
Summary sheet

COST-BENEFIT ANALYSIS (CBA)

Abstract

Cost-benefit analysis (CBA) is a method of economic analysis that compares all the costs and benefits, usually expressed in monetary terms, of a given project (UNFPA, 2004).

History

CBA is a technique for putting into practice principles developed in welfare economics, a branch of economics that involves applying microeconomic principles to assess the effects of a given action on the well-being of a community. The use of CBA to inform government action in its investment projects gained momentum in the West, particularly in the United States, beginning in the 1960s. Since 1999, all Canadian government regulatory policy proposals with potential impacts on the environment, workers, businesses, consumers and sectors of society have been required to undergo CBA (TBS, 2007).



Method

In theory, a CBA is conducted by following these steps (Boardman, 1996, p. 7):

- 1 List the stakeholders (those to whom the costs and benefits considered will apply);**
- 2 List the projects or programs to be evaluated;**
- 3 Catalogue the potential impacts and select the appropriate indicators;**
- 4 Measure or estimate the impacts considering the whole expected life of the project;**
- 5 Assign a monetary value to the identified impacts (monetize them);**
- 6 Discount over time to obtain the net present value;**
- 7 Sum the costs and benefits;**
- 8 Perform a sensitivity analysis;**
- 9 Recommend the option with the highest net social benefits.**

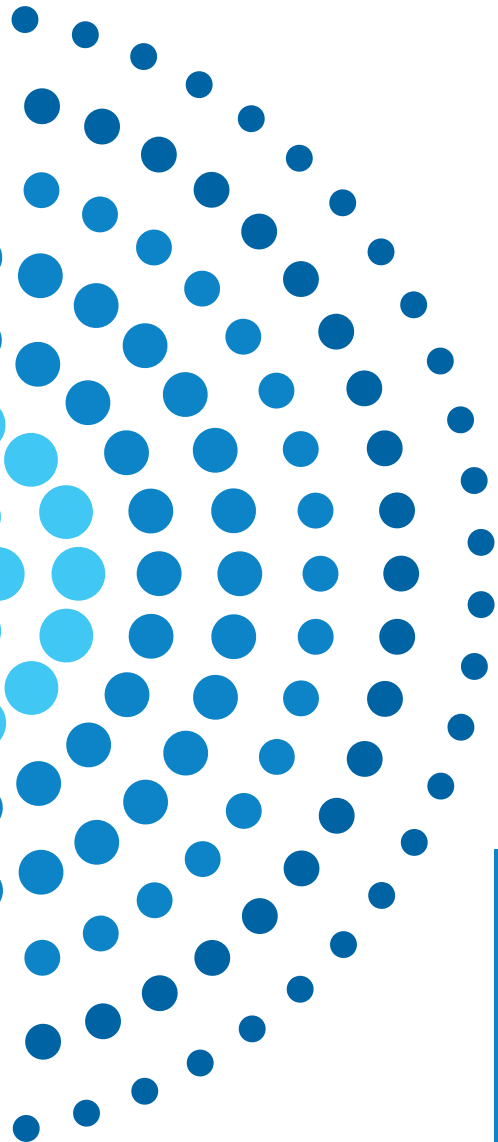
CBA can be done before a project is implemented (ex ante), after (ex post) or, in some cases, during (in media res). According to Fujiwara (2014, p. 9), CBA is very similar to other impact measurement models such as:

- Cost-usefulness analysis, which consists of evaluating benefits in a non-monetary unit of measurement. For example, in the health sector, the expected amount of healthy lifetime a patient should have following an intervention is counted in “quality-adjusted life years” (QALYs);
- Cost-effectiveness analysis, which compares the ability of several projects to achieve a predetermined result while minimizing costs;
- Social return on investment analysis (see the summary sheet on SROI), which also incorporates several CBA principles.

Scope and limitations

CBA is a decision-making support tool commonly used by governments in Quebec and Canada. Thanks to the monetization stage, it makes it possible to compare the value, expressed as a cost-benefit ratio, of projects of a very different nature, or of the options considered in carrying out these projects, over a given time horizon. In practice, each of the previously identified steps can pose certain difficulties or reveal various issues. As Boardman (1996) points out in his introduction to CBA:

- 1** Although it is generally recommended that a cost-benefit analysis be conducted on a “global” scale, CBA is often restricted to a specific territory (e.g., the impacts of activity X in Quebec). This raises the question of “Who do we want to consider in the analysis?”
- 2** The comparison of different projects or programs within a CBA allows the relative relevance of a project to be identified. This makes it possible to integrate a certain notion of opportunity cost—a key concept in economics, but one that is often poorly integrated into analyses.
- 3** Some values are more difficult to observe, measure or demonstrate than others. CBA does not offer a silver bullet for this challenge, and simply recommends that all relevant costs and benefits should be considered.
- 4** Most interventions involve costs that are concentrated at the beginning of the project as well as benefits that are spread over many years. Very often, the estimated duration of these impacts can significantly change the results of a CBA.
- 5** As with SROI, the monetization phase is crucial to CBA, but often requires the use of approximations of a value for which an exact measurement is difficult or impossible to obtain (proxies). Such proxies can be derived by observing comparable behaviours on the market or simply by asking participants to estimate the value they attribute to the service or product being valued.
- 6** There is no consensus in the field on the discount rate to be applied, that is, the value to be placed on future costs and benefits. Indeed, while it is generally accepted that a greater value should be placed on present rather than future consumption in order to reflect individual preferences and take into account the increase in living standards over time, the exact rate to be applied varies greatly from one study to another and can have a significant impact on the conclusions of studies (Arrow et al., 2013).



Uses

The studies about the economic contribution of daycare services (Fortin et al., 2013), home support social economy enterprises (EÉSAD) (Paradis, 2013) and adapted enterprises (Fortin et al., 2013) all include, to some extent, elements of CBA.

The study on work insertion enterprises conducted by Libera Mutatio (Comeau, 2011) and updated a few years later also used, in addition to the part involving the Quebec intersectoral model, several elements of CBA.

For example, Comeau (2011) attempted to estimate the value of work insertion interventions by quantifying the following elements:

- 1** Avoided costs for the health care system;
- 2** Economic gains from increased productivity of participants;
- 3** Economic gains for participants' children;
- 4** Avoided costs for the justice and prison system;
- 5** Avoided costs and gains for specific Quebec government programs;
- 6** Avoided costs and gains for the Government of Canada's employment insurance program.

This allowed him to conclude that total initial investments of \$36 million in work insertion enterprises by the governments of Quebec and Canada yield gains of \$8.4 million for the governments of Quebec and Canada in the first year, and \$80 million after 21 years (Comeau, 2011, p. 39).

However, this study was not fully considered by the ministère de l'Emploi et de la Solidarité sociale (MESS), which preferred to conduct its own CBA that considered the following elements: transfer payments, taxes, tax credits and employment income. The study then arrived at different results: the total costs of \$36 million would yield gains of \$9.7 million in the first year and the gains could be equivalent to the costs after 6.3 years (MESS, 2013, p. 89). In short, the case of Quebec work insertion enterprises illustrates that several studies on the same subject, each using CBA, can provide different results, since the method involves making numerous assumptions and estimates at several stages.

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