

"common-sense" approach is simply a restatement of cost-benefit analysis. The three steps identified are:

- forecast future domestic demands — or relative prices — for timber products;
- forecast export demands for different timber products;
- determine non-market benefits associated with forestry.

However, no means is suggested to make these things commensurable, to determine their relative importance, or to identify how they might be used in policy formation. These are massive tasks for our "infinitely complex computers" (commonsense) to achieve. It is precisely because we have difficulties in these tasks that frameworks to guide the examination of decisions, such as cost-benefit analysis, have evolved.

The "ecological or environmental perspective", like cost-benefit analysis, is founded on value judgements. It espouses sustainable use levels for renewable resources and minimal use of non-renewable resources. Examples of questions left unanswered are:

- which sustainable use level?
- what is minimal use?

Both of these raise some interesting problems because they force us into making real trade-offs. To ensure minimal use of metals, fossil fuels, and other non-renewable resources we could decide not to have ambulances or hospitals. This would incur costs in the form of human lives lost, and may not be socially desirable, but the perspective does not recognize these tradeoffs. The same criticism can be made of the "spiritual and cultural perspective". To what extent are we willing to trade-off cultural identity, and variety in landscape, for other things?

It is apparent that all of the approaches outlined are reliant upon value judgements and so each will have its proponents. Therefore they will have a place in informing decision makers, but none is capable of making the decisions. We, or our elected decision makers, must therefore remain responsible for making the value judgements involved in social decision making.

Discounting

The main thrust of Fitzsimons' attack on cost-benefit analysis is directed at the discounting procedure used to commensurate values occurring at different times. Just as we must evaluate the effect of individual welfare, however that is measured, on social welfare we must also consider the value of the welfare of different generations when making resource use decisions. Discounting is the procedure used by cost-benefit analysis to accomplish this. Not discounting implies that we weight the welfare of each generation in a particular way, depending upon whether we are concerned with individual or social welfare, consumption, utility, or anything else. This is just as much a value judgement as choosing some non-zero discount rate.

Three major elements enter the argument for choosing a discount rate — the basic human desire to have benefits now rather than later, our ability to invest resources to produce more later, and our moral obligation to future generations. The discount rate chosen is therefore a value judgement depending on how strongly we weight these factors. Fitzsimons' assertion that "interest rates are expressions of social expectations so we should relate the discount rate to them" can therefore be seen to be incomplete. Market interest rates are expressions of individual choices. Whether they are socially appropriate is a value judgement. Because of financial market imperfections it may not even be possible to use cur-

rent interest rates as an estimate of either individual rates of time preference, or the marginal efficiency of capital.

While it is common to say that social time preference is longer sighted than for the individual (the social discount rate is less than individual rates), the fact that people save to benefit their children does not contradict this as Fitzsimons implies. Simply illustrating that individuals gain **some** benefits from the welfare of future generations shows nothing about the **relationship** of social benefits to individual benefits. The arguments for a negative discount rate (p 24) do not stand scrutiny either. The argument that things will be scarcer, or more highly valued, in the future suggests that we may be using the wrong prices to value costs and benefits, but says nothing about the discount rate. Similarly the fact that we store crops for winter says something about both values and discount rates, but nothing specific about either. People who discounted the future very heavily (positive rate) would still find it in their interest to store some crops for winter, losing some in the process, if the value of surviving was high relative to having a feast.

Conclusion

Fitzsimons has set up a straw man. By claiming that cost-benefit analysis is capable of making decisions in a precise manner she has given it a task for which it was never designed and is therefore unable to achieve. Cost-benefit analysis, like the other decision making frameworks suggested, is no more than a means of presenting information which relies on an underlying set of value judgements. The argument about the sign and size of discount rates is erroneous and sheds no light on the appropriate rate to be used in social decision making. Fitzsimons' article does nothing to reduce the validity of using economics, and in particular cost-benefit analysis, to better understand the implications of resource use decisions. It has, however, served to remind us that cost-benefit analysis is **not** a precise decision-making tool, but simply a means of summarizing information on some aspects of social welfare.

Reference

Fitzsimons, J., 1986. Discount rates and forestry decisions. *New Zealand Forestry* 31(2): 22-25

G.N. Kerr

Editor's note:

Geoff Kerr is a resource economist at the Centre for Resource Management, University of Canterbury and Lincoln College. His research is currently focused on the economics of outdoor recreation and economic approaches to the valuation of environmental amenities.

J. Fitzsimons' paper was refereed by two economists!

Need for other approaches

Sir,

I wish economists did limit their claims for Cost Benefit Analysis to the role that Geoff Kerr describes for it — "a means of presenting information which relies on an underlying set of value judgements". Mostly the value judgements are not explicit and the information is presented as more reliable and valuable than other sorts of information because it is quantified in

very precise numbers. In my experience economists often retreat to the position Geoff Kerr has outlined when confronted with the arguments in my paper, but unfortunately before long they are again behaving as though Cost Benefit Analysis is the way to determine the most appropriate investment of the community's resources.

My paper was delivered to a 1982 seminar for economists and foresters at which it was stated that if Cost Benefit Analysis showed a greater return from 25 one-year projects than from one 25-year project, then *society is always better off* investing in the 25 quick returns. None of the economists dissented.

Forestry decisions are uniquely susceptible to our assumptions about time. To the uncertainty of markets far in the future must be added the uncertainties of nature. Forestry profitability (on paper) is critically determined by the price of the product and by the discount rate, and the higher the discount rate the less the final price matters. I know of no unsubsidized forestry projects in New Zealand (other than mining what was already here) which is profitable at a 10% discount rate. *Yet many rational people are still planting forests.*

Economics could be a very valuable tool in explaining (and therefore predicting) some aspects of human behaviour. As an explanation for the resource management choices people are making on their land at present, Cost Benefit Analysis seems to have failed dismally. This is why we need other approaches such as those I suggested. "Common sense" does not fail because it cannot make market and non-market values "commensurable" — rather economics fails to the extent that it attempts such a foolish task. Chalk and cheese should remain just that.

Jeanette Fitzsimons

Birds and National Forest Survey

Sir,

It was with great interest that I read in a recent *Forest and Bird* Brian Reid's account of his involvement with the National Forest Survey (Reid, 1983). I had not before realized that he had taken the opportunity then offering to record ornithological data over large areas of virgin North Island forest, even if the records were only diary entries. I wonder how many others did the same.

What an opportunity it was. The National Forestry Survey covered all or nearly all the indigenous lowland forests of both islands. The sampling pattern consisted of a series of plots 400m or 800m apart along lines 3.2 or 6.4km apart, the intensity of sampling depending on the nature of the forest. This means that even at its most extensive the sampling pattern entailed field parties visiting every 518 ha block of lowland forest throughout NZ and there making systematic records.

Obviously it took a great deal of time, effort and expense to get field parties onto the ground in such a comprehensive manner and in generally untracked and unroaded country. The decision was therefore taken early on to collect not only stand volumetric data but as much other relevant information as possible. The objectives of the survey were thus widened to include:

- Preparation of forest type maps based on predominant vegetation
- Assessment of the extent and degree of natural regeneration
- Assessment of deer and other animal damage
- Collection of ecological data relevant to indigenous forest management and conservation.

The only constraint to this extremely ambitious programme — and it was an important one — was that imposed by the fact that many of the party leaders did not have adequate training in the basic biological sciences.

The data consisted of the measurements of all merchantable trees 30cm and over in diameter and tallies of all unmerchantable and defected trees on 0.405 ha (one acre) plots; tallies of poles and smaller trees of all species on 0.04 ha plots; and regeneration counts on smaller plots still (quadrats), together with records of the presence and frequency there of all plant species other than mosses, liverworts, lichen and fungi (Thomson, 1946).

Since so much detailed botanical information was gathered it may well be asked why no provision was made for the systematic recording of birds observed or heard. The simple and in hindsight almost unforgivable answer is that it is never really seriously considered, by myself as Officer in Charge or for that matter by anyone else. As far as I can remember it was never suggested by any of the hundreds of foresters, forest rangers and young scientists who made up the field parties, nor by any of the more senior scientists from whom I sought advice about what information to record. Among these were W.R.B. Oliver: one would have thought that he at least would have welcomed this opportunity to gather what was potentially a great deal of valuable ornithological data, but he did not. Quite apparently in that era neither professional nor amateur ornithologists were seized with the desire, as they are now, to record systematically bird distributions and bird populations.

Birds however were not entirely forgotten. As well as making quantitative observations on the three plots, the field parties were required to give qualitative descriptions under the heading "Association and Remarks". The instruction was to record "matters not recorded elsewhere" and the subjects to be dealt with "if there was anything significant to be noted" included stand structure, quality of timber, wind damage, evidence of insect or fungal attack and "*prevalence of native birds*" (my italics).

It will be seen that birds just slipped in, almost as an afterthought: certainly party leaders were not given any routine instruction in recognizing birds or bird calls. In these circumstances the amount and quality of ornithological data recorded depended almost entirely on the interests and knowledge of the individual party leader. Unfortunately in many cases these were both minimal, although some party leaders, particularly in Southland, did make good observations. Elsewhere also it has been reported that some important sightings were made and recorded.

It would be a long task to go through all the thousands of Forest Survey tally sheets and extract what information of ornithological value is hidden away in them. It may still be worth doing; the purpose of this little note is merely to bring this fact to the notice of anyone who may be interested.

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