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ABSTRACT

Parents' and their children's means of paying for college were studied using path analysis to determine if the use of parent contributions, work earnings, or student financial aid has intergenerational effects. The sample consisted of 2,082 student/parent records from the 1990 National Postsecondary Student Aid Study. Actual parent contributions to the child were not directly affected by the parental college funding experiences; however, the indirect effects suggested increased parental contributions to the child, mediated by parents' measures of socioeconomic status, timing of savings, and the child's degree aspirations. The student's financial aid was also indirectly affected by measures of the parents' socioeconomic status: higher status resulted in less aid. The direct effect of the parent receiving student financial aid was in larger amounts of student aid for the child. No intergenerational effects were found from student employment; current students did not work during college because their parents worked in college. The results strongly indicated that part of the intrafamily process of deciding how students should pay for college is the college financing experience of the parents. (Contains 30 references.) (SW)

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Abstract

Parents' and their children's means of paying for college was studied using path analysis to determine if the use of parent contributions, work earnings, or student financial aid has intergenerational effects. Actual parent contributions to the child are not directly effected by the parental college funding experiences; however, the indirect effects increase parental contributions to the child, mediated by parents' measures of socioeconomic status, timing of savings, and the child's degree aspirations. The child's financial aid is also indirectly affected by measures of the parents' socioeconomic status: higher status results in less aid. The direct effect of the parent receiving student financial aid is in larger amounts of student aid for the child. No intergenerational effects occur from student employment.



for Management Research, Policy Analysis, and Planning

This paper was presented at the Thirty-Fifth Annual Forum of the Association for Institutional Research held at the Boston Sheraton Hotel & Towers, Boston, Massachusetts, May 28-31, 1995. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

**Jean Endo
Editor
AIR Forum Publications**

Introduction

Estimates of 1992-93 federally supported student aid awards puts the total annual expenditure at \$23.5 billion --- about fifty times the amount of estimated expenditure in the mid-1960's when federal programs were starting (College Board, 1993; Gillespie & Carlson, 1983). Cost pressures upon families are a major factor in student aid growth. In the decade of the 1980's the average cost of attendance across all sectors of higher education rose more than 126 percent, or more than twice the rate of increase of inflation, while median family income for families with the head of household aged 45 to 54 years increased by only 73 percent (National Commission on Responsibilities for Financing Postsecondary Education, 1993).

Cost-shifting strategies by families in the use of student aid programs, and within families from parent to child, show informative historical patterns. The family's share has increased from about 30 percent of costs in 1950 to nearly 50 percent in 1990. Within the family the relative burdens between parent and child have also shifted over the years. Parents' share has fallen from a high of nearly 45 percent in 1965 to about 30 percent in 1990, while the student's share has slowly grown from about 11 percent in 1950 to about 20 percent in 1990 (Hauptman & Roose, 1993).

The decline of the parents' share of higher education costs, coupled with the growth in student aid expenditures, raises questions: Have parents and students learned to substitute financial aid dollars for family resources? Is the use of student aid self-perpetuating within families? If reliance upon student financial aid for higher education is self-reinforcing across generations, then as the use of student aid becomes widespread, it discourages parental savings on behalf of their children, thereby increasing the demand for student aid, shifting the burden

from parents to taxpayers, and thus initiating a cycle of dependency on non-family financial sources. Alternatively, as socioeconomic success lessen the families' need for financial aid, student aid might be self-extinguishing across generations. This study then investigates the intergenerational effects of the methods of paying for higher education. Simply stated, the central question here is "Does the parents' means of paying for their own higher educations effect their children's college financing?"

Related Research

Despite a long controversy about intergenerational effects of family financial aid, especially welfare (Auletta, 1982; Lewis, 1968; Murray, 1984; Wilson, 1987), no research study to date has examined potential intergenerational effects from student financial aid or other forms of college financing. This void exists despite a specific intergenerational focus by sociologists on the role of education in social mobility and status attainment theories (Blau & Duncan, 1967; Parsons, 1959; Sorokin, 1927) and by economists in human capital theory (Becker, 1991).

Any study of intergenerational effects is logically obligated to make conceptual distinctions both internal and external in relation to the family. In a study of family finances, the minimum division of financial sources is three: parent, child, and non-family. Seen from the perspective of the student, money which is received from parents is different from money which the student must earn, which in turn is different from money from outside the family.

Churaman (1992) found that about three-quarters of all parents of dependent students report making contributions, and that parental contributions are typically the largest single source of funds for the child. Most parents used a combination of financial tactics -- using income, savings, and borrowing -- to fund their contributions. Fewer than half of the parents having

college-bound children start savings plans, and those that do typically save far too little (Hansen, 1990). Recent studies show that family income and parent education levels influence the timing of the decision to save for children's college education, such that parents of higher levels of income or education start saving plans earlier than others (Flint, 1993; Hossler & Vesper, 1993).

Upward rates of college student employment may be a sign that financial burdens are shifting away from parents or non-family sources onto students themselves. Rates of employment in the 20 - 24 year age bracket have risen from 25 percent in the late 1940's to 56 percent in the late 1980's (Gleason, 1993). The belief persists in the parental attitude "I worked my way through college; you should, too" (Mortenson, 1995). Most research on college student employment, though, focuses upon its short-term effects upon students' grades and upon college withdrawal. In Gleason's (1993) survey of eight studies dating to 1957, all indicate no adverse impacts upon academic performance or persistence.

Research on the impact of financial aid has also focused on short-term effects, not intergenerational effects. St. John's (1991) review finds that receipt of financial aid has positive impact upon educational attainment. Sanford (1980) found no significant relationships between the receipt of student financial aid in college and the reported full-time salaries of graduates, numbers of graduates who worked two jobs, or graduates' marriage or family formation. Both Baird (1973) and Sanford (1979) found that undergraduate loans have no adverse impact on the decision to pursue graduate study. Boyd and Martin (1985) also concluded that student loans do not adversely affect borrowers' decisions to marry, have children, or purchase homes or cars.

Parental effects upon student use of financial aid may be primarily indirect. Some evidence shows that parental education and income impact average tuitions in the college destinations they

prefer for their children, mediated by their intention to use various forms of college savings and by their preferred degree aspiration for the child (Flint, 1992, 1993). Parents also influence the child's financial aid application process. Parents of higher educational attainment have greater knowledge of financial aid programs, with unique effects that occur based on family income while controlling for parental educational levels. Parents of higher incomes are more likely to be aware of loan programs while low-income parents are more likely to be aware of need-based grant programs (Olson & Rosenfeld, 1984).

The Causal Model(s)

This study uses a causal model to address intergenerational effects in paying for college because parental factors may exert influence upon the child indirectly as well as directly. The model is loosely based on the status attainment and human capital theories and literature, and is made up of three general components. The first component is a block of variables which are exogenous, consisting of three sources of funds by which parents financed their own college experiences. The second component is a block of endogenous variables comprised of measures representing parental educational attainment, the parent timing of college savings for the child, parental expected contribution based on the federal formula, the child's degree aspiration, and the number of parental tactics used to produce funds for the child. The final variable in each model is the dependent variable. Table 1 is this study's variable list.

To begin, the exogenous variables in this path model are the parent receipt of funds from their parents, the parent use of college employment, and the parent use of financial aid in college. All three variables are regarded as part of the parental college experience and precede the endogenous (mediating) variables. Parent education level follows the exogenous variables

TABLE 1

VARIABLE LIST

Exogenous Variables: "If you or your spouse ever attended any postsecondary school, how did you pay for it?" Respondents specify all sources that apply as indicators, not in dollars.

Parent Use of Parental Support: (0-1): "Paid for by parents".

Parent Use of College Earnings: (0-2): "Paid for with own earnings or savings" and "Paid for with spouse's earnings".

Parent Use of Financial Aid: (0-4): "Paid for with loan(s)," "Paid for by employer," "G.I. Bill," and "Paid for with a scholarship or grant."

Endogenous Variables: (listed here by their order of entry into the structural equations):

Parental Education Level: 4="Less than 1 year (vocational)," 5="1 but less than 2 years (vocational)," 6="2 years or more (vocational)," 7="Less than 2 years of college," 8="2 or more years of college (including 2-year degree)," 9="complete college (4- or 5-year degree)," 10="master's degree or equivalent" 11="Ph.D., M.D, or other advanced professional degree."

Parent Timing of Savings: 0="No savings, 1="After high school," 2="In the 10th, 11th or 12th grades," 3="In the 7th, 8th or 9th grades," 4="In the 1st through 6th grades," 5="Before 1st grade."

Expected Parent Contribution (\$): Based on the federal Congressional Methodology for 1989-90 (U.S. Department of Education, 1989).

Child's Degree Aspiration: (1-8): Same categories as Parental Education Level, above.

Parents' Financial Tactics: (0-9): "Withdrew money not previously set aside for his or her education from cur savings account(s), trust fund(s)", "Borrowed money on life insurance policies", "Took out a second mortgage on real estate", "Refinanced real estate", "Took out loans, other than mortgages", "I or my spouse started working, or if already working, took an additional job", "I or my spouse worked more hours per week at current job(s)", "Used current income (not from extra work)", "Sold assets (real

estate, stocks, bonds)".

Dependent Variables:

Actual Parent Contribution (.): From the parent survey question, "How much did you or will you and your spouse contribute (and lend) to help meet your child's education-related expenses?".

Child's College Earnings (\$): From the student survey.

Child's Financial Aid (\$): From institutional records.

Control Variables:

Child's Ability Level (SAT or equivalent): From institutional records.

Student's Gender: 1=Male.

Declared Major: 1=declared, 0=undeclared.

Tuition and Fees Paid in 89-90 (\$): From institutional records.

Selectivity in Admission to the College Attended: Institution's own assessment of difficulty in obtaining admission (Healy, Koether, & Lefferts, 1990): 5=Most difficult, 4=Very difficult, 3=Moderately difficult, 2=Minimally difficult, 1=Non-competitive.

Distance from Home (to attended institution): 1 = "10 miles or less," 2 = "11-50 miles," 3 = "51-100 miles," 4 = "101-500 miles," or 5 = "Over 500 miles."

because those funding sources help one obtain a college degree, but the converse cannot be true. Parent timing of savings follows parent education level, since students who become parents while still enrolled are unlikely to begin college savings plans for their children until they finish paying for their own educations. Parent financial contribution follows the parent timing of savings variable; this variable is an expectation based on a federal formula used in distributing financial aid and is measured in the year during which the child is a freshman, but usually no earlier than nine months prior to the child's enrollment (U.S. Department of Education, 1989). Parental education levels, parental savings, and parental financial strength may all be sources of external motivation for the child, so the child's degree aspiration variable follows next. A variable representing parent financial tactics is included in the model thereafter in order to assess parental effort to produce funds when the student has matriculated (Churaman, 1992).

In the three models estimated here, the dependent variables are identical in concept to the three college funding sources of the parent. These sources are: the actual parent contribution to the child, the child's work earnings in college, and the child's financial aid. Simultaneously, the addition of control variables clarifies the effects from the model. The controls used here include the child's ability level, gender, declared major, and the attended institution's tuition, selectivity, and distance from the family's home.

Method

Sample

The 1990 National Postsecondary Student Aid Study (NPSAS:90) is used in this study (National Center for Education Statistics, 1992). Selection of records from NPSAS:90 for this study is limited to dependent students (whose parental information would have been included in

the determination of expected family contribution and financial aid) who had a parent survey completed for NPSAS:90 which indicated that at least one parent had some postsecondary education. Only records indicating that the student was attending college as a first-time beginner during 1989-90 are used. Cases involving missing data, such as parental education levels, expected family contributions, student degree aspirations, or control variable data, are excluded. Additionally, non-whites and part-time students are excluded due to very skewed distributions. The final sample is 2,082 student/parent records. This sample's distribution of student ages, marital statuses, and degree aspirations are very nearly identical to Cooperative Institutional Research Program data (Dey, Astin, & Korn, 1991), although this sample contains a higher percentage of children whose parents are married, with somewhat smaller proportions of parental incomes under \$40,000. Descriptive tables are available from the author.

Analyses

Path results were estimated using GEMINI (Wolfe & Ethington, 1985), which provides estimates of the standard errors of the direct and indirect effects. GEMINI requires the means, standard deviations, and correlations of all variables in the sample. The correlation table and the structural parameter estimates are available from the author.

Results

Child's College Earnings

Path results on children's college earnings show no significant effects ($p < .01$) from the model. The eight independent variables within the model together with the six control variables explain only five percent of the variance in the child's college earnings. Neither direct nor indirect effects of the minimum significance are observed. No table is appended here; this data

is available from the author. The substantive conclusion to draw about the child's college earnings is that this sample presents no evidence of any causal effects from the proposed path model.

Actual Parent Contributions (Table 2 and Figure 1)

The eight variables in the model together with the six control variables explain 53 percent of the variance in actual parent contributions to the child. Four independent variables with the model have significant ($p < .001$) direct effects upon actual parent contributions. Seven independent variables within the model have significant ($p < .001$) indirect effects upon actual parent contributions. Six independent variables within the model have significant ($p < .001$) total effects upon actual parent contributions.

The four independent variables with significant direct effects upon actual parent contributions are (in descending order of relative influence) the expected parent contribution, the parent financial tactics, parental education levels, and the timing of savings. All four variables have positive direct effects, leading to larger actual contributions to the child.

The seven independent variables with significant indirect effects upon actual parent contributions are (in descending order of relative influence) the parents' receipt of funds from their parents, the timing of savings, parents' education levels, parents' use of their own college earnings, parents' use of financial aid, the expected parent contributions, and the child's degree aspiration. All variables but one have positive indirect effects, leading to larger actual parent contributions.

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TABLE 2

DIRECT, INDIRECT, AND TOTAL EFFECTS FOR
ACTUAL PARENT CONTRIBUTIONS

Independent Variables:

Variable Name	Direct Effect	Indirect Effect	Total Effect	Dominant Mediators
Parent Use of Parental Support	398.417* 0.032	995.769*** 0.080	1394.186*** 0.112	Expected contribution
Parent Use of College Earnings	-340.588* -0.037	379.102*** 0.041	38.514 0.004	Parent education Timing of savings
Parent Use of Financial Aid	-254.721 -0.030	278.927*** 0.033	24.206 0.003	Financial tactics
Parent Education Level	345.114*** 0.080	279.679*** 0.065	624.793*** 0.145	Expected contribution
Parent Timing of Saving	259.343*** 0.077	225.063*** 0.066	484.406*** 0.143	Expected contribution Financial tactics
Expected Parent Contribution	0.121*** 0.294	-0.011*** -0.026	0.110*** 0.268	Financial tactics
Child's Degree Aspiration	43.637 0.006	152.508*** 0.021	196.145*** 0.027	Financial tactics
Parent Financial Tactics	944.346*** 0.232	--- ---	944.346*** 0.232	

Control Variables:

Child's Ability Level	-0.363 -0.011	-0.097 -0.003	-0.460 -0.014
Gender (1=Male)	-0.731 -0.000	39.405 0.006	38.674 0.006
Declared Major	212.228 0.017	-8.682 -0.001	203.546 0.016
Tuition Cost	4652.660*** 0.351	278.834*** 0.021	4931.494*** 0.372
Institutional Selectivity	0.125*** 0.093	0.031*** 0.023	0.156*** 0.116
Distance from Home	731.290*** 0.113	154.832*** 0.024	886.122*** 0.137

(Upper row = metric coefficient (b), lower = standardized (beta))
* = p < .05, ** = p < .01, *** = p < .001

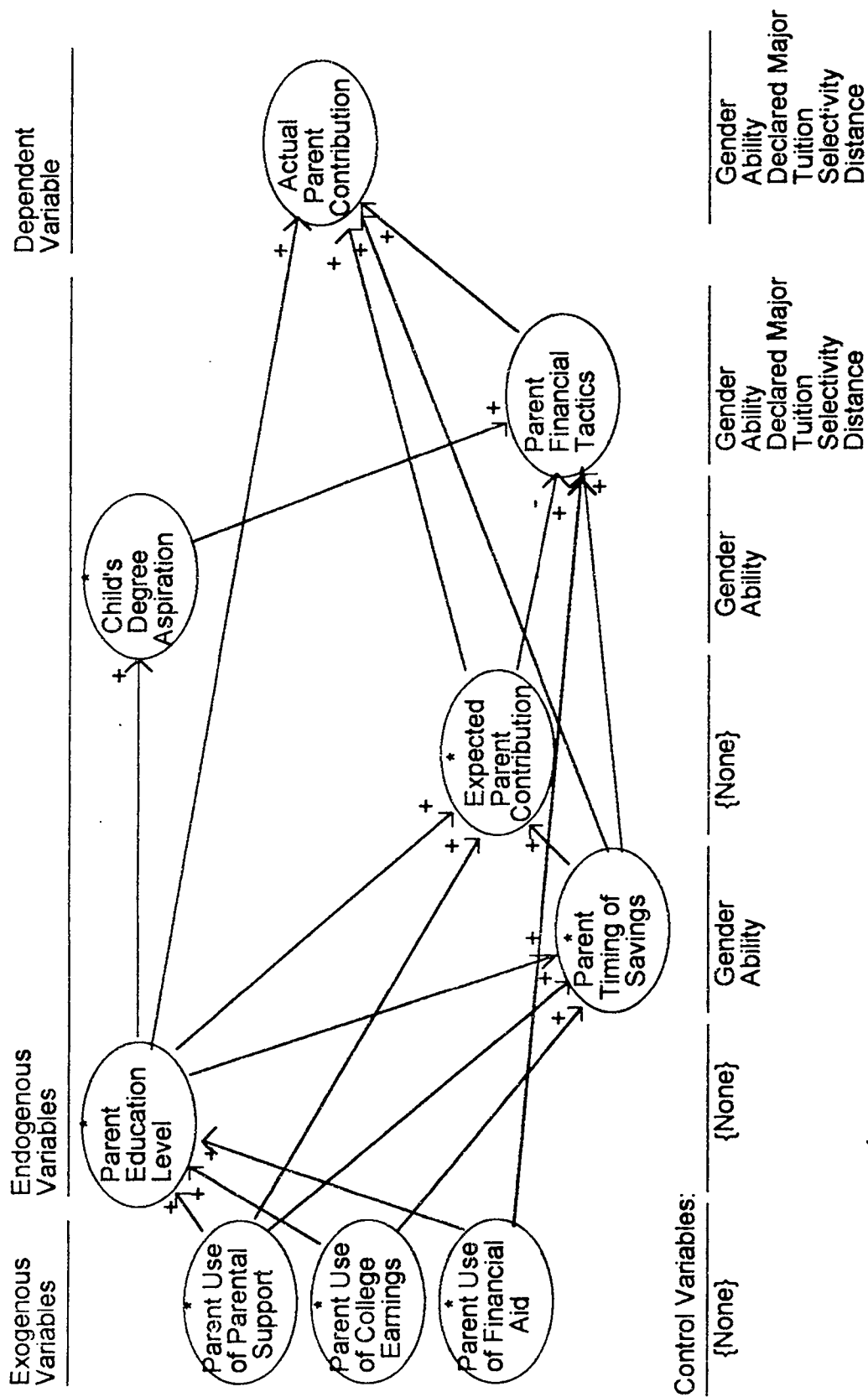


Figure 1. Path diagram for observed intergenerational effects upon actual parent contribution to student college costs. Solid lines represent significant direct effects; asterisks represent variables having significant indirect effects.

The six independent variables with significant total effects are (in descending order of relative influence) the expected parent contribution, parental financial tactics to raise funds, parental education levels, the timing of savings, the parent use of parental support, and the child's degree aspiration. All six variables have positive total effects, leading to higher actual parent contributions.

Child's Financial Aid (Table 3 and Figure 2)

The eight variables in the model together with the six control variables explain 33 percent of the variance in amount of the child's financial aid. Six independent variables with the model have significant ($p < .01$) direct effects upon the child's financial aid. Four independent variables within the model have significant ($p < .001$) indirect effects upon the child's financial aid. Six independent variables within the model have significant ($p < .001$) total effects upon the child's financial aid.

The six independent variables with significant direct effects upon the child's financial aid are (in descending order of relative influence) the expected parent contribution, parental education levels, the parent use of financial aid, the timing of savings, the child's degree aspiration, and the parents' receipt of funds from their parents. Two of these variables have positive direct effects, leading to larger amounts in the child's financial aid.

The four independent variables with significant indirect effects upon the child's financial aid are (in descending order of relative influence) the parents' receipt of funds from their parents, parental education levels, the timing of savings, and the parents' use of college earnings. All four variables have negative indirect effects, leading to smaller amounts in the child's financial aid.

TABLE 3

DIRECT, INDIRECT, AND TOTAL EFFECTS FOR
TOTAL AMOUNT OF FINANCIAL AID FOR THE CHILD

Independent Variables:

Variable Name	Direct Effect	Indirect Effect	Total Effect	Dominant Mediators
Parent Use of Parental Support	-484.750** -0.059	-795.218*** -0.097	-1279.968*** -0.156	Expected contribution
Parent Use of College Earnings	110.223 0.018	-211.364*** -0.035	-101.141 -0.017	Parent education
Parent Use of Financial Aid	493.982*** 0.090	-107.258 -0.020	386.724*** 0.070	
Parent Education Level	-269.514*** -0.095	-213.270*** -0.075	-482.784*** -0.170	Expected contribution
Parent Timing of Savings	-156.011*** -0.070	-160.939*** -0.073	-316.950*** -0.143	Expected contribution
Expected Parent Contribution	-0.105*** -0.390	0.000 0.001	-0.105*** -0.389	
Child's Degree Aspiration	301.450*** 0.064	1.051 0.000	302.501*** .064	
Parent Financial Tactics	6.505 0.002	--- ---	6.505 0.002	

Control Variables:

Child's Ability Level	1.315** 0.061	0.030 0.001	1.345 0.062
Gender (1=Male)	-108.225 -0.026	-28.703* -0.007	-136.928 -0.033
Declared Major (=1)	213.892 0.026	-0.060 -0.000	213.832 0.026
Tuition Cost	4122.387*** 0.474	1.921 0.000	4124.308*** 0.474
Institutional Selectivity	-0.016 -0.018	0.000 0.000	-0.016 -0.018
Distance From Home	112.520 0.027	1.067 0.000	113.587 0.027

(Upper row = metric coefficient (b), lower = standardized (beta))

* = p < .05, ** = p < .01, *** = p < .001

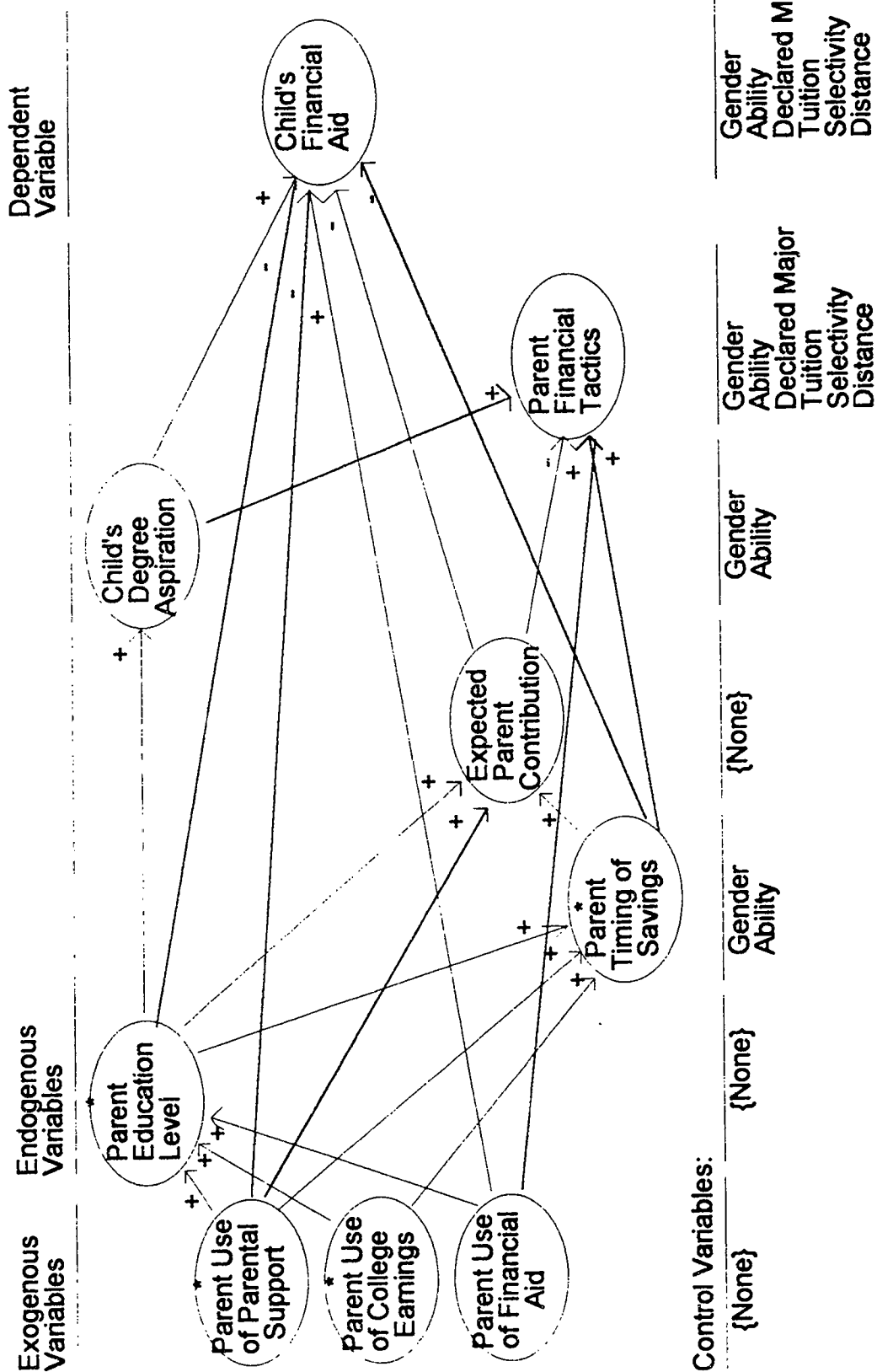


Figure 2. Path diagram for observed intergenerational effects upon child's financial aid. Solid lines represent significant direct effects; asterisks represent variables having significant indirect effects.

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The six independent variables with significant total effects are (in descending order of relative influence) the expected parent contributions, parental education levels, the parents' use of parental support, the timing of savings, the parents' use of financial aid, and the child's degree aspiration. Two of the independent variables have positive total effects, leading to larger amounts in the child's financial aid; they are: the parents' use of financial aid and the child's degree aspiration. The remaining four independent variables with significant total effects have a negative effect, leading to smaller amounts in the child's financial aid; they are: the expected parent contribution, parental education levels, the parents' use of parental support, and the timing of savings.

Some institutional characteristics show significant relationships to actual parent contributions and to the child's financial aid. The significant relationships of the control variables to the dependent outcomes (where they occur) have no independent value to this study. Rather, they only serve to underscore the strong performance of the model after the influences of the control variables are statistically controlled.

Discussion

From a policy perspective, an ideal result in terms of intergenerational impact would be a finding that all three financial sources contribute to larger actual parental contributions a generation later. This would imply that over the generations, family financing of higher education moves in the direction of becoming a self-perpetuating cycle of financial bequests from parent to child, even for children whose parents are unable to help and who turn to financial aid as a substitute. This outcome can be described as ideal insofar as it minimizes reliance upon the contentious and uncertain politics of redistribution of wealth needed to fund student financial

assistance programs. In view of this ideal, consider how the actual results from the three path analyses here might be interpreted:

Do today's students work during college because their parents worked in college? No. This model fails to predict the child's college earnings. In the multivariate analysis, none of the primary independent variables shows any effect upon the child's college earnings. Only two control variables show statistical significance. First, males earn more than females. Second, college work earnings are inversely related to the attended institution's distance from home.

Actual parent contributions to the child are a different story entirely. The results strongly indicate that part of the intrafamily process of deciding how young students should pay for college is the college financing experience of the parents. As much as half of the variance in actual parent contributions is explained here in a model incorporating measures of the parents' own methods of paying for college, mediated by their education and income levels, and their efforts to prepare for their children's future through such specific behaviors as starting a savings plan and finding other ways to raise money for the child. There does, indeed, seem to be an intergenerational legacy in receiving and, in turn, giving parental financial support to attend college.

Most of the impact of the parents' college financing experiences upon their actual contributions to the child comes indirectly, not directly. Larger contributions to the child are augmented by the mediating role played by the parents' education levels, timing of decisions to save for the child's college, their ability to pay, and the efforts they exert to raise funds. Does the parents' receipt of financial aid diminish the size of their own actual contribution to their children when their children become college freshmen? No. Quite the contrary, parents in this

study who had more non-family funding sources while in college appears to have exerted extra efforts to produce funds when their own child enrolled.

Does the child's financial aid appear to be influenced by intergenerational effects? Yes. Those who received parental contributions in college are likely to have children receiving less financial aid as freshman. This effect persists controlling for parental variables such as educational level and ability to pay, child variables such as gender and academic ability, and institutional variables such as tuition cost, selectivity and distance from home. Parent contributions appear as a powerful influence strengthening the family's investment across the generations. Additionally, it deserves notice that this study is apparently the first to present empirical evidence that, net of other factors, parental financial support in college stimulates an earlier start to saving for the college costs of one's own children.

At the same time, though, parents who themselves received financial aid in college have children with larger amounts of college financial aid, net of other factors. The effect is direct, not indirect, so explanations using mediating factors are unjustified. The likely causes may be related to the awareness of such programs and an acceptance of their legitimacy in the attitudes of the parents when planning the child's college finances. Interestingly, parents who themselves received more financial aid in college also use more financial tactics to fund the child as a freshman. This latter evidence contradicts the conservative political contention that receiving such financial assistance oneself promotes attitudes of financial irresponsibility towards one's children. These and the other subtleties of the intergenerational effects of paying for college demonstrate that this is a research area which may better inform the often contentious public policy debates about programs of financial assistance.

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