The Benefit-Cost Analysis Reference Case: What It Is and How to Use It

Concepts and Framework

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Background

What is benefit-cost analysis?*

• One of several tools for assessing policy impacts.
  – Well-established and widely-used to evaluate health and other interventions, particularly those implemented outside of the health care system.

• Measures improvements and harms using the same metric (money).
  – Facilitates comparison of dissimilar impacts.
  – Provides information on the preferences of those affected by the policy.

*a.k.a. cost-benefit analysis, return on investment analysis.
Background

- Frequently used for regulatory impact assessment.
- Increasingly applied to social programs.
- Also used for priority setting.
Background

• Increasingly used in health.
Background

• Preferred analytic approach depends on context.
  – What choice is the analysis intended to inform?
  – What questions are likely to be raised by decision-makers, other stakeholders?

• Often useful to conduct more than one type of analysis.
  – Each has advantages and limitations.
Background

• BCA may be particularly useful when the goal is to allocate limited resources:
  – Across policies implemented within and outside of the health care system.
  – Across policies with both health and nonhealth consequences.
• Many policies implemented outside the health care system have significant health impacts.
  – Including those addressing, for example, education, environment, transportation, nutrition.
Background

• CEA may be particularly useful when the goal is to allocate limited resources so as to maximize health.
  – For example, single-payer health plans, universal health coverage.
  – Consistent with notion that health-improving interventions should be provided regardless of the affected individual’s preferences for allocating resources.
Background

Why conduct economic evaluation?

• Encourages thorough examination of impacts; supports evidence-based decisions.
  – Provides information on the preferences of those affected by the policy.
• Often unearths information needed for policy development and implementation, such as:
  – Otherwise unanticipated consequences
  – Available technology, costs, effectiveness
  – Who bears costs and receives benefits
  – Sources of support and opposition

• Typically supports, but does not determine, decisions.
• Other considerations include:
  – Statutory and other legal requirements
  – Government policy
  – Stakeholder views
  – Distribution of costs and benefits, equity
  – Difficult-to-quantify impacts (ethical concerns, human dignity)
Conceptual Framework

• Benefit-cost analysis is often used to describe any process for weighing benefits and harms.

• Technical definition is more precise.
  – Rooted in welfare economics.
  – Reflects an explicit normative framework.

• Focuses on trade-offs associated with the allocation of limited resources.
  – If we use resources for one purpose, they will not be available for other uses.

➢ “Opportunity costs.”
Conceptual Framework

• Value is based on how much money an affected individual is willing to pay or accept for the outcome.
  – Generally assume individuals are the best (most legitimate) judge of their own welfare ("consumer sovereignty"); not paternalistic.

• Describes extent to which individuals are willing, as members of a society, to reduce their consumption of other goods and services to achieve particular policy outcomes.
Conceptual Framework

• Money is not important *per se*.
  – Represents the use of resources (labor, materials, etc.).
• Allows comparison of disparate impacts using a common metric, including health and non-health benefits such as environmental improvements as well as costs.
• Could use another measure; money is simply a convenient and well-established measure of exchange.
Conceptual Framework

• Rely on market data where possible for valuation.
  – Presumably, if an individual chooses to buy a good or service, he or she values it more than the other things the money could buy.

• For nonmarketed goods, use stated or revealed preference methods.
  – *Stated preferences* - ask respondents to indicate what they would be willing to pay under hypothetical scenarios (contingent valuation, choice experiments).
  – *Revealed preferences* – use data on market transactions or observed behavior to estimate value, controlling for other attributes statistically.
Summary Measures

1) Define the problem

2) Identify policy options

3) Determine standing (perspective)

4) Predict baseline conditions (comparator)

5) Predict policy responses

6a) Estimate costs

6b) Estimate benefits

7) Compare benefits to costs

8) Estimate the distribution

Assess uncertainty and nonquantified effects

- **Net benefits** (benefits minus costs)
- **Benefit-cost ratio** (benefits divided by costs)
- **Internal rate of return** (discount rate at which net benefits are zero)
Summary measures

• Consistent categorization of benefits and costs is needed for total benefits, total costs, and benefit-cost ratios to be comparable across analyses.

  Costs = policy inputs = net value of labor, materials, and capital used to implement and operate the policy.

  Benefits = policy outputs = net value of changes in health and longevity and other outcomes attributable to the policy.

• Net benefits are often used when selecting among options for addressing a particular problem.

• Benefit-cost ratios or IRRs are often used in prioritizing spending across diverse policies.
Summary measures

• If the benefit-cost ratio or IRR is the highlighted summary measure,
  – Net benefits should also be reported to indicate the magnitude of the impacts.
• For example, if we compare a policy with $1,000 in benefits and $100 in costs to a policy with $1,000,000 in benefits and $100,000 in costs:
  – Both have a benefit-cost ratio of 10 to 1.
  – The latter policy leads to substantially larger improvements in welfare, but requires a much greater investment.
• Similarly, if the costs of these policies occur in the current year and the benefits occur 10 years later:
  – They have the same IRR (29 percent) but the second policy has the larger present value if the discount rate is smaller than this rate.
Summary Measures

Key questions

• Given uncertainty,
  – For an individual policy, how likely is it that the benefits will exceed the costs?
  – For a group of policies, how likely is it that the relative ranking will change?

• In some cases, conclusions may not be significantly affected by uncertainty; in others it will be important.

• Regardless of the summary measure featured, a policy should not necessarily be implemented simply because its benefits exceed its costs, its benefit-cost ratio exceeds one, or its IRR is favorable.
  – Comparison to other policies is necessary to identify the most efficient use of resources.
  – Decision-makers also need to consider issues such as legal, political, and budgetary constraints as well as any distributional concerns.
In your own work, in what contexts would BCA be most useful?

Why would it be particularly useful?
Thank you!

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