

But in choosing among alternative ways of achieving a given level of effectiveness, however, formal analysis has an important role to play, and the proper use of discounting is an important part of the analysis. We are concerned to know which alternative will provide the desired effectiveness for the lowest total cost, over the relative lifetime of the projects.

Alternatively, we may be interested in knowing which of several equal cost alternatives gives us the most for our money.

The question arises here as in cost-benefit analyses as to whether costs in different years should be equally weighted and the answer is no. We should not be indifferent between programs which involve high outlays today and programs the costs of which are spread more evenly in time. Because the differences in cost among the alternatives have an opportunity cost to the private economy, an appropriate interest rate should be charged in estimating total program costs in order for the system which provides a given level of effectiveness for the smallest opportunity cost to the economy to be chosen.

At the end of my statement I have given a number of examples of how we have used discounting in the Defense Department. I might add that these examples were not specially prepared for this testimony. They have been taken directly from our working papers and have actually been used in our considerations of various proposals. I would like to review one of them to show how we do analysis using discounted costs.

A common problem is to decide whether a new weapons system will have payoffs in increased capability or in reduced costs for achieving given effectiveness which justify a large initial investment in research, development, and procurement. For example, the Defense Department is considering new types of transport aircraft for use in the combat theater beginning in the mid-1970's.

These aircraft will be expensive to develop, but they promise improved performance and lower operating costs. In our analyses, we have sought to construct several alternative tactical airlift force structures, each of which will provide the same capability to move troops, equipment, and supplies from selected types of origins to selected types of destinations over the entire period of the next 15 years.

The objective is to see whether a new aircraft will reduce the costs of providing the designated capability enough to repay the investment in development and procurement at a reasonable rate of return.

I have included a table which summarizes the costs of different forces designed to meet one particular set of lift requirements over the next 15 years. For purposes of this comparison, year-by-year procurement and operating costs were computed, and an interest charge of 10 percent compounded annually was added. Separately shown are estimated research, development, test and evaluation costs, also calculated on a year-by-year basis with allowance for interest at 10 percent. The purpose of showing these costs separately is to show how the time profiles of costs for the different forces vary. During the development phase of new aircraft, existing aircraft must be kept in the force. They are replaced only when the new models become available.

The table in the statement shows that all three new aircraft will enable us to reduce the total cost of buying and operating the forces required for the job. Only with aircraft B, however, can we completely