

fits measured in present increments should have been inflated by two percent a year before they were discounted. To simplify the calculations, the improvement in labor productivity was discounted by three and five percent instead of increasing these benefits by a two percent growth rate and then discounting by five and seven percent. Mathematically, the two procedures are identical. Thus, the *effective* discount rates used were 5 and 7 percent and not the 3 and 5 percent used in the calculation.

The inclusion or exclusion of the growth rate of real wages does not alter the comparison of the use of different interest rates and different measures of benefits but it does highlight the difficulties in measuring the benefits from human resource programs. To further highlight these difficulties, let us assume that the appropriate measure of benefits is that differential in income which would be received over the lifetime of the individual. Direct analysis of the impact on lifetime earnings is impossible if evaluation is to be undertaken within a reasonable amount of time.

One possible way of calculating the benefits is to use the well-documented correlation between lifetime earnings and educational level. Thus, it is possible to use the difference in educational attainment between participants in the programs and nonparticipants of equal qualifications (age, sex, race, socioeconomic background, natural ability, etc.) and then use the correlation between educational level and lifetime earnings to provide a dollar measure of program returns. The use of educational level as a direct measure of lifetime earnings implies that the programs have no economic impact unless they lead to higher educational attainment.

A second possible way of calculating the benefits, also used in the Job Corps study, measures some initial differences in income between program participants and a control group and makes some assumptions about the pattern of future differentials. Potential assumptions are numerous and past patterns of such differentials not very well documented.

Thus, differences occur by using alternative procedures of estimating the same benefit—differential lifetime earnings. Further, this is not the only benefit of a program. Given the present state of the art of measurement, there are many intangibles which cannot be translated into dollar benefits. For example, there are many benefits in addition to the increased earnings of the participants of Job Corps. Some of the gains are measurable in principle but have yet to be measured. Possible reductions in crime and welfare rates are examples. Others may never be measurable, but are still important, such as the benefits to earnings capabilities gained from what Job Corps calls the “socialization process”—the ability to get along with other people in a work situation. Other gains are even less tangible but are perhaps the most important of all. An example here would be effectiveness of Women's Job Corps in maintaining the stability of the future families of girls currently passing through the program.

In conclusion I would like to say that the discount rate and discounting play an important role in the process of evaluating human resource programs. However, the art of identifying and measuring benefits, in the near future, is likely to have much more of an effect on our evaluations. This does not mean that the questions surrounding discounting should not be answered but only that, in the human resource area, the attention of our analysts must be directed primarily at those most basic questions of benefit calculations.

Chairman PROXMIRE. Gentlemen, these have been very, very interesting as well as diversified presentations.

Mr. Enthoven, or Mr. Lynn—I do not know which would like to respond to this, perhaps both of you—I infer from your statement that any discrete undertaking which has either cost or benefit effects accruing in the future requires discounting for an appropriate appraisal of its current worth. Do you agree with that?

Mr. ENTHOVEN. Yes, sir; we do agree with that.

Mr. LYNN. Very much.

Chairman PROXMIRE. So that any agency which has a capital budget to allocate must undertake this kind of analysis if it is to efficiently allocate this budget among alternatives.

Mr. ENTHOVEN. I believe that is correct, sir.

Chairman PROXMIRE. Mr. Mackey, would you agree to that?