The Social Discount Rate for Silvicultural Investments
FRDA Report 071

In a 1988 study conducted for Forestry Canada and the British Columbia Ministry of Forests, contractor Terry Heaps of the Department of Economics at Simon Fraser University critically reviews the current methods and guidelines for estimating the social discount rate.

It is suggested that a social rate of return, based on the economic theory of a competitive economy, would be different from a private rate of return because of taxation. The authors note that determining a realistic social discount rate is vital since this figure is then used to calculate the Net Present Value (NPV) of a public investment. Government guidelines, both provincial and federal, recommend the rejection of any proposed public project whose NPV is less than zero. Heaps and Pratt disagree with the Harberger formula, which has been adopted by the Treasury Board and which results in a rate in the range of 8 to 10 percent. They argue that this rate is artificially high and is particularly deleterious when applied to a cost-benefit analysis of silvicultural projects.

The authors are highly critical of the Harberger findings as applied by Jenkins (1977). By adjusting the values in this approach, Heaps and Pratt recommend the social discount rate be substantially lowered to between three to seven percent.

In the case of public investments in silviculture, it is argued that expected net present values should be used as a determining factor. For silviculture in particular, it is suggested that the benefits and costs of public investments should not be adjusted for risk. Because of this, Heaps and Pratt argue that the social discount rate should be adjusted downward even further since the rate has a percentage of risk factor built in. This risk-free social discount rate, traditionally set at between three to five percent, is what the authors suggest should be used when calculating the net present value.

Known risk factors such as fire and disease become less critical in a long term investment. Also, the flexibility of management to harvest the trees and recoup all or part of their investment when the market conditions are favourable can, in the authors’ estimation, soften the factors of risk and uncertainty.

The contractors make additional suggestions as to values and adjustments which should be made when testing the financial feasibility of silvicultural investments. They also recommend that only stumpage payments and other revenue paid to the Crown be considered as project benefits and only costs paid directly by the Crown be considered as costs. As for labour, unemployment forecasts cannot be accurate or reasonable so the authors recommend the assumption that the market wage equals the opportunity cost of labour.

The authors conclude with a short scenario based on Spiro’s (1984) estimation that the long run marginal cost of foreign borrowing is four percent. With a discount rate of four to five percent, a positive ENPV would mean that the project could be financed by foreign investment and the stumpage payments received would be sufficient to cover government costs and repay the debt.

Copies of the 37-page report The Social Discount Rate for Silvicultural Investments by Terry Heaps and Brian Pratt are available while supplies last from:

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