

The benefit-cost ratio of one is a convenient benchmark for determining whether the program is preferable on efficiency grounds to the simplest alternative of a transfer payment. The ratios for all three types of "success" situations examined are over one when discounted at 3 percent. When they are discounted at 5 percent, the ratio for college attendance over high school graduation is slightly under one. If 5 percent is accepted as the conventional discount factor, then a 2 percent growth rate in earnings over the future working careers of Upward Bound participants justifies the use of a 3 percent rate.

The difficulty of quantifying all the costs and benefits of a program and the precedence of equity over efficiency issues may restrict the applicability of this type of approach. A program to provide an "equal opportunity" to education is by definition one which will put equity considerations first. Nevertheless, even where equity is a primary consideration, it is useful to have a method of evaluating efficiency in order to compare alternative "equity" programs or to find the cheapest way to achieve a certain "equity" goal.

The significance of a cost-benefit analysis lies in the way in which costs and benefits are measured. The conceptual framework of this measuring process may be the individual participating in the program, the agency administering the program or society as a whole. For this analysis of the Upward Bound program, the measurement of costs and benefits is from the point of view of society. Transfer expenditures (transactions which are made simply to transfer the cost from one individual or institution to another within the society) are neutralized, and education expenditures are not limited to tuition. In addition, since Upward Bound has had little time to establish any empirical success rates or "average" participant characteristics, success rates have been hypothesized, and the grade, sex, race, and geographical distributions upon which the calculations of costs and benefits are made are based on the characteristics of the 1966 and 1967 Upward Bound programs.

The following discussion indicates some of the restricting assumptions of this analysis. Table II shows the individual cost and benefit items which have been included in the above benefit-cost ratios.

TABLE II

	High school graduate over high school dropout (88 percent of participants)		1 to 3 years of college attendance over high school graduation (44 percent of participants)		College graduate over high school graduate (22 percent of participants)	
Percent.....	3	5	3	5	3	5
Benefits:						
Increase in lifetime earnings.....	5,083	2,978	6,772	3,406	11,252	6,561
Stipend, room and board while in U.B. program.....	798	798	798	798	798	798
Total.....	5,881	3,776	7,570	4,204	12,050	7,359
Costs:						
OEO grant.....	1,919	1,919	1,919	1,919	1,919	1,919
Wages foregone while attending summer program.....	400	400	400	400	400	400
College costs.....			2,261	2,176	2,026	1,915
Total.....	2,319	2,319	4,580	4,495	4,345	4,234

BENEFITS

The benefits of a continued education are difficult to measure. The kinds of satisfactions obtained from a fuller participation in the productive and pleasurable activities of society cannot be measured quantitatively, but should not be overlooked. It is conceivable that for many people these satisfactions are as important as those benefits which can be measured.

The most obvious measurable benefit of further education is increased earning power. The bulk of the benefits in this study consist of an estimate of the future net earnings that could be obtained by an individual on the basis of a marginal increase in his education.

These potential earnings are based on data on earnings of males only. Comparable data for females are unavailable. Since approximately half of the Upward