Household Allocations for Children's College Education: Evidence for the "Snow White" Effect

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Introduction

Educational expenditures are often a sizeable part of the investment parents make in their children, with important implications for the future well-being of both generations. These investments may have enduring effects on both the accumulation of wealth by parents and their retirement behaviors. The investments parents make in their children also yield benefits for these offspring, particularly in the form of career trajectories and higher earnings. But the extent to which the human capital investments parents raise the opportunity costs of children, they also may unintentionally reduce the likelihood that children will provide parent care later in life.

While there are well-known demographic and socioeconomic differences in educational attainment and college attendance (see, for example, Steelman and Powell 1991), much less is known about the allocation of human capital expenditures within families (See Hauser and Kuo (1998) and Kuo and Hauser (1996) as exceptions). In this paper, we examine the allocation of parental expenditures for college, with particular emphasis on factors that differentiate levels of expenditures among children in a family. Among these are family size, sibship composition, birth order, and variation in family structure. Increases in the number of blended families, in particular, have raised important questions about the effect of step child status on exchanges among family members.

Data

Data are drawn from the 2001 Human Capital Expenditure (HUMS) mailout supplement to the Health and Retirement Study (HRS) This survey collected human capital investment data on a random sub-sample of 3862 HRS households, of which 81.8 percent responded. Respondents were asked about expenditures for each individual child on the 2000 HRS family roster.

This project required development of a new methodology to estimate parental educational expenditures. Because of the broad age range of HRS respondents, spanning up to 50 years in recent waves, direct recall posed not only memory problems for respondents but also potential confusion over the changing value of the dollar and distinguishing tuition from room-and-board costs. Following an initial experimental data collection in 1999, cognitive interviewing, and a measurement workshop in 2000, a final methodology emerged in which the respondent was asked – for each child – the name and location of the college attended, the length of attendance, age of last attendance, and the portion of college costs paid by the respondent-parent. Data are also available on college expenses for the last year the child attended a particular college, taken from the Department of Education "Caspar" data base, an online data base of college costs from 1969-2001. These data are publicly available from the HRS website.

Methods

The analysis presented here focuses on the children of the original HRS cohort (b. 1931-41) who entered the study in 1992 and for which we have seven waves of observations. These respondents reported a total of 6090 living children in 2000. Of these, 5364, or 88 percent of the observations, are used in the analysis. Thirteen percent of the observations cannot be used for a

variety of missing data problems. The main reasons were incomplete information on whether the child graduated high school or attended college (N=465) and the proportion of tuition paid by the parent (N=236).

Analyses of these data present significant statistical challenges. *First*, the analysis must address the issue of selection in who attends college. Forty-six percent of children did not attend college, and it would be inappropriate to treat them as receiving zero tuition support because the factors affecting who attends college may differ from those determining the proportion of expenses the parent pays. *Second*, among those children attending college, there is strong clustering at zero percent and at 100 percent tuition support. Approximately 28 percent of children who attend college cluster at each of these points. The three categories discussed so far – no college attendance, no tuition support, and 100 percent tuition support – account for 77 percent of all children. *Third*, because we focus on within-family allocations, there are multiple observations per household. This feature of data, or clustering, must be taken into consideration in estimating standard errors and, hence, assessing significance. Finally, a fixed-effects estimator, while well-suited to a within families analysis, does not address the other issues noted.

These multiple estimation issues are not easily addressed in a single analysis. A multinomial logistic regression model that adjusts standard errors for clustering within families (estimated using the STATA MLOGIT procedure) addresses all the above but is not a fixed-effects estimator. To provide reasonable boundaries for categories, we focus on the proportion of tuition expenses paid by the parent rather than the dollar amount paid. The categories used (with the proportion falling in the category noted in parentheses) are: child did not attend college (45 percent); child attended but parent paid no tuition (16 percent); parent paid 1 to 49.9 percent (11 percent); parent paid 50 to 99.9 percent (13 percent); and parent paid 100 percent (16 percent). In addition, we have estimated fixed effects models even though they do not address all the analytic problems mentioned above and we briefly discuss those results in the results section.

We include variables in the model that vary within as well as between households, including the child's gender, birth sequence, whether this child is the step child of either the HRS male or female respondent in the household, and the number of brothers and sisters of each child. We also include the gap in age between a given child and the next older child and if an individual child shares a birth year with another child, i.e., possible twin sibs. Both of these latter variables are indicators of concentrated demand for the parental investments in the human capital of offspring. Measures that vary only between families include parental education and race.

Results

Results for the multinomial logit are presented in the attached table. The contrast category for the logit is the group of children who attended college but received no tuition support from parents. Our results indicate there is a strong effect for being the step child of the female respondent in the household. Those with a residential step-mother during their college years are significantly less likely to receive more than 50 percent tuition support. There is a similar effect for being the step child of the residential male spouse or partner of the biologic mother of the child, though this characteristic reduces only the probability of having all of their tuition paid.

Among other characteristics that vary within as well as between families, birth sequence and number of siblings also affect proportion of tuition parents paid. As Steelman *et al.* (2002) and Ejrnaes and Portner (2004) predict, later born children have a higher probability of receiving most, if not all, of their tuition support from parents. Those with more brothers or more sisters

receive a smaller portion of tuition expenses, with number of brothers having stronger and more consistent effects. Birth spacing and possible twining have no appreciable effects on the relative share of tuition costs that parents pay. Children who were in college when their own mother did not have a male spouse/partner receive relatively less tuition assistance than those living with both parents or a biologic parent and a step parent.

Among variables that vary only between families, parents with higher education levels pay a larger share of children's college expenses than less educated parents. Black respondents were less likely to pay 100 percent of the child's expenses than were white parents.

Fixed effects models support the importance of having a step mother. In a fixed-effects logit model for college attendance, being a step child of the women living with the child's father in the household is associated with a lower probability of college attendance. In a fixed effect regression limited to those children who attended college, having a step mother is significantly associated with the child receiving less tuition support.

Conclusion

Step children, particularly children with step mothers, receive less tuition support from their parents than do the biological children of co-residing parents. The complete paper will discuss the ways this finding is consistent with evolutionary biological theory. In addition, we also discuss the implications of the finding for long-term intergenerational exchanges in families. Lower fertility and increasing rates of divorce and remarriage make blended families more common. The results of our analysis suggest these relationships are more tenuous than the full biological relationship. It is possible, of course, that step children receive less help from the HRS respondent household because they have another parent (not observed in the HRS survey) who provided partial support as well. Yet, given the difference in average earnings between men and women, we would not expect help from a second household to affect step children of women more than men. If the mother is a step mother, the household reporting on a child consists of the child's biological father and a step mother. The other biological parent is the mother of the child, and it is likely that she will lower earnings and savings and provide less help with college expenses than would a similarly-situated father. Even if there were another parent providing help with college expenses, the relatively lower share of tuition assistance contributed by a the step parent household may still influence the child's willingness to provide help in the future when either the remarried parent or step parent is elderly and frail as we show in Henretta *et al*. (1997).

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Multinomial Logit for Proportion of Tuition Paid by Parent
Health and Retirement Study, 2001

(Contrast category: child attended college but parent paid no tuition)

	Did not attend college	Parent paid 1-49.9%	Parent paid 50-99.9%	Parent paid 100%
child's sex (male)	0.10	-0.13	-0.21	-0.11
birth sequence (vs. 1)				
2	0.02	-0.15	0.06	0.19
3	0.28 *	-0.02	-0.01	0.35 *
4	0.27	-0.08	0.29	0.59 **
5 or later	0.20	0.08	0.40	0.97 **
gap between older sib >6 yrs.	-0.04	0.14	0.32	0.17
share birth year with sibling	0.56 *	0.23	0.11	-0.16
mother				
step mom	0.35	-0.47	-0.86 **	-1.17 **
mom's educ. (vs. hs)				
0 to 11	0.68 **	-0.01	-0.16	0.05
13 to 15	-0.34	0.31	-0.16	0.62 **
16 or more	-0.83 **	0.38	0.42	0.97 **
no mom in hh	0.32	-0.36	-0.52	-0.28
father				
step dad	-0.31	-0.01	-0.44	-1.10 *
dad's educ (vs. hs)				
0 to 11	0.24	-0.21	-0.70 *	-0.36
13 to 15	-0.10	0.17	0.31	-0.17
16 or more	-1.01 **	0.29	0.58 *	0.67 **
no dad in hh	0.06	-0.50 *	-0.80 **	-0.75 **
N. brothers (vs. zero)				
1	0.08	-0.23	-0.46 **	-0.59 **
2	0.06	-0.41	-0.73 **	-1.01 **
3	0.02	-0.30	-1.10 **	-1.20 **
4	0.48	-0.33	-1.23 **	-1.41 **
5 or more	-0.20	-1.03 *	-2.75 **	-2.51 **
N sisters (vs. zero)				
1	0.26	0.08	-0.07	-0.19
2	0.33 *	-0.44 *	-0.45 *	-0.55 **
3	0.63 **	-0.06	-0.38	-0.89 **
4	0.84 **	0.08	-0.17	-1.30 **
5 or more	0.82 **	-0.22	-0.86 *	-1.96 *
Race (vs. white)				
black	-0.34	0.04	0.00	-1.13 **
other	0.16	-0.15	0.14	-0.14
constant	0.41	0.14	0.75	0.85
N observations	2401	586	700	845
(N in contrast category: 832)				

** p <=.01

* p<=.05