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THE SOCIAL SECURITY STUDENT BENEFIT  
PROGRAM AND FAMILY DECISIONS

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The Social Security Student Benefit  
Program and Family Decisions

ABSTRACT

In 1965 Congress established the Social Security Student Benefit Program which provided benefits for children of deceased, disabled or retired workers, who were enrolled in college full-time and were not married, up until the semester they turned age 22. The program grew to be a major financial aid program; at its peak in FY 81 it represented about 20% of all federal outlays on student assistance for higher education. The program was terminated for students newly entering college as of May 1, 1982.

Somewhat surprisingly, in contrast to the debate that accompanies most social programs, debate over the student benefit program focused on its costs and almost totally ignored the possible effects of the program. Virtually nothing is known about how the program influenced potential recipients decisions to attend college, the quality of the education they received, the amount that recipients' families contributed to the student's education, or recipients' in-school and summer employment. This paper seeks to shed insights into some of these effects, using data from the Social Security Administration's 1973 Survey of Student Beneficiaries, the only national survey of participants in the program.

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## I. Introduction

In 1965 Congress amended the Social Security Program in a number of ways, including the establishment of the Social Security Student Benefit Program. This program provided benefits for children of deceased, disabled or retired workers, who were enrolled in college full-time and were not married, through the semester including their 22nd birthday. As Table 1 indicates, the program grew to be a major financial aid program for college students. In December of 1977 over 860,000 students, about one-eighth of all full-time enrolled 18 to 21 year olds received such benefits, and by December of 1981, the benefits averaged about \$3,000 per year per student. Indeed, at its peak in fiscal year 1981, about 20 percent of all federal outlays on student assistance for higher education were channeled through the program.<sup>1</sup>

By the mid-1970s the program had fallen into disfavor in Washington. Critics of the program argued that it was no longer required because of the growth of "needs-based" financial aid programs administered by the Department of Education, that it had unfavorable income-distribution consequences because it was not "needs-based" and because payments were not limited to college costs nor contingent on satisfactory academic progress, and that the growth of program costs contributed to the financial problems of the Social Security trust fund.<sup>2</sup> Ultimately the critics prevailed and the program was terminated by Congress as part of the general budget cutting actions of the Reagan Administration under the omnibus Budget Reconciliation Act of 1981. This Act reduced benefits for existing recipients and, eliminated benefits for all students who entered college after May 1, 1982.

Somewhat surprisingly, in contrast to the debate that accompanies most social programs, debate over the student benefit program focused on its costs and almost totally ignored the possible effects of the program.<sup>3</sup> Virtually nothing is known about how the program influenced potential recipients' decisions to attend college, the quality of the education the recipients received, the amount that recipients' families contributed to the student's education, or recipients' in-school and summer employment.

This paper seeks to shed insights into some of these effects, using data from the Social Security Administration's 1973 Survey of Student Beneficiaries, the only national survey of participants in the program. Although the program has been ended, such information is essential for informed debate on the methods by which the federal government should subsidize higher education.

The next section presents a simple conceptual model of family decision-making that serves as the basis for our empirical research. Section III describes the data we use and discusses some econometric issues. Section IV presents our empirical results; it is followed by some brief concluding remarks.

## II. A Family Utility Maximization Model

Suppose that the utility function of a family with a college-age child is given by the quasi-concave function

$$(1) \quad U = U[C, Q, t_n] \quad U_1, U_2, U_3 > 0$$

where  $C$  represents the parents' consumption,  $Q$  represents the quality of the college that the child attends and  $t_n$  the time that the student is not employed, while in college. Presumably the family derives positive

marginal utility from increased consumption, from having the child attend a higher quality institution (both for current consumption and investment reasons), and from having the student work fewer hours while in college (which would free up more time for study and participation in extra-curricular activities).

The family seeks to maximize this utility function subject to a number of constraints. First, parents' consumption is equal to their total income (Y) minus their contribution to the student's college expenses ( $X_p$ ).

$$(2) \quad C = Y - X_p$$

Second, the total cost of the student's attending college, which is assumed to be an increasing function of the quality of the college, ( $E(Q)$ ), is equal to the sum of the parental contribution, the student's own financial contribution to his education ( $X_S$ ) and the total ( $S$ ) of the scholarship from the college and other subsidies, such as the social security payment, that he receives.

$$(3) \quad E(Q) = X_p + X_S + S$$

Finally, the student's own contribution is determined by his wage rate ( $w$ ) multiplied by the number of hours he works during the summer and academic year ( $t_w$ ); the latter plus his nonwork time just exhausts the total time available.<sup>4</sup>

$$(4) \quad X_S = wt_w$$

$$(5) \quad T = t_w + t_n$$

The solution to this maximization problem can be written, in general, as

$$(6) \quad X_P = X_P(S, Y, w)$$

$$Q = Q(S, Y, w)$$

$$t_n = t_n(S, Y, w).$$

That is, the parental contribution to the child's education, the quality of the college chosen, and the student's nonwork time (and hence part-time employment) simultaneously depend upon the parents' income, the student's wage rate and the total subsidy the student receives for attending college.

At this level of generality, one can unfortunately not obtain unambiguous qualitative predictions from the model. However, if one assumes that the utility function is Cobb-Douglas and that the total costs of attending college function is linear in college quality, it is straightforward to show that an increase in the subsidy,  $S$ , should lead to a decrease in parental contributions, an increase in the quality of the college attended and a decrease in student employment (an increase in  $t_n$ ). Similarly, an increase in family income,  $Y$ , should increase parental contributions, increase college quality and decrease a student's work-effort. Finally, an increase in the wage rate should decrease parental contributions and increase college quality; its effect on student employment is still ambiguous and depends on the strength of income and substitution effects.

### III. Data and Econometric Issues

Data from the 1973 Survey of Student Beneficiaries, the only national survey of participants in the program, is used below along with our analytic framework, to analyze what some of the effects of the program were. This survey contained data for 2,932 student beneficiaries, of

which approximately 72 percent were enrolled in 2 or 4 year colleges. The remainder were 19 year olds still enrolled in high school or were enrolled in vocational or trade schools. The 2,077 individuals enrolled in two or four year colleges from the sample used in our analyses.<sup>5</sup>

The survey contains explicit information on the family's annual contribution to the cost of the student's education ( $Y_2$ ), as well as three measures of the student's work-effort, total annual labor earnings ( $Y_3$ ), total hours worked during the academic year ( $Y_4$ ) and total hours worked during the summer ( $Y_5$ ). In the absence of information on the quality of the college attended, we use as a proxy the net cost of the student's education ( $Y_1$ ) --the total annual cost of the student's education (tuition, room and board, books, travel, etc.) less all forms of scholarship aid the student received except social security.<sup>6</sup>

Explanatory variables contained in the empirical model are a vector of family-specific variables that are meant to control for the family's "ability to pay" for the student's education (family income, value of the family home, family receipt of welfare benefits, number of siblings, presence of less than two parents in the household), family taste for education (student race, sex, and age, and parents' education), the student's academic ability (high school grade point average and whether the student was 16 or younger when graduated from high school), and area-specific variables to control for limitations on the student's employment opportunities (state unemployment rate) and his or her access to both public and private educational opportunities (public and private college tuition levels and enrollment in the state). A complete list of explanatory variables and their sources is found in Table 2.<sup>7</sup>

The variable of prime importance, however, is the student's social security benefit level. Now the reported student social security benefit level varies across recipients, creating a form of natural experiment, because of differences in the lifetime earnings in covered employment of the parent and/or because families with more than one child receiving benefits often had their total benefits constrained by the program's "family-maximum" rule.<sup>8</sup> In the latter case, the marginal social security benefit payment that the family received when the student beneficiary enrolled in college is not equal to the reported (by the Social Security Administration or the family) benefit that he or she received; the latter is simply the average benefit received by each child recipient in the family including the student. Indeed, in the case where a family is already at the maximum because of benefits being paid to a number of child beneficiaries under age 18, the marginal family social security benefits that accrue when a 19 to 22 year old child enrolls in school is zero.

As a result, in our empirical work we experiment with several different measures of the net social security benefits received by the family from the student benefit program. The first two are our estimates of the marginal social security benefits the family actually receives from having the student enrolled in college ( $S_1$ ), or from having the student and some of his other siblings aged 18 to 21 enrolled in college ( $S_2$ ). These measures were calculated using an algorithm we developed based upon program rules and knowledge of various characteristics of the family.<sup>9</sup> The third is the family's estimate of the difference in total family income due to the student's social security benefit payment ( $S_3$ ). Finally, we use Social Security Administration administrative data on the



maximum benefit level the student is eligible for ( $S_4$ ); this would be the benefit level actually received in the absence of a family maximum limit. While in "theory" the true marginal measures ( $S_1$  and  $S_2$ ) should perform best, the measure(s) families actually base decisions on is an open question.

Before turning to the empirical results, it is worth stressing that all of the individuals in the sample are potential social security student beneficiaries who have chosen to be actually beneficiaries by attending colleges. There is no information in the sample on individuals who were eligible for the program but chose not to attend college. Thus, without further assumptions, one cannot directly estimate what the effect of the program was on students' decisions to attend college. Our estimates of the various outcome equations may also be subject to a form of selection bias; we may confound the effect of the social security benefit level on parental contributions, the cost of the college attended, and students' part-time employment, with the effect of the potential benefit level on the college enrollment decision.<sup>10</sup>

In the absence of any data on eligible individuals who choose not to enroll in college, it is difficult to control for this form of selection bias. However, if one is willing to specify a set of variables and a functional form for a "decision to enroll" equation, as well as a statistical distribution for the joint distribution of the error terms across this and the other equations in (6), then a recently developed maximum likelihood procedure can be used to get consistent estimates of the effect of social security student benefit levels on both the decision to enroll in college and the outcomes in (6).<sup>11</sup> Estimates derived from this method are

very sensitive to the specific assumptions made and in the absence of any strong theory which would permit us to exclude any explanatory variables from either the "decision to enroll" or other equations, it proved impossible for us to obtain stable parameter estimates when we applied it.

#### IV. Empirical Results

Table 2 presents OLS estimates of the net expenditure on education ( $Y_1$ ) and family contribution to education ( $Y_2$ ) equations, as well as Tobit estimates of the student recipients' annual earnings ( $Y_3$ ), in-school employment hours ( $Y_4$ ) and summer employment hours ( $Y_5$ ) equations, for the entire sample, when  $S_1$  is used as the social security program variable. Tobit is used in the latter three cases because of the large number of students with zero work experience and earnings.

Although the control variables (the X's) are not of primary interest to us, those coefficients that are statistically significant often (but not always) accord with out prior expectations. For example, white recipients tend to work more than nonwhite recipients, and male recipients work more than female recipients. Higher parent education levels lead to greater parental contributions to their children's education and, in the case of mother's education, to greater expenditures on college and less student employment. The greater the number of siblings, the smaller the family contribution and the more the student works while in school. Finally, the distribution of public and private college enrollment opportunities in the state in which the student's family resides clearly matters. Other things equal, an increase in public (private) enrollment opportunities leads to lower (higher) expenditures on education and parental contributions and lower (higher) student academic year employment.<sup>12</sup>

Turning to the marginal social security benefit variable,  $S_1$ , Table 1 suggests that it significantly influences only recipient students' in-school employment, with higher benefit levels leading to a reduction in work-effort. The mean monthly marginal benefit level in this sample was \$53, which implies given the Tobit coefficient of  $-.238$ , that in the absence of any benefits, the typical recipient would have worked a total of 7.5 hours more during the school year. This is clearly not a substantial effect.

Substituting the other measures of social security benefits does not provide any evidence of other substantial program effects. The top panel of Table 3 shows the coefficients of the four different social security variables from equations identical to those reported in Table 2, save that the alternative measures were used. This table suggests that both the family's estimate of the increase in its income due to the student's program benefits ( $S_3$ ) and the maximum benefit amount the student could have received ( $S_4$ ) are positively associated with the net cost of education and the family's contribution to the student's educational expenses; the latter a seemingly perverse result (but see below).

But here, again the magnitudes are small. For example, given a mean value for  $S_3$  of \$110 per month in the sample, the estimates suggest that in the absence of the program, the net cost of the student's education would decline by roughly \$9.50 a month and the family's contribution by \$9.02 a month.<sup>13</sup> Statistical significance obviously does not imply policy significance; the net effect of the student benefits appears to be primarily an income transfer to the student and his or her family.

We should note, however, that when the sample is stratified by whether the student attended a public or private college, a slightly different picture emerges.<sup>14</sup> The second and third panels of Table 3

present the coefficients of the various social security benefit measures from these equations. For recipients, who attend public colleges, roughly 70 percent of the sample, the various measures of social security benefits appear to be totally unrelated to the students' net cost of education, their parents' contribution to their education and their work-effort. In contrast, for the smaller sample of recipients who attend private institutions, the evidence seems to suggest that higher student benefits lead to higher net expenditures on education, higher parental contributions to recipients' education and lower student in-school employment. Moreover, the magnitudes of these effects are often double the ones observed in the overall sample.

#### IV. Concluding Remarks

Our study suggests the following tentative conclusions: The Social Security Student Benefit Program did not appear in our sample to influence students' decisions as to whether to attend public or private colleges (see footnote 14). Within the group that attended public institutions, benefit levels did not affect the net costs of education, primarily we expect, because tuition levels in public institutions do not vary much within a state and most students who attend public institutions stay in their "home" state.<sup>15</sup> Surprisingly, the benefits also appear not to influence parental contributions or student employment levels.

In contrast, for the students who attend private institutions, the program appears to have had more effects (although in a quantitative sense these effects are still quite small). In this sector, there is a wide variety of colleges offering a range of tuition-quality combinations. Higher benefit levels permit families to "stretch" to afford higher quality-higher

cost institutions; as a result both net expenditures on education and parents' contribution to college costs increase. Moreover, because students' nonwork time is valued, higher benefit levels do lead to a reduction in their in-school and/or summer hours of employment. Viewed in this way, the positive association observed between parental contributions and student social security benefit level appears to be less of an anomaly.

Of course, all of the above results were obtained for data from a sample of recipients who, by definition, must attend college. The absence of data on potential recipients who choose not to attend college has prevented us from analyzing whether the program influences the decision to enroll in any college (potentially the most important effect) and leaves open the possibility, as noted above, that our estimates are subject to selectivity bias. Nonetheless, given the growth of needs-based financial aid programs, the evidence presented here at least provisionally supports the view that the decision to eliminate the program made sense.

Table 1

## Social Security Student Benefit Program Statistics

Year	Number of Recipients in December of Year	Benefits Paid in December of Year (millions)	Monthly Benefit/Recipient
1965	205,677	\$ 13.725	\$ 66.73
1966	375,873	24.000	63.85
1967	427,267	27.449	64.24
1968	474,056	34.243	72.23
1969	498,015	36.027	72.34
1970	537,170	44.672	83.16
1971	583,374	53.406	91.55
1972	634,481	69.616	109.72
1973	651,540	72.612	111.45
1974	679,101	84.715	124.74
1975	774,261	104.561	135.05
1976	834,718	121.059	145.03
1977	869,184	135.687	156.10
1978	817,506	139.944	171.18
1979	793,194	153.913	194.00
1980	733,758	167.233	227.91
1981	760,508	196.702	258.64
1982	476,325	108.483	227.75
1983	293,489	59.764	203.63

Source: Authors' calculations from:

Committee on Ways and Means, House of Representatives, 96th Congress. Review of Social Security Student Benefit Program (Washington, D.C.: G.P.O., 1979) and various issues of the Social Security Bulletin.

Table 2

The Social Security Student Benefit Program  
and College Costs, Parental Contribution, and Students' Employment  
(standard errors)

Dependent Variables [Estimation Method]	Y <sub>1</sub> [OLS]	Y <sub>2</sub> [OLS]	Y <sub>3</sub> [Tobit]	Y <sub>4</sub> [Tobit]	Y <sub>5</sub> [Tobit]
<u>Independent Variables</u>					
X <sub>1</sub>	6.276 (86.79)	39.735 (80.01)	395.092* (83.20)	215.261* (38.70)	109.980* (23.87)
X <sub>2</sub>	27.945 (52.98)	54.630 (48.69)	427.039* (50.03)	21.547 (16.44)	115.420* (14.18)
X <sub>3</sub>	97.897* (24.13)	73.056* (22.17)	38.145** (22.82)	2.567 (7.48)	6.464 (6.45)
X <sub>4</sub>	.982 (9.27)	23.525* (8.51)	-11.923 (8.77)	-1.933 (2.89)	-2.994 (12.50)
X <sub>5</sub>	36.407* (11.16)	28.723* (10.22)	-17.527** (10.54)	-6.865* (3.44)	-3.805 (3.01)
X <sub>6</sub>	.031 (.005)	.036 (.005)	.00757 (.00469)	-.00544 (.0021)	.0040* (.0013)
X <sub>7</sub>	191.82* (46.86)	111.225* (43.21)	-48.254 (44.22)	-77.801* (14.77)	8.207 (12.57)
X <sub>8</sub>	10.695* (1.76)	8.648 (1.62)	-2.999** (1.67)	-1.776* (.62)	-.722 (.47)
X <sub>9</sub>	.345 (1.89)	-1.602 (1.73)	3.875* (1.78)	1.514* (.58)	-.157 (.50)
X <sub>10</sub>	10.204 (56.98)	-32.914 (52.71)	13.237 (54.61)	-7.303 (21.20)	20.777 (15.35)
X <sub>11</sub>	-.151* (.02)	-.061* (.02)	-.042* (.012)	.00595 (.0063)	-.0201* (.0055)
X <sub>12</sub>	1.066* (.19)	.413* (.18)	.397* (.18)	.116* (.059)	.099 (.051)
X <sub>13</sub>	-193.585 (144.33)	17.053 (132.30)	-100.540 (136.55)	-74.480** (43.39)	-18.548 (39.20)
X <sub>14</sub>	-123.674* (24.01)	-137.514* (22.18)	53.375* (22.53)	43.947* (7.50)	7.080 (6.46)
X <sub>15</sub>	.713 (141.26)	-84.733 (129.93)	-134.209 (134.92)	-141.951* (45.77)	-23.402 (38.02)
X <sub>16</sub>	-57.977 (68.01)	100.956 (62.30)	26.011 (64.124)	22.46 (21.10)	-1.590 (18.24)
X <sub>17</sub>	-119.520 (268.82)	-229.811 (252.74)	-55.777 (253.22)	-54.508 (85.22)	-34.973 (71.86)
S <sub>1</sub>	.319 (.46)	.113 (.42)	-.497 (.435)	-.238** (.144)	-.118 (.124)
-----					
R <sup>2</sup>	.17	.18			
log likelihood			-13278.9	-7156.29	-10094.2
N	1938	1915	1938	1927	1917

\*(\*\*) Coefficient statistically significant from zero at .05 (.10) level;  
two-tail asymptotic t test.

Table 2 (continued)

Variable Definitions

- $Y_1$  = net expenditure on education (total cost-financial aid) per month  
 $Y_2$  = family contribution to cost of student's education per month  
 $Y_3$  = student earnings during year  
 $Y_4$  = total hours student worked during the school year  
 $Y_5$  = total hours student worked during the summer  
  
 $X_1$  = race; 1=white, 0=other  
 $X_2$  = sex; 1=male, 0=female  
 $X_3$  = age  
 $X_4$  = father's education in years  
 $X_5$  = mother's education in years  
 $X_6$  = family income  
 $X_7$  = student's high school GPA  
 $X_8$  = value of family's home (if owned)  
 $X_9$  = state unemployment rate  
 $X_{10}$  = average private tuition/average public tuition level in the state  
 $X_{11}$  = public enrollment (per capita) in higher education institutions in the state  
 $X_{12}$  = private enrollment (per capita) in higher education institutions in the state  
 $X_{13}$  = 1 if family received welfare, 0 otherwise  
 $X_{14}$  = number of siblings of the student  
 $X_{15}$  = 1 if mother absent from household, 0 otherwise  
 $X_{16}$  = 1 if father absent from household, 0 otherwise  
 $X_{17}$  = 1 if the student was 16 or younger when graduated from high school, 0 otherwise  
 $S_1$  = marginal social security benefits

Also included as explanatory variables were dummy variables for nonreporting of  $X_4$ ,  $X_5$ ,  $X_6$ ,  $X_7$ ,  $X_8$ , as well as an intercept term.

Sources:

- 1) Authors' calculations from the Social Security Administration 1973 Survey of Student Beneficiaries data file ( $Y_1$  to  $Y_5$ ,  $X_1$  to  $X_8$ ,  $X_{13}$  to  $X_{17}$ ,  $S_1$ ).
- 2) U.S. Department of Labor, 1980 Employment and Training Report of the President (Washington, D.C.: Government Printing Office, 1980) ( $X_9$ ).
- 3) U.S. Office of Education, 1973 Digest of Educational Statistics (Washington, D.C.: Government Printing Office, 1973) ( $X_{11}$ ,  $X_{12}$ ).
- 4) U.S. Office of Education, Basic Student Charges for Higher Education (Washington, D.C.: Government Printing Office, 1973) ( $X_{10}$ ).



Table 3

Sensitivity of Results to Definition of Social Security  
 Variable and Sample: Estimated Coefficients and  
 Absolute Values of Asymptotic t Statistics<sup>a</sup>

Social Security Variable	<u>Dependent Variable</u>				
	Y <sub>1</sub>	Y <sub>2</sub>	Y <sub>3</sub>	Y <sub>4</sub>	Y <sub>5</sub>
<u>SAMPLE</u>					
<u>Overall</u>					
S <sub>1</sub>	.319 (0.7)	.065 (0.2)	-.497 (1.1)	-.238 (1.7)**	-.118 (1.0)
S <sub>2</sub>	.492 (1.4)	.091 (0.3)	-.365 (1.1)	-.146 (1.3)	-.111 (1.2)
S <sub>3</sub>	.086 (2.0)	.082 (2.1)*	-.060 (1.5)	-.099 (0.7)	-.180 (1.6)
S <sub>4</sub>	.127 (1.6)	.162 (2.2)*	-.068 (0.9)	-.018 (0.7)	-.027 (1.3)
-----					
<u>Public</u>					
S <sub>1</sub>	.045 (0.1)	.011 (0.0)	-.252 (0.5)	-.096 (0.5)	-.080 (0.5)
S <sub>2</sub>	.068 (0.2)	.094 (0.3)	-.238 (0.6)	-.173 (1.3)	-.062 (0.5)
S <sub>3</sub>	.024 (0.5)	.065 (1.6)	-.060 (1.2)	-.026 (1.5)	-.020 (1.4)
S <sub>4</sub>	.075 (0.9)	.119 (1.6)	-.060 (0.6)	-.051 (1.6)	-.035 (1.3)
-----					
<u>Private</u>					
S <sub>1</sub>	1.104 (1.1)	.409 (0.4)	-1.050 (1.4)	-.495 (1.8)**	-.211 (1.0)
S <sub>2</sub>	1.510 (2.0)*	.304 (0.4)	-.794 (1.4)	-.157 (0.7)	-.260 (1.7)**
S <sub>3</sub>	.215 (2.4)*	.156 (1.9)*	-.092 (1.3)	-.014 (0.6)	-.016 (0.8)
S <sub>4</sub>	.261 (1.6)	.291 (1.9)*	-.114 (0.9)	-.088 (1.9)**	-.004 (0.1)

<sup>a</sup>Absolute value of asymptotic t statistics are in parentheses.

where: Y<sub>1</sub> to Y<sub>5</sub> are defined in Table 1.

- and: S<sub>1</sub> = authors' calculations of the marginal social security benefits the family receives from the student being enrolled in school
- S<sub>2</sub> = authors' calculations of the marginal social security benefits the family receives from all the students (age 18 to 21 in the family) being enrolled in school
- S<sub>3</sub> = family's estimate of the difference in total family income because of the student's social security benefit payments
- S<sub>4</sub> = social security administration reporting of the student's maximum benefit amount

\*(\*\*) Coefficient statistically significant from zero at .05 (.10) level; two-tail asymptotic t test.

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## Footnotes

1. See John Palmer and Isabel Sawhill (1982), Table 11.3.
2. See, for example, Committee on Ways and Means (1979), Comptroller General of the United States (1979) and Congressional Budget Office (1977).
3. The only analyses of program effects are descriptive tabulations relating to the characteristics of recipients. See, for example, Robert Hastings (1978) and Hastings and Phillip Springer (1976).
4. Although we do not pursue it here, the model can be extended to make the scholarship the student receives from institutional sources endogenously determined by factors like a student's ability, family income, the costs of the institution, and federal aid policies. On this, see Winship Fuller, Charles Manski and David Wise (1982), Appendix A.
5. Actual sample sizes are somewhat smaller due to missing data.
6. This proxy is obviously subject to considerable measurement error. If one knew the name of the college the student attended, one could use the average SAT scores of entering freshman or the Cass and Birnbaum (1981) rating of the college as a measure of college quality. Sadly, however, this information is not available in the data. An alternative is to use tuition or gross costs of education as a proxy. While more selective private colleges do tend to charge higher tuitions than less selective private colleges (results available from the authors upon request), this relationship breaks down once one considers only public colleges, or all colleges together. Our use of net cost is meant to capture the notion that families will increase their net expenditures only if they perceive they are buying a "better" product. In any case, when tuition was used as a measure of quality for the students who attended private colleges, results similar to those reported below were obtained.

7. Wage rate data was reported only by a subset of the recipients who worked. Rather than imputing market wages to nonreporters and those who did not work using a sample selection bias approach (see James Heckman (1979)), we follow the strategy of simply omitting the wage variable from the model. Including it, along with a dummy variable for nonreporting of wages, never substantially altered any of the other coefficients that we report below.

8. The family maximum is approximately 175% of the primary insurance amount of the retired, deceased, or disabled worker (the latter's "normal" benefit amount). It is estimated that over 40% of student beneficiaries received reduced benefits due to this rule (Congressional Budget Office (1977)).

9. See Rebecca Luzadis (1983), Chapter 5, Figure 1, for a detailed description of the algorithm.

10. See Heckman (1979).

11. See David Bloom and Mark Killingsworth (1984, forthcoming). We are grateful to William Green for his attempts to generalize and implement this method for us.

12. The coefficients of these X variables were virtually unchanged when different specifications of the social security variable were used and/or the students' wage rates were included in the model (see footnote 7). In the latter case, higher student wages led to lower parental contributions, and student work-effort, but higher student earnings; results which are all consistent with our underlying framework.

13. The former is (.086) (-110), while the latter is (.082) (-110).

14. Although not reported here for brevity, probit probability of enrolling in a public (as opposed to a private) institution were also estimated for these recipients. The only variables that seemed to matter here were public and private enrollments in higher education in the state. In particular, none of the measures of social security benefit levels significantly affected the public/private decision.

15. We should note, however, that even within the public sector many students have the option of living at home or going away to college. Holding tuition constant, costs would obviously be lower for commuters.