Cost-Benefit Analysis

Nature of Cost-Benefit Analysis

Cost-benefit analysis is used for determining which alternative is likely to provide the greatest return for a proposed investment. Sometimes referred to as cost-effectiveness analysis, it is relevant to businesses as well as to not-for-profit entities and governmental units.

A business might find it helpful to use cost-benefit analysis to determine if additional funds should be invested in a facility in the home country or in another country. A community not-for-profit organization that provides a variety of programs for children might use cost-benefit analysis to assist management in determining which activities will provide the most services for the costs specified. A federal governmental agency might use cost-benefit analysis to determine which of several projects planned for the national parks is likely to be most used by interested citizens, given the costs.

Because resources such as money and time are limited, an organization usually cannot undertake every project proposed. To decide whether to undertake a project, decision makers weigh the benefits from the project against the cost of the resources it requires, normally approving a project when its benefits exceed its costs. Cost-benefit analysis provides the structure and support for making such decisions.

Benefits and Costs

Benefits increase the welfare of the organization. Some benefits are monetary benefits, such as the dollar amount of cash inflows from additional sales of a product or the saving in cash outflows that a project enables. Other benefits are important but harder to quantify. For example, a project may increase customer satisfaction, which may increase future sales, but the exact relationship between sales and satisfaction is often hard to specify.

Costs are the outlays or expenditures made in order to obtain a benefit. Many costs are measured monetarily, such as the cost of buying a new machine or hiring an additional employee.

Cost-Benefit Analysis in Business

A cost-benefit analysis is straightforward when all costs and benefits are measurable in monetary terms. Assume that Company A must decide whether to rent an ice cream machine for the summer for $900. The ice cream machine will produce additional cash inflows of $1,000 during the summer. The benefit of additional cash inflows ($1,000) exceeds the additional cost ($900), so the project should be undertaken.

However, not all cost-benefit analyses are this simple. If the benefits and costs occur in different time periods, for example, it may be necessary to discount the future cash flows to their current equivalent worth. Other benefits may be difficult to quantify.

Cost savings as benefit. In another example, cost savings is a benefit. Assume that Company B does not have its own copy machine and currently pays 4 cents per copy, or $4,000 a year, to Copycat Copiers. Company B can lease a copy machine for $2,500 a year. It must also pay 2 cents per page for paper for the leased machine, or $2,000. In this example, the cost of leasing the machine and buying paper ($2,500 + $2,000 = $4,500) exceeds the benefit of saving the $4,000 normally paid to Copycat Copiers.

Company B should continue to use Copycat Copiers for its photocopies. However, Company B must have a pretty good estimate of the number of copies it needs to be comfortable with its decision. If Company B needs 150,000 copies this year instead of 100,000, the cost of leasing the machine and buying paper ($2,500 + $3,000 = $5,500) is cheaper than paying $6,000 (150,000 × $0.04) in fees to Copycat Copiers.

Benefits difficult to quantify. A third example involves a project with benefits that are difficult to quantify. Assume that Company C is deciding whether to give a picnic costing $50,000 for its employees. Company C would receive the benefit of increased employee morale from the picnic. Better employee morale might cause employees to work harder, increasing profits.

However, the link between increased morale and increased monetary profits is tenuous. The decision maker must use his or her judgment to compare the nonmonetary benefit to the monetary cost. He or she might decide that increased employee morale is worth the $50,000 cost but would not be worth a $100,000 cost.

Limitations to Cost-Benefit Analysis. In the preceding examples, cost-benefit analysis provided a framework for decision making. The range of objectivity related to measurement of the factors is typical. Techniques used in business as a basis for determining costs and benefits, such as return on investment, are generally quantifiable and thus appear to be objective.

However, it is not uncommon for qualitative factors to enter into the decision-making process. For example, providing a product that individuals with limited incomes will be able to purchase may not provide the highest monetary return on investment in the short run, but might prove to be a successful long-term investment. Careful decision makers attempt to deal with a difficult-to-quantify factor in as objective a manner as possible. Regardless, cost-benefit analysis in most situations continues to introduce measurement problems.
COST-BENEFIT ANALYSIS IN NONBUSINESS ENTITIES

Cost-benefit analyses are also common in nonbusiness entities. Boards of not-for-profit organizations establish priorities for their programs. Such priorities often specify desired program outputs.

For example, assume a not-for-profit organization is interested in reducing the level of illiteracy among the citizens of a rural community in a state that has one of the lowest per-capita incomes in the United States. As alternative programs for those who need to learn to read are considered, there will be cost-benefit analyses that focus on a number of factors, including the extent to which a particular program can attract those who are illiterate. A program in the downtown area of a small town might be considered because a facility is available there at low cost, and that low cost is appealing.

Focus on cost is not sufficient, however. When benefits are considered, it might become clear that those who are eager for such a program do not have cars and that there is no public transportation from where they reside to the center of the small town. Further consideration of relevant factors and of alternatives, undertaken in good faith, should result in cost-benefit analyses that provide valuable information as the agency makes decisions.

At all levels of government in the United States, cost-benefit analyses are used as a basis for allocating resources for the public good to those programs, projects, and services that will meet the expectations of citizens. For example, decision makers at the federal level who have policy responsibility for environmental standards, air-quality rules, or services to the elderly often find information from cost-benefit analyses to be critical to the decision-making task.

CONTINUING EFFORTS TO QUANTIFY COST-BENEFIT FACTORS

As possibilities for the use of funds increase, there is motivation for better measurement of both costs and benefits as well as for speedier ways of accomplishing analyses for alternatives that are appealing. All types of entities, including businesses, not-for-profit organizations, and governmental units, strive to improve the measurements used in cost-benefit analyses. The capabilities of electronic equipment provide promising assistance in accumulating data relevant for analyses.

Wise use of resources is an important goal in every organization. Cost-benefit analyses make a key contribution to this goal. Therefore, attention is given to improving both the effectiveness and efficiency of such analyses.

SEE ALSO Costs; Cost-Volume-Profit Analysis

BIBLIOGRAPHY


Mary Michel
Mary Ellen Oliverio

COST-OF-LIVING INDEX

SEE Consumer Price Index

COSTS

DEFINITION OF COST

The word cost appears in many accounting, economics, and business terms with subtle distinctions in meaning. The word by itself rarely has a clear meaning. The word cost, without modifying adjectives, typically means the sacrifice, measured by the price paid or required to be paid, to acquire goods or services. Hence, the word often carries the meaning more precisely represented by the following:

• Acquisition cost; historical cost: net price plus all expenditures to ready an item for its intended use at the time the firm acquired the item. The other expenditures might include legal fees, transportation charges, and installation costs.

MEASURE OF COST

Accountants can easily measure acquisition cost, but economists and managers often find it less useful in making decisions. Economists and managers are usually more