

COST ANALYSIS IN EVALUATION

Cost allocation, cost-benefit, cost utility, and cost-effectiveness analysis represent a continuum of methods used in evaluation. The terms cover a wide range of techniques, but are often (inappropriately) used interchangeably.

At the simplest level, cost allocation is part of good program budgeting and accounting practices, which allow managers to determine the true cost of providing a given unit of service. At a more detailed level, cost studies may show the benefits, effectiveness or impact of a particular program or option.

TYPES OF COST ANALYSES:

COST ALLOCATION: Cost allocation is a simpler concept than either cost-benefit analysis or cost-effectiveness analysis. It basically means setting up budgeting and accounting systems in a way that allows managers to determine a cost per unit of service. This information is primarily a management tool. However, if the units measured are also outcomes of interest to evaluators, cost allocation provides some of the basic information needed to conduct more ambitious cost analyses such as cost-benefit analysis or cost-effectiveness analysis.

COST-BENEFIT ANALYSIS: Cost-benefit studies apply business-like decision-making to public expenditures. They estimate the long-term impact of interventions. They are often used by analysts and legislators to make broad policy decisions, so they might look at a large program, or compare several smaller programs that take different approaches to solving the same problem.

The basic questions asked in a cost-benefit analysis are, "Do the economic benefits of providing a service outweigh the economic costs" and "Is it worth doing at all"? One important tool of cost-benefit analysis is the benefit-to-costs ratio, which is the total monetary cost of the benefits or outcomes, divided by the total monetary costs of obtaining them. Another tool for comparison in cost-benefit analysis is the net rate of return, which is total cost minus the total value of benefits.

The idea behind cost-benefit analysis is simple: if all inputs and outcomes of a proposed alternative can be reduced to a common unit of impact (namely dollars), they can be aggregated and compared. If people are willing to pay dollars to have something, presumably it is a benefit; if they would pay to avoid it, it is a cost. In practice, however, assigning monetary values to inputs and outcomes in programs is rarely so simple, and it is not always appropriate to do so.

COST-UTILITY ANALYSIS: Cost-utility analysis is similar to CBA, with the exception that outputs of a program are reflected as a measure of utility, e.g., quality adjusted life years (QALYs), disability adjusted life years (DALYs), or healthy-years equivalents (HYEs), rather than in dollar terms. Similar to the treatment of future costs in a CBA, units of utility are also "discounted" in future years.

COST-EFFECTIVENESS ANALYSIS: Cost-effectiveness analysis is a method used to assess the comparative impacts of expenditures on different health interventions. It assumes that a certain benefit or outcome is desired, and that there are several alternative ways to achieve it. The basic question asked is, "Which of the alternatives is the cheapest or most efficient way to get the benefit?" By definition, cost-effectiveness analysis is comparative, while cost-benefit analysis usually considers only one program at a time. Therefore, a cost-effectiveness study is more appropriate than a cost-benefit analysis when goals or outcomes can't easily be quantified or monetized, or when there are multiple competing goals.

A CEA converts into health terms and describes the costs for some additional health gain (e.g. cost per additional stroke prevented). CEA takes the objective, the benefit, as a given. With CEA, you seek the minimum-cost way to meet the objective. In health care cost-effectiveness analysis, the goal is often in terms of lives saved, years of life saved, or quality-adjusted years of life saved. CEA studies show where we should put our money in order to save the most lives.

The advantage of CEA is the ability to compare two or more interventions that produce the same outcome. A disadvantage is that the overall effectiveness of a given clinical intervention is often not known.

DIFFERENCES BETWEEN COST-EFFECTIVENESS AND COST-BENEFIT STUDIES: In cost-benefit analysis, both costs and benefits are evaluated in dollars and compared. In cost-effectiveness analysis, the costs of alternative means of achieving some benefit are compared. The benefit itself is not evaluated in dollars.

For example, suppose the drop-out rate in an inner-city high school is 50%. Prevention Program A enrolls 20 students, costs \$20,000, and 15 of the 20 students (75%) graduate. Thus Program A resulted in 5 additional graduates at a cost of \$20,000, or one additional graduate for every \$4,000.

Prevention Program B enrolls 20 students, costs \$15,000, and 12 of the 20 students (60%) graduate. Thus Program B resulted in 2 additional graduates at a cost of \$15,000, or one additional graduate for every \$7,500 spent. Although Program B is cheaper (\$15,000 compared to \$20,000), Program A is more cost-effective (\$4,000/each additional graduate, compared to \$7,500/additional graduate).

A cost-benefit analysis in this situation, instead of comparing unit costs, would require estimating the dollar value of high school graduation (for example, by projecting the difference in lifetime earning capacity of graduates over drop-outs, and lifetime social service costs), and comparing the monetary value of producing more graduates to the monetary cost of providing the program in the first place. Neither method effectively addresses more intangible outcomes of graduation, such as increased self-esteem, or the value of a peer support system.

WHAT COST ANALYSES CAN and CANNOT TELL YOU:

Cost analyses can provide estimates of what a program's costs and benefits are likely to be, before it is implemented. "Ex-ante" or "before the fact" cost analyses may have to be based on very rough estimates of costs and expected benefits. However, if a program is likely to be expensive to implement, difficult to "un-do" once it is in place, or difficult to evaluate, even a rough estimate of efficiency may be quite valuable in the planning stages.

Cost analyses may improve understanding of program operation, and tell what levels of intervention are most cost-effective. A careful cost analysis within a program might tell you, for example, that it doesn't so much matter whether you have a half-day program or a full-day preschool program for children, but that the teacher-to-child ratio does matter (that is, children benefit more from low ratios than they do from longer days). This information might influence decisions about how many teachers you need to hire, or how many classrooms you need, or how many children you can serve effectively.

Cost analyses may reveal unexpected costs. A speech therapy program might unexpectedly find that it costs more to use paraprofessionals to work with children than professionals, because the paraprofessionals need more training and supervision, or work with fewer children at a time. Or, cutting the number of home visits allowed by caseworkers serving a

large rural area (in order to save on mileage reimbursements) might have the unplanned result of higher long-distance phone bills, because the workers still feel a need to stay in close touch with their clients.

Cost analyses cannot tell you whether a program is having an effect on desired outcomes. Unless you can measure a program's benefits, it doesn't make sense to talk about the cost of producing that benefit. Cost analysis may be considered an extension of an impact or outcome evaluation, but it cannot take the place of one.

Cost analyses also do not tell you whether the least expensive alternative is the best alternative. Often political or social values other than cost need to determine program and policy choices. When there are competing values or goals involved, cost analysis is often just one factor to be considered.

ADVANTAGES and DISADVANTAGES OF USING COST ANALYSES:

ADVANTAGES:

Promotes fiscal accountability. Too often, managers can't easily determine the cost of providing particular services or achieving certain outcomes, because they aren't systematically collecting the necessary data.

Helps set priorities when resources are limited. Managers can use cost information in designing programs, and in budgeting and allocating funds to get the most out of their resources.

To *influence* legislators, policy makers, and other investors. This advantage of cost-benefit analysis may hold true even when it is not possible to assign monetary values to all program costs and outcomes; if the effect is strong enough, even a relatively incomplete cost-benefit analysis may be persuasive.

DISADVANTAGES:

Requires technical skill and knowledge. A true cost-benefit analysis requires a solid grounding in economic theory and techniques.

Many cost analyses are *overly simplistic*, and suffer from serious conceptual and methodological inadequacies. There is a danger that an overly simplistic cost-benefit analysis may set up a program to fail, by promoting expectations that are unrealistically high, and cannot be achieved.

Assigning *dollar values* to qualitative goals is subjective. How much value do we place on things like time, human lives saved, or quality of life?

Market costs don't always reflect "real" social costs. Market costs don't necessarily reflect what economists call the "opportunity costs" of choosing to do one thing instead of another. Sometimes there are multiple competing goals, so we need to weight them or prioritize them in some way. If a program leads to improvement in one area, but more problems in another, is it still worth doing?

The best-known cost-benefit studies have looked at long-term outcomes, but *most program evaluations don't have the time or resources to conduct long-term follow-up studies.*