

ACHIEVING THE GREATER GOOD:

COST BENEFIT ANALYSIS AS A TOOL OF PUBLIC POLICY

Sanjeev Sabhlok

23 June 2022

For information of the general public

<https://www.sabhlokcivilcity.com/2022/06/a-talk-i-gave-yesterday-on-the-concept-and-practice-of-cost-benefit-analysis/>

Three parts

- Part 1: Introduction and background
- Part 2: How a CBA is done, and four examples
- Part 3: Conclusion

PART 1

INTRODUCTION AND BACKGROUND

The "greater good" is the stated objective of most governments

What is the "greater good"?

- Economists generally adopt Jeremy Bentham's concept of the "greatest happiness of the greatest number".
 1. Since happiness is subjective, can we achieve an objective standard for the "greater good"?
 2. A welfare theory implication of this conception is that marginal social costs should equal marginal social benefits across all policy areas. The government's resources need to be spent equitably, so that there is no "over-spending" in any area, and no "under-spending".
 - E.g. the same resources should be spent to save a life, whether in a traffic accident or from cancer.
- A cost benefit analysis (CBA) approach can help achieve both these goals.

The challenges of achieving an objective policy process

We have diverse, different understandings of the world

- Each of us has our own ideology and worldview, so it is hard to get unanimous agreement about policy choices.
 - That is also an implication of the **Kenneth Arrow's Impossibility Theorem**, in his [1950 paper](#), "Difficulty in the Concept of Social Welfare".

We suffer from cognitive biases

- E.g.
 - Confirmation bias (e.g. "cherry-picking" studies that support our view)
 - Anchoring and framing (initial claims about something influence our further thinking)
 - Halo Effect (we are influenced by the opinions of those whom we admire)
 - Bandwagon effect (e.g. group think)
- In a [2000 paper](#), "Cognition And Cost-Benefit Analysis", Cass Sunstein has listed many others.

Without a CBA we will tend to exaggerate benefits and ignore costs

- **Sunstein's recommendation – to do a CBA:**

"Poor judgments, by individuals and societies, can result from certain heuristics, from informational and reputational cascades, from thinking processes in which **benefits are "on screen" but costs are not**, from ignoring systemic effects of one-shot interventions, from seeing cases in isolation, and from intense emotional reactions.

"**Cost-benefit analysis serves as a corrective** to these cognitive problems. ... Cost-benefit analysis should be understood as a method for putting "on screen" important social facts that might otherwise escape private and public attention." ([Sunstein, 1999](#))

Informed policy choices can be made through CBA

Scenario 1: Leaders decide policy

- Rousseau's concept of the General Will considers the society's leader to represent everyone's will. The opinions of the leaders determine public policy.

Scenario 2: Leaders decide policy but take into a CBA

- In this (relatively modern) scenario, leaders still decide but seek independent advice through a CBA. This leads to better outcomes for society.

Identifying all costs and benefits is always illuminating

The CBA process requires all costs and benefits to be identified

1) "Unseen" effects

- Risks: Failure to "see the unseen" and unintended consequences of a policy.
- In 1850, Bastiat identified the problem of ["the seen and the unseen"](#), illustrated by the broken window fallacy.
 - It might appear that when a window is accidentally broken, more work and therefore economic growth is generated. But unless we are careful we will miss out two other facts:
 - the money now used to repair the window would have been spent on other things, generating other jobs – those jobs are now lost.
 - people are poorer. They now don't have what they could have got with money that is now being spent in repairing the window.

2) Small effects

- Another common error is to ignore small effects. When multiplied across an entire population, such small effects can become significant.

CBAAs make policymakers' assumptions explicit

- Being explicit about assumptions helps to flush out any big errors.
 - Subject-matter specialists are required to spell out their assumptions during the CBA process.
 - Economists, who often coordinate the preparation of CBAs, provide independent verification of these assumptions.
 - Further, since most CBAs are published, there is public verification of the assumptions.

Common misapprehensions about CBAs

Some people do not like CBAs, their reasons include:

- **Placing a monetary value on life**

- We cannot imagine putting a monetary value on the life of a family member. But when a government has to spend limited taxpayer funds it has to work out how much to pay to save a life: The statistical value of life is standard part of the CBA toolkit.

- **Everyone is not the same, so why do CBAs treat them so?**

- CBAs value everyone the same – both for ethical and practical reasons. This limitation can be overcome by ensuring policy in which no one's freedoms is reduced unnecessarily

- **Inequality and equity**

- CBAs often note the distributional effects of a policy. However, such considerations are not factored into a CBA's Net Present Value calculations.

Application of CBA in the West

- By [Executive Order 12291 of 1981](#) **President Ronald Reagan** introduced the requirement for a cost-benefit analysis for regulations in USA. This concept was then rapidly adopted in the UK and Australia.
- In Australia a legislative impact assessment (LIA) is generally attached to Cabinet submissions which seek approval of major legislation. LIAs are not required to be published, but sometimes they are.
- For subordinate legislation (regulation) there are often statutory requirements for the conduct of a CBA, e.g. [Regulatory Impact Statements](#) (RISs).
- For laws or interventions that impose a relatively minor burden, a **multi-criteria analysis** is considered sufficient. For bigger interventions, a fuller CBA is expected.

Even a simple CBA can provide useful information, e.g. multi-criteria analysis

- Even following Benjamin Franklin's recommendation of listing **Pros and Cons** can help.
- In the example below, two options to reduce road related accidents are being in a **multi criteria analysis**. Scores range from -10 for negative outcomes to +10 for positive outcomes (the status quo gets zero). Total weights add up to 100%. Option 1 is recommended.

		Option 1		Option 2	
Criteria	Weighting (%)	Assigned score	Weighted score	Assigned score	Weighted score
Reduction in road-related accidents	40	+10	+4	+5	+2
Costs of compliance and administration	50	-5	-2.5	-3	-1.5
Improved traffic flow	10	0	0	-10	-1
Total	100		+1.5		-0.5

Departments do the smaller CBAs by themselves

- The Competition and Efficiency Commission of Victoria (now *Better Regulation Victoria*) publishes [guidance](#) on CBAs and provides [training to departments](#).
 - Departments are generally able to undertake smaller CBAs on their own
 - For complex CBAs, departments need to hire specialized consultants
- Preparing a CBA involves asking a lot of questions, followed by some technical analysis.
 - Evidence of the problem: Such evidence is generally assembled through literature review
 - Costs of options: these are generally easier to assess than benefits
 - Benefits of options - often assessed through willingness to pay ("stated preference") surveys
 - Discount rate: social discount rate (generally this is lower than the market rate)
 - Dealing with uncertainty via sensitivity analysis for complex CBAs. An ex-post CBA after implementation can reduce uncertainty.

Independent evaluation of departmental CBAs

Consultants who prepare a CBA are often biased towards the opinion of the relevant Minister, so checks are placed to ensure a CBA's quality:

- 1) An independent agency (a Commissioner of Better Regulation) certifies that the CBA is of acceptable quality. But the Better Regulation Commissioner doesn't ask too many questions – merely confirms the logic and verifies the numbers.
- 2) Thereafter the central agencies (Premiers' and Treasury Departments) assess the CBA and report to Cabinet. [*That's where I operated for around 15 years*]
- 3) Finally, there is a *Scrutiny of Acts and Regulations Committee* of the Parliament (SARC), with powers to review any policy process.

Cost Effectiveness Analysis (CEA)

- a cousin of CBA

- CBAs are generally used to assess regulation. A related approach (**cost effectiveness analysis**, or CEA) is used to assess government programs.
 - E.g. In health economics, a CEA compares the costs of competing health interventions.
- Health benefits achieved are generally counted in quality-adjusted life years (QALYs).
 - The intervention which delivers the most QALYs for the lowest cost is recommended.
- A cost-effectiveness threshold is also used, to save time. E.g. a health intervention that costs \$50,000 per QALY delivered could be accepted, while intervention that costs \$75,000 might be rejected.

An illustrative, simple CEA

Option	A	B
Cost	\$500 000	\$300 000
Reduction in emissions (per cent)	10	5
Cost for each per cent reduction in emissions achieved	\$50 000	\$60 000

The two options A and B, above are aimed at reducing the emission of a pollutant.

Although Option A costs more, it has a **lower unit cost** (cost per reduction in emissions achieved) and is therefore preferred.

PART 2

HOW A CBA IS DONE, AND FOUR EXAMPLES

10 questions for policy development

Q1	What would happen without any role for government? (base case)
Q2	Identify any problems with the base case and explain why these are a problem (nature and magnitude of a problem; e.g. market failures/ externalities/ information failures?)
Q3	First principles test (should government intervene at all?)
Q4	What can government do about the problem/s? – identify options
Q5	Freedom test
Q6	Strategic gaming test
Q7	Government failure test
Q8	Real experience test
Q9	<u>Cost benefit test of shortlisted options (including sensitivity analysis)</u>
Q10	Transitional path

Policies to deal with externalities can involve complex CBAs

- Examples:
 - Environmental policy (policy aims to reduce negative externalities)
 - Town planning policy (the effect on amenity/ congestion is a negative externality, the improvements in housing stock and amenity from policies is a positive externality)
 - Infrastructure (positive externalities through agglomeration effects)
- We'll now consider four CBAs that involve externalities

Example 1:

Plastic bag ban

- South Australia banned retail plastic bags in 2009, ACT in 2011, Tasmania in 2013. Victoria imposed a ban in 2019, New South Wales from 1 June 2022.
- Victoria conducted a [CBA for a plastic bag ban](#) in 2016.
- Options considered:
 - Option 1 – status quo
 - Option 2 – ban on High Density Polyethylene (HDPE) and biodegradable shopping bags
 - Option 3 – ban HDPE and biodegradable shopping bags and major retailers agree to a code of practice to reduce use of LDPE shopping bags
 - **Option 4 – ban all plastic shopping bags - recommended**

Table 2: Major costs and benefits under a 10 year timeframe (NPV, \$m, \$2016)

	Option 2	Option 3	Option 4
Reduced cost of HDPE and biodegradable shopping bags	146.7	146.7	146.7
Cost of LDPE shopping bags	-55.0	73.4	138.3
Cost of reusable bags	-68.5	-143.9	-200.3
Cost of bin liners	-29.4	-29.4	-29.4
Avoided litter cost – land	0.7	0.5	0.5
Avoided litter cost – marine	6.7	8.5	9.4
Avoided landfill cost	2.7	3.0	3.0
Cost of implementing the code of practice		-41.0	

Table 3: Net results under different discount rates over a 10 year time frame (\$2016)

Discount rate	Option 2		Option 3		Option 4	
	NPV \$m	BCR	NPV \$m	BCR	NPV \$m	BCR
4% (base case)	2.0	<u>1.01</u>	15.3	<u>1.07</u>	64.4	1.28
7%	1.4	1.01	11.7	1.06	54.4	1.27

A very marginal BCR of 1.28

- Despite various flaws (discussed in the next slide) this CBA could only yield a Benefit Cost Ratio of 1.28 for the recommended option.
- In reality, once the flaws are fixed the BCR would instantly become negative for all options.

But this was a political, not objective CBA

Problem exaggerated	The CBA assumed that "the proportion of plastic bag litter entering the marine environment is 48% while admitting "there is a paucity of information available on the damage costs of litter, especially litter entering the marine environment".
Convenience ignored	Benefit to consumers of cheap bags that they did not need to carry from home was ignored (only the physical cost of bags was considered)
Unintended consequences	People have to buy expensive big plastic bags each time they do "spur of the moment" shopping. Many people have purchased the old, standard shopping bags as bin liners.

- Plastic waste had [started reducing before the bans in the big states](#): "The amount of plastic waste on Australian beaches has gone down by almost a third in the past nine years".
- Displacement of waste: A [study of 2013](#) found that the ban in South Australia "on lightweight plastic bags has transferred, and not eliminated, the waste problem; that is, while waste from lightweight plastic bags has been eliminated, waste from bin bags has increased".
- **Alternative option**: [A tax on plastic bags](#) to fund litter removal programs could address the marine litter issue without harming consumers and businesses.

Example 2

Landfill levy as an (inefficient) way to reduce waste

- A **landfill levy** was introduced in Victoria in 1992 to offset the environmental costs of landfill and discourage excessive generation of waste.
- It was a Pigouvian tax to change behaviour: any revenue generation was a side-effect.
- An internal cost-benefit analysis a few years ago (not published) demonstrated that:
 1. The levy rate was too high. Environmental costs were lower than what the levy was charging.
 2. Industries were responding to the levy by reducing waste since the levy was passed to them directly.
 3. Residential customers had no incentive to respond since the levy was passed to them as a fixed waste charge from councils
- The levy is **not** an efficient Pigouvian tax. It is more like a regular tax – that too excessive, therefore reduces industrial output unnecessarily.

Example 3:

Urban planning

- Planning schemes – i.e. requirements imposed on developers about how and where they can build homes – are exempt from a CBA requirement.
- Despite that, Victoria's Cabinet sought a CBA for two major planning proposals:
 - Height limits in Melbourne CBD with floor area ratio and a value uplift requirement to deliver public benefits in order to gain increased height approvals; and
 - Building Better Apartments – to make buildings more durable.
- Departmental planners did not consider the fact that these schemes would make houses more expensive, with the poor suffering the most. By identifying the magnitude of this effect in the draft CBAs, the planners agreed to modify the schemes.
- The CBAs produced had shortcomings. Consultants exaggerated the benefits of lower building heights by valuing at \$1 billion an "intimidation effect" apparently felt by people who walk below tall buildings. - But at least this argument was transparent.

Example 4:

COVID Lockdowns

- During the COVID pandemic a level of panic entered policy circles (except in some Scandinavian nations, particularly Sweden)
- Lockdowns were imposed in Australia in the untested belief that these will eliminate the virus (zero-COVID policy).
- Many economists argued for an urgent CBA of lockdowns. No government has done any such lockdown. But [academic economists have conducted CBAs](#) using the standard methods of health economics (using QALYs, WELLBYs etc.).
- Almost all such CBAs show that lockdowns have been far more harmful than any benefits they provided. **Had governments conducted even a multi-criteria analysis, the lockdown policy would never have been used.**

PART 3

CONCLUSION

The cost effectiveness of CBAs

It does cost money and effort to do a CBA. Is it worthwhile?

- The answer is Yes.
- E.g. an [analysis of the cost-effectiveness of CBAs in Victoria](#) undertaken in 2011 found that the CBA approach **had saved the community nearly \$1 billion in unnecessary regulatory burdens**.
 - Through CBAs a government can achieve desired social outcomes without imposing unnecessary burdens.
- An ex-ante CBA is not the only way to improve societal outcomes.
 - Continuous evaluations (including ex-post CBA) and reviews of regulation can help.
 - For sunseting regulations, a CBA is conducted every 10 years.

Despite the proven benefits of CBA, politicians try to avoid them

- CBAs impose a discipline on politicians who often try hard to avoid them
 - For subordinate legislation, politicians in Victoria have excluded important areas like urban planning from a CBA requirement. They have also exempted "urgent public health issues" or "urgent public safety issues".
 - The "precautionary principle" is increasingly used in areas like public health and environment to circumvent CBAs.
 - Also, wherever a CBA is not required to be published (such as only being provided for Cabinet consideration), the CBA quality tends to be poor.

So what are we to make of CBAs?

After 22 years of experience with CBAs (including a [recent one on Australian lockdowns](#) in which I assisted Prof. Gigi Foster), my suggestions:

1. All countries, all international organisation (like the WHO) must try to embed a CBA requirement for public policy if we want to avoid big policy mistakes
2. For routine policy issues, doing a CBA is proven to improve policy
3. On politically charged matters, consultants and advisers come under pressure from Ministers – but even in such cases, CBAs help to avoid the worst decisions.

As a general rule, even a bad CBA is better than no CBA.

Resources

There is a vast literature on this topic: a couple of references below.

Illustrative book

- Anthony E. Boardman et al. (2018). [Cost-benefit analysis : concepts and practice](#), Cambridge University Press.

Illustrative article

- Leo Dobes et al (2016). [Social Cost-Benefit Analysis in Australia and New Zealand: The State of current practice and what needs to be done](#)