

COST-BENEFIT ANALYSIS IN THE NINETIES

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Cost-benefit analysis is a discipline that, in recognizably modern form, began in the mid-1950s when a group of economists working at Harvard/MIT developed a systematic approach to the analysis of major water resource projects for the United States government. In the 1960s, use of the technique spread into private industry and more widely within government. For example, Robert McNamara went from Harvard to a position with Ford Motor Company, to Secretary of Defence under Kennedy and Johnson, to president of the World Bank, taking with him a preference for numbers and analysis as the basis of decision making. By the early 1970s, two things were happening. International agencies such as the World Bank and UNIDO were publishing detailed guidelines for economic cost-benefit analysis, and most Western governments had developed an appropriate discount rate (virtually all settled on 10% per annum after inflation as a reasonable measure of the cost of capital) and were publishing their own guidelines. The Canadian federal government published its *Guide to Benefit-Cost Analysis* in 1976.

Many public agencies increasingly instituted requirements for cost-benefits analysis, and to a great extent the technique became a battleground of competing interests. For example, private industry has generally supported the use of the technique before any government regulation is passed, believing that analysis will most often show regulation not to be net beneficial, but has opposed requiring benefit-cost analysis of large projects because of delay and because the onus of proof of net benefit falls on the company. Environmental and social interest groups have often taken the opposite tack. At the same time, from the mid-1980s to the early 1990s, there was a crisis of confidence in the technique. Despite increasing lip service, the reality was that the technique fell into disuse and to some extent into disrepute. Very few evaluation studies, for example, have used the technique, despite its being clearly the most rigorous method available to answer the questions typically posed in such studies.

The articles in this edition of the *Canadian Journal of Program Evaluation* show that the technique is emerging from crisis and that, in the long run, it will probably become the central tool of evaluation. It is interesting to see the changes in the 1990s that are leading in this direction.

INCREASED TRANSPARENCY

In the first flush of methods development, cost-benefit theorists advocated techniques that were perhaps attractive in theory but that, in practice, obscured the analysis and damaged the confidence of the decision maker. In this category, I would count using “equity weights” to beef up the benefits of a worthy cause, adjusting the discount rate from project to project, adjusting the costs and revenues/benefits to reflect the perceived “utility” and risk preferences of the decision maker, and using esoteric units of account such as “units of consumption” rather than ordinary investment dollars, and individual “shadow prices” rather than market prices. Each of these has theoretical justification for its use, but put them all together in the context of uncertain and incomplete data and the result will be such a rickety and complex structure of assumptions and compounding uncertainties that the average manager will flee in terror. The articles in this issue (Harberger, in particular) show the field settling down to core techniques that generally avoid such practices.

INCREASED PRACTICALITY

In the public sector, the refinements of cost-benefit analysis sometimes led decision makers to overlook the fact that a project could have many theoretical “social” benefits at the same time as it lacked sufficient cash flow to make it viable. In such cases, as the old joke goes, the operation was a success but the patient died. In the early 1990s, the World Bank undertook a retrospective study of the outcomes of a substantial sample of its projects then coming to fruition, and found that only about one-third had lived up to initial cost-benefit expectations. This has led to a rethinking, evident in the ensuing articles and especially in Ward, and a new emphasis on the more prosaic and business-like aspects of projects, such as good management and actual cash flows.

BETTER RECOGNITION OF RISK

One of the things that decision makers did not like about cost-benefit analysis is that it usurped their space. Once a cost-benefit analy-

sis had shown that a road or dam project was not cost-beneficial, how could a manager decide otherwise (without being flayed by the media)? The old style of analysis, in which an intricate and opaque structure of assumptions led to a single-figure bottom line, was particularly unattractive to managers. On the one hand, it delegated the making of assumptions and judgements, which the manager might prefer to keep for herself, to the analyst; on the other hand, it produced a single answer with such a powerful aura of analytical rigor that a manager found it impossible to challenge without having another analyst redo the work — a big waste of time from the managerial point of view.

The modern style of cost-benefit analysis involves incorporating probability distributions in the cost-benefit model (Jenkins). For example, instead of using one “price of oil” in the costs, the analyst would use a range of prices with an indication of the probabilities within that range. This had been made an easier procedure over the past decade by the emergence and rapid improvement of microcomputer software able to do this work. The cost-benefit/risk analysis approach gives not a single-figure bottom line, but a range of possible outcomes with an analysis of the probabilities/risks involved. This is much more useful to managers in two ways: it provides them with better and more realistic information, and it leaves them room to exercise their judgement.

BETTER MEASUREMENT

Since the rise of cost-benefit analysis, the other social and economic sciences have improved, and this has meant that the inputs to any analysis are now often better than they would have been forty years ago. For example, if one is looking at the probabilities of oil prices there is now a longer time series of data available for examination, and the techniques for converting data to probabilities (multivariate statistical analysis, game theory, etc.) are better than they were. It is also true that we are better at “measuring” such things as the value of life, the value of aesthetics or a clean environment, and the value of saved commuting time. In such cases, we are not going to “discover” what the value of a saved life is, or a saved minute of time. We will think about these things forever. However, our understanding of how to deal with these issues in a quantitative cost-benefit model has improved slowly over the past few decades. The analyst working today has a large research literature to draw upon in each of these topics, and some of the research and thinking has shed some light.

THE SITUATION TODAY

This special edition on cost-benefit analysis is well timed. It comes at a point when analysts, suitably chastened by the hangover that resulted from the over-ebullient youth of the technique, have regrouped around its core disciplines and produced a well-based, reasonably practical approach. At the same time, a new generation of better-educated managers is perhaps ready to make enlightened use of the technique. One reflection of this is that the Treasury Board Secretariat of the Government of Canada has this year produced the first major revision of the *Cost-Benefit Guide* since it was published in 1976. This special edition of the *Journal* will contribute to our understanding of where cost-benefit analysis stands and what it offers to the decision maker.