Introduction

Small schools exist all over the world — in rich countries such as Canada and Japan, and in poor countries such as Mauritania and Dominica. Even Hong Kong, which most people think of as one big city, has a rural periphery with a few one-teacher schools. And in such countries as Finland and the Maldives, small schools far outnumber the medium-sized and big ones.

But although they are very common, small schools are not universally liked. Some people strongly recommend them, arguing that they can provide a personal atmosphere and a centre for community development. These people wish to protect existing small schools and to open new ones. Other people dislike small schools, arguing that they have high unit costs and can offer only a restricted curriculum. These people would like to close existing small schools and to prevent new ones from being opened.

Both sets of views have some validity, and administrators often find it hard to devise appropriate policies. This book aims to help them. It reviews the international evidence on the advantages and disadvantages of small schools.

(a) Different Models

The book identifies several different educational models. The main options for policy makers may be summarised as:

1. accepting small schools and classes but using multigrade teaching and other techniques to make them work;
2. ensuring fairly large classes but in rather small schools by having biennial or triennial intakes;
3. ensuring fairly large schools and fairly large classes by extending the geographical range of the schools, e.g. by boarding and bussing;
4. ensuring fairly large schools but with rather small classes by combining primary and secondary sections to form 'straight-

through' schools; and
5. trying to have both fairly large schools and fairly large classes by raising enrolment rates and by rationalising competing schools.

These models are discussed in different chapters. The book also looks at staffing policies for small schools, and at needs for central administration and support. It is chiefly written for national and provincial educational administrators, but some points may also be relevant to local level staff and to teachers in small schools themselves.

(b) The Meaning of Cost-Effectiveness

Cost-effective investments may be defined simply as the ones that produce the best results from a fixed set of inputs. Usually, policy makers 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. Suppose that educational administrators want to raise the mathematics scores of a group of students. They can assess cost-effectiveness in five steps:

Step 1: Identify Alternative Ways to Achieve the Goal

In this case, four alternatives are identified:

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 materials and a coordinator;

iii) introducing computers on which students can practise problem-solving; and

iv) introducing peer-tutoring, in which older students spend 30 minutes a day tutoring younger ones.

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 $200 per student.

ii) The second one would require a special room, materials and a coordinator. But it could cater for 25–30 students at a time, so would only cost an estimated $100 per student.

iii) The third method would require a special room, a computer, a coordinator and some special materials, and would cost $150 per student.

iv) The fourth method requires some instructional materials, a coordinator and some study space, but at $50 per student is the cheapest.

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 will improve each pupil's score by 25 points,

ii) the second method will improve each pupil's score by 4 points,

iii) the third method will improve each pupil's score by 15 points, and

iv) The fourth method will improve each pupil's score by 10 points.

Step 4: Combine the Information in a Table

	Cost per Student (a)	Effectiveness (test score) (b)	Cost-Effectiveness (a) ÷ (b)
Small Groups	$200	25	$ 8
Self-Instruction	$100	4	$25
Computers	$150	15	$10
Peer Tutoring	$ 50	10	$ 5

Step 5: Analyse the Results
From the table, two main points emerge:

* In this example, peer tutoring is the most cost-effective. It costs only $5 to increase a pupil's score by one point, compared with $8 for small groups, $10 for computers, and $25 for self-instruction.
* In this case, the most cost-effective strategy also happens to be the cheapest. But the second most cost-effective (small groups) is the most expensive. Although small groups are costly, they have a big impact.

Of course, the authorities would then have to decide whether massive implementation of the most cost-effective option would always yield the same return, or whether returns would diminish with scale. If they felt that returns would diminish, they might instead decide on another option, or on a combination of options.

The authorities would also need to consider the amount of money that they have available. Sometimes the budget is restricted, and expensive items cannot be chosen even if they are highly cost-effective.

Most importantly of all, the authorities would have to check both that their original estimates of cost and effectiveness were reasonable, and that they would *stay* reasonable in the future. A change in costs, for example, could radically change the conclusions.

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* ***Cost-Effectiveness and Cheapness*** *
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* *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.* *
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(c) Cost-Effectiveness Analysis and School Size

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 several difficulties when using such analysis to decide on school-size policies:

* *Objectives:* Policies on school size often have several objectives, which sometimes conflict. For example, the authorities might simultaneously be worried about the extent to which (i) pupils in small schools perform well in exams, (ii) large schools have discipline problems, (iii) children in small schools lack social contact with other children of their own age, and (iv) every community needs its own school as a centre for social development. The existence of several objectives means that analysts must create a 'basket' of goals, in which some are weighed against others.
* *Measurement:* Many of the benefits of large or small schools are hard to quantify. The role of a school in a community, for example, is a very qualitative matter, which can be assessed differently by different observers. The same applies to discipline problems and children's social contacts. Examination scores should be easier to quantify, but it should not be assumed that administrators *do* have the necessary information. Comparison of school scores is a complex research exercise, and the results vary between schools, between localities, and over time.
* *Costing:* Few administrators have accurate data on costs. Because of the way government budgets are constructed, it is hard to compare expenditure on small schools with expenditure on large ones. In addition, many financial costs are incurred by families and individuals rather than by the government. And thirdly, many costs are not financial at all: they are the costs of time (e.g. of pupils travelling a long way each day to attend a large school), of tiredness, and of social problems.

Because of all these difficulties, this book cannot present a detailed framework that is applicable in all settings. However, it can at least

discuss the elements for analysis: the advantages and disadvantages of both large and small schools, and the factors that determine costs. It can also indicate some ways to use existing resources more effectively, i.e. to maximise effectiveness from a fixed cost.

(d) How Small is Small?

Finally, a conceptual problem on scale must be dealt with. Small is a relative term, and what one person may call a small school, another may call a large one. Moreover, primary and secondary schools have to be treated separately. Most people would consider a primary school with 180 pupils to be medium-sized; but the same people might consider a secondary school with only 180 pupils to be rather small.

As a guideline, this book will consider primary schools to be small when they have 100 pupils or less, and secondary schools to be small when they have 180 pupils or less. However, many schools are much smaller than this. In some countries it is common to find primary schools with fewer than 15 pupils, and secondary schools with fewer than 60 pupils. In general discussion, therefore, it is dangerous to set cut-off points that are too rigid. Governments do sometimes need to set specific cut-off points, e.g. to decide which

Categorising Schools: A Canadian Formula

Like many authorities, the Government of Canada's Manitoba Province needs a specific definition in order to determine which schools are eligible for special grants. The definition it employs is that:

a small primary *school is one in which the number of pupils enrolled, divided by the number of grades taught, is less than 15; and*
a small secondary *school is one in which there are fewer than 200 students in Grades 9 –12.*

However, other governments might find these definitions too rigid, and inappropriate in their cut-off points. Each government should work out its own definitions to match its own circumstances.

schools are eligible for special grants and staffing. However, these definitions always have the problems:

i) that schools on the borderline may constantly require a change of classification if their size fluctuates each year, and
ii) that institutions just outside the limits gain no help, even though their problems are barely different from schools that are just inside the limits.

In most contexts, therefore, it is more useful to think of a continuum of size and its associated advantages and problems.