

government borrowing costs may be as high as 7 to 8 percent, and other investigators have estimated it at closer to 10 percent.⁶

Notice that these calculations look only at the cost to the government, and not the opportunity cost to the economy, associated with the government's borrowing. However, the latter cost is the relevant cost against which to judge government projects. Of course, it would be possible to calculate the opportunity cost to society, assuming that the government borrows, by looking at the rate of return which the displaced private investments earn. Eckstein's 1958 findings on the returns on investments displaced by taxation probably give a good idea of these costs also, and they suggest an opportunity cost of borrowing of about 7-8 percent.

Hence, both a "tax" model and a "borrowing" model come up with answers to the 7-10 percent range.⁷ I believe further research will support this result, since both taxing and borrowing affect both consumption and investment to a significant degree.

However, rates of return on private investments include compensation for their riskiness. Estimates of the opportunity cost of resources drawn from the private sector just cited include some risk compensation. Individual government investment projects are certainly not free of risk, either, especially large investments in new weapon systems with a great deal of technical uncertainty. If we assume that the private sector must be compensated for bearing risk, should the return required on risky government investments also include a risk premium,⁸ as we assume when we use discount rates that are based on opportunity cost estimates that reflect some compensation for risk?

Economists differ on this question. One view is that the discount rate used in evaluating a project should include as much compensation for risk as the yields on similar investments in the private sector. An opposing view is that no risk premium should be included in the government's discount rate; just as writing a new policy does not add to the total risk borne by an insurance company, an additional government investment does not add to the overall risk on society's total investment. Hence, according to this argument, a risk compensation is unnecessary, and the discount rate should be riskless.

If the latter view is accepted, the discount rate should be the best estimate of a risk-free rate of return available in the private sector, presumably the current yield on long-term government bonds, or about 5-5½ percent.

In the absence of fully satisfactory answers to questions about the appropriate way to handle risk in government investments, the best way to proceed is to adopt 5 percent as the basic discount rate to be used throughout the government and to insure that each project valuation includes an analysis of the uncertainties associated with both costs and benefits. The cost and benefit estimates used in the evaluation should be those that can reasonably be expected in light of these uncertainties.

Several types of risky situations could justify adjustments in the discount rate used for particular projects, however. For example, success or failure on a government flood control project will pay off if it prevents devastation of an area, but it will "fail" if the threat never materializes. However, the government's project, though risky, reduces the riskiness of investments in the threatened area. Hence, the undertaking of a risky government project may reduce the risk on society's total investments. On the other hand, government investment in, for example, a supersonic transport may mean that investment in other forms of passenger transportation becomes more risky. The understanding of a risky government project may increase the risk on society's investments. The former example could be used to defend a lower discount rate on the project in question than the opportunity cost of capital; the latter example could be cited in behalf of a higher rate on the project in question.⁹

⁶ Both of the estimates cited assume that government borrowing displaces private investment dollar for dollar. Because effects on consumption are ignored, the estimates probably overstate the actual cash cost.

⁷ It is assumed that the government bond rate reflects consumers' and investors' expectations about future inflation. A downward adjustment in the discount rate is necessary when evaluating projects for which estimates of costs and benefits are in constant dollars.

⁸ The fact that government bonds are regarded as risk-free does not mean that bond holders regard government projects as riskless, or that they are in fact riskless. Rather, it reflects the fact that there is no default risk on loans to the government because the taxing and money printing power of the state supports the government's credit rating.

⁹ When comparing alternative ways of achieving a given level of benefits or effectiveness, however, adding a risk premium to the discount rate applied to costs has the perverse effect of making the riskier system look better.

Suppose two systems, A and B, which are expected to perform a required mission equally well, and their ten-year systems costs are as below. Based on use of a 10 percent discount