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STATEMENT OF
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BEFORE THE
SUBCOMMITTEE ON ECONOMY IN GOVERNMENT
JOINT ECONOMIC COMMITTEE, UNITED STATES SENATE
ON GUIDELINES FOR ESTIMATING THE BENEFITS OF PUBLIC EXPENDITURES

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Mr. Chairman and Members of the Subcommittee:

We are pleased to appear before your Subcommittee to express our views on the importance of measuring the benefits desired from federally funded programs. We know that your committee has done much to demonstrate the need for more accurate information in this field so that the potential value of program-budgeting can be realized more fully.

We were pleased to appear before your Subcommittee in January 1968 to report on the results of our survey of discounting practices in the Federal agencies. We have followed with interest your subsequent efforts to improve understanding of these important matters.

In the area of measurement of social program benefits, many conceptual and analytical problems remain unsolved. As a result, planning-programming-budgeting (PPB) has not yielded the full range of improvements in decision making which its proponents expected when it was launched by the President in August 1965.

Measurements and Goals

We believe that the lack of agreement as to how social or public benefits are to be measured is a major reason why departments and agencies have not made more use of the PPB system. In effect PPB was proposed on

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the assumption that goals and objectives were known or could be reasonably defined for each program. This assumption did not appear to recognize that no consensus has been reached regarding national goals and objectives. Thus, the public's preferences may frequently differ from the preferences indicated by the quantitative measures of benefit chosen by a particular set of analysts or program planners.

Some aspects of social programs which the public finds desirable are difficult to measure and quantify by numbers. We are interested in recognizing more clearly when such non-quantifiable preferences are involved as well as in the better measurement of what is quantifiable. For example, although studies of the Head Start program have shown very little economic benefit, it has continued to be a very popular program, among community leaders, parents, and many professional educators. This popularity implies values, for which a measurable basis has not yet been found. We believe it is important that such apparent distinctions in measurable vs. implied benefit should be fully aired so that the public preferences can be tested.

Difficult problems are involved in providing improved measurements, particularly of social benefits. Data frequently is inadequately classified. What is collected is frequently incomplete, unreliable and unrepresentative. Analytical approaches are primitive partly because of the lack of data.

MEASUREMENT BENEFITS OF SOCIAL PROGRAMS

Overall Indicators of Social Benefit

I alluded earlier to the problem of setting goals as prerequisites to the selection of benefit measures. This is a fundamental consideration, and in the measurement of social program benefits it is more than usually troublesome because the nation's social goals and premises are so frequently a matter of dispute. Many examples come to mind but a critical one is in the field of education.

The social benefits of education have long been recognized. Ten years ago, President Eisenhower's Commission of National Goals affirmed:

"Education is essential not only to the individual fulfillment but to the vitality of our national life. the vigor of our free institutions depends upon educated men and women at every level of society."

We would agree. We can also agree when the Commission urged that "every (educational) discipline be strengthened and its effectiveness enhanced."

However, we immediately face difficulties when we try to measure such things as the enhancement of effectiveness. First of all we find that a number of basic assumptions underlying the educational process, and profoundly affecting crucial questions of educational policy, are still at issue. Some of these are pointed out in a recent article by Dr. Hendrik Gideonse published in "The HEW Forum Papers."

They center, essentially, around the age-old question of heredity - vs. environment as a factor in human learning. While such matters may sometimes seem very abstract in the context in which they are often discussed, they immediately become very concrete and relevant when one is

faced with the task of measuring the effectiveness, or benefits, of such efforts as a Federally sponsored remedial education program.

What I am suggesting is that even when we can agree among ourselves as to our goals, we may still find ourselves uncertain of premises, standards, and assumptions leading to the achievement of those goals. Consequently, as a people we find ourselves uncertain about the quality of our measures.

Another influence affecting the quality of benefit measures--especially those of social programs--is the availability of data from which measures may be constructed. This is intimately related to the problem of uncertain premises, standards, and assumptions. Though some of our standards may be uncertain, the necessities of day-to-day performance require that such standards be set, either explicitly or implicitly. Having set them, we try to accumulate data on program activities so that performance can be measured against standards. We assume that the data that we gather, and the measures that we construct from them, are relevant to these standards. In other words, we would like to think that our data banks and information systems are created in response to--and follow from--our standards. This is often not the case.

Information systems tend to become inflexible over time. They may become ends in themselves to those concerned with their operation. This is a subject on which much could be said, and I do not want to belabor it here, but I think it is very important to recognize that measures of performance and of benefit, may sometimes simply be creatures of what data is available, and the

data that is available may not be that data which is most relevant to the standards against which we would like to measure.

There is more than one reason for this. As we well know, some things--especially in the areas of social concern--are extremely difficult if not impossible to measure. There are other things which might in fact be measured, but upon which--for whatever reasons--data has not been accumulated. In such cases, efforts to measure benefits are foreclosed by data gaps in the information systems.

I think that the recent efforts of the President's Panel on Social Indicators are likely to provide a focus that will clarify our present circumstances and move us in the direction of doing better those things which are possible in the measurement of social program benefits. While fundamental questions such as hereditary and environmental influences in education are not settled--and they may remain unsettled for as long in the future as they have been in the past--and many of the measures which may be applied to the benefits of social programs are likely to lack a sound basis, there is no doubt that they will continue to be applied. Our social realities demand measurement; measured they will be; and if the measures are not as good as we would like, I expect we will continue to use them as best we can. We must remind ourselves, and often, that when we are dealing with the measurement of social program benefits, we are in an area the very complexity of which invites constant progress.

Measurement of Specific Program Benefits

What I have said to this point is a rather long preface to some specific illustrations of measurement of social program benefits. The

illustrations are drawn from GAO's efforts in response to the 1967 amendments to the Economic Opportunity Act of 1964 which required the General Accounting Office to evaluate the extent to which the programs authorized by that act were achieving their objectives.

I have selected three education programs for discussion--Head Start, Upward Bound, and Adult Basic Education. We inquired into the performance of a wide variety of other programs such as in manpower, health, and education. But I have chosen to discuss three because they provide some interesting contrasts in the problems and the possibilities of measurement of education programs designed for groups in the population which share the common denominator of disadvantage but which have little else in common.

The Head Start program is directed to the children who have not yet reached the compulsory school age and who come from economically disadvantaged families. It is intended to provide "comprehensive health, nutritional, education, social, and other services..." to help its participants "to attain their full potential...". While Head Start is popularly thought of as an education program, it is clearly more than that. Education is deliberately provided in a context of health, nutritional, social and other services. In a sense, Head Start might be taken as a model of the difficulties of measuring the benefits of a complex social program.

In our evaluation, we used both test scores and teacher evaluations to ascertain the extent to which the verbal skills, and motivational, social and emotional development of children who had participated in the Head Start program differed from non-Head Start children having comparable

backgrounds. This is basically the same approach taken by Westinghouse Learning Corporation and Ohio University in their recently completed study of "The Impact of Head Start."

General statements of the plan of research for such studies conceal a multitude of specific problems. For example, the attempt to achieve comparability in selecting the Head Start group and the non-Head Start, or control group; the selection of Head Start centers for study; the procedures for collecting data; and the selection of testing instruments. There are pitfalls in each of these, especially in the attempt to match control and test groups, for it is on the quality of this matching that the proper isolation of program benefits from other influences on the test group depends.

But once these problems are overcome--and program benefits are identified--we are still left with the fact that a program such as Head Start can, at best, be measured only in terms of relatively short term benefits. The program is hardly five years old and for this reason alone, long term benefits are presently indeterminable. A more fundamental fact is that long term benefits are likely to remain indeterminable as the passing years bring a multitude of other influences to bear on the children who have experienced the program, as well as those who did not. As a practical matter, then, we are constrained to measure programs such as Head Start in a very limited way. Attempts to project our results very far into the future, particularly in terms of economic benefits, must be done with full realization of the uncertainty involved.

One is faced with a quite different set of circumstances in attempting to measure the benefits of a program such as Federally sponsored Adult Basic Education. Adult Basic Education programs have been funded across the country by both OEO and HEW. They are generally managed as local initiative projects and are much less organized in content, and even in objective, than are Head Start projects. They are, in fact, quite diverse. GAO's review found that local program content varied from the most elementary kind of education to curricula bordering on vocational training. Local program objectives were not always clear. We found it difficult to measure program benefits by formal standards.

When we measured drop-out rates and inquired into the reasons for them, we found that some of the participants had had as their personal objective the desire simply to learn to read well enough to acquire a driver's license. Upon achieving this, they dropped out. Here was a possible area of program benefit, which formal measures of drop-out rates might tend to obscure.

When we tried to measure the positive results of the Adult Basic Education programs in terms of the percentages of participants who proceeded to pre-vocational or vocational training programs, this measure also obscured areas of potential benefit. Many participants were housewives who, for a variety of personal reasons, were trying to improve their educational level, but were not interested in vocational training or in obtaining jobs. Other participants already had good jobs and were also attending simply to improve their educational level.

We concluded that unquestionably, some benefits were being achieved. But questions remained. Were these benefits worth the programs' cost in resources? Were the benefits achieved those which related best to the program goals of creating employability in its participants and making them "better able to meet their adult responsibilities."?

The third education program which I would like to discuss--the Upward Bound program--presents a different kind of challenge in the measurement of benefits. It was designed "to generate skills and motivation necessary for success in education beyond high school among young people from low income backgrounds and inadequate secondary school preparation."

The measurement of the benefits of the Upward Bound program were found to be greatly facilitated by two factors: one, that a relatively large data base on the characteristics and performance of participants has been maintained. Two, that the long term benefits of a college education can much more easily be assessed than can the long term benefits of participation in a pre-school program.

Unlike Head Start, whose participants are more than ten years away from full time employment, and the Adult Basic Education programs, one-quarter of whose students are currently non-working mothers, Upward Bound participants can shortly be expected to be in the job market. The expected economic benefits of this program although still uncertain, have been estimated. In fact, one of the contractors GAO employed to assist in evaluating the Economic Opportunity programs--Resource Management Corporation of Bethesda--was able to prepare a formal benefit-cost analysis of this program which indicates that direct economic benefits are quite likely to exceed costs.

ing reliable information on the post-training performance of the former program participants. These problems exist, but they can be dealt with and overcome, and the manpower training programs offer, in general, an excellent opportunity for the practical and productive analysis of benefits.

The General Accounting Office is seeking to build upon its experience in reviewing the Economic Opportunity programs by undertaking a number of further evaluations in the manpower training area. We hope these will contribute to the information of the Congress in making its decisions on how to deal best with the alternatives available to the nation in this area.

It happens that the first veterans of the Defense Department's Project 100,000 are just now beginning to leave the service for civilian life. The Department plans to follow the progress of these men in the civilian job market and try to assess benefits of the program as it relates to civil society.

At the same time, OEO and the Labor Department have recently awarded a contract for the follow-up and comparative analysis of the job performance of participants in 5 civilian manpower programs: MDTA, NYC, Job Corps, New Careers and JOBS.

We view these as studies of great potential value. We will follow with interest and close attention the progress of the civil and defense agencies in their assessments of these program benefits. We will attempt, insofar as our resources will permit, to provide some useful assessments of our own.

There is a clear danger that unless the Government knows what it is producing from these programs--unless the Government knows and knows very specifically what their benefits are--old mistakes will simply be repeated, or reinforced, and new ones invented.

I mentioned earlier that manpower training was an area into which GAO inquired in some depth during the course of its review of the Economic Opportunity programs. We conducted extensive examinations of Work Experience and Training, Job Corps, and Neighborhood Youth Corps projects throughout the country. One of our contractors prepared a benefit-cost analysis of the latter two programs. We employed another contractor to locate and interview some 2,000 participants who had been in these and other manpower training programs - MDTA, Institutional Training, for example--and thereby to provide us with information on the post-training performance of these individuals in the job market. We employed a number of consultants who had achieved reputations as observers and analysts of Federal manpower training efforts.

We found that there are economic benefits of manpower training programs which are more susceptible to measurement and quantification than the benefits of many other programs directed toward social advance and rehabilitation. Manpower programs generally share the objective of increasing the employability of their participants and this is something that can be measured, at least in part, in terms of job performance and income gains after the participants leave the programs.

There are the same problems discussed earlier of obtaining satisfactory control groups or other means of isolating program effects, and there is a problem - an expensive problem in our experience - of acquir-

MEASUREMENT OF BENEFITS IN OTHER FEDERAL PROGRAMS

The Ultimate Measure - Social Benefit

A number of Federally funded programs have benefits that are related to social benefits but expressed in other terms. Among these are programs--including investment programs--having as a primary objective the obtaining, or building up, of a capability or capacity. There are difficulties in measurement of such program benefits where the capability, in some cases, is in the nature of insurance or protection against a single catastrophic event or against yearly events. In this category we might properly include such programs as Minuteman, Civil Defense, and the 68 local flood control projects listed for the Army Corps of Engineers in the 1970 budget.

Programs for meeting essential needs and having capability objectives also may be included under this heading. The Fiscal 1970 United States Budget provides a number of examples. The section on Education and Manpower speaks of emphasizing "--support for academic research, construction, and other investments which help colleges and universities to sustain a high level of quality and provide continued leadership for meeting complex national problems." These are certainly broad social purposes, yet these program outputs must continue to be measured in narrow terms, for example, numbers of academic facilities and numbers of grants for libraries. The precise link from these numbers to a stricter accounting of social benefits still escapes us.

In the Health resources programs we find programs being budgeted for building hospitals, for supporting medical and osteopathy schools, and for scholarships and loans to physicians, osteopaths and nurses.

These programs are intended to build up in our nation, the capability to deliver health services and care. Thus they are intended to contribute ultimately to a number of social benefits and yet do not have these as their primary output.

It may continue to be proper to measure benefits of these kinds in administrative terms such as numbers of beds, of graduates, or of class rooms. The approximate numbers of each for which we need to provide may be ascertained as a result of an analysis. A high level of analytical competence and the availability of reliable and representative data are needed in order for such an analysis to be useful.

Yet other examples of programs having benefits that are ultimately social, are those which enrich lives. They have been expressed in terms of aesthetic, recreational, and intellectual benefits. The extent that resources are to be drawn from other programs having more immediate and direct social benefits, is a matter of public preference.

I might mention here, the program in which the Federal Water Pollution Control Administration is making grants to States for the purpose of constructing sewage treatment plants. The resulting benefits to society are essential in that ready sources of useable water are necessary to industry and to municipalities. At the same time, aesthetic and recreational benefits are created. These we recognize as socially good, yet their exact contribution to enriching our lives have not been measured even though monetary values have been assigned to days of recreation of various types.*

*This matter is more fully discussed in a conference paper by Ruth P. Mack & Sumner Myers entitled "Outdoor Recreation" (published with other conference papers in "Measuring Benefits of Government Investments," Robert Dorfman, Ed. The Brookings Institution, 1965)

It is of interest to note that at least some of the local flood control projects mentioned earlier may have the potential for contributing to these benefits.

Among the alternative ways to improve water quality there is the possibility of flushing streams of pollution at periods of low flow with the water impounded by the flood control dams.

Under the heading of intellectual benefits, are programs such as the NASA Orbiting Astronomical Observatory (the OAO), support of the Smithsonian Institution and many of the National Science Foundation grant programs. The latter include funding of the Global Atmospheric, the International Biological, and the Ionospheric Observatory programs. As in all intellectual undertakings-- of which research is one--we may infer that social benefits will come about. Many times these are deferred to the far future. It appears that the Congress has recognized in many ways, the worth of obtaining intellectual benefits to the extent even of maintaining a favorable postage rate for books and educational material.

Measuring Losses of Social Benefits

In approving a program based on its expected positive results, more consideration should be given to measuring social disbenefits that may also result. These losses of social benefits have been called "external diseconomies" by economists. For example, Herbert Mohring* in discussing benefit-cost ratios of urban highway investments says in part "---poorly planned freeways can do, and likely have done, serious

*Brookings Institution - op. cit.

damage by fragmenting communities, disrupting existing communications patterns, and the like." In this case, the primary economic benefits can be estimated. In a regional or more aggregate sense other positive benefits include personal travel including travel to beaches, parks, and the like--which yield other positive social benefits. The social disbenefits which need consideration tend to be local in nature and under older legislation, may have been frequently overlooked in determining whether an alternative route might have overall, a higher social benefit. Recent amendments to urban renewal legislation have also recognized the problems created by earlier projects in dislocating people from their communities and in many cases from the only housing available to them.

In a similar vein, positive benefits from different programs may not be compatible or the programs may be directed to objectives that are at cross purposes to other benefits that society considers as highly desirable. Examples of such incompatibility in benefits between programs or of benefits at cross purposes are: dam construction vs. conservation; foreign aid vs. balance of payments; expanded census questionnaires vs. the right of privacy; excellence in education vs. universal education.

Interaction of Programs--Net Positive Benefit

The subject of interaction is discussed in a publication of the State-Local Finances Project of the George Washington University in their PPB Note 7. The complex interaction among public programs is exemplified as follows:

"Services provided by one agency through its program expenditures will have an impact on the output and effectiveness of other public programs. Airport activities can adversely affect noise abatement programs; traffic control systems may reduce or enlarge the volume of motor vehicle accidents, and affect the volume of emergency ambulance services. Paving of more highway mileage may enlarge rather than reduce traffic congestion and also increase downtown parking facility requirements. Solid waste disposal systems may increase air pollution or lower it, and what is done about solid wastes may impair water-waste treatment. Reduction in air pollution acquired at the cost of added water enlarges water treatment requirements."

Among the results from the Agricultural Research Service's continuing research on pest control has been an increased use of more potent pesticides which have decreased crop losses. Yet as one result, the Agricultural Stabilization and Conservation Service is making indemnity payments to farmers excluding milk from markets due to pesticide residues.

OVERALL APPRAISAL

We have shown by example the difficulty of finding agreed upon measures of benefit which could support an ordering of priorities. The goals of our society cannot be simply stated. If our goal were solely economic efficiency, then a process such as PPB would guide us toward that one ultimate objective. But we do not seek one goal.

Instead, we have numerous goals, such as security, progress and prosperity, freedom of choice, strengthening of the free private enterprise system, and many others. These goals cannot in all cases be accomplished to be consistent with the highest degree of economic efficiency.

There is an increasing public recognition that our resources are not unlimited and that for that reason at least we must try to develop better means for making more rational choices. We believe the PPB process can help to better organize these multiple considerations in the executive and legislative process.

In our system of checks and balances, striving for local or for self interest has generated many benefits, particularly economic, which cumulate to the aggregate national economic well-being. It appears obvious that the same approach has not worked equally well in increasing the social benefits.

A basic question is whether sufficient attention has been given by either the public or private sectors to dis-benefits or undesirable results of public programs and privately motivated actions.

We believe a main reason for limited consideration of undesirable results is that these are sometime indirect, and are very difficult to measure with criteria on which all can agree. This difficulty has been illustrated in the foregoing.

It seems to us that greater efforts should be made to avoid overstatement of positive benefits on which proposals are based and the omission of negative aspects.

Evaluation of Benefits by the General Accounting Office

We believe in general, that GAO can assist in appraising the cost-effectiveness studies made in support of programs submitted to the Congress. To do this, we see the need in GAO to increase our knowledge and proficiency or capability in this area from at least three stand points.

First, we want to be in a position to assist the Congress in connection with hearings or studies made by committees, and in helping formulate those studies which would be made directly by the committees of the Congress.

Second, it is possible that we will be directed by the Congress to make other evaluation studies of Federal programs comparable in scope to the study we are just completing which is a review of the achievement of objectives by the Economic Opportunity Programs.

Third, we hope and expect to be able to undertake studies of this kind on our own under the broad authority that we have under the Budget and Accounting Act. How fast we can do this, and how many of these studies we can make will obviously depend on the capability and the total number of our staff capable of conducting these kinds of analyses.

Issues Involved in Measuring Benefits

The Congress is entitled to know why possible program alternatives were not accepted by the Executive Branch as well as to know whether an adequate analysis was made of available alternatives. Moreover, the Congress needs to have available to it information with respect to long-term costs and benefits, total costs and benefits, the relationship of program growth in one agency to that of related programs in another agency, and so on.

Public Law 90-174, cited as the "Partnership for Health Amendments 1967" provides that a portion of the appropriations for certain programs and grants be made available for program evaluation. I believe this type of arrangement has a positive value, particularly if the legislation requires the agency concerned to make the evaluations available to Congressional committees. These evaluations would be more meaningful in the

legislative process if the Congress specified some of the alternatives to be analyzed or issues to be dealt with. Specifically:

- A. There should be more emphasis upon the comparison of long term benefits and costs. This should not be limited to only those programs whose benefits are measureable in dollars. We must make comparisons of these economic benefits with the benefits of other major programs which meet other objectives. The judgments made by Congress are now influenced heavily by the percent of annual budget or the percent of GNP allocated to different objectives. However, the Congress can test these judgments on other bases such as comparisons of the relative cost over 20, 30, or 50 years of meeting various objectives. For example, we could compare in this way the objectives of strategic defense and the provision of decent housing for all Americans. Part 4 of the Special Analyses of the Budget of the United States for fiscal year 1970, indicates that obligational authority of about 8 billion dollars for strategic defense is roughly four times as great as that for the housing objective. Is this a good indication of the relative long term expenditure of our resources for these two objectives? Assuming that the proportion of investment to the total costs shown is about the same, we are comparing two investments, one of which will last from 30 to 50 years and the other for perhaps ten.

During the 20 year period, 1949 to the present we have invested in three major bomber aircraft forces which have had an effective life of about ten years, and one major bomber modification

to overcome obsolescence also with a life of from five to ten years. We have invested in eight major land-based strategic offensive missile systems of which only two have had an effective life of over five years, even though there were several models of some. We have procured one major sea-based strategic missile system which is being converted after about five years in service to a new system at a cost similar to that of the original system.

To sum up this point, the public and the Congress should realize that, we are allocating not four times as much to strategic forces as to housing objectives but sixteen times as much in terms of the period in which benefits will be derived. If similar strategic investments are assumed to be required at 10, 20, and 30 years in the future to maintain the defense capability for a period similar to the life of housing, and even if these are discounted to present value at 5 percent, the multiple of strategic defense investment over housing is not four but nine.

- B. The agencies should be expected to explain assumptions on which their choices are based. Whether or not alternatives are shown, there should be some understanding of the range of uncertainty surrounding the proposed output or benefit. Substantial sums are spent in performing studies and analysis. It appears to us that these public funds would be more fully utilized if more of the insight produced by them could reach the Congress.

- C. Efforts should be made to clarify what are regarded as legitimate measures of public benefit. This should lead to definition of the output measures which can be generally agreed upon as indicators of the ultimate benefit. We have discussed at some length the problems involved in doing this, but we have also tried to demonstrate that feasible improvements in measurements are possible.
- D. It should be a requirement that all legislative proposals identify the magnitude of problems requiring Federal funds for their solution. The total national need can be recognized, for example, 26 million housing units or remedial care for 4 million mentally retarded children and youth, but state-local and private sources of funding should also be identified. An estimate should be made in each proposal of the portion of each public need which cannot be and/or is not being met without Federal funds.
- E. We encourage efforts to improve economic analysis of alternatives. Economic analysis has been used in varying degrees as a method of allocating resources most effectively within major categories of activities. Alternative water resources projects have been and should be compared on this basis. As examples in quite different fields, we believe economic analysis also can provide useful insights in health

programs such as Maternity and Infant care, in education programs such as Upward Bound, and in manpower training programs such as Job Corps.

We are not proposing that the Congress should decide against a program of one type simply because one of a much different type is shown to have a higher numerical ratio of economic benefits to costs. In fact, on the basis of measureable effects and projected direct economic benefits, a benefit to cost ratio of much less than unity is probably characteristic of the Head Start program.

Many water resources projects have been shown to have an economic benefit to cost ratio greater than unity. A number of these, including some already authorized, which have a benefit to cost ratio of 1.3 or less based on a 50 year life and 3-1/8% interest rate, drop below a ratio of unity under the 4-5/8% interest rate established in 1968 by the Water Resources Council.

The measurement of benefits and costs of these projects now needs to be given careful review. Although a higher interest rate may imply more efficient allocation of resources between the public and private sector, the actual evaluation of projects is equally dependent upon the estimates of undiscounted benefits and costs.

F. The question may arise as to whether certain government activities such as power generation or even manpower training compete directly with the private sector in terms of the good produced. We believe it is quite important for such reasons that benefit-cost calculations should be based upon the more tangible benefits and costs and that the calculation of primary benefits should be carefully distinguished in the overall analysis from any significant estimated secondary benefits.

It will be helpful also if anticipated secondary benefits are clearly described, differentiating things which are simply redistribution from those which represent a net addition. It follows that indirect costs should also be recognized and dis-benefits should either be offset against positive benefits or added to costs. We believe such clarification will be helpful to the Congress in making judgments on both a correct economic basis and in terms of other considerations. However, we believe there is little to be gained in an attempt to precisely quantify many of the indirect benefits in economic terms.

Mr. Chairman, I have discussed both the importance and the difficulty of measuring the ultimate public benefit of various Federal programs.

Rational approaches, such as PPB, to allocating our resources must be continued but with a full realization that some of the measurement problems may never be fully resolved. We favor extending the use of economic analysis, and requiring that uncertainties and assumptions be more clearly delineated in the proposals submitted to the Congress. These principles will be applied by the GAO in studies it will be performing and in its evaluations of studies performed by the Executive agencies.

Even with this relatively adequate data, the assessment of a program such as Upward Bound is still not without serious difficulties. They stem from a problem which I mentioned earlier in connection with Head Start. That is the problem of isolating program benefits from other influences and effects to which program participants are exposed.

In practice, it is the problem of matching a control group with a test group, and when we are dealing--as in the case of Upward Bound--with motivational question, we find that measurement is difficult. There are, in fact, measures which our contractor drew upon: measures of self-evaluation of intelligence, self-esteem, non-alienation, and other variables affecting motivation. We know when we employ these measures that we are operating on delicate subjects with relatively crude instruments, and we know that appropriate caution is in order. Nevertheless, these attempts at measuring results appear to us to be far better than no measures at all of what is being attained nationally for the total funds appropriated for each program.

Education programs and the measures of their benefits - such as I have just discussed - are related in many ways to the manpower training programs sponsored by the Federal Government. Like the Adult Basic Education and Upward Bound programs, much of our manpower training is directed to providing a second chance, educationally, to those who have failed in, or who have been failed by, our schools and standard curricula. In a sense, our manpower training programs are, at least in part, an effort to correct past mistakes and to deal with the burgeoning effects of poverty, technological change, and other social dilemmas.