

EXPLICIT AND IMPLICIT DISCOUNT RATES

Discount rates are often explicit but in some cases they may be implicit. An explicit discount rate is a rate which is identified and used to calculate the present values of future benefits and costs. However, if in an analysis the assumed life of the program is different from the more probable life expected on the basis of experience or studies, then an implicit discount rate is actually being used.

The meaning of such an implicit discount rate can be illustrated by the following example in which a 10-year program life is used in an evaluation study but the most probable program life is 20 years. In order for the evaluation study based on 10 years to lead to the same conclusion as one based on 20 years, the present values must be equal in both cases.

In this example the net annual program benefits will continue beyond the 10-year program life assumed in the study. Since the net annual benefits in the eleventh year through the twentieth year are not recognized in the 10-year study an implicit discount rate is being used. In column A of the following table the total undiscounted values of program costs and benefits are shown for the assumed program life of 10 years. In column B the program costs and benefits for the most probable program life of 20 years are shown discounted at 8 percent--the discount rate that is required to equate the benefit-cost ratios in columns A and B. The implicit discount rate in this analysis which uses an assumed program life of 10 years (column A) is thus 8 percent.

	Undiscounted amounts	Present values	
		(A) Assumed 10-year life	(B) Most probable program life--20 years
		(millions)	
Implicit discount rate			8.0%
Initial investment	\$10	\$10.0	\$10.0
Annual operating costs	1	10.0	9.82
Annual benefits	3	30.0	29.45
Ratio of present value of benefits to present value of total costs (benefit- cost ratio), rounded		1.5	1.5