Investment X is expected to cost $5 million next year. The project is expected to yield benefits or revenues of $600,000 per year for the next 25 years which if simply added up, total $15 million. It requires the continued expenditure of $100,000 per year to keep it in operation.

THE EFFECT OF DISCOUNTING ON THE EVALUATION OF A TYPICAL INVESTMENT, USING DISCOUNT RATES OF 0, 3, 5, AND 10 PERCENT

[Dollar amounts in thousands]

	Interest rate (in percent)			
	0	3	5	10
Value today of total benefits	$15,000	$10,448	$8,456	$5,442
Value today of total costs	$7,500	$6,741	$6,409	$5,906
Benefit-cost ratio	2.00	1.45	1.32	0.92
Value today of excess of benefits over costs	$7,500	$3,707	$2,047	−$468

From the calculation displayed in the table, the necessity for accurate and consistent discounting is clear. The expected benefit-cost ratio of the example project is 2 if no discounting is applied. The ratio drops to 1.3 with an interest rate of 5 percent and to below unity with a rate of 10 percent. If the costs and benefits are added with no account taken of the time factor, the project shows an excess of benefits over costs of $7.5 million. If an interest rate of 10 percent is applied, costs are estimated to *exceed* benefits by nearly $0.5 million.

A cogent example of the importance of correctly accounting for the time factor in analyzing Federal undertakings was presented to the subcommittee in the statement of a Defense Department official. This example, which deals with the supersonic transport programs is reported in the appendix to this report. (See p. 20.)