data. Our standard errors are corrected for clustering at the household level.

evidence that generous parents who invest in the schooling of their children, continue to give generously to children in later years.

Importantly, however, the fixed effect results fail to provide evidence that inter vivos transfers are used to offset educational investments in an effort to maintain equality in parental giving. There does, however, continue to be a strong and significantly negative relationship between child income and transfers even conditioning on past investments. We view this as evidence that parents are making transfers in response to the resources of their children. Our result conflicts with the recent findings by Brown et al. (2005) who find a negative relationship between inter vivos transfers and educational investments. Although their study employs the HRS for a portion of the analysis, the section devoted to the correlation between the two types of transfers is based on the Wisconsin Longitudinal Survey (WLS). We wonder whether the difference could be due solely to the different populations covered by the surveys and the different mechanisms employed to measure past schooling transfers. Reconciling these results is an important next step in our project.

## 6. Conclusion

Our understanding of parental assistance has been severely limited by the lack of available data for multiple forms of transfers. Research in this area has thus focused on a single type of transfer, typically at a single point in time. To date we know almost nothing about how transfers for school expenses relate to other cash transfers made to the child during the parent's lifetime. Even simple descriptive information, such as the amount of variation across children or the correlation with later cash transfers, has not been available. Here we begin to address these questions by examining the distribution of educational transfers within and across families, and by exploring the relationship between inter vivos cash transfers and education-based transfers.

We find that, in dollar terms, transfers for college expenditures are distributed somewhat more equally than cross-sectional inter vivos cash transfers but much less equally than bequests. However, data examining the *fraction* of tuition and room and board that a parent pays suggest much more similarity in the treatment of children, at least for those who go to college than is evident in the dollar measures of tuition

contributions or our measures of equal inter vivos giving.. Although the structure of the survey questionnaire causes us to be a bit suspicious about the relatively large number of parents reporting equal percent contributions, the similarity of actual dollar contributions appear to be plausible. Children generally attend college at different times and the college costs could be different for a multitude of reasons: they could attend different colleges, tuition may change at a rate different than inflation (we make all comparisons in real dollars), and children may qualify for different levels of scholarships or financial aid. Thus, even parents endeavoring to treat their children equally, may make unequal monetary transfers.

Perhaps most important, we fail to find evidence that parents use cash transfers to offset inequalities in previous educational investments. Our preliminary results suggest that there is a weak positive relationship between educational investment and inter vivos cash transfers. Even if this positive relationship holds up under further investigation, parents may still attempt to offset more generous college contributions to one child with some other sort of support. For example, for most in our sample, we are unable to measure cash or in-kind transfers made while the child was enrolled in school. Cash gifts at that time may compensate for lower educational spending. Similarly, parents may have offset tuition expenditures with gifts in-kind made at the same time that tuition was paid. Anecdotal stories of parents buying a child a car in exchange for the child attending a less expensive local state school, for example, are commonplace. Unfortunately, any inter vivos transfers made prior to the survey are unavailable for our analyses.

Our next step in the analysis is to turn our attention to the relationship between *lifetime* inter vivos transfers and schooling transfers. We plan to aggregate cash transfers over the available waves of HRS to examine how total observed transfers vary both across children within the family and how they compare with total educational transfers. Eventually, data on bequests to child and the distribution of the parental estate can be included as well to provide a substantially more complete picture of parental financial giving than was available in previous studies.

## Data Appendix

*A1. Data Set Information*

We use core survey data from the Health and Retirement Study (HRS) for respondents and their children. Although we have merged the data from all HRS interview years up to 2004, our analysis relies primarily on the 2000 and 2002 surveys. We link respondents over time using the 2004 Tracker File, and we link the children of respondents over time with the Longitudinal Other Person Number (LOPN) file; both files were constructed by the HRS staff and are available on the HRS website. To these linked data we add the information from the 2001 Human Capital and Educational Expenses Mail Survey (HUMS). When available and unless otherwise mentioned, we use imputed data constructed by the HRS staff.

We build our basic analysis file by creating parent/child pairs based on the responding parent for the HUMS. Then, for each of these parent/child pairs, we use the LOPN file to link child information from across the various waves and the 2004 Tracker file to link parent and household information from across the various waves. The siblings for a child are defined as all other children listed in the household roster in the 2000 survey.[28] For analyses non-HUMS households in the broader HRS sample, we arbitrarily select one parent from each 2000 sub-household and then create similar parent/child pairs; these parent/child pairs are then processed analogously.

*A2. Sample Construction*

Because of the complexity of the data, the tables are based on several different subsamples and several different units of analysis. Here we provide some details on the construction of the various subsamples, along with a brief explanation of the various restrictions we imposed. The resulting samples sizes are presented in Table A1. Each sample imposes the delineated restrictions on the sample preceding it in the list.

The "2000 HRS Sample" (Table 1a, defined in line 1 of t able A1). To construct this sample we select all HRS households in 2000 that had a financial respondent.

[28] The household is defined as the sub-household of the responding parent.

Requiring a financial respondent ensures that we have at least some finanical information for each household.

The "HUMS Recipient Sample" (Table 1b defined in line 2 of Table A1). This subsample drops from the HRS Sample households that were not sent the HUMS survey and for whom there were no children in the LOPN file.

The "HUMS Education Sample" (Table A2, defined in line 3 of table A1). This sample consists of those in the prior HUMS Recipient Sample who provided complete response for all one child. We consider a response for a child to be complete if the parent answered the education questions in the HUMS.

The "HUMS Age Relevant Sample" (Table 2, defined in line 4 of table A1). Because tuition and room and board information is potentially available only for children whose last year of college was later than 1968 (and before 2001), we restrict this sample to children who were at least 18 in 1969 (i.e. those born after 1950). We further restrict the sample to children who were born before 1976 so that it is reasonable to assume that the child will have completed college by 2000 when he is 24.

The "HUMS Contribution Sample" (Table 3, defined in line 5 of table A1). Here we further restrict the sample to parents who answered the question about contributions to the cost of college.

The "HUMS Transfer Sample" (Table 5 defined in line 6 of table A1). We again restrict the sample further, limiting it to children whose parents answered the inter vivos cash transfer questions in 2000 and 2002. We also require the children be alive in 2004.

*A3. Supplementary results*

Table A2 compares the education levels report in the core HRS surveys to those reported in the HUMS survey. Because the surveys asked slightly different questions, there is not a one-to-one mapping between the two reports. The values, however, agree well.

The HUMS educational questions are as follows:

- "Did this child receive a high school diploma?"
- "Did this child attend any two- or four-year undergraduate college?"
- "What is the total number of years that this child attended college?"

- "Did this child graduate from college with a bachelor's degree?"
- "After receiving an undergraduate degree, did this child receive a graduate or professional degree?"

The educational questions in the core surveys vary slightly across the year. The specific questions for the 2000 survey are as follows: "How much education has _____ completed?" The responses are grouped as follows: "no formal education, 1-11 grades, 12 or high school, 13-15 or some college, 16 or college graduate, 17+ or post college." Note that the HUMS does not measure attendance institutions such as trade schools which may be reported in a parents counting of the number of years of education.

Table A1: Sample Definitions and Sizes

| Sample title and restriction | Number of observations: HH level | Number of observations: Child level |
|---|---|---|
| **(1) HRS 2000 Sample** | 13,116 | -- |
| all HRS HH with financial respondent | | |
| **(2) HUMS Recipient Sample** | 3,725 | 12,725 |
| + sent HUMS & at least one LOPN child born before 1982 | | |
| **(3) HUMS Education Sample** | 2,556 | 7,953 |
| + educ attainment for all HUMS children | | |
| **(4) HUMS Age Relevant Sample** | 2,202 | 5,845 |
| + child born 1951-1975 & not in school in 2000 or 2002 | | |
| **(5) HUMS Contribution Sample** | 2,139 | 5,484 |
| + HUMS educ expenditure information | | |
| **(6) HUMS Transfer sample** | 2,073 | 5,303 |
| + transfer info for 2000 & 2002 and alive in 2004 | | |

Notes: Table shows the sample size for the listed sample definitions. The various samples are used in different tables.

Table A2 : Cross-Tabulation of HUMS and Core Educational Reports

| Years of education in core survey | Frequency of Reported Educational Attainment in HUMS: Did not complete HS or equivalent | Completed HS or equivalent | Attended 2- or 4-year college | Obtained a bachelor's degree | Obtained a grad./prof. degree |
|---|---|---|---|---|---|
| 1 | 2 | 1 | 1 | 0 | 0 |
| 2 | 0 | 2 | 3 | 0 | 0 |
| 3 | 1 | 3 | 0 | 0 | 0 |
| 4 | 1 | 0 | 0 | 0 | 0 |
| 5 | 7 | 2 | 0 | 0 | 0 |
| 6 | 15 | 3 | 1 | 0 | 0 |
| 7 | 17 | 2 | 2 | 0 | 0 |
| 8 | 30 | 3 | 2 | 0 | 2 |
| 9 | 46 | 8 | 4 | 0 | 0 |
| 10 | 97 | 29 | 9 | 0 | 2 |
| 11 | 109 | 42 | 12 | 0 | 2 |
| HS | 191 | 1,801 | 290 | 23 | 33 |
| 13 | 14 | 247 | 381 | 14 | 16 |
| 14 | 13 | 231 | 736 | 66 | 71 |
| 15 | 4 | 39 | 265 | 79 | 52 |
| Coll. | 9 | 73 | 252 | 1038 | 490 |
| Post coll. | 0 | 12 | 46 | 153 | 801 |
| Missing | 18 | 25 | 5 | 3 | 1 |

Notes: This table is based on the 7,953 children in our HUMS Education Sample which consists of families responding to the HUMS with reports of educational attainment for all children (See the appendix for additional details on sample construction.)

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Table 1a: Comparison of households receiving HUMS to HRS population

| | | Households not sent HUMS | | |
|---|---|---|---|---|
| | Sent HUMS (1) | All (2) | At least 1 child (3) | At least 1 child with 13+ yrs of schooling (4) |
| Number of observations† | 3,839 | 13,116 | 11,727 | 8,826 |
| HH income | 58,019 | 50,470 | 50,395 | 56,939 |
| | (1,630) | (855) | (736) | (935) |
| HH wealth | 417,056 | 373,178 | 372,997 | 440,279 |
| | (18,330) | (9,799) | (9,407) | (11,422) |
| Married/partnered | 0.56 | 0.50 | 0.53 | 0.56 |
| | -- | -- | -- | -- |
| Age | 66.5 | 68.6 | 68.4 | 68.4 |
| | (0.16) | (0.09) | (0.10) | (0.11) |
| Spouse age if present | 63.6 | 64.0 | 64.0 | 64.4 |
| | (0.20) | (0.13) | (0.13) | (0.14) |
| Education | 12.4 | 11.9 | 11.9 | 12.5 |
| | (0.05) | (0.03) | (0.03) | (0.03) |
| Spouse edu. if present | 12.6 | 12.2 | 12.2 | 12.7 |
| | (0.07) | (0.04) | (0.04) | (0.04) |
| # Kids listed in 2000 | 3.4 | 3.1 | 3.4 | 3.5 |
| | (0.03) | (0.02) | (0.02) | (0.02) |
| Any child attend college | 0.89 | 0.67 | 0.75 | 1.00 |
| | -- | -- | -- | -- |

Notes: Table is based on the 13,116 households in our HRS 2000 Sample. See the appendix for additional details on sample construction. Dollar figures are reported in 2005 dollars. Standard errors are in parentheses. † The number of observations may differ across variables due to missing values.

Table 1b: Comparing HUMS Responding and Non-Responding Households

| | | HUMS households with reports on: | | |
|---|---|---|---|---|
| | All HUMS | All Children | Some children | No Children |
| | (1) | (2) | (3) | (4) |
| Number of observations† | 3,725 | 2,598 | 286 | 841 |
| HH income | 57,213 | 61,532 | 39,116 | 50,027 |
| | (1,526) | (1,908) | (3,837) | (3,003) |
| HH wealth | 419,337 | 484,251 | 215,044 | 288,457 |
| | (18,828) | (25,233) | (26,382) | (27,409) |
| Married/partnered | 0.56 | 0.61 | 0.44 | 0.46 |
| | -- | -- | -- | -- |
| Age of HUMS respondent | 66.6 | 66.2 | 67.6 | 67.3 |
| | (0.16) | (0.19) | (0.57) | (0.34) |
| Age of spouse (if present) | 63.6 | 64.0 | 65.2 | 61.5 |
| | (0.20) | (0.22) | (0.82) | (0.53) |
| Educ of HUMS resp | 12.4 | 12.8 | 11.1 | 11.8 |
| | (0.05) | (0.06) | (0.18) | (0.11) |
| Educ of spouse (if present) | 12.6 | 12.9 | 11.5 | 11.9 |
| | (0.07) | (0.07) | (0.28) | (0.17) |
| Number of children | 3.5 | 3.3 | 4.7 | 3.6 |
| | (0.03) | (0.04) | (0.12) | (0.08) |
| Any child attended college | 0.91 | 0.94 | 0.82 | 0.86 |
| | -- | -- | -- | -- |

Notes: This table is based on the 3,725 households in our HUMS Recipient Sample. See the appendix for additional details on sample construction. Dollar figures are reported in 2005 dollars. Standard errors are in parentheses. † Number of observations may differ across variables due to missing values.

Table 2: Parental contributions to child schooling expenses

| | Share paid | Annual amount | Years of attendance | Total paid by parent |
|---|---|---|---|---|
| **Tuition Payments** (for those attending college at some point n=3,397) | | | | |
| Number of non-missing observations | 3,171 | 3,339 | 3,397 | 3,120 |
| *Distribution of values for variables:* | | | | |
| Mean | 51.2 | 2,735 | 3.5 | 9,073 |
| Standard deviation | 41.8 | 3,251 | 1.4 | 14,645 |
| $10^{th}$ | 0 | 420 | 2 | 0 |
| $25^{th}$ | 0 | 768 | 2 | 0 |
| $50^{th}$ | 50 | 1,592 | 4 | 3,245 |
| $75^{th}$ | 100 | 3,256 | 4 | 10,604 |
| $90^{th}$ | 100 | 6,754 | 5 | 26,291 |
| **Room and Board** (for those attending college away from home n=2,459) | | | | |
| Number of non-missing observations | 2,237 | 2,423 | 2,459 | 2,207 |
| *Distribution of values for variables:* | | | | |
| Mean | 52.4 | 2,634 | 3.3 | 8,024 |
| Standard deviation | 41.2 | 1,412 | 1.3 | 8,142 |
| $10^{th}$ | 0 | 1,154 | 2 | 0 |
| $25^{th}$ | 10 | 1,551 | 2 | 900 |
| $50^{th}$ | 50 | 2,331 | 4 | 5,533 |
| $75^{th}$ | 100 | 3,417 | 4 | 13,174 |
| $90^{th}$ | 100 | 4,657 | 5 | 19,284 |
| **Total Contributions** (for those attending college at some point n=3,397) | | | | |
| Number of non-missing observations | -- | -- | -- | 3,120 |
| *Distribution of values for variables:* | | | | |
| Mean | | | | 18,810 |
| Standard deviation | | | | 32,355 |
| $10^{th}$ | | | | 0 |
| $25^{th}$ | | | | 838 |
| $50^{th}$ | | | | 7,638 |
| $75^{th}$ | | | | 23,387 |
| $90^{th}$ | | | | 48,196 |

Notes: This table is based on the 5,845 children in the HUMS Age-Relevant Sample. See the appendix for additional details on sample construction. "Tuition Payments" and "Total Contribution" tabulations exclude the 2,448 children who did not attend college, and the "Room & Board" tabulations exclude the 3,386 children who did not live away from home during college. Dollar figures are reported in 2005 dollars.

Table 3: Parental educational transfers by number of adult children

| | Number of children | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5+ |
| N | 278 | 925 | 1,192 | 1,023 | 2,049 |
| **Tuition payments** | | | | | |
| Years in college per child | 3.00 | 2.75 | 2.22 | 1.78 | 1.42 |
| Annual tuition bill per attending child | 4,591 | 4,474 | 4,595 | 4,419 | 4,268 |
| Annual tuition paid per attending child | 3,142 | 2,765 | 2,605 | 2,169 | 1,830 |
| Total tuition paid for all children † | 9,414 | 15,233 | 17,384 | 15,470 | -- |
| **Room and board away payments** | | | | | |
| Years away at college per child | 2.03 | 1.91 | 1.52 | 1.19 | 0.97 |
| Annual R&B bill per away child | 4,484 | 4,520 | 4,358 | 4,285 | 4,320 |
| Annual R&B paid per away child | 2,961 | 2,735 | 2,458 | 2,048 | 1,835 |
| Total R&B paid for all children † | 6,018 | 10,460 | 11,227 | 9,723 | -- |
| **Total educational payments** | | | | | |
| Total payments for all children | 15,432 | 25,693 | 28,612 | 25,193 | -- |

Notes: This table is based on the 5,484 children in our HUMS Contribution Sample. See the appendix for additional details. Dollar figures are reported in 2005 dollars. † The values for total expenditures are computed by multiplying the number of children by the average years in college by the number of children. We therefore leave blank the "5+" column because the number of children varies across families.

Table 4: Equality of educational transfers by the number of children

| | Children attending college | | | |
|---|---|---|---|---|
| **Tuition for children attending college** | 2 | 3 | 4 | 5 |
| Number of households | 447 | 233 | 81 | 32 |
| Equal percent paid by parent | 0.55 | 0.46 | 0.32 | 0.22 |
| Approx equal percent paid by parent† | 0.72 | 0.57 | 0.41 | 0.31 |
| Approx equal annual tuition expenses | 0.30 | 0.06 | 0.03 | 0 |
| Approx equal annual tuition paid by parent | 0.35 | 0.20 | 0.14 | 0.03 |
| Approx equal total tuition paid by parent | 0.31 | 0.20 | 0.14 | 0.03 |
| | Children living away at college | | | |
| **Room and board for children living at college** | 2 | 3 | 4 | 5 |
| Number of households | 338 | 138 | 41 | 18 |
| Equal percent paid by parent | 0.54 | 0.50 | 0.27 | 0.39 |
| Approx equal percent paid by parent† | 0.76 | 0.61 | 0.41 | 0.49 |
| Approx equal annual room and board expenses | 0.55 | 0.17 | 0.02 | 0.11 |
| Approx equal annual room and board paid by parent | 0.46 | 0.26 | 0.05 | 0.17 |
| Approx equal total room and board paid by parent | 0.36 | 0.21 | 0.05 | 0.06 |

Notes: This table is based on the HUMS Contribution Sample, restricted to those households with more than 1 and fewer than 6 children who attended college (panel one) and lived away from home while in school (panel 2). See appendix for additional details of sample construction. † "Approximately equal" is defined as within 10 percentage points or 10% of the dollar amount.

Table 5: Transfers Made by Parents to Adult Children

| | Number | Fraction Positive | Mean | Mean>0 | Median>0 |
|---|---|---|---|---|---|
| **Inter vivos transfers in 2000** | | | | | |
| Per child transfers | 2,073 | 0.30 | 1,535 | 5,075 | 1,858 |
| Total transfers | 2,073 | 0.30 | 2,930 | 9,689 | 3,345 |
| Total transfers by parent age | | | | | |
| 50s | 435 | 0.37 | 2,318 | 6,343 | 2,230 |
| 60s | 968 | 0.30 | 2,960 | 9,882 | 3,902 |
| 70s | 547 | 0.28 | 3,495 | 12,578 | 4,460 |
| 80s | 123 | 0.21 | 2,348 | 11,106 | 4,125 |
| **Schooling transfers** | | | | | |
| Per child tuition paid | 2,073 | 0.60 | 6,245 | 10,448 | 5,714 |
| Total tuition paid | 2,073 | 0.60 | 13,100 | 21,767 | 11,308 |
| Per child room & board paid | 2,073 | 0.48 | 3,872 | 8,099 | 6,254 |
| Total room & board paid | 2,073 | 0.48 | 8,199 | 17,151 | 12,875 |
| Per child tuition + R&B paid | 2,073 | 0.63 | 10,116 | 16,070 | 9,881 |
| Total tuition + R&B paid | 2,073 | 0.63 | 21,209 | 33,690 | 19,624 |

Notes: This table is based on the 2,073 households in the HUMS Transfer Sample. See the appendix for additional details on sample construction. Dollar figures are reported in 2005 dollars.

Table 6: Transfers Received by Adult Children

| | Number | Fraction Positive | Mean | Mean>0 | Median>0 |
|---|---|---|---|---|---|
| **Inter vivos transfers in 2000** | | | | | |
| Transfers to adult children | 5,303 | 0.16 | 1,145 | 7,007 | 2,676 |
| Transfers by child age | | | | | |
| Ages 20-29 | 510 | 0.27 | 1,790 | 6,667 | 2,230 |
| Ages 30-39 | 2485 | 0.17 | 1,023 | 6,123 | 2,229 |
| Ages 40+ | 2303 | 0.14 | 1,138 | 8,318 | 3,345 |
| **Schooling transfers** | | | | | |
| Tuition paid by parent | 5,303 | 0.41 | 5,086 | 12,382 | 6,480 |
| R&B paid by parent | 5,303 | 0.31 | 3,205 | 10,485 | 8,824 |
| Tuition and R&B paid by parent | 5,303 | 0.43 | 8,291 | 19,107 | 11,445 |

Notes: This table is based on the 5,303 children in the HUMS Transfer Sample. See the appendix for additional details on sample construction. Dollar figures are reported in 2005 dollars.

Table 7: Regressions of schooling & inter vivos transfers on child & family variables

| Variables | Educational transfers | | Cash transfers in 2000 | |
|---|---|---|---|---|
| | OLS (1) | Family FE (2) | OLS (3) | Family FE (4) |
| **Child characteristics:** | | | | |
| Male | -1195*** | -193 | -159 | 116.2 |
| | (424) | (404) | (160) | (140.6) |
| Age | -502*** | -323.6*** | -35.2** | -39.2** |
| | (43.9) | (61.2) | (16.8) | (19.1) |
| Married | | | 8.3 | 76.8 |
| | | | (197) | (133.6) |
| Years of schooling | | | 126.5*** | 61.9 |
| | | | (43.2) | (46.8) |
| Working | | | -39.6 | -10.7 |
| | | | (252.0) | (250.3) |
| Number own children | | | 71.2 | -9.4 |
| | | | (61.9) | (113.6) |
| Income | | | | |
| $0-$10,000 | | | 845.2** | 1230.6 |
| | | | (397.4) | (869.2) |
| $10,000-$35,000 | | | Omitted | Omitted |
| $35,000-$70,000 | | | -354.5 | -812.4*** |
| | | | (249.6) | (283.0) |
| $70,000+ | | | -1074.5*** | -1035.5** |
| | | | (281.8) | (417.4) |
| DN / RF | | | -576.5** | -817.1*** |
| | | | (232.0) | (283.0) |
| **Parent characteristics:** | | | | |
| Age | 363.2*** | | 43.4*** | |
| | (37.6) | | (14.2) | |
| Years of schooling | 1113*** | | 91.2*** | |
| | (83.5) | | (32.6) | |
| Income in $1000s | 16.5*** | | 3.98*** | |
| | (3.7) | | (1.37) | |
| Income$^2$ in $1000s | 000* | | 0.000 | |
| | (0.000) | | (0.000) | |
| Wealth in $1000s | 5.8*** | | 1.27*** | |
| | (0.41) | | (0.15) | |
| Wealth$^2$ in $1000s | 0.000*** | | 0.000*** | |
| | (0.000) | | (0.000) | |
| Number of children | -938*** | | -111.4*** | |
| | (97) | | (37.2) | |

| | | | | |
|---|---|---|---|---|
| Mean of dep var | 7885.9 | | 995.7 | |
| Number of obs | 5037 | 5037 | 4859 | 4859 |
| R2 | 0.19 | 0.02 | 0.05 | 0.4 |

Notes: The sample for the regressions consists of all children in the HUMS data. Inter vivos transfers are reported in 2000 and 2002. Parental income and wealth are reported in 2005 dollars. The children income categories are as of the survey year. Standard errors allow for clustering at the family level. Also includes on the right hand side are child work status *** Denotes significant at a 1 percent level, ** denotes significance at a 5 percent level

Table 8:Regressions of inter vivos transfers on schooling transfers

| Variables | OLS (1) | Family FE (2) | OLS (3) | Family FE (4) |
|---|---|---|---|---|
| **Child characteristics:** | | | | |
| Schooling transfers ($) | 0.046*** | 0.011 | 0.028*** | 0.013 |
| | (0.003) | (0.008) | (0.004) | (0.007) |
| Male | | | -117.9 | -104.5 |
| | | | (110) | (99.9) |
| Age | | | -18.9 | -30.1** |
| | | | (11.6) | (11.9) |
| Married | | | -79.5 | -62.4 |
| | | | (135.3) | (100.9) |
| Years of schooling | | | 26.2 | -7.7 |
| | | | (31.8) | (30.8) |
| Working | | | 24.7 | 177.6 |
| | | | (170.6) | (145.0) |
| Num own children | | | 69.2* | 8.8 |
| | | | (42.3) | (64.4) |
| Income | | | | |
| $0-$10,000 | | | 562.3** | 876.3** |
| | | | (284.8) | (443.1) |
| $10,000-$35,000 | | | Omitted | Omitted |
| $35,000-$70,000 | | | -417.6** | -280.8 |
| | | | (176.2) | (180.7) |
| $70,000+ | | | -1024.3*** | -606.0* |
| | | | (194.4) | (339.9) |
| DN / RF | | | -656.3*** | -358.6* |
| | | | (162.7) | (194.7) |
| **Parent characteristics:** | | | | |
| Number of children | | | -103.2*** | -- |
| | | | (25.6) | |
| Age | | | 32.8*** | -22.0 |
| | | | (9.78) | (38.7) |
| Years of schooling | | | 55.1** | -- |
| | | | (22.5) | |
| Income in $1000s | | | 2.0** | 1.8 |
| | | | (0.95) | (2.6) |
| Income$^2$ in $1000s | | | 0.000 | 0.000 |
| | | | (0.000) | (0.000) |
| Wealth in $1000s | | | 1.1*** | 0.75 |
| | | | (.11) | (0.57) |
| Wealth$^2$ in $1000s | | | -0.000*** | 0.000 |
| | | | (0.000) | (0.000) |

| | | | | |
|---|---|---|---|---|
| Number of children | | | 69.2 | |
| | | | (42.3) | |
| Mean of dep var | 7885.9 | | 7885.9 | |
| Number of obs | 10,074 | 10,074 | 9567 | 9567 |
| R2 | 0.02 | 0.02 | 0.05 | 0.03 |

Notes: The sample for the regressions consists of all children in the HUMS data. Inter vivos transfers are reported in 2000 and 2002. Parental income and wealth are reported in 2005 dollars. The children income categories are as of the survey year. Standard errors allow for clustering at the family level. Also includes on the right hand side are child work status *** Denotes significant at a 1 percent level, ** denotes significance at a 5 percent level

Figure 1
Histogram for Parental Contribution to Tuition Expenses

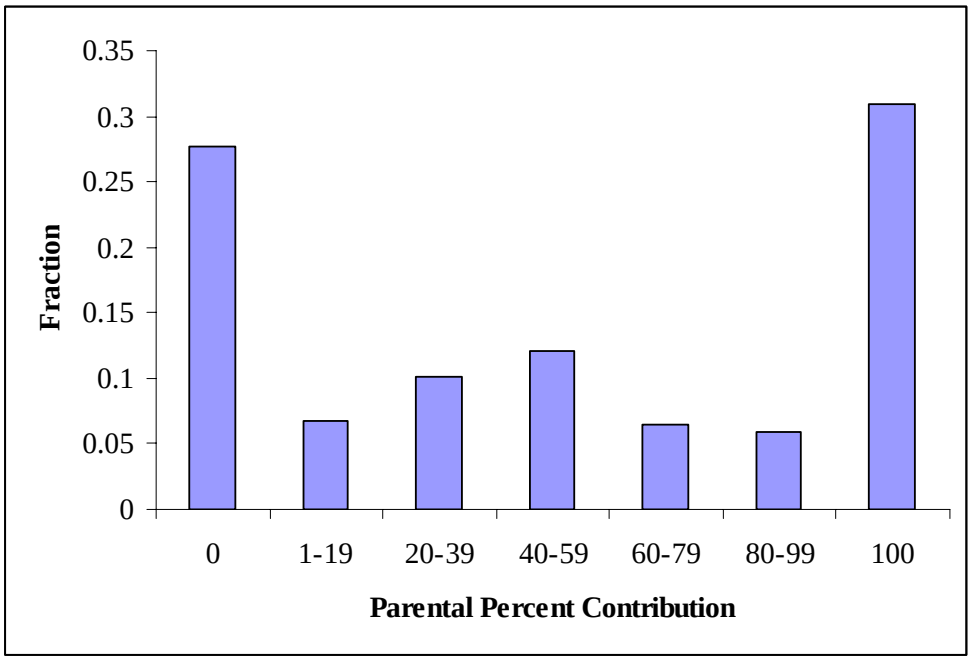


Figure 2
Histogram for Parental Contribution to Room and Board Away