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THE IMPACT OF FINANCIAL AID UPON EQUALITY OF OPPORTUNITY IN HIGHER EDUCATION

By *Richard D. Raymond*

During the past decade a great deal of attention has been directed toward the role which the federal and state governments should play in the financing of higher education. The importance of generating equality of educational opportunity has been accepted and stressed by most studies relating to this question.¹ A precise definition of "equality of educational opportunity" is often lacking, but the general nature of the concern is clear. Current and past conditions have caused a wide disparity in the proportions of high and low income youngsters who are able to attend college. This has led to a search for public policies capable of eliminating or significantly reducing the difference in participation rates between income groups. Equality of opportunity has thus been equated to equality of results measured in terms of participation rates. Concern is often more appropriately directed toward equality of results even though arguments continue to be couched in terms of equality of opportunity. Furthermore, equality of results frequently proves to be a good proxy for equality of opportunity.



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Helpful suggestions were received from James Coke and Michael Sesnowitz.

¹The Carnegie Commission on Higher Education. *Higher Education: Who Pays? Who Benefits? Who Should Pay?* McGraw-Hill Book Company, June, 1973, and the Committee for Economic Development, *The Management and Financing of Colleges*. A statement on national policy by the Research and Policy Committee of the Committee for Economic Development, October, 1973.

There is little agreement about the total volume of public support which should be provided to higher education. A general consensus has arisen, however, in relation to the appropriate means of allocating the volume of public funding that is made available. To increase equality of opportunity, it is agreed that public monies should be primarily directed toward low income individuals.² Thus, grants-in-aid to low income students are preferred to blanket reductions in tuition. Lower tuition benefits primarily the high income groups because of their higher participation rates. Furthermore, the recommended grants-in-aid are generally designed so that the amount given to students falls as their family's income rises. The upper eligibility limit is set at an income level where the parents are deemed capable of paying the full cost of a college education. Such policies allow a given volume of public support to reach more low income students since no assistance is given to those who are able to pay their own way.³

Proposals of this type are obviously based upon the assumption that the larger the amount of aid given to the poor, the greater will be their participation in higher education. Empirical support for this assumption is generally either completely lacking or very questionable. The Carnegie Commission, for instance, repeatedly contends that expanded financial assistance is capable of inducing 500,000 to 1 million additional students to attend college.⁴

This figure is based upon Robert Hartman's study of higher education subsidies. The figures presented by Hartman were not, however, estimates of the probable impact of additional financial assistance. They were arbitrary selected magnitudes designed to illustrate the possible budgetary impact of the basic grants program authorized by the Higher Education Act of 1972.⁵ A firmer basis for estimates of the quantitative impact of increases in direct aid or tuition reductions would seem to be a necessary prerequisite to intelligent choice among policy alternatives.

The purpose of this paper is to provide additional information relating to the probable impact of policies designed to relieve or remove the financial

²For an analysis of recent federal legislation, see Robert W. Hartman, "Higher Education Subsidies: An Analysis of Selected Programs in Current Legislation" in *The Economics of Federal Subsidy Programs*, a compendium of papers submitted to the Joint Economic Committee, Congress of the United States, August 28, 1972. W. Lee Hansen and Burton Weisbrod discuss a number of related issues in "A New Approach to Higher Education Finance," in M. D. Orwig, ed., *Financing Higher Education: Alternatives for the Federal Government*, The American College Testing Program Monograph, 1971.

³Individual proposals differ in a number of ways, but most seem to follow the general format presented in the text. It should be noted that the general consensus refers only to individual investigators (and some commissions) who have accepted the goal of furthering equality of educational opportunity. There is as yet no widespread popular support for such proposals.

⁴The Carnegie Commission on Higher Education, *Higher Education*, p. 41. This 1 million figure is used frequently in the Carnegie Commission reports.

⁵Hartman, *op. cit.*, p. 470.

burden placed upon low income college students. In the first section of the paper the basic causes of differences in participation rates by income class are discussed. Empirical estimates based upon this discussion are presented and examined in the next section. In the concluding section, the empirical results are examined with respect to various policy alternatives.

I

CAUSES OF DIFFERENCES IN PARTICIPATION RATES

The vast difference in the rate of college attendance between high and low income groups may profitably be viewed as the result of two separate sets of conditions. The first set relates to the academic qualifications possessed by high and low income youngsters when they reach college age. A significantly higher proportion of low income youngsters are high school dropouts which generally prohibits their attending college. Furthermore, among those who do graduate from high school, the higher income youngsters exhibit much higher achievement test scores and rank higher in their graduating classes than do their lower income counterparts. Since there is a strong positive correlation between high school achievement and college attendance, this also tends to reduce the relative participation of lower income groups in higher education.

The second set of conditions relates to the impact of economic factors at the time of potential entry into college. When academic qualifications are identical, differences in the ability of students to defray the costs of attending college will result in a smaller relative attendance for lower income youngsters. The costs associated with college attendance are quite high in virtually all cases. The direct expenses such as tuition and books may be moderate in some instances, but the income lost by the student as a result of his attendance will almost always be significant. This foregone income is undoubtedly much more important to the low income student.

The economic and academic qualification factors are obviously not completely separate and distinct. The poorer academic qualifications possessed by lower income youngsters must in some way be related to the economic and social status of their parents. This is, however, largely irrelevant when the point at issue is the ability of public policy to increase low income participation in higher education by reducing the financial demands placed upon low income students, i.e., by lowering tuition or increasing student aid. Policies of this sort will affect primarily the immediate economic barriers that tend to reduce low income participation.⁶ Other measures are obviously required if low income participation is to be increased through improvements in the academic qualifications of low income youngsters at the time of their possible entry into college.

⁶It is of course possible that lowering the cost of higher education will improve the motivation and therefore the academic performance of low income students at the pre-college level. In the absence of empirical evidence in support of this possibility, it has been assumed to be of minor quantitative significance. This is, however, an area which should be investigated further.

II

ESTIMATED IMPACT OF FINANCIAL AID POLICIES

A study by Robert Berls contains data which may be used to make a preliminary estimate of the maximum potential effect of policies designed to impact the economic as opposed to the academic qualification factor.⁷ The relevant data from the Berls study are summarized in Tables 1, 2 and 3. These data exhibit a number of distinct patterns which may be summarized as follows: 1) the high school dropout rate is much higher for the lower socio-economic status (SES) quartiles; 2) the probability of a high school graduate attending college bears a strong positive relationship both to his ability and to his SES, and 3) among high school graduates there is a marked tendency for the higher SES students to cluster in the higher ability quintiles and for the lower SES students to concentrate in the lower ability quintiles.

The participation rates for the four SES quartiles may be calculated from this data. Symbolically let:

C_i = College attendance \div the total number in the age cohort for the i^{th} SES⁸

D_i = the pre-college dropout rate for the i^{th} SES (Table 1)

P_i^j = the probability of attending college for a high school graduate from the i^{th} SES and j^{th} ability quintile (Table 2)

R_i^j = the ratio of high school graduates from the i^{th} SES in the j^{th} ability quintile to total high school graduates from the i^{th} SES (Table 3)

then:

$$1.) C_i = (1 - D_i) \left(\sum_{j=1}^5 P_i^j R_i^j \right)$$

The resulting participation rates are presented in column 1 of Table 4. The column 2 figures illustrate that there is indeed a substantial difference between the participation rates of the highest SES quartile and the three lower SES quartiles.

An approximation of the impact of policies designed to relieve the financial burden upon low income students may be obtained by assuming that such policies: i) have no impact upon events prior to the actual matriculation decision and ii) completely eliminate any inequality in the financial or economic ability of students to attend college. The first assumption means that the policies being considered have no impact upon either pre-college dropout rates (D_i 's) or the distribution of high school graduates by ability quintiles (R_i^j 's). Initially, assumption two may be interpreted to mean that differences in the probability of attending college between SES groups will be completely eliminated within given ability quintiles.

⁷Robert H. Berls, "Higher Education Opportunity and Achievement in the United States," in *The Economics and Financing of Higher Education in the United States*. A compendium of papers submitted to the Joint Economic Committee of the Congress, 1969. The basic source of Berl's figures are unpublished data from Project Talent, five year follow up surveys of the 1960 twelfth and eleventh grade high school students.

⁸The Project Talent data do not actually relate to age cohorts but rather to the total population of individuals in given high school classes at a particular point in time. This presents minor problems in interpretation which will be examined below.

Based upon these two assumptions, a new set of attendance ratios (C_i^* 's) may be defined. These C_i^* 's can be used to partition the differences between the participation rates of the highest SES quartile and the three lower SES quartiles into two portions, one reflecting the impact of financial relief policies and the other reflecting the cumulative effect of conditions existing prior to the time of matriculation. Symbolically:

$$2.) \quad C_i^* = (1 - D_i) \left(\sum_{j=1}^5 P_{jH} R_j \right)$$

where P_{jH} is the probability of attending college for a high school graduate from the high SES quartile and the J th ability quartile. The C_i^* 's shown in column 3 of Table 4A thus give the attendance rates which would prevail if the probabilities of attending college for the lower SES quartiles were equal to the probabilities for the highest SES quartile within each ability grouping, i.e., they are the rates that would prevail for the lower SES quartiles if the policies in question did succeed in raising the lower SES probabilities of attendance to equal their higher SES counterparts in each ability group.

The difference between the actual participation rate for the highest income quartile and the C_i^* for a given lower income quartile (column 4) represents the portion of the total difference between the two groups which will not be affected by the financial relief policies. Similarly, the difference between the C_i^* and the actual participation rate for a given lower income quartile (column 5) represents the portion of the difference which can be removed by this type of policy. The two exhaustive portions are expressed as a percent of the total difference in columns 6 and 7.

Tables 4B and 4C present the results of similar calculations using upper middle SES (4B) and lower middle SES (4C) attendance rates and probabilities as the basis for analysis. For instance, in Table 4B the C_i^* 's were calculated by substituting P_{um} for P_H in expression 2 where P_{um} is the probability of attending college for a high school graduate from the upper middle SES quartile and the J th ability quintile. These tables may be used as a guide in arriving at the probable effects of financial policies that do not succeed completely in raising the economic capabilities of the lower SES quartile to the level enjoyed by the highest SES quartile. For instance, column 3 in Table 4B shows that a financial policy which raises the economic capability of the lowest SES quartile to equality with that of the upper middle SES quartile will raise the attendance rate of the lowest quartile to .338.

The procedure used in deriving the Table 4 figures must be carefully examined before the results can be interpreted. The first difficulty encountered is purely statistical. Since all of the rates from the Project Talent survey are based upon 10th grade high school populations, none of the dropouts occurring before the 10th grade are represented in the results. The 1970 census data shows that for the age groups between 20 and 30, approximately one-

third of the total dropouts occurred prior to completion of the first year (9th grade) of high school.⁹ When the D_i 's from the Project Talent data are adjusted upward by one-third, there is very little change in the difference in participation rates between the highest and lowest SES quartiles (.586 to .587). There is, however, a change in the distribution of this total difference between pre-matriculation effects (.288 to .306) and financial policy impact (.298 to .281). It thus appears that the inclusion of pre-tenth grade dropouts would tend to reduce slightly the estimated maximum potential impact of financial policies.¹⁰

The remaining considerations relate to the validity of the two basic assumptions underlying the calculation procedure. The assumption that financial policies will have no impact upon events prior to the actual decision to matriculate, i.e., that they will have no effect upon the D_i 's and R_{ij} 's appears to have a sound basis. There is no evidence indicating that the cost of attending college has a significant impact upon the achievement levels of low SES youngsters. In addition, there are numerous alternative explanations for the observed differences in dropout rates and pre-college achievement levels between SES groups. In discussing differences between the poor and non-poor, Hunt pointed out that poor children frequently lack

“ . . . even the basic requirements of their biological well-being and growth, . . . many opportunities to develop cognitive skills . . . especially the circumstances which foster linguistic skills and the syntax of standard language . . . a variety of opportunities in which to develop the motivational systems inherent in competence (and) an opportunity to develop those values and standards of conduct which are required for participation in a technological society.”¹¹

Reductions in the cost of attending college are incapable of improving any of these conditions. Evidence summarized by Jencks also indicates that heredity is an important factor in the determination of capability differences between high and low status children.¹² Finally, the high correlation be-

⁹Derived from figures presented in U. S. Bureau of the Census, Census of Population, 1970 *Subject Reports*, Final Report PC (2)-5B Educational Attainment, Table 1.

¹⁰This conclusion is based upon the assumption that the relative distribution of pre and post tenth grade dropouts by SES quartiles is identical. The conclusion would be strengthened if a greater portion of the pre-tenth grade dropouts came from the lower SES quartiles and vice-versa.

¹¹See J. McVicker Hunt, *The Challenge of Incompetence and Poverty*, University of Illinois Press, 1969, pp. 202-214 and the sources cited therein for accounts of the various ways in which these conditions affect the ability of the poor to acquire cognitive skills.

¹²Christopher Jencks, et al., *Inequality: A reassessment of the Effect of Family and Schooling in America*, Basic Books, New York, 1972, p. 80. For a similar view, see John K. Folger, Helen S. Austin, and Alan L. Bayer, *Human Resources and Higher Education*, Russell Sage Foundation, 1970, pp. 307-309.

tween achievement scores of the very young and those of 18 year olds¹³ indicates that if financial policies are to have a large impact upon the achievement of low income students, these policies will have to alter the students' behavior at a relatively early point in their pre-college academic careers. This would seem to be a remote possibility.

The assumption that financial policies will prove capable of eliminating all differences between SES classes (within given ability groups) in the probability of attending college, i.e., that they will render all P_{ij} 's equal to the P_j 's is questionable. This assumption will only prove valid if:

^H
1) the financial policies eliminate all differences in the "economic ability" of individuals to attend college and 2) these differences in "economic ability" are the sole cause of the existing probability differences between SES groups. Neither of these conditions is likely to hold true.

Grants designed to relieve completely the financial burden of a college education generally cover the cost of the tuition, fees, books, other educational expenses and a modest subsistence allowance. Rarely, if ever, is it suggested that the grants cover all of the students' current expenses. And the grants never provide sufficient funds to allow a net financial contribution by the student to his family. Thus the grants described, even though they are in a sense quite generous, would not remove all financial pressure from the low income student. Given the very low family incomes in the lowest SES quartile, this factor is likely to remain a significant deterrent to equal participation by the poor.¹⁴

It is also clear that financial considerations are not the only cause of differences in the P_j 's between income groups. Many other characteristics of low income homes affect the educational choices of the young, e.g., parental education and occupation.¹⁵ Because these "other characteristics are highly correlated with income, it is difficult to isolate statistically their effects. It is generally conceded, however, that they do have an important impact independent of income. This impact could not be strongly affected by student financial assistance or lower tuition charges.¹⁶

¹³Jencks, *op. cit.*, p. 60.

¹⁴For a discussion of this point see Lewis C. Solman, "A Note on Equality of Educational Opportunity," *The American Economic Review*, Vol. LX No. 4, September 1970.

¹⁵A summary of the statistical relationships between 38 selected personal and family characteristics and college attendance for the Project Talent sample is given in Table 5.4 (pp. 156-7) of Folger, et. al., *op. cit.* Family income is the weakest of the socio-economic variables. Parental education and occupation appear significantly stronger.

¹⁶For a discussion of the importance of the non-financial conditions and of the difficulties involved in correcting them, see Folger, et. al., *op. cit.*, pp. 311-312 and 321-324. The impact of these conditions may become manifest through the development of characteristics among poor youngsters which are different from those possessed by their middle and upper income counterparts. Hunt's observations relating to the preference of low income youngsters for immediate gratification and the tendency for discrepancies between aspirations and actions to appear among the lower income groups provides some support for this thesis. Hunt, *op. cit.*, pp. 209-210.

Finally, low income students are frequently hesitant to apply for grants. This may be due to ignorance, excessive red tape or the perceived demeaning character of family income eligibility requirements. In any event, there are numerous cases in which eligible low income students do not take advantage of available funds. In discussing Ohio student financial aid, Seward states that “. . . based upon our experiences here in Ohio as well as our neighboring states (Illinois, Michigan and Wisconsin), who have similar programs, a significant percentage of eligible students will never apply.”¹⁷ In addition, the failure of eligible students to apply for financial assistance may become more pronounced as income falls.¹⁸ Since a significant portion of the low income students *already attending college* do not take advantage of available grants, the impact of more generous grants upon the attendance rates from the low SES groups must be seriously questioned.

The above discussion suggests that a relaxation of the assumptions underlying the Table 4 calculations would lead to a reduction in the estimated maximum potential impact of financial policies. A description of the unadjusted figures is, however, sufficient to highlight the general nature of the results. The largest difference in attendance rates between adjacent SES groups occurs between the upper middle and highest quartiles. The difference in this case (.278) is almost equal to the difference spanning the 2-quartile range between the low and upper middle groups (.308). The greatest potential impact of financial assistance occurs in the case of the two middle income quartiles. Financial policies appear capable of achieving a maximum reduction of 60 to 65 percent in the attendance rate differences between these two quartiles and the highest SES group. The maximum impact upon the difference between the highest and lowest attendance rates is approximately 50 percent.

Since full funding of the federal basic grants program is designed to give all students “the ‘buying power’ of students from \$12,000 homes”¹⁹, the figures for C_i* in Table 4B should yield the best approximation of the maximum impact of this program. These figures show an increase in the lower middle and low quartile attendance rates to .439 and .338 respectively. Thus, under this program, the combined attendance rate for the lowest half of the SES distribution would be approximately one-half the rate for the highest SES quartile.²⁰ Appropriate downward adjustments in the Table 4 figures would leave the *lowest half* of the SES distribution with a college participation rate significantly below one-half of the rate exhibited by the highest SES quartile. The rate for the lowest quartile would be raised to approximately one-third of the highest quartile rate.²¹

¹⁷Charles W. Seward III, “Student Financial Aid in Ohio,” mimeo report submitted to the State of Ohio Citizen’s Task Force on Higher Education, 1974.

¹⁸An interview with an administrator from a small private institution in the Midwest revealed that in 1970, 72% of the school’s eligible students with family incomes below \$15,000 applied for financial assistance whereas the corresponding figure for those with family incomes above \$15,000 was 87%.

¹⁹Hartman, *op. cit.*, p. 470.

Conclusions

The most optimistic estimate of the impact of financial policies leaves a gap in participation rates that is grossly inconsistent with the generally accepted notion of equality of opportunity (results) in education. The advocates of increased levels of financial assistance have wisely avoided contending that more aid alone would solve the entire problem. They have included in their list of suggested solutions almost everything which might conceivably have an impact upon the situation. Among the other recommendations advanced are better counseling in the high schools, increased racial integration, the institution of compensatory programs at the college level, the provision of supplementary training programs for pre-college teachers and better high school curriculum design. But the best evidence available indicates that reliance upon conventional or known methods of improving the academic performance of poor youngsters is likely to prove either ineffective or prohibitively expensive.²²

These considerations point to a two-fold strategy consisting of 1) experimentation and research designed to develop new methods of raising pre-college achievement levels among low income youngsters and 2) the provision of financial aid sufficient to remove the economic barriers to college attendance. The need to strive continually to find ways of increasing the options available to low income youngsters is painfully evident. Each success in this endeavor will undoubtedly lead to some increase in college attendance from the lower income groups. Past experience indicates, how-

²⁰In terms of the present data, the procedure used by Hartman in arriving at the 1 million increase in attendance would predict (or assume) an increase in the attendance rates for both the low and lower middle quartiles to the .493 figure exhibited by the upper middle group (see discussion accompanying footnote 5). This appears to overestimate the potential of the basic grants program by ignoring its inability to affect significantly the pre-matriculation conditions which tend to reduce the academic achievement of lower income youngsters.

²¹Folger, et. al., *op. cit.*, on pp. 321-322 speculate that financial assistance might remove a maximum of one-third (a minimum of one-sixth) of the difference in college completion rates between highly talented high school graduates from the lowest and highest SES groups. Since their analysis related only to high school graduates, differential precollege dropout rates are not considered. In addition, the concentration upon a single ability group eliminates the impact of differences in high school achievement levels between SES categories. Thus the present conclusion attributes a much greater potential to financial policies than does the Folger study.

²²For a summary of recent studies see Martin Carnoy, "Is Compensatory Education Possible," in Martin Carnoy, ed., *Schooling in a Corporate Society*, New York, David McKay Company, Inc. 1972. Carnoy concludes that "The difficulty, probably the impossibility of achieving equality (by allocating more resources to the 'disadvantaged') is evident from the empirical studies presented here. The strategy . . . would also turn out to be extremely costly relative to the benefits . . ." p. 188. A comment made by the Carnegie Commission in relation to teacher training could be applied to most of the recommended improvements: "The needs are clear. The methods of meeting them are not." The Carnegie Commission on Higher Education, *A Chance to Learn*, McGraw-Hill Book Co., March 1970, page 6.

ever, that successes will not be forthcoming with great rapidity. Increased financial aid will also help. But here again the present results show that even the most effective financial policies would fall far short of generating equality between high and low income groups.

It thus appears that the general direction of public policy designed to achieve equal opportunity in higher education will leave marked differences in participation rates by income groups for some time to come. The apparent inequity of this situation might be mitigated somewhat by expanding the definition of equality of educational opportunity to include all forms of investment and training capable of increasing the earning capacity of low income youngsters. A more limited variant of this suggestion has been put forth by the Carnegie Commission.²³ The Commission advocates restricting eligibility to post secondary students enrolled in approved training programs. A more ambitious program would expand eligibility to cover students who have not completed secondary school and individuals in need of specified types of physical capital to pursue a given occupation, e. g., auto mechanic or carpenter tools. A strong emphasis upon such an extension in eligibility might succeed in reaching some of the low income youngsters who are either academically unprepared to pursue a conventional college education or who would simply prefer to enter a different type of occupation.

This proposal admittedly represents a radical departure from the traditional approach. But the extension of the definition of "higher education" to include vocational and technical training and some forms of capital acquisition does not represent a repudiation of the underlying philosophy of financial aid programs. In discussing the role of financing in relation to equality of opportunity, The Committee for Economic Development states that, "Education beyond high school is often an important factor in determining an individual's chances of achieving economic success and of attaining the life style to which he or she may aspire. Equality of post-secondary educational opportunity, therefore, is essential to providing each person a fair chance to move into and along the mainstream of socio-economic life."²⁴ The proposed extension of eligibility is clearly compatible with the basic goals implied by this quote. Furthermore, there is no reason to believe that conventional financial aid will prove more effective than the extended subsidies in producing many of the social benefits allegedly emanating from traditional higher education, e. g., the lowering of public spending on poverty and crime, the generation of positive tax revenues and the general enhancement of society's economic productivity. The only "convincing" argument against the proposed extension of higher education subsidies seems to be that it has never been done before.

²³The Carnegie Commission on Higher Education, *Quality and Equality: Revised Recommendations, New Levels of Federal Responsibility for Higher Education*, McGraw-Hill Book Company, 1970, pp. 6 and 7.

²⁴The Committee for Economic Development, *The Management and Financing of Colleges*, p. 20.

TABLE 1
PROBABILITY OF FAILURE TO COMPLETE HIGH SCHOOL
BY SOCIO-ECONOMIC STATUS (SES) QUARTILES

SES Quartile	
1. High SES	.032
2. Upper Middle SES	.081
3. Lower Middle SES	.104
4. Low SES	.190

SOURCE: Derived from Berls, *op. cit.*, Table 1. These rates relate to 1960 10th grade high school students. The SES quartiles used in the derivation of all probabilities relate to 1960 income figures. The 1972 quartile distribution of household income was as follows: 1) over \$15,260; 2) \$9,715 to \$15,259; 3) \$5,020 to \$9,714; and 4) under \$5,019. Derived from U.S. Bureau of the Census, *Current Population Reports Series P-60, No. 89, "Household Money Income in 1972 and Selected Social and Economic Characteristics of Households,"* GPO, Washington, D.C., 1973, Table B, p. 1.

TABLE 2
PROBABILITY OF A HIGH SCHOOL GRADUATE ENTERING COLLEGE,
FULL OR PART TIME, WITHIN 5 YEARS OF HIGH SCHOOL GRADUATION
BY ABILITY QUINTILE AND SOCIO-ECONOMIC (SES) QUARTILE

Ability Quartile	SES QUARTILE			
	1 High	2 Upper Middle	3 Lower Middle	4 Low
1	.95	.79	.67	.50
2	.84	.63	.52	.36
3	.69	.46	.34	.24
4	.56	.34	.27	.17
5	.40	.28	.19	.15

SOURCE: Derived from Berls, *op. cit.*, Table 3. The College Entrance Examination Board's Scholastic Aptitude Test score equivalents for the above ability quintiles are as follows: 1) 500+; 2) 418-500; 3) 345-417; 4) 275-344 and 5) under 275.

TABLE 3
PERCENT OF ALL HIGH SCHOOL GRADUATES FROM A GIVEN
SOCIO-ECONOMIC STATUS (SES) QUARTILE IN EACH ABILITY QUINTILE

Ability Quintile	SES Quartile			
	1 High	2 Upper Middle	3 Lower Middle	4 Low
1	39.42	24.68	16.80	8.17
2	25.24	23.06	20.39	12.81
3	18.25	21.77	21.90	20.16
4	10.10	18.39	22.59	23.02
5	6.99	12.10	18.32	35.83

SOURCE: See note to Table 2.

TABLE 4
ACTUAL AND POTENTIAL COLLEGE ATTENDANCE
RATES BY SES QUARTILE

		A) High SES Base						
		1	2	3	4	5	6	7
SES Quartile	C_1 Actual Rate	$C_H - C_1$ Differ- ential	C_1^* Poten- tial Rate	$C_H - C_1^*$ Pre- matricu- lation Effects	$C_1^* - C_1$ Financial Policy Impact	Percent Pre- matricu- lation Effects	Percent Financial Policy Impact	
1 (High) C_H	.771							
2 (Upper Middle) C_{um}	.493	.278	.671	.100	.178	36.0	64.0	
3 (Lower Middle) C_{LM}	.348	.423	.611	.160	.263	37.8	62.2	
4 (Low) C_L	.185	.586	.483	.288	.298	49.1	50.8	
		B) Upper Middle SES Base						
SES Quartile	C_1	$C_{um} - C_1$	C_1^*	$C_{um} - C_1^*$	$C_1^* - C_1$	% Pre-matri- culation	% Finan- cial Impact	
2 (Upper Middle) C_{um}	.493							
3 (Lower Middle) C_{LM}	.348	.145	.439	.054	.091	37.2	62.8	
4 (Low) C_L	.185	.308	.338	.155	.153	50.3	49.7	

C) Lower Middle SES Base

	C_i	$C_{LM} - C_i$	C_i^*	$C_{LM}^* - C_i$	$C_i^* - C_i$	% Pre-maturation	% Financial
3 (Lower Middle) C_{LM}	.348						
4 (Low) C_L	.185	.163	.259	.089	.074	54.6	45.4

SOURCE: Derived from Tables 1, 2 and 3.

Subscript i refers to the ith SES quartile and subscripts H, UM, LM and L refer to the high, upper middle, lower middle and low SES quartiles respectively.

All C_i 's were calculated from $(1-D_i) \sum_{j=1}^5 R_i^j$ ($\sum P_i^j$)

All C_i^* 's were calculated by replacing the P_i^j 's with P_j^j 's for the Base SES identified in the table heading, e.g., the C_i^* 's in 4B were calculated from

$(1-D) \sum_{j=1}^5 P_j^j R_j^j$. See the discussion accompanying equation 1 and 2 in text.