

Economics in policy-making 6

Multi-criteria analysis

Multi-criteria analysis (MCA) evolved from critique of conventional cost benefit analysis and its variants, social cost–benefit analysis (CBA) and Social Return on Investment (SROI).

Where does multi-criteria analysis come from?

Both social CBA and SROI are based on the premise that both social and environmental wealth should, and can, be ‘monetised’ (translated into monetary terms) in order to be factored into conventional CBA. Equally, they work on the premise that societies should *always* opt for interventions that are optimal in terms of efficiency and effectiveness – i.e. the ones producing the most benefits compared to costs. At least that’s the theory. Both CBA and SROI are tools which help in decision-making because they give certain pieces of information. That does not guarantee those pieces of information are used in decision-making.

As touched upon in briefings 3 and 4 there are various major technical and ethical uncertainties surrounding these ideas:

- On the one hand, revealed preference methods – which use real market data (like house prices) to value intangible attributes (such as the value of proximity to beautiful landscapes) – can capture only *part* of the value of environmental and social wealth. On the other hand, Willingness To Pay (WTP) or Willingness To Accept (WTA) methods, which can potentially capture the total economic value (TEV) of nature and well-being, are based upon the subjective statements of individuals, and their relative wealth, and are therefore marked with uncertainties.
- Many people are ethically against putting a monetary price tag on nature in the first place, as evidenced by the high proportion of respondents who refuse to ‘bid’ for environmental and social goods when taking part in Willingness To Pay research. This highlights the question of ‘incommensurability’ of values – whether or not assets can all be valued on a single scale (see *briefing 3*).
- Finally, some argue that society is not necessarily a field where the main objective should be ‘efficiency maximisation’ (i.e. choosing the “best” policy option). Rather, it is a field of competing interests and values, where an intervention that is optimal for some stakeholders could be the worst possible outcome for others. For instance, banning the over-fishing of some species might be the worst possible outcome for some parts of the fishing industry while at the same being (a) an acceptable compromise for some fishing communities, and (b) the optimal solution for other stakeholders such as the tourism industry or environmental NGOs.

In light of this, the “right” policy option for society should be the one that the most people agree with.

MCA practitioners refute the idea that decisions should be based purely on the total balance of an action’s costs and benefits, without taking into account how these costs and benefits are distributed. They argue that different stakeholders have competing vested

interests in how resources are used, and will be affected in different ways by an intervention.

The aim of MCA is to bring to light these unavoidable conflicts and competing interests, rather than presuming that the technically 'optimal' solution is necessarily the best for society.

How does MCA differ from social CBA and SROI?

MCA practitioners subscribe to the following principles:

- 1 That society is a sphere of competing interests and values for competing stakeholders – and there is no such thing as 'best' policy option cutting across all stakeholders and values;
- 2 That 'monetisation' cannot adequately capture the value of nature for a variety of reasons, ranging from strictly technical issues to ethical premises;
- 3 That, in light of this, we cannot express nature and social values in monetary terms, so other means of capturing that value need to be investigated.

Based on these principles, MCA differs from social CBA and SROI in the following ways:

- It considers a range of possible interventions aiming to achieve the same end. For example, in order to reduce overfishing in British coastal areas, a range of interventions (reducing the number of vessels/ fishermen; or introducing quota or closed seasons for example) could be defined by different stakeholders. All the potential interventions would then be appraised/ evaluated.
- It considers all potential stakeholders affected by a given intervention and distinguishes them in a clear way. SROI does this to some extent, but does not usually consider a range of different options or consult stakeholders to find out which they prefer.
- It consults stakeholders in order to determine the criteria against which they think impacts should be assessed. Objective measurement indicators are then determined for each of the triple bottom line impact criteria (economic, social, and environmental).
- Stakeholders are asked to rank the criteria which seem more important to them – e.g. fishing communities might be more interested in economic and social / well-being criteria and less about environmental ones. Other stakeholders might have a different set of preferences reflected in the analysis. This does not happen in social CBA and SROI where all criteria (benefits) are assumed to have the same weight as each other, and to all stakeholders.
- The performance is assessed against indicators which do not need to be monetised. A biodiversity indicator might, for instance, be set as mean species' abundance (MSA) per hectare. All different indicators are then "harmonised" on a scale (e.g. % change) in order to create an overall score for each policy option.

- Finally, based upon (a) the score of each intervention against each criterion and (b) the ranking of stakeholders, a most preferred and least preferred option or intervention is determined for each stakeholder group. This means that, unlike social CBA/SROI, there is no 'single' ratio at the end of the process.

The fact that no single ratio is obtained, means that a negotiation process among stakeholders follows an MCA. The ultimate objective is to find the most 'acceptable solution' for as many stakeholders as possible by rationalising conflicts and competing interests. It is assumed that only by establishing the maximum possible amount of stakeholder support (and thus 'acceptability'), can an intervention be sustainable on the long run.

MCA: a viable alternative or a complimentary measure?

The main strengths of MCA are that it escapes the inherent uncertainties linked with monetisation and weighs up multiple options and competing interests. It is also a holistic exercise which can take into account numerous intangible criteria. The question, however, is the extent to which it should, and can, replace social CBA as a decision-making tool.

To start with, mainstream appraisal and evaluation has historically ignored MCA. This means that limited comparative data exists and there is also insufficient standardisation between data sets.

Further, whilst MCA is extremely useful in situations where there are competing interests at play, it is not necessarily capable of demonstrating the best possible option from an efficiency, equity or effectiveness standpoint. In light of this, social CBA and SROI may be better suited to situations where no stakeholder conflicts exist and an 'optimal' pathway needs to be defined.

Finally, as is the case for social CBA and SROI, MCA does not consider extreme risk or uncertainty. In particular, it is unsuitable for representing non-linear developments, e.g. the risk of a sudden collapse of fish stocks. As such, MCA does not necessarily work well with the 'precautionary principle' approach to environmental decision making.

Are there other alternatives?

One of the fundamental characteristics of climate change and biodiversity loss is radical uncertainty. Due to the unpredictable positive feedback systems present in the natural world, we often cannot accurately gauge what the probabilities of certain future events happening are (e.g. a sudden halt of ocean current circulation).

When it is not possible to assign robust probabilities to key future impacts – and in the presence of disagreements among experts – then both social CBA and MCA can become obsolete.

For these reasons some scholars as well as supra-national organisations (including the European Commission) have suggested that a precautionary approach should be used in conditions of radical uncertainty. This entails quantifying costs and benefits under 'best case' and 'worst case' scenarios. The existence of an 'extreme worst case' scenario (such as a complete collapse of fish stocks) should be enough to prescribe a set of policy options based on a precautionary principle; at least until the likelihood (probability) of an event happening (or not) can be assigned with some certainty.

Further reading and useful resources

Critique of cost-benefit analysis and alternatives
http://www.ase.tufts.edu/gdae/Pubs/rp/Ack_UK_CBAcritique.pdf

Seven principles for valuing what matters
http://neweconomics.org/sites/neweconomics.org/files/Seven_principles_for_measuring_what_matters_1.pdf

The Economics of Ecosystems and Biodiversity: socio-cultural context of valuation
http://www.teebtest.org/wp-content/uploads/Study%20and%20Reports/Reports/Ecological%20and%20Economic%20Foundations/TEEB%20Ecological%20and%20Economic%20Foundations%20report/TEEB%20Foundations_Chapter%204.pdf

Multi-criteria analysis: a case study (marine protected area)
http://www.cserge.ac.uk/sites/default/files/gec_2000_02.pdf

Communication of the European Commission on the precautionary principle
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2000:0001:FIN:EN:PDF>

Economics in Policy-making briefings:

- 1 An overview of economics
Sagar Shah
- 2 How economics is used in government decision-making
Susan Steed
- 3 Valuing the environment in economic terms
Olivier Vardakoulias
- 4 Social CBA and SROI
Olivier Vardakoulias
- 5 Discounting and time preferences
Olivier Vardakoulias
- 6 Multi-criteria analysis
Olivier Vardakoulias
- 7 Beyond GDP: Valuing what matters and measuring natural capital
Saamah Abdallah
- 8 Markets, market failure, and regulation
James Meadway
- 9a Finance and money: the basics
Josh Ryan-Collins
- 9b What's wrong with our financial system?
Josh Ryan-Collins
- 10 Property rights and ownership models
James Meadway
- 11 Behavioural economics – dispelling the myths
Susan Steed

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