

# Economic evaluation

## What is economic evaluation?

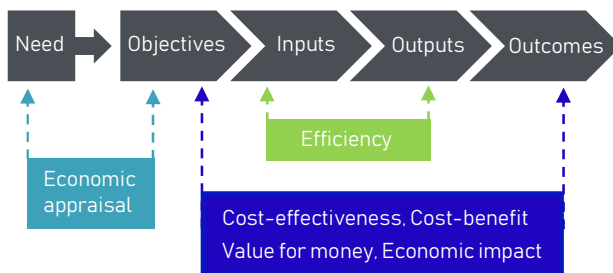
Economic evaluation is used to identify, measure and value a program's costs and benefits, and compare them with those of alternatives. Economic evaluation is often integrated with evaluation of program processes and outcomes. It can answer questions about the extent to which:

- a program represents better public and economic value than another program or the status quo
- a program's resources and funding are allocated appropriately, efficiently or effectively
- an implemented program should be continued, modified or ceased
- the current mix of programs is efficient, beneficial or provides value for money
- expenditure aligns with government priorities.

## When to use economic evaluation?

Ideally, all evaluation activities should commence prior to implementing a program to establish baseline comparisons. Economic analysis undertaken prior to implementation is often referred to as **economic appraisal** and uses **estimated costs** and outcomes of a program. When undertaken post-implementation, **actual costs** and outcomes of a program are used. Figure 1 shows various types of economic analysis and the common program stages in which they are undertaken.

Figure 1: Types of economic analysis during program stages



Queensland's **Financial Accountability Act 2009** requires public sector agencies to "achieve reasonable value for money by ensuring the operations of the department or statutory body are carried out efficiently, effectively and economically".

Undertaking economic evaluation to better understand value for money of a program is particularly useful for large-scale, high-risk or complex programs and when substantial government money has been invested.

## Key steps in economic evaluation

Once a clear set of evaluation questions is developed, the following steps are undertaken.

### 1 Consider your analysis options

What kind of economic analysis will be most appropriate to answer your evaluation questions? (see page 3)

- Your selection should be based on:
  - the evaluation's timing and objectives
  - your understanding of likely program outcomes and costs.

### 2 Perform a cost analysis

What are the costs of implementing the program/s and who incurs these costs?

- This analysis often includes fixed and variable costs and may include consideration of absolute, relative, opportunity, differential, incremental and sunk costs.

### 3 Measure and value program outcomes

What are the likely or achieved program outcomes and what value can be placed on these outcomes?

- The quantification or valuation method you select is dependent upon the type of economic evaluation you are conducting and how outcomes can be measured.

### 4 Assess costs and outcomes

How do the valued outcomes for the program/s measure against their costs?

- You want to know how much it costs to produce all outcomes being evaluated.

### 5 Conduct a sensitivity analysis

How robust are your results?

- This analysis helps to ensure transparency while highlighting key drivers and degree of risk / uncertainty in your assumptions and results.

### 6 Interpret the results

Can or do the evaluated program/s deliver quality outcomes within the desired cost threshold?

- Compare how much government, decision-makers, and/or society are willing to spend to produce an outcome against the results of your program evaluation.



## Variation in scope and focus

Economic evaluation, depending on its scope and focus, can assess the costs and benefits for individuals or communities at either a program or system level. It can also provide a framework to support transparent decision-making about resource allocation.

For example, a program manager who has been asked to deliver a treatment program could evaluate whether the program is cost-efficient and effective, while government more broadly should evaluate whether a treatment program is the best option, or if a preventive program may provide greater benefit or value for money.

## Assumptions and limitations

Economic evaluation findings depend upon the assumptions underpinning the analysis (such as growth rate of a given population, demand and/or supply levels of a particular service). Clearly articulating assumptions helps to ensure transparency and to explain findings.

Economic evaluation is less reliable when:

- costs or benefits of a program cannot be accurately measured or agreed upon by stakeholders
- there is insufficient time, resources or capability to assess all direct and indirect, monetised and non-monetised costs and benefits and their effects on different stakeholder groups
- data are unreliable or incomplete
- the results of analysis are sensitive to relatively small adjustments to assumptions or inputs
- the analysis relies on untested assumptions.

Input-output analysis and multiplier analysis are not tools of economic evaluation, as the simplistic assumptions relied on by these methods can substantially overstate the benefits of a program.

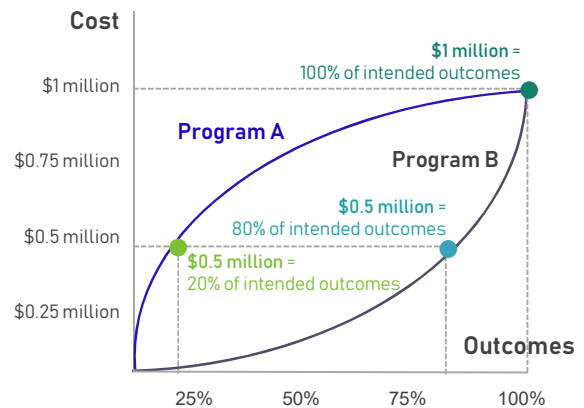
## Key concepts

### Total and incremental costs

Economic evaluations often compare the total cost of delivering a program with the outcomes it delivers. It can also be beneficial to measure the **incremental cost** which indicates how changes in the cost associated with a program's reach or scope might affect intended outcomes.

An example in Figure 2 compares the incremental costs for two programs (A and B). Both deliver the same total intended outcomes at the same total cost. However, program B delivers 80% of total intended outcomes at half the total cost.

Figure 2: Example of programs with different incremental costs



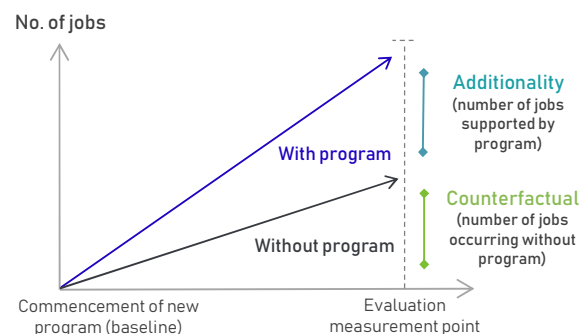
### Opportunity cost

Opportunity cost is useful to understand what was 'given up' in choosing to implement a program, as resources expended on one program cannot be directed towards alternative courses of action. The value or foregone benefit of the best of these alternatives is known as **opportunity cost**.

### Additionality

**Additionality** refers to the quantified outcomes that result from a program over and above what might have happened anyway (sometimes referred to as the counterfactual, business as usual or deadweight). See Figure 3.

Figure 3: Illustrates the concepts of additionality using a simple example of jobs as a program outcome



**Note:** This conceptual diagram is not intended to account for the broad range of effects considered in economic analysis. Furthermore, not all programs produce just positive effects. Sometimes you may measure and report negative effects also, for example, number of jobs lost due to a program.

### Leakage

A proportion of program outputs can inadvertently benefit those outside a target group. Understanding the extent of this **leakage** can be useful to redirect activities or cease activities altogether.



## What types of analysis can be used for economic evaluation?

Analysis undertaken in economic evaluation should be fit-for-purpose. The analysis should help answer your evaluative questions and meet the evidence requirements for decision-making. The table below shows common types of analysis used in economic evaluation, as well as some of their key features and limitations.

Analysis	Key features	Limitations
<b>Cost-benefit (CBA)</b>	<ul style="list-style-type: none"> <li>Considers the financial, economic, environmental and social impacts of a program from a societal perspective and considers what would have happened in the absence of the program.</li> <li>Requires monetisation of costs and benefits (where possible) to enable like-for-like comparisons.</li> <li>Calculated in terms of <b>benefit-cost ratio</b> or net benefits (e.g. <b>net present value</b>).</li> </ul>	<ul style="list-style-type: none"> <li>Can ignore equity concerns.</li> <li>Can be resource intensive/expensive given its comprehensiveness.</li> </ul>
<b>Cost-effectiveness (CEA)</b>	<ul style="list-style-type: none"> <li>Compares the costs of different programs in achieving a single critical outcome.</li> <li>Outcome often expressed in natural units<sup>1</sup>.</li> <li>Useful when benefits cannot be easily quantified in monetary terms.</li> <li>Can identify the lowest cost for achieving intended outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>Requires the same outcome measure for comparison (i.e. it can only be used when programs have the same goals).</li> <li>Does not look at effectiveness in the context of multiple outcomes.</li> <li>May not consider differences in the quality of outcomes between programs.</li> </ul>
<b>Multi-criteria (MCA)</b>	<ul style="list-style-type: none"> <li>Includes a range of techniques to assess alternatives according to a variety of criteria that have different units (e.g. dollars, tonnes and kilometres).</li> <li>Assigns weights and scores to each criterion to indicate their relative importance.</li> </ul>	<ul style="list-style-type: none"> <li>Although both qualitative and quantitative criteria may be used, subjective weighting and scoring increases the likelihood of bias and contestability of results. This may lead to less useful information for decision-makers.</li> </ul>
<b>Cost-utility (CUA)</b>	<ul style="list-style-type: none"> <li>Uses a non-financial common metric to make comparisons across different programs.</li> <li>Can consider multiple outcomes.</li> <li>Effectiveness is measured in preference-based units, which means that natural units<sup>1</sup> are combined with a measure of their value.</li> </ul>	<ul style="list-style-type: none"> <li>Uses potentially subjective probability, weighting or ranking to assess decisions/trade-offs under uncertainty.</li> <li>Can be time-consuming and cognitively difficult.</li> <li>Subject to similar limitations as MCA.</li> </ul>
<b>Cost-minimisation (CMA)</b>	<ul style="list-style-type: none"> <li>Compares the costs of two programs that have the same outcome.</li> <li>Used to determine the lowest cost option.</li> </ul>	<ul style="list-style-type: none"> <li>Cost categories can be subjective.</li> <li>No comparison possible outside a limited set of alternatives.</li> </ul>
<b>Cost-consequence (CCA)</b>	<ul style="list-style-type: none"> <li>Systematic description and measurement of program costs and consequences.</li> <li>Outcomes left in natural units<sup>1</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>Weighting of individual attributes is at the discretion of the decision-maker.</li> <li>Subject to similar limitations as MCA.</li> </ul>
<b>Return on Investment (ROI)</b>	<ul style="list-style-type: none"> <li>Assessment of the net financial costs and benefits to the agency paying for the program.</li> <li>Shows how much monetary value is achieved, or can be achieved, from spending decisions.</li> <li>Can also be viewed more broadly, by assessing the social return on investment (SROI) to quantify the social and/or environmental benefits and value of a program or policy to society.</li> </ul>	<ul style="list-style-type: none"> <li>Ignores the costs and benefits to external stakeholders, including program users/participants.</li> </ul>
<b>Economic impact (EIA)</b>	<ul style="list-style-type: none"> <li>Estimates market economic impacts of a program.</li> <li>Impacts may be expressed in terms such as Gross State Product and employment.</li> </ul>	<ul style="list-style-type: none"> <li>Not a substitute for other methods and requires a robust framework (e.g. computable general equilibrium) to complement evaluation.</li> <li>Needs to correctly incorporate program impact on the state's finances.</li> </ul>

<sup>1</sup> **Natural units:** units of measurement which are real or physical (e.g. number of lives saved, number of jobs), as opposed to units which are monetised or units which require a judgement of value (e.g. utility).

