

Clearly, this is impossible and the question is how far down the chain we can go in quantifying these benefits or criteria. In some cases one can treat various agency programmes on a comparable basis. That is, we can measure economic growth, for example, as an increase in national income and ask how much each programme contributes. It is also obvious, however, that at the top level we cannot measure economic growth and welfare in terms of the same quantities. We simply don't have a magic number to do this. Further, within the welfare area, we find that we can't even directly compare two different types of welfare programmes, say aid to minority groups vs aid to a group of people in New Orleans who have been flooded out of their homes. So there we may have to stop our comparison at an even lower level. We use the term "incommensurables" to designate benefits that cannot be combined into a single measure of effectiveness.

The point here is to go just as far up the chain of objectives as we can, stopping at a point where single measurements are not meaningful. At that point we must forsake the notion of a "grand optimum" but what we can do, at least, is to calculate and display the alternatives for the decision makers for a particular mix of programmes. That is, one can set up a table similar to that shown in Chart 8 in which we have at the top, the various types of benefits we hope to receive, economic growth, and so on, defined as well as we can and then, for each programme, estimate the contribution to each of those benefit categories. We can then add and subtract programmes until we get a mix of programmes that we believe to be consistent with the national objectives.

In the case of defense, for example, there is no way of relating in a single measure, general purpose forces and strategic retaliation. That is strictly a matter of judgement. The role of computers in the Department of Defense decisions has been greatly overplayed. The role of quantitative analysis however is quite an important one.

These general principles can best be illustrated by summarizing the cost benefit analyses that were performed for three quite different programmes: the economic growth programmes of the Small Business Administration, a high school dropout prevention programme, and the modernization of Washington National airport. The first and third of these were performed by members of my own organization; the second analysis was conducted by Professor Burton A. Weisbrod.

In analyzing the costs and benefits of the economic growth programmes of the Small Business Administration (Chart 9) we can treat the benefits in terms of the increase in sales, employment, value added, or profits that result from a loan. The costs include the interest cost, the loss rate, and the administrative cost. We have some statistical procedures for estimating both the growth rate and the cost for different classes of borrowers. The problem is one of balancing the two.