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ABSTRACT

This document describes two evaluations of the Upward Bound program under the Office of Economic Opportunity. The first evaluation was a descriptive-analytical study of the impact of Upward Bound on the community and the high school. This study was carried out through extensive field work, including interviews and observations in high schools, on campuses of institutions of higher learning, and in the community. It was a nationwide study conducted in 16 communities. During the course of the study, 447 persons were interviewed, including secondary school personnel (teachers), librarians and principals, university personnel (faculty, Upward Bound coordinators and administrators), students (both participants and non-participants in Upward Bound), and community leaders (Community Action staff and board members, public officials and school board members). The second evaluation had three major purposes: (1) to synthesize all of the previous evaluations of Upward Bound; (2) to gather additional firsthand information on the impact of Upward Bound; and (3) to carry out a cost/benefit analysis of the program. This document deals primarily with the third aspect of the second evaluation, although there is detail on the first evaluation and the other two objectives of the second evaluation as well. (Author/JM)

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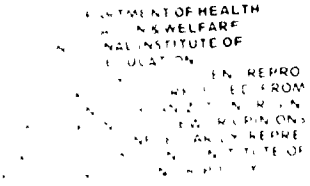

# EVALUATIONS OF UPWARD BOUND FOR THE OFFICE OF ECONOMIC OPPORTUNITY

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Greenleigh Associates

Greenleigh Associates, Inc., is a private management consulting and research firm founded in 1956. Originally, it was founded to provide management consulting services to voluntary organizations. However, since 1960, the major emphasis has been on evaluation studies and research efforts in fields relating to the conservation of human resources. Studies have been conducted in the fields of public welfare, medical assistance, child welfare, manpower, education, housing, vocational rehabilitation, mental health, health and drug programs, alcoholism, and related fields.

Greenleigh Associates employs more than 60 social scientists from the fields of social research, urban planning, sociology, psychology, economics, political science, education, social welfare, and public administration. In addition to the full-time staff, consultants are employed from a variety of fields to provide special content inputs. Clients include a wide variety

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[1]Dr. McCalley is Senior Vice President of Greenleigh Associates and has been with the firm for about 15 years. She was officer in charge of the two Upward Bound evaluations and was ultimately responsible for the approval of all instruments and methods used. Dr. McCalley holds a Ph.D. from the University of Pennsylvania in economics and has directed or been the officer in charge of more than 75 studies conducted by Greenleigh Associates. Recently completed and almost completed studies include a model for a longitudinal study of drug treatment modalities, numerous evaluations of Title I ESEA programs and other educational programs for the disadvantaged, a study of the barriers to separation of income maintenance and social services in public welfare, and the development of a model for employer services in the public employment service.

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of federal, state, and local agencies, as well as private organizations. At the present time, a model for measuring social accountability in the private sector is being developed.

## INTRODUCTION

The chapter describes two evaluations of the Upward Bound program under the Office of Economic Opportunity. This program was designed for underachievers from low income families in secondary schools to provide them with the necessary motivation and skills to achieve success in college. It was intended to link an institution of higher learning, the host institution, with secondary institutions to provide an enriched educational experience to the target group on the college campus in the summer and in the high school during the normal school year.

The first evaluation was a descriptive-analytical study of the impact of Upward Bound on the community and the high school. This study was carried out through extensive field work, including interviews and observations in high schools, on campuses of institutions of higher learning, and in the community. It was a nationwide study conducted in 16 communities. Since there were some 300 Upward Bound programs, the 16 communities could not be considered a statistically valid sample representing the variables to be found in such programs.

During the course of the study, 447 persons were interviewed, including secondary school personnel (teachers, librarians and principals), university personnel (faculty, Upward Bound coordinators, and administrators), students (both participants and nonparticipants in Upward Bound), and community leaders (Community Action staff and board members, public officials and school board members).

The second evaluation had three major purposes:

1) to synthesize all of the previous evaluations of Upward Bound;

2) to gather additional firsthand information on the impact of Upward Bound; and

3) to carry out a cost/benefit analysis of the program.

This chapter deals primarily with the third aspect of the second evaluation, although there is detail on the first evaluation and the other two objectives of the second evaluation as well.

## PART I: THE STUDY ENVIRONMENT

### A. BACKGROUND OF UPWARD BOUND

Upward Bound is a pre-college preparatory program designed to generate the skills and motivation necessary for success in education beyond high school among young people from low-income backgrounds and inadequate secondary school preparation. It acts to remedy poor academic preparation and motivation in the secondary school and thus increase a youngster's promise for acceptance and success in a college environment.

Projects must include arrangements to assure cooperation among one or more institutions of higher education and one or more secondary schools. They must include a curriculum designed to develop creative thinking, effective expression, and attitudes toward learning needed for post-secondary educational success; necessary health services; and such recreational and cultural and group activities as the project director determines may be appropriate.

Upward Bound, funded by the Office of Economic Opportunity (OEO), grew out of a pilot project in the summer of 1965 proposed by Dr. Thomas Billings of Washington State College. This pilot project was in response to a number of uncoordinated requests to the federal government and foundations to establish a college-sponsored program which would give disadvantaged students the capability to attend college and succeed. The pilot project was undertaken in 16 institutions of higher education in which slightly over 2,000 students participated. Of those participating, roughly 1,500 had just completed high school. The summer pilot project was followed by a 1965-1966 academic follow-up pilot project involving 1,200 students.

As a result of these pilots, it was concluded that a single summer was insufficient to prepare disadvantaged high school graduates for college. Therefrom, the Upward Bound program was designed to take students in ninth grade and older on a year-round program, September through June, coordinated with the on-going high school program and an on-campus college program. Guidelines for the 1965-1966 program were developed and funded by OEO as a national program in 1966.

The level of funding in 1965-1970 and the number of participant students and institutions was as follows:

Table 1

Upward Bound Budget, Programs, and Students, 1965-1970

| Summer | Number of Programs Operating | Number of Students Enrolled | Federal Dollars Expended (millions) |
|---|---|---|---|
| 1965 | 17 | 2,061 | 2.4 |
| 1966 | 218 | 20,333 | 24.9 |
| 1967 | 249 | 22,440 | 28.2 |
| 1968 | 285 | 25,368 | 31.6 b/ |
| 1969 | 296 | 23,220 | 30.9 b/ |
| 1970 a/ | 295 a/ | 22,000+a/ | 28.3 a/ b/ |

a/ Estimate.

b/ Beginning with 1968 programs, the federal share of all OEO grants was decreased from 90 to 80 percent and the local share increased to 20 percent.

Twelve program attributes are considered essential. These were specified in the 1969-1970 Guidelines as:

1. Development of significant working relationships among secondary schools, colleges and universities, and the community at large.

2. Involvement of teachers who are committed to the goals of Upward Bound.

3. Provision for close and substantial individual student-teacher contact both in the summer and the academic year.

4. Effective use of college and university students as tutor-counselors, both in the summer and in the academic year.

5. Involvement of many resource and non-professional persons from the local communities.

6. Willingness on the part of all of the staff to engage the students as partners in learning.

7. An important emphasis on educational goals other than the strictly academic, including activities designed to develop abilities to organize, to persuade, and to cooperate.

8. Recognition by the sponsoring institution of this unusual chance to increase its skills in teaching students -- of whatever kind.

9. Enrollment of a student body which is diverse with regard to background and race, including the taking of affirmative steps to ensure recruitment of students from racial or ethnic backgrounds that have not been well represented at the sponsoring institution.

10. The presence of a project director, or his assistant, working with the program on a full-time basis throughout the year.

11. Recognition that the academic year is at least as important as the summer.

12. Enrollment of a sizeable cluster of students from a few secondary schools, rather than an enrollment of a handful of students from a large number of schools.

It is essential to understand the purposes and attributes in order to comprehend the problems involved in evaluation of the program and the results.

One of the motivating factors in the initiation of these programs during the summers of 1964 and 1965 was undoubtedly the relationship between college students and faculty and the civil rights movement which had drawn many university people to the South in the summers of the early 1960's. Students and faculty, mostly white, returned to their educational institutions, mostly in the North, newly aware of the lack of poor and minority representation on the college campus. They urged their institutions to examine themselves to determine how they could offer their expertise to these underprivileged groups.

Many of the proposals for action by students, faculty, or administrators suggested programs patterned after the summer institutes sponsored on college campuses for high school upperclassmen by agencies such as the National Science Foundation. The programs either bore names that were part of the history of the time such as Project Overcome or the College Candidate

Program, or else bore a series of initials that bespoke purpose such as HEP, SOS, or ABC. In general, they all aimed to provide special college-like classes and to introduce these special students to the environment of higher education.

## B. PRIOR EVALUATIONS

Two evaluations of Upward Bound were undertaken by Greenleigh Associates, the second growing out of the first.

Prior to the evaluations by Greenleigh Associates, some 11 other evaluations of Upward Bound had been completed. These evaluations focused on a number of topics: attitudinal change of participants; grade point averages and test scores, retention in high school, social characteristics of Upward Bound students, college admissions, college retention or persistence, college problems of participants, financial needs of Upward Bound participants, impact of Upward Bound on secondary schools, impact on host institutions (higher education), and parental involvement. The evaluations are listed below.

List of Prior Research Studies of Upward Bound

| Author and/or Agency | Studies |
|---|---|
| David E. Hunt and Robert H. Hardt, Syracuse Youth Development Center | Characterization of Upward Bound Studies: Summer 1966; Academic Year 1966-1967; Academic Year 1967-1968. |
| | National and Regional Profile of 1967 Upward Bound students; National Profile of 1967 Upward Bound Students: National Profile of 1967 Upward Bound Programs; National and Regional Profile of 1967 Upward Bound Programs. |
| Paul Daniel Shea Primary Prevention Research and Development Center | Upward Bound, Early Progress Problems and Promise in Educational Escape from Poverty, July 1966. |
| John Gardenhire Data Systems Office of Educational Assoc., Inc. | Study of College Retention of 1965 and 1966 Upward Bound Bridge Students, 1968. |

| Author and/or Agency | Studies |
|---|---|
| Bonnie R. Cohen and Ann H. Yonkers Research Management Corp. | Evaluations of the War on Poverty, Education Programs, March 1969. |
| The Comptroller General of the United States, U.S. General Accounting Office | Report to Congress; Review of Economic Opportunity Programs, March 1969. |
| H. Reed Saunders and Stephen S. Jones Financial Aid Services of American College Testing Program (ACT) | A Study of Financial Need of Upward Bound Students: The 1968-1969 Bridge Class, 1968. |
| Cybern Education, Inc. | Parental Involvement in Upward Bound, June 1969. |
| Sar A. Levitan Center for Manpower Policy Studies: George Washington University | Upward Bound: Fighting Poverty With a Sheepskin, 1968. |
| Joseph Froomkin, Office of Program Planning and Evaluation, Office of Education, U.S. Department of Health, Education and Welfare | Students and Buildings: An Analysis of Selected Federal Programs for Higher Education, May 1968. |
| Francis A. Kornegay, Jr. Data System Office of Educational Assoc., Inc. | College Enrollment of Former Upward Bound Students: A Profile and Summary |

These evaluations studies in the larger sense specify what the major policy issues were relative to Upward Bound:

1. Did Upward Bound affect the high school and college dropout rates among the disadvantaged?

2. Were Upward Bound participants from the target population, i.e., the disadvantaged, underachievers?

3. Did participants demonstrate a change in cognitive and affective skills?

4. What was the impact of Upward Bound on secondary education and institutions of higher education?

5. What were the problems of Upward Bound participants which were inherent in the program?

These questions were a part of the larger question of that period which was: what could or should be done to provide the disadvantaged with the same conditions as the advantaged population, and how? The research was designed to answer these questions.

Another issue was whether an educational program should be funded by OEO. All traditional agencies, the U.S. Employment Service, the Welfare Administration and the Office of Education (OE) in particular had been threatened by the advent of OEO. The old line agencies saw their prerogatives being usurped and each attempted to secure support in Congress for retaining its traditional role and responsibility. Head Start, Adult Basic Education and Upward Bound, all initiated by OEO, were subsequently transferred to OE after a bitter struggle.

One of the bitterest opponents of Upward Bound was Representative Edith Green of Oregon. It was reported by Dr. Frost, an early director of Upward Bound, that Mrs. Green felt she already had a high school student program for which she had been responsible, the Talent Search Program, which was in operation at the OE.

Mrs. Green argued that either Upward Bound was rewarding dropouts or that it represented double administration since it was so much like Talent Search. In either event, she felt that the recruitment focus was "contrary" to the original intent of the legislation.[2] Congresswoman Green was determined to see the program killed or at least taken away from the jurisdiction of OEO. The two evaluations undertaken by Greenleigh Associates were intended to counter some of Mrs. Green's objections.

The first evaluation was awarded to Greenleigh Associates on a sole source basis by the Office of Economic Opportunity (OEO) and was a study of the impact of Upward Bound on secondary schools and the community. It was planned as one of a number of impact studies which would point out the effect of the program on the students, the students' families, the university, the community, and the secondary school. It was hoped that these studies would answer some of the then current criticism of the program.

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[2] Congressional Record, House, July 24, 1968, pp. H7407-7414th, and the Record, House, July 25, 1968, pp. H7494-7499.

At the time the contract was awarded and the study undertaken, there were rumblings in Congress, some suspected inspired by the Office of Education (OE), that Upward Bound was not attaining its goals...that it was not effective in reaching the target population or in helping underachievers from the poverty population move into the academic world. As one of the number of "poverty" programs which had been started by the Office of Economic Opportunity with great hope and optimism, it began to suffer from the fact that it was not able to cure poverty. In addition, there had developed a general malaise in regard to poverty programs in general and Upward Bound in particular. Also, Upward Bound struck directly at an entrenched establishment -- public education -- and as such, created enemies.

The fact that educational funds were given to OEO, bypassing OE, was resented by the educational establishment. This intensified the feeling that the Upward Bound program not only provided a link to secondary schools through the program, but that the program in effect was saying that the schools needed such support, and that it also provided summer programs because the schools could not adequately solve the educational problem of the target population. Even given the problems of funding, ghetto conditions which create learning problems, and other external factors affecting this population, Upward Bound was perceived as a threat to public education methods. As such, it was attacked by the educational community. The only completely negative evaluation was done by a member of the research staff of the OE.

In addition, Upward Bound had an unusual administrative structure which partially invited attack. Although administered by the Office of Economic Opportunity, much of its day-to-day operations were under the supervision of an independent contractor, Education Associates, Inc. (EAI). This firm had been brought into existence to provide outside consultation to Upward Bound. This consultation grew to the point where EAI was essentially managing the program. It was alleged that the Director of Upward Bound was fostering a profit-making operation for friends. Those in the program countered by claiming that by using a private contractor it was possible to start a program more expeditiously since a private firm was not subject to governmental restraints which hamper civil servants. In their view, the ends justified the means. This is an interesting and unresolved question.

The idea for a second evaluation grew out of the first. The Director felt that the report from the first Greenleigh study was the first evaluation which could be used to interpret the program to Congress and the public. (The report

had been written in non-academic, non-technical language which the average citizen could understand.) The director wanted a broader history and a broader evaluation of the program undertaken and written in similar style and language. The second evaluation was managed out of OEO's central evaluation office, however, and not the Upward Bound program office.

As is often the case, there was a time lag of several months between the time the second evaluation was planned and when it was funded. During that interim the Congress voted to transfer the program from OEO to OE. While the actual transfer had not yet taken place at the time the evaluation was started, the project was of necessity done during what must be described as a transition period. Thus, although the contract was with OEO, the study staff worked closely with both OEO and OE during the final months of evaluation.

## C. PROCUREMENT OF THE STUDIES

The origins of these two evaluations were different. The first study was the result of a number of conversations with the program director on the kinds of evaluations needed to determine the extent to which Upward Bound was meeting its goals. As a result, a series of proposals were prepared by Greenleigh Associates on various aspects of the problem; one of the series was funded.

The other proposals which were prepared and were not funded related to the impact of Upward Bound on the participants, the impact on the parents, and the impact on the host institution. In retrospect, the proposal which was funded was that which would show the least impact. This was a study of the impact on the community and the secondary schools. Later analysis revealed considerable impact on participants and the parents and some impact on the host institutions. However, the number of Upward Bound students in a given community and in the average high school was too small to affect the traditional teaching methods.

The second study came about as the result of a Request for Proposal from OEO and was awarded on a competitive basis. However, since the successful bidder had already done a study which met the needs of the director, bidding cannot be considered to have been completely competitive in the sense that all bidders started from the same vantage point. This inequity, however, is frequently present in the procurement process. A successful bidder on a Request for Proposal has often done a similar study for the government and for the persons requesting the proposal.

The Request for Proposal (RFP) came from OEO and stated the following objectives:

1. Synthesis of the information now available on the program as it has been conceived and operated within OEO, including (but not limited to) the following points:

   a. Degree to which Upward Bound has focused in concept and operation on important needs of the youth toward whom it is aimed.

   b. Extent of reaching the intended population.

   c. Characteristics of students and staff.

   d. Varieties of program pursued by the grantees.

   e. Number of enrollees involved in projects, by fiscal year.

   f. Impact on students, their families, and their communities.

   g. Project, high school, and college retention rates.

   h. Changes in academic performance at secondary and post-secondary levels.

   i. Rates at which entrance to post-secondary institutions has been sought and obtained.

   j. Nature and adequacy of financial support obtained during the freshman and subsequent years..

   k. Impact on secondary and post-secondary institutions.

2. Assessment of the degree of success with which national program objectives (as outlined in the Upward Bound Guidelines) have been achieved to date and factors contributing to success.

3. A benefit-cost analysis of the actual and estimated economic consequences of program participation, to the extent possible with the existing data. The

contractor will be expected to comment on the kinds of data and other factors which should be included in a more comprehensive benefit-cost analysis, and the scope of work required for this.

4. Evidence indicates that participation in Upward Bound has generally not produced significant improvements in high school academic achievement, yet Upward Bound graduates have entered and stayed in college at rates equal to or above the national average. In light of this fact, the contractor should offer answers to the following questions:

   a. What has Upward Bound done to engender this kind of performance?

   b. Why has Upward Bound "worked"?

5. Comments on what constitutes the Upward Bound contribution in terms of innovative approaches to compensatory education.

6. Recommendations about the way in which future evaluations of Upward Bound should be designed. (Comments may be included on evaluation at the individual project, as well as at the national level.)

7. The contractor shall also make recommendations about desirable changes in the nature and administration of the program itself.

After introductory statements demonstrating a knowledge of the subject and a restatement of objectives, the proposal which resulted from this RFP discussed the precise tasks which could be undertaken, the methods to be used and the instruments to be developed. Under each of eight tasks which were specified in the proposal, there was a statement of the research considerations implied in the task, for example, specifying the dependent and independent variables, the measures which would be used, the types of instruments to be developed, and the nature of the analysis.

The remainder of the proposal dealt with task phasing and timing, staffing, including curricula vitae of staff, and the capability of the firm. A budget was drawn up in a separate financial proposal; this is common practice for federal projects.

The issues that emerged in writing the proposal are always a consideration -- to be clear about what will be done and at the same time not promise too much, and to be realistic about the man-days and skills required. The persons responsible for the proposal were fully aware of the implications of the task, particularly those related to past research and the data base. The data were known to be extensive but the extent to which they were compatible was unknown. For example, one task was a cost-benefit study. It was known that there were ample data on participants over time, but it was not known if there would be data on a control group which is necessary for this kind of a cost-benefit study. The statement of what would be done had to be couched in language which would make it possible, within the contractual arrangement, to discard a task if it was not feasible.

## D. PERFORMING THE STUDIES

### 1. Execution of the Two Studies

The execution of the two studies followed a similar pattern. Each was under the direct supervision of a project director who was given responsibility for day-to-day conduct of the study, including study design, selection of staff needed to carry out field work, and the analysis of data. The project director was under the general supervision of an officer-in-charge who was responsible for seeing that the proposed study design was being carried out, time commitments kept, and that the unanticipated needs of the study group were met. The study group operated on a team concept.

Those responsible for study design and data analysis worked together in developing study instruments and in analyzing the data results. This does not mean that a group worked together producing instruments or analysis. Rather, the study group discussed what instruments would be required, what the content should be, and how instruments would be used. All members of the team, junior as well as senior, contributed to this process with overall authority vested in the officer-in-charge. Once this was done, members of the group were assigned to develop selected instruments or parts of instruments. Drafts were reviewed by the group, comments were made, and changes discussed and made. This process continued until the instruments were acceptable to all members of the study group, who would be responsible for data analysis, as well as the Project Officer of OEO.

2. Relations with Contracting Agency

As a matter of policy, Greenleigh Associates works closely with the client agency which has contracted the study. There are three purposes for this:

a. No proposal is so precise that it does not provide latitude to the evaluator. There are always unanticipated tasks which must be undertaken and planned activities which must be adapted or discarded to meet real life situations. Because of this, it is necessary to keep the Project Officer informed of the progress of a study, the problems encountered and their solutions, so that no disagreement can arise in the future.

b. There is always a possibility that the Project Officer will interpret the proposal differently than the evaluator. Regular reports to and discussions with the Project Officer minimize such differences.

c. Instruments which are developed should meet the needs of the client in terms of data covered. If the Project Officer has an opportunity to review instruments, it is more likely that client needs will be met.

This close relationship does not mean that evaluation will be slanted to meet the desires of vested interests but rather that there will be fewer differences of opinion about contract performance.

In terms of actual relationships between the Project Officer in each project and Greenleigh Associates, the two evaluations differed widely. In the first evaluation, contacts with the agency were almost entirely initiated by the evaluator. The contract requirements, in terms of progress reports, were met, and meetings with agency staff or EAI sought as joint agreement required. In this project, the EAI Upward Bound staff were the project managers on behalf of OEO and maintained contact with the evaluators.

In the second evaluative project, the Program Planning and Evaluation Office of OEO was responsible for the contract management, not staff of Upward Bound. Most of the contacts were made on the initiative of the Project Officer and the contractor's staff had a feeling he was acting as a watch dog. He made demands on the evaluator staff which were considered beyond the

scope of the contract, and followed the progress of the evaluation almost on a day-to-day basis. This created a feeling that he was usurping the responsibility of the project director. The final product, however, did not suffer and a cordial relationship was maintained throughout the study.

### 3. Project Management

The basic requirements for evaluation are sound research techniques and good organization. The management of a research project is crucial; all of the pieces must fit together along a time sequence. Thus, it is important to formally or informally PERT an evaluation process showing which tasks are to be accomplished, in what sequence, within what time limits. All of the products and subproducts must be identified and time sequenced. While a formal PERT chart was not developed for either of these projects, there was a time chart which showed how long each task should take, when its completion was expected, as well as its relationship to other tasks. This made it possible for the officer-in-charge to determine at any critical point whether the evaluation was moving according to schedule. It also made it possible for the project director to check whether research or field staff were adhering to schedule and contract commitments.

Rarely, if ever, does a study move perfectly according to schedule or even to plan. Because the Project Officer for OEO took a very deep interest in the study, watched each step carefully, and frequently interpreted the proposal differently than the project staff, he often demanded that tasks be included which had not been originally planned. This created some uneasiness and apprehension on the part of the project director. The final result, however, was not marred by this intrusion. The evaluators learned to live with it, perhaps to the benefit of the project.

This second evaluative study required the coordination of information from a number of sources including a management information system developed by EAI. The OEO Upward Bound staff had had almost complete turnover since the first study and was in the process of being transferred to OE. The director of Upward Bound had resigned, as had other key staff. The EAI, which had been organized to serve Upward Bound, was in process of dissolution. However, the person who had been primarily responsible for the management information system of EAI was working closely with OE in transferring the information base to the latter office.

Since, in effect, the recipients of the final report would be OE rather than OEO, it was necessary to work closely with OE. In fact, the data base which was used in the study, except for data generated during the evaluation, was provided by OE using their computer capability and the data from EAI and other evaluative studies. In order to obtain the data it required, there had to be complete agreement and cooperation between OE and OEO, EAI and the study staff. From the beginning this cooperation was present. Without this joint effort, the evaluation could not have been accomplished. For example, one of the crucial requirements was the use of data from a study conducted by Syracuse University which included not only the achievement of Upward Bound students but also of their siblings.[3] Since these data became the basis for the cost-benefit study, the ability of all parties in the evaluation process to cooperate and agree was essential.

4. Tenor of the Conclusions

This reliance on the cooperation of the contracting agency and even other agencies is not unusual in the evaluation process. It is often impossible to obtain access to essential data or even guidelines without such cooperation. An adversary relationship between the organization being evaluated and the evaluator creates untold problems and may bias the results. The same may be true if cooperation is given; undoubtedly, cooperation creates an atmosphere in which the study staff are inclined to look with favor on the program being evaluated. This is not likely to be true if the Project Officer is not on the program's staff. Even so, the potential cooptive effect and the degree of cooperation on results must be realized and guarded against in writing reports.

The tenor of the findings in the case of these two evaluations might substantiate that conclusion. The overall evaluation of Upward Bound in both studies was that the program was sound and the effect on the students impressive.

The criticisms were in regard to the paucity of the program in relation to the estimated need and the failure of local project directors to insure that guidelines were followed. The most serious fault in the program was the failure of the host

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[3]David E. Hunt and Robert H. Hardt, National and Regional Profile of 1967 Upward Bound Students: National Profile of 1967 Upward Bound Programs; National and Regional Profile of 1967 Upward Bound Programs, Syracuse Youth Development Center.

university and the secondary school to communicate about students or curricula. High School teachers and the secondary school were largely untouched by the program. This was due to the lack of communication and the relatively small number of Upward Bound students in any one high school.

## E. IMPACT

The resulting impact of the two evaluations was largely negative. What would have happened if OEO had remained the vigorous innovative agency it had been, or if the national emphasis on poverty programs had been continued, cannot be said. The first report, although largely positive except in relation to the monitoring effort of OEO, was not sufficient to keep Congress from transferring the program to OE which many felt would be detrimental since the program was not fully developed but was still in its formative stages. The second report, although equally positive except in terms of the cost-benefit to the government, has not resulted in any expansion of the program.

## PART II: THE EVALUATION PROCESS

### A. INTRODUCTION

The two evaluations undertaken for OEO of the Upward Bound programs had two distinct purposes and, thus, two different research approaches. The purpose of the first evaluation was to measure program impact -- more specifically, the impact of the program on the secondary schools and the community in which Upward Bound operated. The purpose of the second was to place the Upward Bound program in its historical setting and determine what benefits, if any, had accrued, including cost-benefits. In the first study, the problem was a paucity of data and, in the second, a wealth of data which needed to be analyzed and synthesized to determine if they were pertinent or not.

In retrospect, it can be said that the attempt to measure the impact of Upward Bound on the secondary school system and the community was inappropriate. It is probably even an inappropriate objective for a program of this size. However, the study staff could not have perceived this in advance. The basic problem was that the number of Upward Bound students in any single secondary school was too small to affect the total system even if all the other program guidelines had been followed precisely.

One of the attributes of a good Upward Bound program, as stated in the Guidelines, is a sizeable number from a single school rather than a few from a number of schools. There were, in fact, only a few participants in any one school. In 1968, there were 25,368 participants attached through Upward Bound to 285 institutions of higher learning -- an average of under 90 per campus. These 25,368 in turn came from some 900 high schools an average of roughly 30 per school. Since some of these schools had an enrollment in the thousands and the Upward Bound student could be in four grades, the possibility of the program having impact on the school was remote. It was not unusual for a given teacher to be unaware of a student's participation in Upward Bound even though he was covering material similar to that of the summer program.

It was estimated that approximately 600,000, or four percent, of the nation's more than 13 million secondary school students would have been eligible to receive Upward Bound benefits. However, in 1968, fewer than 26,000, or four percent of that four percent, were enrolled in Upward Bound. The same was true for impact on the community as a whole. In any given community

the number of persons involved with Upward Bound -- teachers, university personnel, parents, and students -- was miniscule in relation to the total community and in the context of competing programs aimed at the disadvantaged population.

Even so, there is a second and more fundamental problem related to impact studies. If one is to measure the impact of any given phenomenon on an individual or institution, all other influences must be relatively constant or there must be a way to account or adjust for these influences. This is never the case. In any community, secondary school, or university, there are a number of countervailing forces which affect the system simultaneously with the program under scrutiny. While there are techniques available to adjust for other influences, sample size and data limitations generally preclude their use.[4] For example, in one secondary school, it was reported that, since the Upward Bound program had been introduced into the school, the librarian had felt free to order a wider variety of books and provide more services to students. Superficially, there appeared to be a cause-and-effect relationship between the introduction of Upward Bound and the change in the library. However, without knowing all of the influences which were brought to bear upon the librarian during the period of time under consideration, it cannot be determined which factors influenced the change. Even though the librarian perceived Upward Bound as having been the chief factor in bringing about the change, her own reading, the availability of new funds, or any number of other factors may have played an important change-agent role. The evaluator cannot be too careful in interpreting

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[4] The most common method for controlling for factors external to the program under study is the establishment of a control group; a group similar in characteristics to the program participants but who are not subject to the program intervention. There are, however, two basic problems related to establishing a control group: (1) it is frequently difficult to match the characteristics of a participants group, and (2) unless the control group is completely isolated from the program, which increases the problem of matching, there may be a ripple effect from the participants, which also affects the control group. If these two problems can be solved, it is necessary to obtain baseline information, e.g., before-program data on both the participant group and the control group simultaneously. In the case of the study under discussion there were no baseline data on persons other than the participant group. Another method of controlling for external factors which create variance is to provide different treatment to defined participant groups. It is, in effect, the corn-path method -- different rows of corn have different fertilizers. If there is a drought, however, all the corn may die and it can be inferred that an external factor, weather, not the treatment, was responsible.

the perception of the respondent. No definitive conclusion can be drawn in regard to cause and effect; one can only report that the program being evaluated was a factor of change, or at least some of those interviewed thought it was.

In the case of the second study, the evaluation was of the total program rather than a measuring of the impact on any one type of organization or participant in the program. The evaluation problem related to the fact that the bulk of the data to be used in the evaluation was a fait accompli -- it had been collected. Not only were the data given but they had been collected by a number of different persons for different purposes. These were: (1) the data which had been collected by EAI for the Office of Economic Opportunity; (2) the data generated by the Syracuse University Youth Development Center for the purpose of their project; and (3) the OEO-CAP Management Information System data. In addition, there were data from some 13 studies which previously had been undertaken to evaluate Upward Bound. Although some of these used a common data base, the three basic data sources were not necessarily compatible. The most serious problem was in relation to the cost-benefit study. No control group had been planned and it was necessary to use what could be obtained from available data in developing the cost-benefit methodology.

Against the background of these two major problems, which affected each of the efforts differently, the methodology and research techniques used in these studies are discussed in detail.

## B. THE FIRST STUDY

### 1. Site Selection

In a nationwide study with limited resources, no sample of communities can be large enough to be a statistically valid random sample. In order to have coverage as wide as possible, it was planned to study 16 communities intensively with on-site field work and to mail a questionnaire to roughly one-third of the remaining high schools with Upward Bound students. A sample of the 16 communities had been predetermined at the time of the proposal preparation. This was a number which could be encompassed within the estimated budget, and which would allow selection of communities in each of the regions to represent different ethnic populations enrolled in the program. The criteria for the selection of the communities was to assure that significant numbers of black, Chicano, white and American Indian were included in the sample and all geographic areas covered. No attempt was made to include rural areas. The communities chosen were:

Boston, Massachusetts; Hartford, Connecticut; Pittsburgh, Pennsylvania; Morehead, Kentucky; Nashville, Tennessee; Tampa, Florida; Detroit, Michigan; Cleveland, Ohio; St. Louis, Missouri; Little Rock, Arkansas; New Orleans, Louisiana; El Paso, Texas; Billings, Montana; Phoenix, Arizona; Oakland, California; and Los Angeles, California.

The selection was done jointly by EAI and Greenleigh Associates after studying program and participant data. In each of the communities in the sample, high schools were chosen to be included on the basis of having the largest number of Upward Bound students. However, in order to assure that American Indians would be represented, the Phoenix Indian High School and Union High School, in Phoenix, Arizona, were included. In some communities like Billings, Montana, there was no choice to be made because only one high school had Upward Bound students. In large metropolitan areas like Boston and Detroit, the high school choice was based on the numbers in the high school.

The basis for this decision followed the rationale of the Guidelines, e.g., if more Upward Bound students were enrolled in any given high school, there would be a greater probability that the impact of the program could be perceived. This method of selection also provided the desired ethnic and geographic mix. The purpose of the mix was to determine if there was a difference in the impact because of the ethnic background of the majority of the students or the geographic region in the country. The 277 high schools chosen to receive the mail questionnaire were chosen at random using similar criteria to test the randomness of the sample.

## 2. Developing the Instruments

The field instruments developed were designed to be used by skilled data gatherers. They were not carefully worded questionnaires which demanded that the interviewers ask the questions as written in the same sequence in each interview. Rather, they outlined the information which was to be obtained in the interview and left the order of questioning to the field analyst or the respondent. The purpose was to create an interview climate in which the respondent felt at ease and free to express himself candidly. The field analyst was responsible for getting the responses and writing up the interview. This method does not provide "hard" data in the sense that a given percentage answer "yes" to a given question, but rather "soft" data which get at perceptions, feelings about the program, and its general climate. Frequently, the respondent reveals attitudes and feelings he did not intend to show. This is important in an evaluation

which relies heavily on the perceptions of individuals rather than on statistical data. In this case, the N was too small to subject the data to rigorous statistical analysis.

Conversely, the questionnaire which was designed for the mail survey was a brief, straightforward instrument which required a minimum effort on the part of the respondent and asked for hard data, e.g., number of students in Upward Bound, number of teachers involved with Upward Bound students, changes in curriculum that had been made as a result of Upward Bound, number of contacts with staff of host colleges, etc.

Hard data, comparable to those elicited in the mail survey, were obtained by field analysts in each school from the principal, other administrators, and teachers, e.g., number of students, contacts with the host university faculty, etc., as dictated by a data checklist which each field analyst was responsible for collecting. Data on students -- grades, dropouts, Upward Bound status, and other student-oriented information -- were available through the data bank.

The final step in the planning process was the training of the field staff. Field staff consisted of field analysts who had had numerous data-gathering and interviewing experiences. The purpose of the training was to orient them to the purpose of the study, the sources of data, and the use of the instruments, rather than to provide them with specific techniques. Field analysts were instructed to interview and collect data from secondary school personnel, university personnel, high school students, and community leaders.

### 3. The Field Work

Once the training was completed, field analysts were assigned to the 16 communities with instructions to contact the appropriate high school, university, and community personnel. Each member of the field staff was assigned to four cities and was responsible for interviewing persons at six levels in each of the communities. These included the Upward Bound director, the high school principal and other administrative staff, guidance counselors and faculty who had contact with Upward Bound students, selected university staff, and community leaders. This presented a serious problem of obtaining appointments and scheduling, since all interviews had to be completed within a two-week period.

Although Upward Bound project directors in each community had been apprised of the study by the national OEO staff, there was no assurance that other persons involved in the study had been notified. Thus, field staff were responsible for contacting the principal in each of the target high schools and securing his cooperation as well as that of his staff. This is frequently a delicate undertaking. Public schools, in particular, are likely to resist outside evaluators. Part of the skill of field staff is to reassure the principal that data will be kept confidential and not be used in a way which can identify the school. Community leaders, university personnel, and high school teachers, with the principal's permission, are more accessible and completing the field work is a matter of scheduling and locating the appropriate respondent.

The interview, as has been indicated, was structured but non-directive -- structured in the sense that certain topics had to be covered; non-directive in the sense that the respondent was allowed to talk about the subject in any way he chose and in any order. The interviewer was responsible for keeping notes which would allow him to write up the interview once it was completed. The field analysts were instructed to do this immediately following the interview in order that memories were as fresh as possible. This non-directive technique is one widely used by therapists.

The following persons were seen:

1. The Upward Bound Project Director and other members of the local program staff.

2. The principal and other key administrators from at least two secondary schools that had students participating in the local Upward Bound program.

3. Guidance counselors, faculty members, and supervisors who had contact with Upward Bound students in these high schools.

4. A small sample of Upward Bound students enrolled in the selected secondary schools.

5. Selected university staff members who had participated in the Upward Bound summer program.

6. A number of community leaders, including public education officials, community action officials, members of Upward Bound advisory groups, and leaders of local neighborhood groups.

Following is a breakdown by category of the 447 interviews completed:

| | |
|---|---|
| Secondary school personnel | 132 |
| University personnel | 91 |
| Students | 158 |
| Community leaders | 66 |

4. The Analysis of the Data

This was the third phase of the study. Once the field work was completed, field staff were brought in for a debriefing -- a process lasting several days -- to share their insights and information with the project director and research analysts who would be responsible for the final report. In addition, each field analyst was responsible for developing an analytical-descriptive report on each of his communities.

In planning the study, it was inferred that evidence of impact on the secondary schools would take the form of change in curricula; change in acquisitions or use in the library; more intensive work, either by teachers or counselors, with under-achieving students with potential; change in methods of recognizing student potential, or other means of motivating students; evidence of follow-through in the high school program of studies or methods used at the host university during the summer; or evidence of changed attitudes toward disadvantaged students. However, unless there is good baseline data, it is frequently difficult to determine if change has taken place in any of the above areas.

If actual curricula descriptions or plans are available before and after the program, it is possible to see if change has taken place. If that change is consistent with methods or materials used in the program and if the teacher says that was the reason the change occurred, it is possible to infer impact on curricula. Similarly, if there are lists of library acquisitions and library use before and after, it is possible to determine if change has occurred. This is concrete evidence. However, perceptions of changes in recognizing student potential, motivating students, and work with students, barring any concrete evidence, are soft data. Furthermore, perceptions of what has occurred over time tend to be unreliable. However, if there are no "pre" data the researcher has little choice but to rely on "soft" data. If this is the case, the limitations of the data must be stated.

Even if there are pre and post data, the kinds of data which can be generated through review of materials, interviews, and observations on most of the above data are not subject to rigorous statistical analysis. This is particularly true if the research covers a number of sites or geographical areas. Frequently the unit for measurement differs from place to place. For example, use of library may be counted on an hourly, daily, or weekly basis, or on a person basis. In the first case, any given person who uses the library several hours, days or weeks would be counted several times. In the second case, no person would be counted more than once in a given time period. It is usually impossible to reconcile these two methods.

A measure of change in attitude can be made subject to statistical analysis only if the same instrument is administered before and after. The value of the analysis is good only if there is a valid instrument. In the case of this study, no such pre and post data were available and it was necessary to rely almost entirely on the interview data, secondary materials, or curricula used, etc. Thus the analysis of the data on the impact of Upward Bound in secondary schools did not involve rigorous statistical methods.

The same was true for measuring the impact of the program on the community. Evidence of impact could only be in terms of increased community awareness of the potential of disadvantaged students, the establishment of new programs, increased support of old programs to identify and assist the underachiever, changes in attitudes among community leaders, etc.

The data collected which might have been subjected to some kind of scaling or measure of deviation from central tendency were too minimal to use even the most common statistical manipulations. Thus, the report was descriptive-analytical rather than statistical or sociometric.

The total import of the data, except for some isolated cases involving individuals in the school system or the community, showed that there was no impact on either the high school or the community. At the same time, the impact on the students involved in the program, although not under study, could not fail to be noticed. The field reports did, however, reveal the following:

1. The percent of Upward Bound students in any given school was too small to have any impact on the general student body.

2. Although some teachers reported changes in library acquisitions and curricula, they were reluctant to attribute this to Upward Bound. The most frequent change reported was the acquisition of books on black history or the introduction of a black history course. However, since the study was being carried out at a time when the demands for such courses were at a peak, it is unlikely, given other findings that Upward Bound by itself could have brought about the change.

   There were isolated schools in which teachers, who had taught in the summer Upward Bound program at the local university, were trying new teaching techniques and programs. This was due to a link with the host university which did not exist in most communities.

3. There was little or no communication between the Upward Bound staff and the faculty of the host university or college with the secondary school staff. The greatest degree of communication was between counselors and Upward Bound staff and it was in regard to counselors that the greatest impact was reported.

Quotations from the final report illustrate the analytical-descriptive approach. For example:

> In about half of the schools visited, guidance counselors had worked closely with Upward Bound project directors and staff members in recruiting students for the Upward Bound program. The counselor felt that this had brought about a definite change in her counseling procedures. The recruitment effort brought her into personal contact with many more of the parents and, as a consequence, she felt she had come to know the students much better.

or,

> All high school principals spoke about changes in curriculum and in some of the policies in their respective high schools. Only four out of 36 principals would acknowledge that Upward Bound had specifically stimulated any changes. One reported that rules had been relaxed to allow students from the local college to come into the high school to work with Upward Bounders. Afro-American history and culture courses had been introduced in a number of high schools but one principal pointed out the difficulty in finding qualified teachers who know something about African culture.

There was, however, some quantification:

> Of the 36 high schools visited in this study, only four had offered faculty members or Upward Bound staff an opportunity to discuss the summer program with the full faculty.

The results of the impact on the community were similar. The primary contacts in the community were with the local Community Action Agency members on the Upward Bound Advisory Committee and heads of agencies like Urban League, community renewal projects, school board members, parents, and city councilmen. Their responses to the impact of Upward Bound on the community and school programs were also "soft." As in the case of collecting data from school personnel, analytic-descriptive tools were used for reporting community links with Upward Bound. To the extent feasible, the scope of a given response among the 16 communities was reported as follows:

> Almost all of the people interviewed in the communities were positive in their judgment of Upward Bound. They were encouraged by the increasing number of young people who were attending college. The program seemed attractive because youths who they felt had not been getting a fair break in high school were now receiving attention. Many people felt the program should be expanded. There was almost a unanimous feeling among the community leaders interviewed that there were many more youngsters who could profit from Upward Bound but that the serious lack of funds for the program kept them from participating.
>
> In five cities a number of persons interviewed made comments doubting the sincerity of school board members. They noted "a lot of lip service, but no real action." In many cases it was clear that there were serious doubts regarding the commitment of the educational leadership to expand educational opportunities for the disadvantaged.

The results from the mail questionnaires were tabulated and tests of significance were run to determine if there were differences in reported impact which were due to any predominent racial characteristic of the school or due to the location, i.e., urban/rural. However, there was less than a 50 percent return on questionnaires mailed (95 out of 207) and the N was too small to be conclusive.

Another aspect of the descriptive analysis was the nature of communication within the program. The Guidelines imply considerable intercommunication between the host agency, university or CAA, the public school system, the Upward Bound staff, the high school faculty, the parents, the community, and the advisory committee. The analysis, again, relied on the reports of the respondents and could not be statistically manipulated because of the small N and the nature of the data. The report took the form:

> Of the university faculty members interviewed, less than 10 percent had made any contact with secondary school teachers, nor did they see this as a meaningful experience. In cases where there had been meetings, they had been sporadic and not very useful. Some college faculty reflected a lack of confidence in the secondary schools and their teachers. One professor said, "I'm not impressed with most high schools here or with the staff from these schools." Another felt that there were "bad feelings between university and high school teachers because the high school teachers get paid as much, and sometimes more, than the university faculty."
>
> Efforts by secondary school personnel to establish meaningful communications with the community had been minimal. In four cities, PTA was mentioned but it was quickly noted that, especially in large cities, teachers rarely attend meetings of these groups. A number of responses in four cities showed a discouraging insensitivity on the part of some teachers and principals to what was happening in the immediate vicinity of their schools. Several people noted that teachers and principals are increasingly moving to suburban areas and, therefore, are no longer part of the communities in which they work.
>
> In two cities, people expressed their belief that the schools purposely avoided meeting and working with leaders of the black community and that there was little communication except in time of crisis. Then, it was felt, the school administration turned to the black leadership to help "keep the lid on things."

What the evaluation accomplished was to point up the strengths and weaknesses of the Upward Bound program as a change agent. Based on the findings of the study, a model Upward Bound program, as well as recommendations, were included in the report.

In the case of this study the wrong questions were asked, or rather the wrong group was chosen to measure impact. As has been said, the number of Upward Bound participants in most high schools or communities was much too small to impact either. In a city like New York, which was a study site, a program would need a large number of participants to affect change. However, during the course of the study, participants were interviewed to determine whether or not they perceived change in the high school or community due to Upward Bound. The positive impact of the program on participants could not be escaped despite the fact that that impact was not a part of the study. In this sense, the study was weak.

## C. THE SECOND STUDY - THE EVALUATION OF UPWARD BOUND 1965-1969

### 1. The Data

The methodology used in the second evaluation in relation to the collection of primary data was similar to that used in the impact study. The purpose of this evaluation was to provide a history and an assessment of the program while it was under the auspices of the Office of Economic Opportunity. Primary data were gathered to assure that all activities were covered up to June 30, 1969, when the program was transferred by an Act of Congress to the Office of Education.

The primary sources of information were all of the available research/evaluations of the Upward Bound program which had been undertaken to date. Other sources of information included data

which had been generated by Upward Bound programs through the OEO-CAP management information system, and the data retrieval system developed by EAI. The data included the names of all host agencies; the high schools from which Upward Bound students came; the numbers and basic socioeconomic characteristics of these students, and their educational achievement; program participation; and for those who had finished high school, current status, e.g., not in college, in college, and, if in college, academic achievement. In addition to these data, Syracuse University had gathered information on the characteristics of summer Upward Bound programs for three years. These data included information on the students' families and siblings which proved to be the best data source for the cost-benefit study.

In addition, the studies measured changes in attitudes and motivation in the following areas:

1. Motivation for attending college
2. Importance and possibility of college graduation
3. Self-evaluation of intelligence
4. Interpersonal flexibility
5. Self-esteem
6. Internal control
7. Future orientation
8. Alienation

The Syracuse studies were done in three cycles. The first two included a sample of 21 programs chosen at random, involving 1,622 students. The third year cycle included 24 programs and 1,797 students, and a control group of 1,448 students from the 24 feeder high schools. Other data included written field reports and reports of project directors and similar materials.

The only primary data used in the Greenleigh evaluation was obtained by field work in 22 communities which followed a pattern similar to that of the impact study. The purpose of this was to update data on program operations, not student characteristics. The sample was selected on the basis of college size, regional location, urban-rural character, ethnicity, quality of program, whether typical, innovative, or troubled, and the frequency of program visitation during the past year. The selection was made by the OEO project manager in consultation with Upward Bound staff from the OEO national office, and the Greenleigh Associates project staff.

Each of the 22 programs was visited and observed for five days by trained field analysts. Considerable data were generated from overview reports and interviews conducted with past and present project directors, university and secondary school instructors, guidance personnel, tutor-counselors, students, and the admissions staff of the host institution. Special interview schedules and interview guides were developed for this purpose and the resulting data were coded, tabulated, and analyzed.

This sample was then compared with the current universe of 301 Upward Bound programs to validate its representativeness.

The last data source was interviews with persons who had played significant roles in the development of Upward Bound. Since genesis and development of the Upward Bound program occupies a unique position in the history of the anti-poverty program, it was considered vital to obtain a global understanding of the program from the persons who were involved in the early stages, and who administered, decided policy, monitored, and directed the program. From a long list of such persons, three- to six-hour in-depth interviews were conducted with all of those who had had significant impact on the development and implementation of the national program between 1965 and 1969. The interviews were based on comprehensive interview guides created for each area of program history.

In terms of the difference between this evaluation and the former measurement-of-impact study, there were two fundamental differences. This evaluation contained considerable hard data in terms of characteristics of Upward Bound students; and extent to which students met the criteria of poverty; grade point averages; characteristics of families in terms of family income; and Upward Bound participation. For those students who had left high school, there was considerable data on college enrollment and retention.[5] These included data on the type of college attended, grade point average, and characteristics of college enrollees. The analysis, again, did not involve sophisticated statistical analysis but rather a report of the data. Former researchers had subjected the data to statistical tests of significance or deviations from mean.

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[5]David E. Hunt and Robert H. Hardt, op cit., Characterization of Upward Bound Studies: Summer 1966; and National and Regional Profile of 1967 Upward Bound Students.

The computer used to generate the data belonged to the Office of Education and the data to be generated and the statistical manipulation was a joint decision of the study staff, the Project Officer, and the Office of Education. Trends were examined in terms of the three-year data span, and it was found that there was little change, except in terms of the decreasing number of black students who enrolled in black colleges between 1967 and 1969; greater proportions of the black students were enrolling in predominantly white institutions.

## 2. Cost/Benefit Analysis

The most rigorous analysis undertaken was the cost/benefit study. This presented a number of analytical problems which required solution. The essence of the cost/benefit analysis method consisted of: (a) determining, logically, the categories of costs of a project and the categories of benefits that might flow from it; (b) collection of data on the costs and benefits and assignment, insofar as possible, of a dollar value to these costs and benefits; and (c) comparison of the difference between benefits and costs, or of the cost-benefit ratios, for alternative methods of achieving the desired goal. The study did not attempt Part (c), for it did not make a cost/benefit study of alternative ways of achieving the goals of the Upward Bound program. The best that the study could do was to indicate whether the benefits of Upward Bound appear to exceed the costs, and, if so, by how much. Until alternative programs are similarly examined, it will be impossible to say whether this program represents the best expenditure of the taxpayer's money to achieve objectives such as those sought by Upward Bound.

The cost/benefit analysis was performed by Dr. Walter I. Garms (Assistant Professor of Higher Education, Teachers College, Columbia University) and the detailed description of the methodology used, which follows, is quoted almost verbatim from his discussion of methodology:

> Any attempt to do a cost/benefit analysis of a social program is beset with the necessity for so many guesses and approximations that results can be, at best, only tentative. This study points out the areas in which such guesses and approximations were necessary, but the magnitude of the errors involved was usually unknown, so that it is difficult to know whether or not the errors known to be on one side counterbalance those known to be on the other side. In addition, there are a number of benefits and costs that are not measurable in dollars, and, therefore, could be brought explicitly into the analysis. These extremely important caveats must be kept in mind.

The first important task in the cost/benefit analyses was to determine the point of view from which it was to be done. The point of view affects the costs and benefits to be measured and the manner in which they will be treated. There are at least four points of view which were considered in the formulation of this analysis. Two of them were adopted: benefits and costs to the individual; and costs and benefits to society as a whole. Those excluded were: costs and benefits to the government viewed as a profit-maximizing firm; and benefits and costs to the government thought of as a firm with a social conscience.

Once the point of view of the study had been determined the question of a control group was confronted. This was needed in order to determine what changes had taken place in the Upward Bound student compared to those who had not been in the program. Only data already available could be used for this purpose. Two previous cost/benefit studies of Upward Bound had used population averages as an implied control group. Another study had capitalized on the data available and used older siblings as the control. The latter method was used in this analysis; refined by pairing Upward Bound students with older siblings of the same sex and controlled for more than one older sibling. If a white female Upward Bound student had an older sister who had dropped out of high school and another who had completed high school, one-half a person was added to the sibling category "white female dropout," and one-half was added to the sibling category "white, female, graduated from high school." The rationale for this approach was the fact that the sibling should best approximate the Upward Bound student, if sex were controlled, in terms of family and community environment and intelligence, and the two would have, in most cases, attended the same schools. Also account was taken of all older siblings of the same sex, but siblings from larger families did not exert extra influence on the study. The data for this pairing were available from the EAI data bank and data generated by Syracuse University Youth Development Center.

It is recognized that certain biases are introduced by this method. First, there is the fact that it excluded all students who do not have an older sibling of the same sex. This tends to exclude students from small families, and it is possible that these students would exhibit superior performance because of the additional parental attention they get. Second, it excluded Upward Bound students from families so disorganized that the student really does not know how much education his older siblings have obtained. The bias here would be the opposite of the one above. Third, it excluded students because data on them were not both in the Upward Bound master files and in the Syracuse files. There was no way of knowing what biases, if

any, were introduced because of this, but it was assumed that those omitted were omitted in a random fashion, so that no bias resulted. Aside from the above sample problems one could question the assumptions that the older siblings are of the same race, socioeconomic status, have the same family and community influences operating, and have the same intelligence as their Upward Bound siblings. Of these, it seems likely that only one is apt to be biased in a particular direction. It may well be that the Upward Bound students are, on the average, more intelligent than their siblings simply because they are a selected group. Students similar in all other respects except that they were not as intelligent as their siblings might never have been selected for the program. To the extent this effect operates, and it could be an important one, benefits are overstated.

Out of a total of 23,333 Upward Bound students in the master EAI data files, there were 7,236 who had older siblings of the same sex and for whom data were complete and matched in the two data sources. Each was classified by race, sex, and current educational status, e.g., white; male; and dropped out of high school; still attending high school completed high school, not in college; one to three years of higher education, not attending; one to two years of junior college, still attending; completed college. Siblings were similarly classified.[6]

Present educational attainment was not the important thing. What was important was how far these students (and their siblings) would ultimately go in school, since income potential is heavily correlated with education. However, data relating education to income are only available in broad categories (one to three years of high school, four years of high school, one to three years of college, four or more years of college), so assumptions were made about the ultimate placement of Upward Bound students and their siblings in these categories. In doing this, the findings of the earlier study were used regarding dropout rates for Upward Bound students and their siblings.

A third general area in which a decision was important was the selection of a discount rate to be applied. Lifetime earnings, the metric used for determining benefits, are sensitive to the discount rate applied, i.e., the determination of the current value of a stream of X dollars to be obtained Y, Y+1, Y+2..., etc. years hence. Three discount rates were chosen: five percent, 7.5 percent, and 10 percent. The 7.5 percent was the current rate of prime municipal bonds; 10 percent represents a presumed preference for earlier income somewhat inconsistent with the current borrowing rate; and five percent, the utility function which the government might regard as a desirable social rate of discount. There is reason to believe, whether correctly

[6] Hunt and Hardt, Ibid.

or not, that individuals operate on the high side of the costs of money and that governments operate on the low side. Hence, the reason for the parametric approach taken here.

Finally, the categories of costs and benefits were determined. Benefits to the individual considered were the following:

1. Increased lifetime income as a result of the Upward Bound program. Of course, the individual would not have use of all of this increased income, for he would be forced to pay income taxes on it. One could either reduce the prospective income by the amount of the taxes, or include the taxes separately as a cost. The latter course was chosen. This illustrates a problem having to do with cost/benefit ratios. The ratio will be different depending upon whether taxes are shown as a reduced benefit or as a cost, although the dollar difference between benefits and costs will be unaffected. This should be kept in mind when looking at cost/benefit ratios.

2. Stipend received while in the Upward Bound program.

3. Scholarships and grants received while attending college. These also can be looked upon as a benefit or as a decrease in the cost of attending college.

4. Value of the option of obtaining further education, which is passed up if one drops out of high school.

5. Intangible benefits, that is, benefits to which it is difficult or impossible to assign a money value. These might include satisfactions derived from the process of education itself, the opportunity to escape from the ghetto, increased enjoyment of literature and the arts, and so on. Perhaps important to forward-looking individuals is also the increased opportunity that their children will have for higher education.

Categories 1 through 4 were quantified.

Costs to the individual considered included the following:

1. Tuition cost of attending college.

2. Extra living costs associated with attending college.

3. Unemployment benefits not received as a result of being more fully employed during his lifetime.

4. Welfare payments not received for the same reason.

5. Additional taxes paid on the additional income received during his lifetime.

6. Foregone earnings while attending high school and college.

7. Intangible costs. This would include, among other things, the loss of leisure time that he would otherwise have while unemployed.

While only categories 1 through 6 were quantified, each of these costs and benefits were considered individually, and the source of data, the method of calculation, and the cautions to be observed in interpreting the results were described in the final report.

a. Lifetime Incomes and Differentials Due to Upward Bound

By far the most complicated problem was that of estimating present value of additional lifetime incomes associated with the increased education that results from the Upward Bound program. It was clearly not feasible to wait for 50 years to find out the actual lifetime incomes for those in the program, so it was necessary to attempt to use current cross-sectional data as a substitute for longitudinal data. The best and most recent data are those mentioned earlier of the U.S. Bureau of the Census, giving incomes for individuals in 1967 with varying degrees of education at different ages. The assumption is then made that these incomes for different age groups at this point in time represent the incomes for a particular group at different points in time as they reach these ages. This is clearly a tenuous assumption, but the best that was available without waiting.

The use of these data affected the results to the greatest extent in terms of the black male. Income data available reflected past employment practices in relation to the black college-trained male. At the time of the study and since, this pattern has changed markedly; the black male is in a much better competitive status in the labor market and earnings thus can be assumed to be higher than those used in this analysis.

No attempt was made to correct for the effects of inflation by converting to constant dollars, since the data were all for

the same time period. It was assumed that future income of all would be affected to the same degree if the value of money changed. If it was decided, however, that the inflation/deflation would effect the income of various groups differentially, it would be necessary to convert to constant dollars.

To what extent might the present distribution of income represent what will happen over the next 50 years? One thing that is interesting to note is that the streams of income for all levels of education show a characteristic increase for some years; but, for the last 10 to 20 years before retirement, they show a slow decrease. However, on the basis of everyday experience, it seems unlikely that the salary rates of individuals are reduced during this period. Rather, it seems that they probably reach a plateau and tend to stay there. The tailing-off observed could be the result of increased sickness as individuals get older, so that they are less able to work full time. Or, it may represent the fact that these individuals who are now older are to a great extent obsolescent. Not only did their formal education occur a long time ago, but in recent years (as retirement age approaches), it has not been financially attractive to them to seek retraining. This does not mean that their salaries have been decreased, but rather that they have stayed on a plateau and have not shared in the increases that have come to younger age groups as a result of the expansion of the economy.

Another factor that was included in the benefit calculation is the constant increase in real incomes. Miller has shown that real incomes in constant dollars are indeed increasing with the passage of time.[7] It appears that this rate of increase has been in the neighborhood of three percent per year for a number of years. One may derive this from Miller's figures or, alternatively, from the fact that productivity has increased at approximately this rate for the past 20 years. This means, then, that an estimate of lifetime incomes that does not take this expansion of the economy into account will be seriously underestimated. When economic growth is taken into account, earnings after about age 50 tend to reach a plateau and stay there.

An individual is not concerned with whether the economic growth, which he sees reflected in the annual three percent rate of growth of the economy, is "caused" by this additional education (some may be, but not all of it). He is only interested in

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[7] Herman P. Miller, "Lifetime Income and Economic Growth," The American Economic Review, LV:4C, September, 1965, pp. 21-43.

the fact that he will share in it. Thus, it is appropriate to use estimates of lifetime income that include this factor of the expansion of the economy for estimating individual benefits.

However, there is another factor that must be taken into account. The individual must ask himself whe her, realistically, he can expect to earn the incomes which census figures show are associated with increased educational attainments. We know that there is a high correlation between socioeconomic status and amount of education obtained. To an unknown extent, then, the differences in income may be caused not by education, but by effects of nepotism and social connections. In addition, it is undoubtedly true that, on the average, those with more innate ability are likely to obtain more education. Thus, we have the problem of trying to decide how much of the income differentials are caused by education and how much by other factors. There is certainly no question that Upward Bound students had, on the average, fewer social connections and less opportunity to profit from nepotism than the average student. Denison has faced the problem squarely and has used a figure of 60 percent as representing the proportion of income differentials that can reasonably be said to be caused by education.[8]

It is very difficult to establish just what the appropriate figure should be, for when there is joint causality it is often practically impossible to untangle the causes. However, those who would argue that Denison underestimates the value of education must be prepared to reconcile their viewpoints with findings of a number of recent studies showing socioeconomic status as a much more important determinant of school achievement than measures of school effect.[9] On the other hand, a study by Guthrie, et al. surveys some recent, and mostly unpublished literature, and concludes that the figure of 60 percent may be a minimum percentage to represent the effect of education.[10]

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[8]Edward F. Denison, The Sources of Economic Growth in the United States and the Alternatives Before Us, Supplementary paper No. 13, Washington Committee on Economic Development, 1962.

[9]Jesse Burkhead, et al., Input and Output in Large City High Schools, Syracuse University Press, 1967; James S. Coleman, et al., Equality of Educational Opportunity, U.S. Office of Education, 1966; Torsten Husen (ed.), International Study of Achievement in Mathematics, John Wiley and Sons, New York, 1967.

[10]James W. Guthrie, et al., Schools and Inequality, The Urban Coalition, Washington, D.C., 1969.

All serious investigators agree that there is, as yet, no sure way to separate the effects of education from those of innate ability, social connections, and other factors. Here, 60 percent of the income differential has been chosen as representing the minimum which can be ascribed to education. Obviously, 100 percent of the differentials represent the maximum that could be ascribed to education, and 80 percent represents an in-between position.

There are some other problems associated with the determination of income differentials. If one is interested in the differentials caused by education, one should presumably be interested in the differentials in earnings, not in income. However, there are no reliable data available since 1960 on earnings. And even these would not tell the whole story, since people can invest earnings and thus get unearned income that comes ultimately from the earnings that were associated with education. In any case, since this study is concerned with differentials, one can presume that the income differentials will be rather similar to the earnings differentials. This will not be strictly so, for there is more unearned income in the income of the highly educated than in the income of the less educated. The net result is an upward bias to income differentials. However, this is the best that can be done. The use of median incomes, if they were available, rather than mean incomes, would also help to decrease the discrepancy, although it is hard to say how much.

A mortality table was used to express the probability that a person who is alive at the age of 16 will still be alive at some future age, and this probability was used in the calculation of future incomes. The mortality tables are by race and sex, but not by educational attainment. Mortality rates for the educated may be lower than for the uneducated (because they have less physically demanding or dangerous jobs, and better medical care), but no suitable mortality tables were available to check this presumption. In any case, like the income figures, present cross-sectional data were used to represent longitudinal data. One may presume that mortality rates will decrease in the future, but it is difficult to say how much. Because the probability of being alive for the next few years after age 16 is very high for any of the sex-race groups, and because comp tation of present values puts greater emphasis on benefits a costs in the near future than in the distant future, the po sible differences in mortality rates discussed above are p unimportant.

Some other studies have taken into account the income differentials among the various regions of the country. This study did not do so for two reasons. First, there is no way of knowing the extent to which these differentials will persist into the future. The differentials have been decreasing, and will probably continue to do so. Secondly, the increased mobility of people makes it a rather tenuous assumption that an individual will continue throughout his life to earn his living in the section of the country where he gets his education. This is true of the poorly educated, as the massive migration of rural southern Negroes to the northern cities in recent years shows. It is also true of the educated, who change jobs or are transferred to other sections of the country.

Applying the income differentials discussed, the effect of education, sex and ethnicity on value of lifetime income, and ignoring and assuming rates of growth in the economy, lifetime incomes at various discount rates and for different sexes and ethnic groups were derived. These incomes can be seen in Tables 2 and 3.

One may note from Tables 2 and 3 that the total income of a white male high school dropout is roughly equivalent to that of a non-white male college graduate. This is a result of several things, the most important of which is differences in kinds of jobs obtained and rates of pay for whites and non-whites. But there are other important effects. Unemployment of non-whites, even the college educated, tends to be higher than unemployment of whites. Mortality rates for non-whites are higher than for whites. And, of course, the person who completes college has roughly six years of very low earnings while attending school, in comparison with the person who drops out of high school. The effect of this last item is particularly apparent when one looks at the present value of lifetime income using the higher discount rates, since discounting has the effect of putting greater emphasis on the earlier years. In fact, given the effect of race on earnings, a white high school dropout has an advantage over a non-white college graduate.

The same tables demonstrate that the lifetime incomes of non-white females are consistently higher than incomes of white females. This does not mean that salary rates for non-white females are higher on the average than for white females, for they are not. It merely reflects the fact that non-white females are considerably more likely to be in the labor force, whereas white females are more likely to withdraw from the labor force and become housewives. The labor force participation rates for 1967 were 45.6 percent for non-white females and 36.5 percent for white females.

There is another possible source of upward bias in benefits

Table 2

Lifetime Incomes Assuming the Economy Grows
3 Percent Per Year, by Race and Sex

| Category | Total Income | Present Value at | | |
|---|---|---|---|---|
| | | Percent | 7.5 Percent | 10 Percent |
| White Males | | | | |
| 1-3 years high school | $ 634,618 | $175,835 | $108,981 | $73,783 |
| 4 years high school | 708,456 | 196,923 | 121.725 | 81,983 |
| 1-3 years college | 802,708 | 208,847 | 123,657 | 79,533 |
| 4 years college | 1,069,167 | 258,662 | 146,149 | 89,425 |
| White Females | | | | |
| 1-3 years high school | 141,657 | 38,429 | 23,805 | 16,215 |
| 4 years high school | 190,984 | 47,938 | 28,332 | 18,410 |
| 1-3 years college | 226,530 | 55,774 | 32,642 | 20,984 |
| 4 years college | 430,125 | 99,317 | 56,019 | 34,684 |
| Nonwhite Males | | | | |
| 1-3 years high school | 393,105 | 113,854 | 71,810 | 49,267 |
| 4 years high school | 453,181 | 131,319 | 82,679 | 56,401 |
| 1-3 years college | 527,814 | 143,088 | 86,146 | 56,136 |
| 4 years college | 639,791 | 161,060 | 92,593 | 57,488 |
| Nonwhite Females | | | | |
| 1-3 years high school | 164,352 | 46,241 | 29,033 | 19,967 |
| 4 years high school | 210,981 | 54,672 | 32,680 | 21,387 |
| 1-3 years college | 267,245 | 67,673 | 39,924 | 25,743 |
| 4 years college | 556,591 | 132,123 | 75,129 | 46,654 |

Table 3

Value of Lifetime Income Ignoring Economic Growth
by Race and Sex and Different Percents

| Category | Total Income | Present Value at 5 Percent | 7.5 Percent | 10 Percent |
|---|---|---|---|---|
| White Males | | | | |
| 1-3 years high school | $277,967 | $ 97,714 | $66,809 | $48,918 |
| 4 years high school | 311,306 | 109,018 | 74,094 | 53,838 |
| 1-3 years college | 340,308 | 109,448 | 70,912 | 49,119 |
| 4 or more years college | 435,671 | 127,711 | 78,575 | 51,708 |
| White Females | | | | |
| 1-3 years high school | 61,085 | 21,365 | 14,724 | 10,924 |
| 4 years high school | 78,903 | 25,116 | 16,496 | 11,696 |
| 1-3 years college | 92,506 | 28,859 | 18,740 | 13,116 |
| 4 or more years college | 169,363 | 49,045 | 30,641 | 20,654 |
| Nonwhite Males | | | | |
| 1-3 years high school | 177,000 | 64,635 | 44,750 | 33,056 |
| 4 years high school | 204,574 | 74,322 | 51,127 | 37,466 |
| 1-3 years college | 229,546 | 76,534 | 50,209 | 35,096 |
| 4 or more years college | 267,122 | 81,241 | 50,700 | 33,745 |
| Nonwhite Females | | | | |
| 1-3 years high school | 72,520 | 26,132 | 18,169 | 12,555 |
| 4 years high school | 88,941 | 29,035 | 19,190 | 13,640 |
| 1-3 years college | 111,151 | 35,342 | 22,990 | 16,049 |
| 4 or more years college | 223,121 | 65,859 | 42,990 | 27,693 |

that has to do with the possibility that Upward Bound students will, on the average, enroll in colleges of lower quality than the average student. Since there are no agreed-upon yardsticks for measuring college quality, there was no way of checking this. but it is quite possible that it is so. Colleges of lower quality are more likely to have space available to accommodate additional students. Thus, average income differentials associated with differences in education may overstate the differentials which Upward Bound students may expect. Again, the possible effect was noted, but no correction was made for it.

Next, was a most important qualification. The assumption was made here that the marginal incomes of Upward Bound students will be equal to the present average incomes of people with the same education. This will be true only so long as Upward Bound remains a marginal program. If this program were to enroll a substantial proportion of the disadvantaged and even graduate them from college, the increased supply of graduates would decrease the price they could command, while the decreased supply of untrained labor would increase the price it could command. The assumptions about marginal costs can only be assumed to hold as long as the program continues to operate at or near the margin.

Finally, there is an extremely important caveat having to do with the increased income caused by education when viewed in a global sense. The assumption is made that the colleges will be able to absorb all of the graduates of Upward Bound or similar programs without displacing any other applicants; in other words, that the colleges have excess capacity. It is difficult to know the extent to which this is so. The best colleges have tremendous competition for the available places, and it seems probable that for every Upward Bound student accepted, some other student must be rejected. If this were true of all colleges, it could be argued that there are no net social benefits as measured here arising from Upward Bound! One group of individuals benefits at the expense of another group. On the other hand, many of the smaller private colleges have plenty of excess capacity. Many, but not all, public institutions have open enrollment policies and are committed to providing places for all qualified applicants. There was insufficient time to analyze the colleges to which the population of Upward Bound students go, and the extent to which these colleges have excess capacity.

It is important that the possible sources of bias be pointed out in order that the policy-maker may understand the weaknesses of any given techniques. This is particularly true when the state-of-the-arts or the time constraints prevent one from fully correcting a possible variable.

Having determined present values of lifetime incomes for the four sex-race groups for different levels of education, the

next problem was to determine the differential in lifetime income that is attributable to the Upward Bound program. To do this, the percentages of Upward Bound students and siblings achieving the various amounts of education were noted, and a weighted mean salary for each was computed. The difference between these weighted mean salaries is the differential attributable to the Upward Bound program. Lifetime incomes were computed from age 16 (the earliest age when a student is apt to drop out of high school for a full-time job, and also the most likely age of entrance into Upward Bound) up to age 65, the usual age for retirement. Income continues after age 65, but since it is usually unearned income, the amount of it which is caused by education is dubious. In any case, the impact in terms of present value of such minor income so far in the future is very small.

Present values were computed to age 16 because that is the average age at which the Upward Bound experience begins. This means that all benefits and costs were discounted to the beginning point of the program, which is the decision point at which an individual decides whether to enter it, and the decision point at which the government decides whether or not to offer it.

Starting the series of lifetime incomes at age 16 means that, for those still in school, incomes are quite small in the early years; by comparison, for those who have dropped out of school, incomes are much larger. If, instead, the income series had been started at age 22, this would not have been so. In effect, what was done was to take the cost of foregone income while attending school into account in the lifetime income calculations, thus making it unnecessary to show it explicitly as a cost. This effect on ratio analysis of showing such foregone incomes as a decreased benefit instead of as a cost shows again the folly of comparing cost/benefit ratios unless one knows exactly what are included in each.

b. Upward Bound Stipend

From the computer tape containing the records of the 7,236 Upward Bound students, the average number of summer months and the average number of academic-year months spent in the Upward Bound program were calculated for each sex-race group. The calculation results are as follows:

| | Average Months in Upward Bound Program | |
|---|---|---|
| | Summer | Academic Year |
| White males | 3.22 | 13.06 |
| White females | 3.19 | 13.02 |
| Non-white males | 3.48 | 13.45 |
| Non-white females | 3.48 | 13.40 |

Charles Mertens, of Applied Data Research, Inc., stated that Upward Bound students received in stipends 10.2 percent of the federal program dollar in 1966-1967, and 12.3 percent in 1967-1968. Federal program cost was approximately $405 per summer slot-month and $50 per academic year slot-month. A slot-month represents a program opening for a single student for a month. Thus, a summer slot-month cost of $405 means that it costs the government an average of $405 per month per student to operate a summer program. Assuming that stipends were 11.2 percent of these figures, on the average, white males received 3.22 x $45.36 + 13.06 x 5.60, or a total of $219. White females received an average of $218, non-white males received $233, non-white females received $233. These figures were discounted 10 months to derive a present value for them.

c. Scholarships and Grants

The scholarships and grants that a student received while in college are also a benefit. (Loans may not be, for they must be repaid. However, if the interest rate is less than the discount rate, they would be a benefit.) It was possible to obtain from the tape the amount of the scholarships and grants received by an Upward Bound student, if they were recorded. The amount of the scholarships and grants that older siblings may have obtained is not known, and that information is necessary to obtain a differential attributable to the Upward Bound program. However, it is probably true that scholarships and grants received by siblings were minor compared to those received by Upward Bound students, for whom special efforts were made. The assumption was made that older siblings received no scholarships or grants, and it is recognized that this imparts an upward bias to related benefits.

Analysis of the tape shows that, for over half of the Upward Bound students who went on to college, no scholarships or grant dollar amounts were recorded. A study of a small sample of Upward Bound students by Charles Mertens convinced him that

virtually all Upward Bound students who went to college received scholarships or grants. Accordingly, the average amount received by those who were recorded as receiving any amount was determined. The average amounts received were as follows:

| Category | Equal Opportunity Grants | Work-Study Grants | Other Grants | Total |
|---|---|---|---|---|
| White males | $467 | $189 | $ 83 | $739 |
| White females | 470 | 192 | 86 | 748 |
| Non-white males | 499 | 170 | 98 | 767 |
| Non-white females | 502 | 156 | 135 | 793 |

These amounts were assumed to be the amounts received during the freshman year, and it was assumed that the student would continue to receive the same amounts during his succeeding years of college (a total of two years if he dropped out, four years if he completed college). The computation of present value was made by discounting the amounts received as freshman, three years; those received as sophomores, four years, etc.

d. Value of the Option of Further Education

Weisbrod has pointed out the fact that when a student drops out of high school he effectively forecloses the possibility of attending college.[11] If he graduates from high school, even though he does not go on to college immediately, he gains the option of doing so. Since, if he exercises this option he can increase his income, the option itself must have some monetary value. Weisbrod even gives a rather complicated formula for obtaining the value of such an option. Unfortunately, the information necessary to obtain a money value for this option is not available. In 1965 Weisbrod stated that the value of this option is probably not large.[12] In the present case, it may be very small because the Upward Bound program has consisted primarily of a strong effort to help students to further education.

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[11] Burton A. Weisbrod, "External Effects of Investment in Education," in M. Blang (ed.), Economics of Education I, Penguin Books, 1968, pp. 156-182.

[12] Burton A. Weisbrod, "Preventing High School Dropouts", in Robert Dorfman (ed.), Measuring Benefits of Government Investments, The Brookings Institution, Washington, D.C., 1965.

Thus, we can probably assume that Upward Bound students, when they stop their schooling, are rather unlikely to pick it up again later. The value of the option was assumed to be zero in this study.

e. Intangible Benefits

By their nature, intangible benefits cannot be expressed in dollars. Hence, one is forced to ignore then in cost/benefit analyses, even though one admits their existence. Some examples of intangible benefits were given earlier.

f. Costs to the Individual

Tuition -- From the point of view of the individual, it is unimportant that the provision of schooling costs a good deal more than the tuition involved. He is concerned only with his personal costs. Thus, there is generally no cost to the individual for a free public high school education. (Actually, studies have shown that there are some real costs associated with free secondary education, but they are relatively minor, and have been ignored in this study.) Tuition at college was calculated on the basis of average tuitions, since it was not feasible in the time involved to try to find out for each of the colleges that Upward Bound students attended what tuition was charged. In 1968-1969, the average tuition charged by public institutions of higher education was $298, and that of private institutions was $1,436.[13] More than two-thirds of the students in the United States attend public institutions, and a weighted average tuition based on this differential attendance pattern is $602. (It is, thus, assumed that Upward Bound students attend public and private institutions in the same proportions as do the general population of college students.) Assuming that a student starts college at age 18 and completes it at age 22, college costs for the freshman year have been discounted three years, for the sophomore year, four years, etc. The same procedure was then used as was used in calculating lifetime income differentials to compute the differential tuition cost of college for Upward Bound students.

Extra Living Costs While Attending College -- It was assumed that while the student is in high school he was living at home, and there were no extra living costs associated with

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[13] Digest of Educational Statistics, 1968, p. 95.

attending school. When the student attends college, however, there are extra costs involved. If the student lives at home while going to college, the extra costs will be for books, supplies, and transportation to and from school. If he leaves home and lives at the college his transportation costs will be reduced, but he will have the cost of board and room, books, supplies, and some transportation. On the other hand, his family will be able to reduce its expenses by the cost of the student's food.

It was assumed that a family would feed a student who lives at home for $1.50 a day. For nine months, they save $400 by having him away at school. A weighted average of room and board costs for 1968-1969 was $870, so the difference was $470.[14] Books, supplies, and transportation might cost an additional $190, and would bring the total extra living cost to $660. If the student lived at home, his entire additional costs would most likely average $190. If we assumed that half of the students lived at home while attending college, the average additional living costs would be the average of $660 and $190, or $425. These yearly costs were discounted in the same way tuitions were.

Unemployment Payments and Welfare not Received -- There was no doubt that unemployment compensation is a benefit when it is received, and people who are receiving such benefits may often decide that they would rather continue receiving benefits for the time being than take a job. Similarly, then, a student who is considering undertaking the Upward Bound program in order to increase his earning power must take into account the fact that he will be passing up the opportunity to receive unemployment benefits which otherwise might accrue to him if he did not receive the additional education. The same thing is true of welfare payments which might have been received by the individual or his family if he is unemployed, but might not be if he gets more education. However, it was unnecessary to calculate unemployment or welfare separately for the individual, because the figures used for income differentials included receipts from unemployment insurance and from welfare. Thus, when an individual goes from a high school dropout to a college graduate, his increase in income is composed of (among other things) an increase in earnings resulting from more education, and a decrease in unemployment and welfare payments.

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[14] Computed from data in Digest of Educational Statistics, 1968.

This is true from the individual's point of view. However, from the point of view of society, there is a net benefit if the welfare and unemployment payments are reduced. There are resources to meet other needs -- either for individuals, because of reduced taxes, or collectively, through governmental action.

Additional Taxes Paid -- Pechman has shown that in the mid-range of incomes, total federal, state, and local taxes take about 25 percent of the individual's income.[15]

These are the factors which went into the cost/benefit formula and the rationale for their inclusion.

It was clear that for all groups at all discount rates, regardless of one's assumptions about the percentage of income differentials caused by education, the Upward Bound program is beneficial for the individual. In all cases the present value of benefits received was at least twice the present value costs to the individual. As far as the individual was concerned, he may have felt confident that enrollment in the Upward Bound program would be to his advantage. And this is aside from any unmeasured or intangible benefits.

The findings were not as conclusive from the government's point of view, particularly in regard to black males.

## D. RESULTS OF THE ANALYSIS

The results of the analysis demonstrate that the benefits outweighed the cost for all categories of students at each discount rate. Figure 1 on the following page presents pairs of bars which represent benefits and costs for each of the four sex-race categories. Each bar is divided into three parts. As indicated in the example, the distance from the baseline to the lowest line on a bar indicates the benefits or costs if one assumes that only 60 percent of the differential in lifetime income is caused by education. This would represent a conservative approach to the analysis of benefits. The distance from the baseline to the top line of a bar represents benefits or costs, if one assumes that 100 percent of lifetime income differentials

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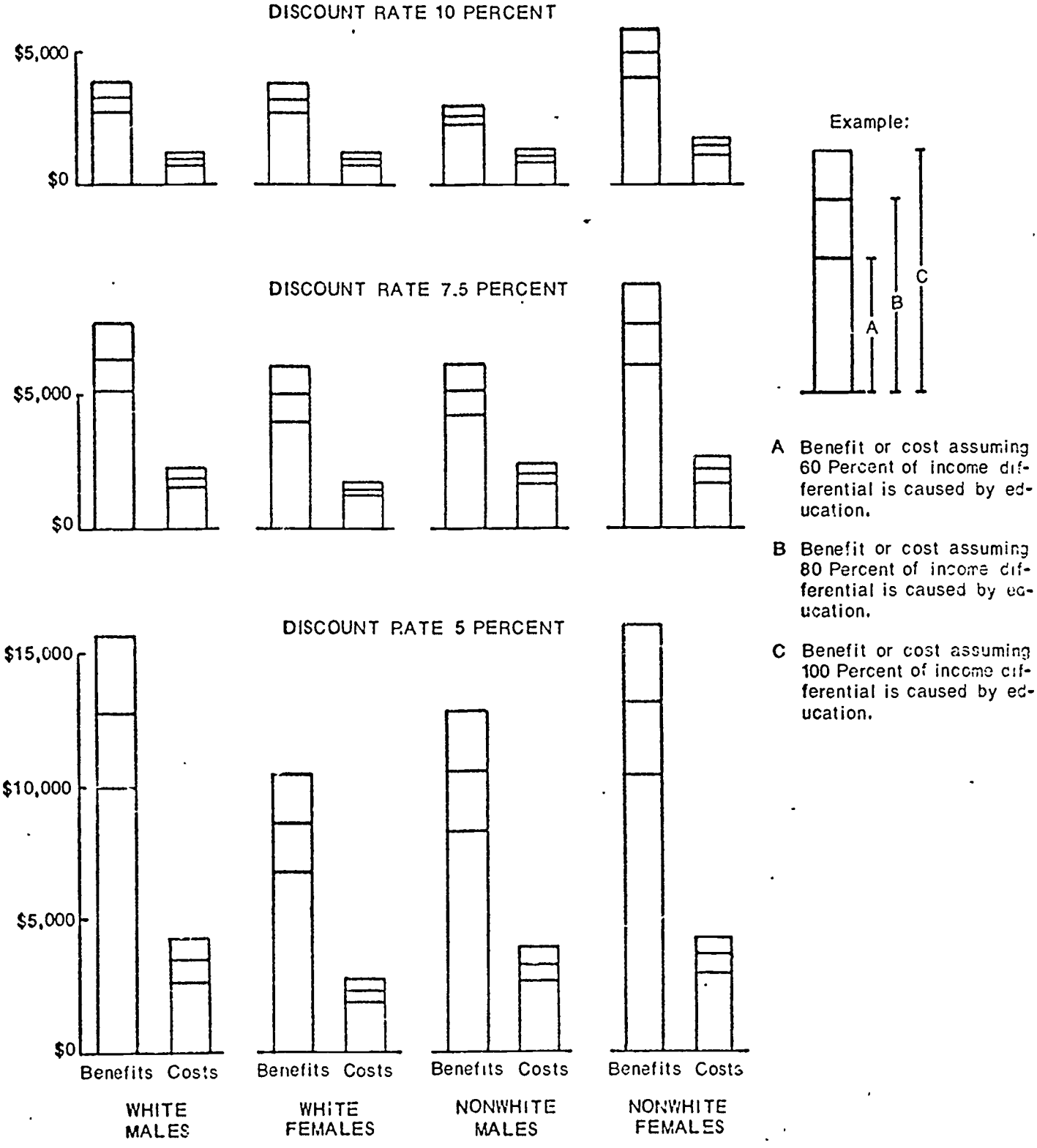
[15] Joseph Pechman, "The Rich, the Poor, and the Taxes They Pay," The Public Interest, Vol. 17, Fall 1969, pp. 21-43.

FIGURE 1

BENEFITS AND COSTS FROM THE INDIVIDUAL'S VIEWPOINT
BY RACE, SEX AND DIFFERENT PERCENTS




A Benefit or cost assuming 60 Percent of income differential is caused by education.

B Benefit or cost assuming 80 Percent of income differential is caused by education.

C Benefit or cost assuming 100 Percent of income differential is caused by education.

are caused by education. While we do not know how much of the differentials are caused by education, it is clear that an assumption of 100 percent leaves nothing for other probable causal factors, and, therefore, is a limiting and unrealistic figure. The middle line in each bar represents benefits or costs if 80 percent of differences in lifetime incomes are caused by education. It represents a middle ground, and may be the most reasonable figure.

In studying the figure, it is clear that, for all groups at all discount rates, regardless of one's assumptions about the percentage of income differentials caused by education, the Upward Bound program is beneficial for the individual. In all cases, the present value of benefits received is at least twice the present value of costs to the individual. As far as the individual is concerned, he may feel confident that enrollment in the Upward Bound program will be to his advantage. And this is aside from unmeasured or intangible benefits of the kinds that were discussed earlier.

Similar tables and charts were used to show the cost/benefits for the government, which were not as favorable.

## E. FINDINGS AND RECOMMENDATIONS OF THESE TWO STUDIES

The second evaluation included the findings of the first evaluation, since the latter was a synthesis of all evaluations which had taken place previously; the findings and recommendations of the two studies are presented together in the following summary form. The recommendations, it is always hoped, grow out of the findings.

### 1. Findings on Student Characteristics and Program Achievement

#### a. Recruitment

1) Students recruited for Upward Bound programs were generally representative of the academically underachieving and ecnomically disadvantaged youth in this country, especially those of minority groups.

2) The Grade Point Average of students at the time of recruitment into Upward Bound ranged from 2.27 (C+) in 1967 to 2.92 (B-) in 1969, showing a small but significant increase, probably attricutable to a change in recruitment patterns.

3) On the average, more than 10 percent of the students enrolled in Upward Bound in the years 1966 to 1969 have changed

their curriculum from nonacademic to college preparatory.

4) From 1966 to 1969 approximately 85 to 87 percent of the students recruited into Upward Bound met the poverty criteria guidelines established for admission into the program.

5) Only a small fraction, approximately 4 percent, of the estimated 600,000 disadvantaged high school students who could benefit, were enrolled.

b. Retention in High School and Upward Bound

1) Upward Bound, in addition to serving as a channel to college for disadvantaged students, also acted as a deterrent to dropping out of high school.

2) Retention in Upward Bound is a significant problem. Data indicate that at least one-third of the students enrolled in Upward Bound do not attend the final Bridge summer. Attrition at this critical point, often because the student needs to earn money for college, may well militate against success in college.

c. Attitude Changes During Upward Bound

According to longitudinal studies undertaken by Hunt and Hardt with respect to students' attitudes on several important change measures, it was found there were significant score increases in such areas as motivation for college, interpersonal flexibility, self-esteem, internal control, and future orientation.

d. College Enrollment

1) A large majority of Upward Bound students who graduate from high school and attend the Bridge summer, enroll in college.

2) Data based on a large sample, 4,000 seniors, in Upward Bound during 1969, show that 85 percent of these made application to college. Seventy percent of these seniors were subsequently enrolled in college.

3) It has been found that larger numbers of Upward Bound students have been consistently enrolled in nonhost institutions rather than in host institutions during the years 1966 to 1969.

4) It is a fact that the majority of Upward Bound students are not enrolled in Ivy League or "prestige" colleges.

5) From 1967 to 1969 approximately 20 percent of the average number of Upward Bound graduates enrolled in college reported that admissions requirements had been modified in some way to permit them to enroll.

6) The college in which an Upward Bound graduate enrolls is often determined by the financial aid package he is offered or it may be the only college offering him financial assistance.

7) Although some schools accepting Upward Bound students often do modify some admissions regulations, few offer realistic supportive academic services and counseling.

e. College Retention

1) According to available data from the years 1966 to 1969, Upward Bound students in college have retention rates equal to those of the national college-going population.

2) By comparison with their older siblings of the same sex, Upward Bound students have significantly higher retention rates in high school and college.

3) The basic reason Upward Bound students leave college is academic failure.

f. Benefit-Cost Assessment

The benefit-cost analysis of the Upward Bound program indicated that, for the individual, using a 10 percent discount rate, the average benefit-cost ratio for the Upward Bound participant was 3:10. For the government, at a 5 percent discount rate, the average ratio was 1:16. Although the benefits of the program to the individuals are extremely good, economically the program could be considered only marginally successful for the government. But it is unfair to examine benefits and costs in terms of one program without considering other alternatives. It is possible that Upward Bound, in terms of its goals, when compared with other programs supposed to provide an escape route from poverty, may show relatively higher benefit-cost ratios than they do. In addition, very important benefits not readily measured by a benefit-cost study, in terms of dollars, may be

those such as the opportunity for the Upward Bound graduate and his children to live a life out of poverty.

g. Institutional Change

1) Some significant changes have been noted in many of the host institutions, which may be attributed to their association with the Upward Bound program.

2) There has been no percentile change produced in the high schools by their association with the Upward Bound program.

2. Findings on Program Administration and Other Areas

a. Financial Aid to Upward Bound College Students

1) Through the intervention and influence of the individual project director, currently most Upward Bound students entering college receive financial aid packages which are adequate to meet their basic needs.

2) Financial aid packages as offered may include loans which some Upward Bound students and their families are reluctant to undertake because of future encumbrances.

b. National Level Administration

1) Staff on the national level appears to be insufficient to process and handle administrative details and problems related to the functioning of the projects.

2) Communications to local projects with respect to policy, procedures, and information about the Upward Bound project nationally are inadequate.

3) Public relations, primarily in the area of publicizing the Upward Bound program, goals, and accomplishments to the Congress, the academic community, and the general public, have been insufficient.

4) Services to local projects, such as assistance with budgeting and policy matters and advice on problems and on relationships with host institutions and community organizations, are often subject to delay in execution and resolution.

c. Local Level Administration

1) The Upward Bound Guidelines have not been specific and clear with respect to participant selection.

2) Because it offers the simplest source, there has been an over-reliance on the high schools to recruit participants.

3) The Guidelines suggest that a desirable staffing pattern for projects would include one-third secondary school and one-third university personnel but some projects report difficulty in recruiting university personnel because of inadequate budgets or late funding.

4) The annual turnover rate of project directors has exceeded 30 percent.

5) Many tutor-counselors viewed the definition of their job and the services they were expected to render as vague and ill-defined.

6) Relations with host institutions, high schools, and boards of education have been weak and ineffectual.

7) Parental involvement in all aspects of Upward Bound projects is negligible and in need of vast improvement.

8) Involvement of Upward Bound programs with community action agencies, service organizations, minority organizations, and local government was most inadequate, as were relations with other poverty programs such as the Jobs Corps or VISTA.

d. Curriculum

1) The curriculum in Upward Bound projects is as diversified as the many projects themselves.

2) The counseling and guidance components of Upward Bound need sharper delineation of the responsibilities to be assumed by each type of personnel.

3) The follow-up or academic-year component is in need of special study to improve its overall structure and the quantity and quality of its effort.

e. Advisory Organizations

1) The National Advisory Council and the National High School Principals Advisory Council, in the view of the National Directors, have rendered exemplary services to the

national administration of Upward Bound and have been instrumental in creating valuable changes over the years; however, project directors were not informed of what, if anything, such groups had done.

2) Both the Public Advisory Council and the Academic Policy Group have generally functioned with mixed effectiveness as groups. Project directors, although not decrying their utility, have tended to rely more on concerned and influential individual members of these groups than on the groups themselves.

3) The newest advisory group, the Project Directors Steering Committee, has been instrumental in giving project directors representation in national program policy and decision-making.

f. Funding

The 1968 increase from 10 percent to 20 percent in the local contribution required did not, as some feared, lead to a reduction in either the number of new proposals from colleges seeking to operate Upward Bound programs or from present projects seeking refunding. However, this doubling of the local share of the budget has made it difficult for some colleges to sustain their commitment to Upward Bound.

g. Research

1) Although a body of research has grown around Upward Bound, a number of program areas are in need of vital longitudinal research to guide program orientation and change.

2) The present Upward Bound data system was considered valuable in generating data on student and project characteristics for broad national program considerations. This was the task for which it was designed. It does reveal shortcomings when attempts are made to utilize it for complex research involving longitudinal areas of change.

3. Recommendations

a. Program Expansion

Upward Bound should be increased to 75,000 enrollees in 1,000 projects within the next five years. This increase of about 700 projects should be staged so that about 140 new projects, each with approximately 75 students, are added annually.

b. Recruitment

1) Upward Bound should remain a program for low-income students and should focus on the underachiever.

2) Although project directors and other national staff have indicated that poverty income criteria are unrealistically low, no changes in these criteria could be made without further study.

3) The effort to recruit more black males than females into Upward Bound should be increased.

4) Upward Bound should continue to be flexible in attempting to maintain racial balance in its programs.

c. Financial Aid and Freshman Support

1) Each Upward Bound project should allocate some portion of its budget for personnel to counsel project graduates who have entered post-secondary educational institutions.

2) Upward Bound host colleges should be prepared to provide supportive services for all Upward Bound graduates in that college.

d. National Program Operations

1) The national staff of Upward Bound should be increased immediately.

2) National staff members should receive on-the-job training before assuming full responsibility for the programs in an area.

3) The annual national meeting of all project directors should continue to be held, preferably in the Fall.

4) The national office should provide project directors with more information of all types.

5) The role of the consultant site-visitor needs better definition and larger focus.

6) To improve the overall quality of the consultant staff, it is felt that the selection of currently operating project directors for this role should be avoided because their evaluative judgement may be distinctly biased by their own program experience.

7) The relationship between the Upward Bound and Talent Search programs which, though different in focus, are complementary, should be one of increased cooperation.

8) Upward Bound, along with the other Federal programs for disadvantaged students, should seek the active support of the community which should know more about the program, lobby for its support, and publicly endorse its aims and accomplishments.

e. Local Program Operations

1) Project directors should be simultaneously aware of the needs of the poverty community, the academic community, and the students. The ideal project director should be an educator whose racial and ethnic background and life experiences should reflect that of the majority of the students in his project.

2) The national office should offer an annual or semi-annual training course for new project directors, who now represent one-third of the total number of directors each year.

3) In order to have greater impact on communities and high schools, efforts should be made, wherever possible, to increase the number of students recruited from a single high school.

4) As Upward Bound students become college upperclassmen, they should be used in a wide number of academic and extracurricular roles on Upward Bound staffs.

f. Curriculum

1) Upward Bound should have a strong curriculum which must, at a minimum, teach the student to read and write with enough skill to meet the requirements of college. Remedial subject matter and study skill curricula should be innovative.

2) Program flexibility is and should remain a central characteristic of Upward Bound. On the other hand, regional differences should not be used to justify interpretations of Upward Bound policy that may be at wide variance with the intent of the Guidelines.

3) Continuing emphasis should be placed on the follow-up portion of Upward Bound programs to make them more effective.

g. Community Relations

1) Upward Bound should continue its relationship with Community Action Agencies and should continue to involve poor people in as many phases of the Upward Bound program as possible.

2) The interrelationship of Upward Bound and its host institutions with the community from which the students come must continually be encouraged.

h. Advisory Organizations

1) The chairman of the Upward Bound Project Directors Steering Committee should, as part of the Upward Bound grant to his institution, be provided with additional funds for travel, communications, and secretarial assistance. In addition, he should have a full-time assistant director who can devote all his or her time to the local Upward Bound program.

2) All future meetings of the National Advisory Council, the National High School Principals Advisory Council, and the Project Directors Steering Committee should be scheduled to allow all three committees to meet jointly at least twice yearly to pool their information and influence.

i. Funding

1) When any additional Federal funds become available to Upward Bound, the first priority should be to return projects to the funding levels of 1968 and, in addition, to provide for a general increase in budgets of between 5 and 8 percent of the Federal 1968 level.

2) These recommended additions and restorations of funds, when available, should not be automatic but should be contingent both upon the extremity of the need and, more importantly, the overall commitment of the host college and the Upward Bound program.

3) Automatic refunding of programs should not be continued. Vigorous new programs should be funded in place of programs which are qualitatively weak. Students should be relocated from any programs not refunded.

F. CONCLUSIONS

It is doubtful either of these evaluations had much impact on the decision-makers at the Federal level. There

was general agreement among the project staff and the personnel at the Federal level who cooperated in carrying out these studies, particularly the second evaluation, that Upward Bound was an effective program. However, it had stiff competition from Talent Search, a competing program in the Office of Education to which Upward Bound was transferred during the second evaluation. Moreover, an economy drive on the part of the Federal establishment tended to curtail many programs funded to meet the needs of the disadvantaged.

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