

# Part I:

## Preliminary Issues

### 1. The Concept of Cost-Effectiveness

This first chapter outlines the meaning of the cost-effectiveness, and indicates ways in which it can be assessed.

#### (a) What is Cost-Effectiveness?

Cost-effective investments may be defined simply as the ones that produce the best results from a fixed set of inputs. Policy makers normally use cost-effectiveness analysis when they have already identified a goal and want to decide on the best way to achieve it.

Sometimes, administrators start with fixed budgets: a project's financial ceiling has already been set, and the administrators want to know how money can be spent in the best possible way. On other occasions they have no fixed budget in mind, but want to know how to invest resources wisely. And on yet other occasions they have to *cut* budgets by a certain amount, and need to know how to do so. In all cases, they can use cost-effectiveness analysis to compare different strategies and decide on the best action.

#### *An Example*

The nature and purpose of analysis may be explained by an example. This one is entirely fictitious, but demonstrates the method.

Suppose that educational administrators want to improve the examination scores of a group of woodwork students. They can assess cost-effectiveness in five steps:

*Step 1: Identify Alternative Ways to Achieve the Goal*

In this case, suppose that they identify three alternatives:

- i) employing a special instructor to work with small remedial groups;
- ii) designing a programme for self-instruction, in which students work at their own pace in a special resource room with special curriculum material and a coordinator; and
- iii) purchasing extra library books for students to read by themselves.

*Step 2: Work out the Costs of Each Strategy*

- i) The first method would have a high cost. Because of its low pupil: teacher ratio, the administrators estimate a cost of \$100 per student.
- ii) The second one would require a special room, materials and a coordinator. But it could cater for 20-25 students at a time, so would only cost an estimated \$49 per student.
- iii) The third method would be the cheapest. It would only cost \$16 per student.

*Step 3: Estimate the Effectiveness of Each Strategy*

The effectiveness of each strategy can be determined by comparing the test scores of students who gain help with those of similar students who receive no help. On the basis of research studies and their own experience, the authorities decide that:

- i) the first method would improve each pupil's score by 10 points,
- ii) the second method would improve each pupil's score by 7 points, and
- iii) the third method would improve each pupil's score by 2 points.

*Step 4: Combine the Information in a Table*

It is combined as follows:

| Method           | Cost<br>per Student<br>(a) | Effectiveness<br>(test score)<br>(b) | Cost-<br>Effectiveness<br>(a) + (b) |
|------------------|----------------------------|--------------------------------------|-------------------------------------|
| Small Groups     | \$100                      | 10                                   | \$10                                |
| Self-Instruction | \$ 49                      | 7                                    | \$ 7                                |
| Library books    | \$ 16                      | 2                                    | \$ 8                                |

*Step 5: Analyse the Results*

From the table, two main points emerge:

- \* Self-instruction is the most cost-effective. It costs only \$7 to increase a pupil's score by one point, compared with \$8 for library books and \$10 for small group instruction.
- \* In this case, the most cost-effective strategy is *not* the cheapest. Library books are the cheapest; but the administrators do not expect them to have much effect (perhaps because the examination places more emphasis on practical skills than on theory, and because the students are unlikely to make active use of the books).

**(b) Some Difficulties**

The above example illustrates the main principle of cost-effectiveness analysis: that it combines information on costs with information on effectiveness to reach a conclusion on the best development strategy. As readers go through this book, however, they will become aware of two major difficulties in the context of practical secondary education:

- \* *Measurement of Costs*: Few administrators have accurate data on costs. Because of the way government budgets are constructed it is often hard to compare expenditure on practical subjects with expenditure on other ones. In addition, some practical subjects allow schools to *earn* money. Ideally, these earnings should be set against the costs; but they may be hard to estimate in advance.
- \* *Measurement of Effectiveness*: Many of the benefits of a practical curriculum are hard to measure. For example, one common objective is a change in attitudes among young people. But these are very hard to quantify. And since many other factors contribute to changes in attitudes, it may be hard to identify the specific contribution of practical subjects.

In addition, all assessments of cost-effectiveness have to anticipate possible changes. Present costs, for example, may not be the same as future ones. And the effectiveness of individual inputs may not proportionately increase with scale. Thus, although in the example just given self-instruction seemed to be the most cost-effective method, the authorities could not assume that continual investment of more resources in self-instruction would produce constant benefits in the same

proportion. Factors such as these make cost-effectiveness analysis very complicated.

At the same time, however, administrators always know that they are *not* using resources cost-effectively if there is considerable inefficiency. Often the first step to improved cost-effectiveness is improved efficiency. The second step is determination of alternative policies through the type of comparative analysis noted above.

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 \* ***Cost-Effectiveness and Cheapness*** \*  
 \* \*  
 \* *Cost-effectiveness is not necessarily the same as cheapness: some* \*  
 \* *strategies may be cheap but ineffective. Sometimes it is worth* \*  
 \* *investing more money on a project, choosing a higher-cost strategy* \*  
 \* *that also has higher cost-effectiveness.* \*  
 \* \*  
 \* *However, cost-effectiveness can always be increased by improving* \*  
 \* *efficiency. If one strategy uses more resources to achieve the same* \*  
 \* *goal as another strategy, then it is both less efficient and less cost-* \*  
 \* *effective than it could be.* \*  
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