



Overview of economic evaluation methods

Contents

What is economic evaluation?.....	2
Different economic evaluation methods	3
Determining which method to use	4
Detailed guides	7
Frequently asked questions.....	8
Guidance and resources	10

What is economic evaluation?

Economic evaluation methods are used to determine if the benefits of a program or policy justify the costs. In a government context, the purpose is usually to ensure that a proposed project is—or was—an efficient use of resources.

Economic evaluation serves different purposes at different stages of a program, policy or action's lifecycle:

- **Before implementation** (also referred to as *ex ante*¹ or pre-implementation) – to help decision makers determine:
 - if the proposal is a good use of resources and should be funded
 - which of several different options should be pursued.
- **After implementation** (also referred to as *ex post* or post-implementation) – to help decision makers determine if the program:
 - was an effective use of resources (to inform future decisions)
 - if the program should be continued or stopped.

1 The terms *ex ante* and *ex post* are commonly used in economic evaluation so are included in this guide.

Different economic evaluation methods

Economic evaluations are primarily based on quantitative methods. The two economic evaluation methods used most often in government are cost-effectiveness analysis (CEA) and cost-benefit analysis (CBA). There are many other methods that are popular or commonly used in different fields.² Some of the key methods are detailed in this section.

Method	Description	Example key output	Most common use ³
Cost-benefit analysis	Involves making assumptions to convert all monetary and non-monetary benefits/costs from a proposal to dollar terms. Future benefits and costs are then converted to their value in today's dollars using a discount rate.	'The estimated net present value of the infrastructure project is \$300 million, with a benefit-cost ratio of 1.15'	Ex ante tool for comparing options and assessing if benefits outweigh costs
Cost-effectiveness analysis	Involves calculating a ratio between the costs of a program and a quantified (but not monetised) outcome measure. Different options are usually compared using that metric.	'The program saved 1 life per \$100,000 spent'	Ex post tool for comparing different programs with similar aims
Cost-utility analysis	A type of cost-effectiveness analysis where the outcome measure of interest is a quality adjusted life year (QALY).	'The program costs \$10,000 per quality-adjusted life year improved'	Ex post tool for comparing different health programs
Social Return on Investment	Involves assigning monetary values to social, environmental, and economic benefits of a program. Results are expressed as a ratio of benefits to monetary investment.	'The program costs \$1000 in investment, and creates \$2000 in social value, with a social return on investment of 2:1'	Ex post tool that incorporates information gathered from program participants.
Multi-criteria analysis (MCA) approaches	Involves creating a set of criteria to compare and score different programs. Programs may be scored using numbers or descriptions of different levels.	'Option A is preferred with the highest suitability across the identified criteria, and is scored 80% overall across efficiency, cost, equity and effectiveness'	Ex ante tool to compare options or assess if a program meets a minimum requirement.

2 For example, [Marginal Value of Public Funds](#), a form of benefit-cost ratio, is increasingly common in the public finance literature.

3 The 'Most common use' column describes common uses of each method. Each method can also be used for other purposes. For example, a CBA can be used to assess existing programs or ex post.

Determining which method to use

The most appropriate economic evaluation method to use in a given situation will depend on the context, the questions the economic evaluation is seeking to answer, and the available data.

In a government context, some agencies have guidelines for which methods they prefer.

Key considerations are described in this section.

Cost-benefit analysis	
When the method is used	Limitations
<ul style="list-style-type: none">• Tends to be used in fields where it is possible to convert non-monetary benefits into dollar values. For example, government spending on infrastructure projects, trade projects, or projects with a quantifiable economic benefit.• Can incorporate multiple benefits and does not have to focus on a single, primary benefit or defined beneficiary group. For example, environmental investments may benefit many communities that are not actively involved in the program.• Can incorporate multiple types of costs, which is important where there may be non-financial costs.• Generally used ex ante to inform decision making.• Required in some regulatory and business case processes (for example, by the Office of Impact Analysis, Infrastructure Australia, state/territory Treasuries). In some fields (especially infrastructure and transport) there are prescribed processes and methods.	<ul style="list-style-type: none">• Requires converting benefits to dollar values, which can be difficult or hard to interpret if the benefits are not financial in nature (for example, lives saved).• Heavily reliant on assumptions, which means it can produce misleading results if poorly implemented.• Requires more specialist expertise than some other economic evaluation methods.• Can be time and resource intensive given its comprehensiveness.

Cost effective analysis	
When the method is used	Limitations
<ul style="list-style-type: none">• Tends to be used in areas where it is difficult, or not meaningful, to try to convert benefits into a dollar value. For example, in health, accident safety and education where the primary benefit may be lives saved.⁴• Particularly effective where there is one benefit that is of primary interest, such as ‘lives saved’. Also effective where the beneficiary cohort is identifiable.• Can be kept simple and so conducted by people without specialist expertise if a rigorous estimate of the effect of a program is already available (for example, from an impact evaluation).• Can be clearer for communicating to non-expert audiences, e.g., the main output is ‘the program cost \$100,000 per each additional life saved’.• Often used ex post to review/evaluate a program that has already been implemented.	<ul style="list-style-type: none">• Generally focused on one particular outcome of interest (for example, lives saved). Can be less useful if the proposal does not have a single benefit that is of primary importance.• Can be difficult to compare proposals if their outcomes are not directly comparable. For example, lives saved compared to better educational outcomes.• Because benefits are not valued in monetary terms, CEA can only identify the most cost-effective way of achieving a given outcome. It cannot indicate whether the preferred option is a net benefit to society.

4 There are methods for converting concepts like ‘lives saved’ to dollar values using assumptions based on the [value of a statistical life](#). This is required in some economic evaluation methods but might not be considered meaningful in all contexts.

Cost utility analysis	
When the method is used	Limitations
<ul style="list-style-type: none"> • Tends to be used for health programs. • This is a type of cost-effectiveness analysis where the primary outcome is 'quality adjusted life years' (QALYs). Used when QALYs are of primary interest. 	<ul style="list-style-type: none"> • Requires measuring QALYs which may mean collecting additional data using a specific survey questionnaire (typically an assessment tool like 'EQ-5D'). • All limitations of cost-effectiveness analysis generally apply to cost utility analysis.

Social Return on Investment	
When the method is used	Limitations
<ul style="list-style-type: none"> • Tends to be used in charities and the philanthropic sector. • Focus on valuing the benefits of an initiative through direct engagement with affected people (or their representatives). For example, a program for First Nations communities would directly ask community members questions to place a dollar value on the benefits of the program from their perspective. • Often used in situations where there are multiple benefits, rather than one single, primary benefit. The benefits must generally be to an identified group. • More often used ex post to review/evaluate a program that has already been implemented. 	<ul style="list-style-type: none"> • Requires converting benefits to dollar values, which can be difficult or hard to interpret if the benefits are not financial in nature (for example, lives saved). • Heavily reliant on assumptions, which means it can produce misleading results if poorly implemented. • Requires more specialist expertise than some methods. • Can be time and resource intensive given its comprehensiveness. • Can be biased due to differing stakeholder perceptions of the value of different benefits. • Can be complex and resource intensive due to large data collection and stakeholder engagement requirements.

Multi-criteria analysis (MCA) approaches (e.g., Value for Money)	
When the method is used	Limitations
<ul style="list-style-type: none">• Tends to be used in areas where it is difficult to monetise both costs and benefits of a program.• Also used in combination with a CBA where the program has multiple benefits of interest that are difficult, or not meaningful, to monetise.• May be used for filtering options before applying more detailed quantitative analysis to a potential infrastructure program. Can also be used as a final output (for example, the Value for Money framework).• Can incorporate multiple benefits, and does not have to focus on a single, primary benefit.• More often used to make funding decisions prior to implementation or ex ante.	<ul style="list-style-type: none">• Expert judgment is required for criteria selection and scoring, which can be complex to implement and can give misleading results if done poorly.• Relies less on quantitative approaches, which may be a limitation depending on the circumstances and preferences of decision-makers.• Can identify preferred options, but cannot indicate whether the preferred option is a net benefit to society.

Detailed guides

- [Cost benefit analysis](#)
- [Cost-effectiveness analysis](#)

Frequently asked questions

Why is economic evaluation important?

- Both small and large organisations face competing priorities and trade-offs where if money is spent on one project it cannot be spent on another project. This is true for all organisations, including governments, charities, businesses and research organisations.
- Economic evaluation assists decision-makers in managing these trade-offs.
- By rigorously comparing both the monetary and non-monetary benefits of a proposal to their costs, decision-makers can ensure resources are allocated effectively. This is critical to an organisation achieving its goals.

How does economic evaluation relate to process evaluation and impact evaluation?

- A process evaluation provides insights into whether a program was implemented as intended. Results from a process evaluation can be helpful for an economic evaluation to give insight into why a program might not be as cost-effective as expected.
- An [impact evaluation](#) provides an estimate of the causal effect of a program but does not necessarily assess the cost of delivering the program. An economic evaluation can build on this by using the estimate of the effect of the program as an input to calculating the cost-effectiveness of a program. For example, an impact evaluation might estimate how many lives a program saved, and an economic evaluation would calculate the “cost per life saved” by the program.
- Economic evaluations often complement process and impact evaluation and can be conducted in parallel or sequentially.

How does economic evaluation relate to economic modelling of the macroeconomy?

- The economic evaluation methods in this guide are used to understand if the community is better off from a program. That is, they compare a set of benefits to a set of costs, generally using outputs such as ratios or net effects.
- In contrast, macroeconomic modelling tools—such as general equilibrium or input-output models—are designed to understand how the macroeconomy is likely to change as a result of a program or policy change. The output would be changes in the size or composition of the economy.
- Macroeconomic modelling is not an economic evaluation method but may be a useful complement if the program being evaluated is expected to have measurable macroeconomic impacts (due to either the scale or nature of the program). In instances where macroeconomic modelling is used alongside economic evaluation, different results should be explained carefully and not interchangeably or presented as additive.

Is specialist expertise required to conduct an economic evaluation?

- A key principle in the [Commonwealth Evaluation Policy](#) is that all evaluations—including economic evaluations—should be fit for purpose and credible. In some cases, an economic evaluation can be kept simple and conducted by someone without specialist expertise by referring to relevant guidance. Economic evaluations that are larger or use more complicated methods benefit from specialist expertise.
- Due to methodological complexity and reliance on assumptions, cost-benefit analyses typically require more specialist expertise than other methods.
- Cost-effectiveness analysis can be kept simple in some instances where relevant data is available, so does not always require specialist expertise.
- To illustrate how an economic evaluation can build on the findings of a rigorous impact evaluation, consider the following example of a simple cost-effectiveness evaluation.
 - A rigorous impact evaluation has found a job training program increases the chance of job seekers getting a job by 5%.
 - Further, we know the program costs \$500 per participant.
 - A very simple cost-effectiveness evaluation would be the following:
 - : The program would cost \$50,000 to deliver to 100 people and would place 100 people x 5% = 5 additional jobseekers in jobs.
 - : So the cost per additional job seeker placed in employment is $\$50,000 / 5 = \$10,000$.
 - : This \$10,000 number can then be compared to the cost of other job support programs to assess how effective the program is.

What are some ethical considerations in economic evaluation?

There are several ethical issues that can arise with an economic evaluation:

- **Interpretation** – Economic evaluations should be one but not the only input into a decision-making process. This is particularly important if the economic evaluation has not been able to quantify all benefits of a program/policy to the community.
- **Assumptions** – Some methods of economic evaluation, like cost-benefit analysis, are heavily dependent on assumptions. This can produce misleading results if assumptions are poorly chosen, with negative consequences if used to inform decisions. Rigorous approaches to economic evaluation are critical to managing this risk.
- **Equity** – Economic evaluation methods tend to focus on overall benefits of a proposal to society as a whole and may neglect differential benefits for some groups, which could be smaller or larger than others. As such, it is helpful to analyse how broadly the benefits are shared across different groups through distributional analysis or qualitative analysis.
- **Accounting for future generations** – Methods like cost-benefit analysis involve discounting future costs and benefits to calculate the present value of proposals, which may obscure the fact that sometimes different generations receive the benefits to the ones paying the costs. You must pay attention to this difference when interpreting CBA results.

Guidance and resources

Office of Impact Analysis, [Cost Benefit Analysis Guidance Note](#)

NSW Treasury, [NSW Government Guide to Cost-Benefit Analysis](#)

Abdul Latif Jameel Poverty Action Lab (J-PAL), [Conducting cost-effectiveness analysis](#)

Better Evaluation, [Value for Money](#)

UK Treasury, [Magenta Book Annex A. Analytical methods for use within an evaluation](#)

Queensland Treasury, [Economic evaluation Information Sheet](#)

Commonwealth of Australia, [Handbook of Cost-Benefit Analysis](#), Financial Management Reference Material No. 6, January 2006

NSW Health, [Guide to Cost-Benefit Analysis of Health Capital Projects](#)

Department of Health and Aged Care, [Health Technology Assessment Policy and Methods Review: Economic Evaluation](#)

Australian Transport Assessment and Planning, [CBA for Infrastructure Guidance](#)

Infrastructure Australia, [Guide to economic appraisal](#)

Productivity Commission, [Valuing the future: The social discount rate for cost-benefit analysis](#)