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Cost–Benefit Analysis: Philosophical Issues

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Abstract

Cost–benefit analysis (CBA) gives rise to a whole range of philosophical issues. The most discussed among these is the status of economic values that are assigned to assets conceived as incommensurable with money, such as a human life or the continued existence of an animal species. CBA also involves other contentious assumptions, for instance that a disadvantage affecting one person can be fully compensated for by an advantage affecting some other person. Another controversial issue is whether a CBA should cover all aspects in a decision or rather leave out certain issues (such as justice) so that they can instead be treated separately.

Keywords

Aggregation; Commensurability; Comparability; Compensation; Contingent valuation; Cost–benefit analysis; Environmental

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Cost–Benefit Analysis: Philosophical Issues

Cost–benefit analysis (CBA) is a collection of decision-aiding techniques that weigh advantages against disadvantages in numerical terms. In a typical CBA, multi-dimensional problems are reduced to one dimension, usually with monetary value as the common currency. Such a reduction raises several important philosophical issues (Hansson 2007; Sen 2000; Sunstein 2005).

Incommensurability

The most discussed among these issues concerns the status of the economic values that cost–benefit analysts assign to assets that do not have a market value. Many of these assets are conceived as invaluable, such as a human life or the continued existence of an animal species. Critics have claimed that CBA desecrates human life when it

assigns a monetary value to the loss of human lives. Such criticism would probably have been less common if the nature of these values had been better explained. In particular, they are not prices. (No market – no price.) The assignment of a sum of money to the loss of a human life does not imply that someone can buy another person, or the right to kill her, at that price. What it implies is that society tends to pay (alternative: ought to pay) up to that sum to save a human life.

The incommensurability between life and money is only one of many incommensurabilities that are dealt with in CBA. There is no definite answer to the question how many cases of juvenile diabetes correspond to one death, or what amount of human suffering or death corresponds to the extinction of an antelope species. Since such comparisons are technically effected in a CBA by assigning monetary values, the problem of incommensurability appears to be a problem of monetisation. But even if money were removed from the analysis it would still be necessary to deal with comparisons between deaths, diseases and environmental damage. The fundamental problem is that for decision-making purposes we need to evaluate comparatively entities that we conceive as incomparable. Such ‘impossible’ comparisons are inherent in all major social decisions. CBA brings them to light.

Interpersonal Aggregation

In a CBA, all costs and all benefits are combined into one and the same balance. This means that a disadvantage affecting one person can be fully compensated for by an advantage affecting some other person. In other words, *interpersonal compensability* of advantages and disadvantages is assumed. (Interpersonal compensability should not be conflated with the related but distinct issue of interpersonal comparability. Even if a benefit to one person is greater than a harm to another person, it need not cancel out the harm.) The assumption of interpersonal compensability is one of several features that CBA analysis shares with utilitarian moral theory.

There is, at least theoretically, an alternative to this approach. Advantages and disadvantages can be weighted against each other separately for each affected person, and a positive balance for each individual person can be required for a policy to be accepted. This is the approach that has dominated mainstream economics since the 1930s, when Lionel Robbins showed how economic analysis can dispense with interpersonal comparability. The approach that prevails in CBA is more akin to the collective, aggregating approach of the so-called old welfare economics. There is an obvious but surprisingly little discussed tension between standard CBA and Paretian welfare economics. The former, but not the latter, tends to sanction the sacrifice of individual interests for the sake of collective goals.

Many of the value assignments used in CBA are based on estimates or measurements of (hypothetical) willingness to pay. This applies for instance to values based on contingent valuation. All evaluation methods that are based on willingness to pay tend to give more influence to affluent people since they can pay more than others to have it their way. This can be corrected with income-based adjustments of the reported willingness to pay.

Exclusion of Aspects

All evaluations of the future effects of decisions tend, irrespective of methodology, to leave out or downplay effects that are difficult to predict. Furthermore, since CBA aims at numerical calculations, it tends to leave out aspects of future developments that can only be predicted in non-quantitative terms. This applies for instance to risks of cultural impoverishment, social isolation, and increased tensions between social strata. These limitations can lead to bias when alternatives with mostly quantifiable negative consequences are compared to alternatives whose major drawbacks are nonquantifiable. Furthermore, due to their aggregative structure, CBAs often leave out social justice and other distributional aspects from the analysis even when they are accessible to quantitative treatment.

Cost-benefit analysts have given two major answers to this criticism. One of these is that all such neglected factors could and should be included in the analysis. It is for instance not difficult to put a price on inequality and include it in the analysis, and the same applies to other aspects that are commonly left out. (However, such all-encompassing CBAs are much more seldom performed than they are referred to in defence of the CBA methodology.)

The other answer is that a CBA only covers some of the aspects of a decision. It should therefore not be treated as the last word in an issue, but has to be followed by reports and discussions that cover aspects not covered in the CBA. Some discussants consider it inappropriate to include distributive justice in the total calculations of a CBA, since such issues are better dealt with separately.

Transferability Across Contexts

In CBA, cost estimates are regularly transferred across contexts. This applies for instance to values of human life. A CBA that the U.S. Environmental Protection Agency performed for a new standard for arsenic in drinking water can be used as an example of this. The values of life used in this analysis were standard values derived from studies of how much male workers receive in compensation for risks of fatal accidents. However, as was noted by Heinzerling (2002), it was not necessary in this case to import life values from another context. It would have been possible to use life values derived from the very context of the CBA in question. There is a market for bottled, presumably non-toxic, water. Willingness to pay could have been derived from an analysis of prices on that market. Alternatively, consumers could have been asked how much they are prepared to pay for reduced levels of arsenic in drinking water, given realistic assumptions about the health effects of such a reduction.

The transfer across contexts that is illustrated in this example is an essential component in the methodology of CBA. If all values used in a CBA were derived from the precise context of its subject matter, then its usefulness for comparative

purposes could be put in question. But even though transferability across contexts is an essential assumption in CBA, it is far from trivial to defend it from a philosophical point of view. Such a defence would have to show that our evaluations of a consequence should be the same irrespective of the context in which that consequence appears. For instance, a life lost in a workplace accident and a (statistical) life lost due to arsenic in drinking water should be assigned the same value.

In practice, we tend to pay much more to save a life in some contexts than in others. It is far from self-evident that all such differences lack sensible normative justification. It may for instance be justified to pay more to protect people from risks that they cannot avoid than to protect them against risks that they can avoid at small cost to themselves. For similar reasons, it may be justified to pay more to protect children than adults. Furthermore, some causes of death are considered particularly pernicious, and therefore worth more expensive countermeasures than other causes of death. We may for instance choose to pay more per life saved in a law enforcement programme that reduces the frequency of manslaughter than we would pay for most other life-saving activities.

Decisional Synopticism

The effects of a decision often depend heavily on other, parallel decisions. A CBA devoted to one of several interconnected decisions can be misleading due to the impact of the decisions that it does not cover. As one example of this, a CBA (or any other type of analysis) aimed at optimising the road traffic system may result in a suboptimal recommendation due to potentials of rail traffic that it does not take into account. Such effects of non-inclusion can in principle be remedied by framing decisions in large coordinated units that cover as many social areas as possible. The tendency to do so has been called 'super synopticism'. (Hornstein 1993, p. 387) However, such large-scale optimisation does not always work, largely for reasons similar to those that make centralised planning inefficient.

As one example of this, the willingness to pay for safety, as measured in the marginal cost for saving a life, differs widely between policy areas. Some cost–benefit analysts claim that all decisions on risk acceptance should be coordinated so that willingness to pay is equalised across policy areas. The implementation of such a unified price would require a high degree of coordination across policy areas. This is not easy to achieve since risk decisions are interwoven with other decisions in their respective policy areas. It may not always be feasible in practice to make risk decisions in a fully coordinated and centralised way while retaining a decentralised decision structure for other decisions.

This and several other issues connected with CBA will be much less problematic if a CBA is considered as one of several inputs into a decision than if it is presented as the last word which a rational decision-maker has to abide by.

See Also

- ▶ [Contingent Valuation](#)
- ▶ [Cost–Benefit Analysis](#)
- ▶ [Ethics and Economics](#)
- ▶ [Philosophy and Economics](#)
- ▶ [Value of Life](#)

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