

Part II: Determining Policies

Chapter 3: Economic Factors

Multiple-shift systems can help achieve important economic goals. They usually reduce the unit costs of education, and can release both pupils and teachers for productive work elsewhere in the economy. The first part of this chapter comments on the nature and extent of these economic benefits.

However, multiple-shift systems may also have economic costs. They may require parents to employ people to look after children who would otherwise have been in school, and they may contribute to social problems that have economic consequences. These costs are discussed in the second part of the chapter. In most countries the benefits exceed the costs, but it is important for policy-makers to assess both sides.

1. The Economic Benefits of Multiple-Shift Systems

(a) Buildings and Other Facilities

Multiple-shift systems permit major savings in land, buildings, equipment, libraries and other facilities. A double-shift system allows two groups of pupils to use one set of facilities; and a triple-shift system allows three groups of pupils to use one set of facilities.

The savings from multiple-shift systems are often dramatic. The box on the next page gives an example from Zambia in which extensive use of double and triple sessions enabled cost estimates to be reduced by 46 per cent. Maximum efficiency has

Expansion of Education in Zambia: Alternative Cost Projections

The Government of Zambia is keen to achieve universal primary education, but is acutely conscious of resource constraints. A specially appointed team set out alternative ways to reach the goal by 2000.

It was obvious that the nation could not afford single-session schools throughout the country, and the strategy was not even considered. Instead, recommendations focused on three main options, set out below. The capital costs of Option III (expressed in millions of Kwacha) were nearly half those of Option I.

	<i>Number of Classrooms</i>	<i>Cost of Classrooms (K mill)</i>	<i>Toilets & Offices (K mill)</i>	<i>Total Cost (K mill)</i>
Option I:	13,400	335	73	408
Grades 1-4:				
<i>double session, rural</i>				
<i>triple session, urban</i>				
Grades 5-7:				
<i>single session, rural</i>				
<i>double session, urban</i>				
Option II:	10,600	264	44	308
Grades 1-4:				
<i>double session, rural</i>				
<i>double session, urban</i>				
Grades 5-7:				
<i>double session, rural</i>				
<i>double session, urban</i>				
Option III:	8,100	202	19	221
Grades 1-4:				
<i>double session, rural</i>				
<i>triple session, urban</i>				
Grades 5-7:				
<i>double session, rural</i>				
<i>double session, urban</i>				

been achieved by treating Grades 1–4 and Grades 5–7 separately. Grades 1–4 only have three and a half hours of classroom instruction each day, so if necessary can operate in triple sessions. Grades 5–7 have five hours of classroom instruction each day, so are better retained in double sessions.

In Zambia, these arrangements have been proposed as long-term measures. The government is faced by ongoing growth of population, and envisages continued pressure on the education budget. In other contexts, multiple-shift schooling may also help cope with fluctuations in population and/or financial resources.

Such fluctuations, of course, are not a feature only of poor countries. Referring to the USA, one researcher has noted:

In areas of rapid growth, where new subdivisions and other housing are developed and sold, where the area is desirable and becomes stable, the number of school age children reaches a peak in a few years after the area is filled. This peak school age population continues for a number of years, even up to 20 years, but eventually it begins to drop. This drop is not as rapid as the original increase, but can eventually represent up to a 50 per cent decrease from the peak population.

School districts have tended to meet this increasing number of school age children by constructing school buildings in a sufficient number and size to accommodate the peak enrollments. As a result, long before the buildings are worn out school enrollments drop to a point where some of the schools are no longer needed. (Merrell 1980, p. 2)

The writer recommended education authorities to investigate double-session schooling and other strategies to avoid this problem. As he pointed out, “overbuilding to meet peak enrollments becomes an expensive course”.

However, introduction of double sessions does not always reduce costs by exactly half. This is for five reasons:

- i) Extra use of facilities increases wear and tear. This creates higher maintenance costs, and in many cases requires earlier replacement or reconstruction of facilities.

- ii) Schools moving to double-shift operation commonly need extra cupboards, storerooms and offices. They may also have extra study rooms or other facilities for the afternoon pupils who come early and for the morning pupils who stay late.
- iii) Some governments in tropical countries also have special architectural designs for multiple-shift schools. Their classrooms are specially designed to withstand the afternoon heat, and are more expensive.
- iv) Multiple-shift schools may have to be cleaned very early in the morning or very late at night. In some societies, cleaners have to be paid extra when they have to work during 'unsocial' hours.
- v) The fact that a system has two shifts does not always imply that it has twice the number of pupils as a single-shift system. Because the afternoon shift is usually considered less desirable than the morning one, administrators often fill up the morning shift first and only then put the 'overflow' in the afternoon shift. Introduction of double shifts only reduces costs by the proportion in the second shift.

Taking these factors into account in Jamaica, one study calculated that double-shift schooling permitted only a 32 per cent saving in buildings and facilities. Another study in Malaysia calculated only a 25 per cent saving. In both cases savings were substantial, but they were not as high as many people had initially assumed they would be. The estimates are much lower than the 46 per cent calculated for Zambia.

(b) Salaries

(i) Teachers

The extent of savings on teachers' salaries depends on the nature of the shift system. In Singapore and Puerto Rico, for example, teachers are forbidden to work in both sessions. Each shift requires a full set of teachers, and the government achieves no saving in teachers' salaries.

In other systems, teachers are permitted and encouraged to work in both sessions. If teachers are paid double salary for double work, then there is no saving in salaries. However the system does reduce the total number of teachers, which in turn

Potential Economic Savings: A Missed Opportunity

Double-shift schools can reduce costs by sharing equipment and other items as well as buildings, and by making joint orders for supplies. Yet some schools fail to use this opportunity. Commenting from Nigeria, for example, one observer has pointed out that each shift:

has its own equipment carefully locked up in its own cupboard after school. The morning session headteacher and his staff have no access to the materials and documents of the afternoon session staff. Two sets of circulars are sent to each school, and even though the headteachers occupy the same offices they have different files.

The problem is especially common when separate shifts have separate headteachers, independently accountable to headquarters. Correspondingly, obstacles to sharing are reduced when schools have single headteachers for both sessions. But a more imaginative approach by the authorities could encourage sharing even within schools which have separate headteachers for each session.

reduces (i) expenditure on teachers' houses (where employing agencies are required to provide teachers' accommodation), and (ii) expenditure on teacher training.

Alternatively, teachers may receive extra pay for extra work, but at a lower rate. In Senegal, teachers who work in both shifts are paid an additional 25 per cent of their base salaries. Their work is not double that of their counterparts in single-shift schools, for double-shift schools provide only 20 hours of classroom teaching each week instead of 28 (though the school year is extended by 10 days). However the increase in salary is a smaller proportion than the increase in work, so represents a saving for the government.

In Zambia, this type of arrangement has been made even more sophisticated through separate treatment of junior and senior classes. Official documents note that Grades 1–4 only have three

and a half hours of lesson time each day, that the normal working day lasts for eight hours, and that in theory a teacher should be able to teach two sessions each day. However, policy advisers realise that:

a teacher who was so intensively occupied with actual classroom teaching would not have much time for the preparation of work, especially in situations where the shortage of formal teaching materials might necessitate much time for improvisation and seeking for alternatives.

The authorities therefore decided to limit the teacher's classroom work to about six hours a day in order to allow time for lesson preparation. This meant that two teachers would be sufficient for three sessions. Even if the teachers were paid higher salaries in recognition of the extra work, it was pointed out, "the extra payments would fall far short of the salary for an additional teacher who might otherwise be required".

At the same time, the Zambian authorities recognised that differences in the workload for Grades 5-7 teachers required alternative arrangements:

At the grade 5-7 level there is a greater need for a teacher to have time to correct pupils' written work in addition to the time required for preparing class materials. Hence it would not seem advisable to have a regular class teacher at this level heavily engaged during a second session on the same day, though if contact hours for each session are reduced to five [from five hours and 20 minutes in single sessions] he could make some contribution to the second session. A subject-teacher, on the other hand, could teach in both sessions within a regular quota of contact hours.

This analysis highlights the value of flexible policies which recognise that the workloads of different types of teacher may vary.

(ii) Clerks and Ancillary Staff

Although double-shift schools in Singapore and Puerto Rico have two teams of teachers, they have only one team of clerks, cleaners, labourers and messengers. This arrangement allows the authorities to make salary savings. Governments of other countries

also make savings in the salaries of night-watchmen, for the use of double shifts means that they have fewer school compounds.

Use of a single team of ancillary staff to serve a double-session school does of course require careful management. Working hours are usually staggered to ensure that someone is on the compound at all hours of the school day.

(c) Time and Labour

When a double-shift system has a shorter day than a single-shift system, it saves the time and labour of teachers and pupils.

If *teachers* work only in one shift, they are free for other economic activities, for study, or for domestic activities.

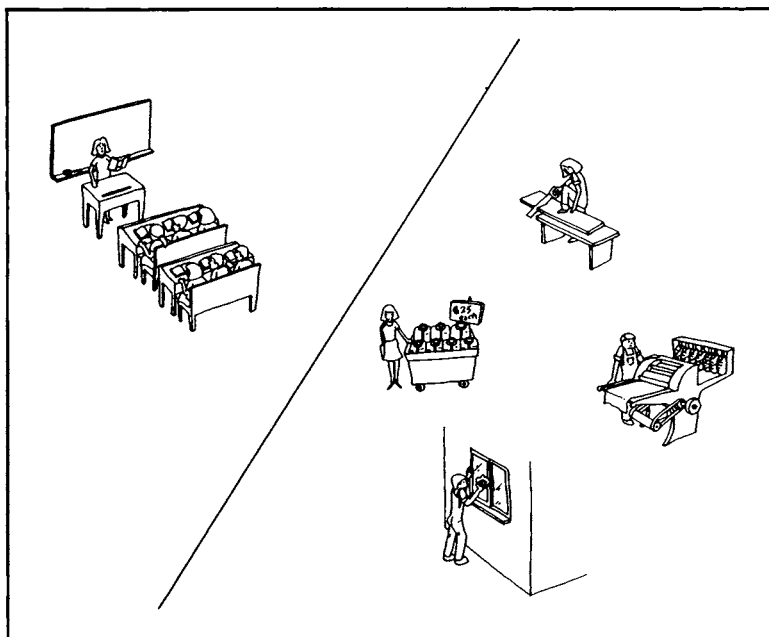
Pupils are also released for longer periods of the day. This is especially important in societies where school-children earn a living outside school hours. The fact that pupils can both go to school *and* earn a living may allow poor children to attend school. This reduces social inequalities and raises the overall educational level of the society.

Release of pupils may also generate an alternative economic benefit. In many societies, older children are needed to look after their younger brothers and sisters while their parents go to work. Pupils in multiple-shift schools may have more time each day to help their families in this way.

Multiple-Shift Schooling and Child Labour

In many Third World societies children play a crucial economic role, trading and caring for children younger than themselves. It is not unusual to even find morning-shift teachers immediately going to their businesses or homes when classes finish, to release young people for the afternoon shift at school.

In the absence of the shift system, either the teachers would be prevented from teaching because they could not leave the businesses or families; or the children would not be able to attend school at all. The shift system allows everybody to get the best of both worlds.



Multiple-shift schooling can release young people for productive work in the economy. They may attend school in the morning and then work in the afternoon (or vice versa).

2. The Economic Costs of Multiple-Shift Systems

In some systems, the benefits noted in the previous section must be set against certain economic costs before a final balance sheet can be produced. Three costs are worth particular mention.

(a) Child-Minding Agencies

In addition to their educational function, schools serve a child-minding function. They keep children occupied during the day, and this allows their parents to get on with their own work. Half-day schools do not occupy children so long as full-day schools. In some societies this requires parents to send their

Multiple-Shift Schooling and the Extra Costs of Child-Minding

Multiple-shift systems can create problems for working parents. Children either start and finish school early, or start and finish school late. School hours do not match working hours, and children cannot spend extra time in school because facilities are constantly in use by other shifts.

Some working parents solve this problem by asking grandmothers or other relatives to look after their children, but others have to employ child-minding agencies. In the latter case, shift schooling saves money for the government but increases costs for the parents. The savings for society as a whole are less than they appear at first sight.

In Hong Kong, for example, community groups and commercial enterprises rent or construct buildings where children can do their homework and be supervised. In many cases, they also employ staff to organise educational activities and games. The monthly cost including lunch is usually about HK\$400 (US\$50). Informal estimates suggest that about 10% of primary school children go to such centres on a regular basis.

children either to relatives or to special child-minding agencies and playgroups.

(b) Tutors

When a multiple-shift system seriously reduces the length of a school day, parents often become concerned about the extent to which their children are able to cover the curriculum. Centres of the type mentioned above often have an educational as well as a child-minding function. Parents may find that they need to send their children to such centres or to private tutors just for the educational benefits, even if they do not need the child-minding services. Tutorial classes are often expensive because they are small and are run as profit-making enterprises.

One particularly serious situation has been reported in Malaysia, where many teachers offer extra tutorial lessons outside class hours. In some cases, teachers have refused to teach properly during school hours because they know that they can make extra money by teaching the same pupils after school. This could happen in a single-session system, but the problem is exacerbated in a double-session system because the teachers argue that there is no time to cover the full curriculum during normal school hours. This type of abuse obviously requires careful monitoring. One safeguard, used for example in Singapore and Nigeria, is to prohibit teachers from organising paid tutorials for their own school pupils.

(c) Social Welfare Costs

It was mentioned above that multiple-shift systems can release young people for productive employment. However, in some societies it is very hard for such youths to find jobs. Instead of finding work, they join gangs and exacerbate social problems. Although the government may save money through a multiple-shift system, it may have to *spend* money to deal with social problems. It is usually hard to make precise estimates of the extra expenditure required, but the issue should not be ignored.

3. Summary

Multiple-shift systems can provide major economic benefits. They are:

- * more efficient use of buildings and other facilities,
- * more efficient use of scarce teachers (if staff are allowed to teach in more than one session),
- * savings in teacher training and teacher housing (if the shift system allows reduction in the total number of teachers),
- * release of teachers for other work in the economy (if the system reduces the number of classroom hours in each shift and if the teachers decide to take on other work), and
- * release of pupils for productive work in the economy.

These benefits must be set against some potential costs before the final balance can be assessed. The chief costs are:

- * the need for working parents to employ child-minding agencies,
- * the potential need for extra tuition to compensate for reduced classroom time, and
- * the costs for social welfare if out-of-school youth create extra social problems because they have more idle time.

Even after allowance for these costs, however, in almost all cases the final balance sheet is strongly positive. Multiple-shift schooling can provide major economic benefits.