Financing Educational Development:

Proceedings of an International Seminar held in Mont Sainte Marie, Canada
The International Development Research Centre is a public corporation created by the Parliament of Canada in 1970 to support research designed to adapt science and technology to the needs of developing countries. The Centre's activity is concentrated in five sectors: agriculture, food and nutrition sciences; health sciences; information sciences; social sciences; and communications. IDRC is financed solely by the Parliament of Canada; its policies, however, are set by an international Board of Governors. The Centre's headquarters are in Ottawa, Canada. Regional offices are located in Africa, Asia, Latin America, and the Middle East.
Financing Educational Development

Proceedings of an International Seminar
held in Mont Sainte Marie, Canada,
19–21 May 1982

Organized by the
International Development Research Centre
and the
Canadian International Development Agency

The views expressed in this publication are those of the authors and do not necessarily represent those of the International Development Research Centre or the Canadian International Development Agency.
Résumé

Du 19 au 21 mai 1982, les représentants de plus d'une douzaine d'organismes qui se consacrent au financement de la recherche et du développement éducationnels dans les pays en développement, se sont réunis au Mont-Sainte-Marie (Canada). Cette réunion, la plus récente d'une série échelonnée sur dix ans, portait sur le financement du développement éducationnel; les investissements en éducation dans le monde, les difficultés que les gouvernements nationaux et les organismes donateurs rencontrent dans l'augmentation des ressources affectées à ce domaine et l'expérimentation d'une gamme d'innovations éducationnelles présumées rentables. Plusieurs communications présentées à cette réunion avaient été commandées à des chercheurs qui étudient les questions intéressant les investissements dans l'éducation. Cette monographie contient tous les exposés présentés à cette réunion; suivent le résumé du compte rendu de la réunion et des débats sur le thème à l'étude des décisionnaires du Tiers Monde qui y ont participé.

Resumen

Delegados de más de una docena de organismos donantes involucrados en la financiación de la investigación y el desarrollo educativos en el mundo en desarrollo se reunieron en Mont Sainte Marie, Canada, del 19 al 21 de mayo de 1982. Esta reunión, la más reciente de una serie que se ha prolongado a lo largo de una década, se centró en el tema de la financiación del desarrollo educativo: el estado de la inversión en educación en el mundo, las limitaciones que enfrentan tanto gobiernos como organismos donantes para el otorgamiento de mayores fondos con destino a la educación y la experiencia con una serie de innovaciones educativas supuestamente costo-efectivas. Para esta reunión se comisionaron varios estudios sobre aspectos de la inversión educativa a expertos en el tema. Tales trabajos aparecen en esta monografía, acompañados de una resena general de las exposiciones y de los comentarios que sobre el tema hicieron los formuladores de política del mundo en desarrollo participantes en la reunión.
Contents

Foreword .......................................................... 5
Participants .................................................... 7
Introduction J. King Gordon ................................ 9

Adjusting to the 1980s: Taking Stock of Educational Expenditure
Keith Lewin, Angela Little, and Christopher Coelough ........... 13

The Political Economy of Financing Education in Developing Countries
Martin Carnoy, Henry Levin, Reginald Nugent, Suleman Sunra,
Carlos Torres, and Jeff Unsicker ................................ 39

A Review of Educational Innovations to Reduce Costs
Nelly Stromquist .............................................. 69

Priorities and Problems in Education for Development
J. King Gordon .................................................. 95

Commentaries .................................................. 129
References .................................................... 135
universal policy prescription is either possible or desirable. We argue, however, that in an increasingly interdependent world, structural similarities in problems do exist, and policy formation often involves similar questions if not similar specific responses. Thus, while recognizing the limitations of generalization, we take it as part of our brief to reach conclusions that may be broadly applicable to a wide range of developing countries.

Education budgets are likely to be under increasing pressure for the remainder of the 1980s. The outlook for growth in the world economy is a fairly pessimistic one with predictions of an upturn in economic activity and movement out of recession slipping later and later into the decade. The impact of monetarist policies in the industrial countries has hit developing-country budgets by suppressing growth in demand for imports from developing countries and increasing their debt service burdens through high interest rates. Recession and high interest rates have also worsened the climate for flows of capital, particularly to the poorest countries. As a result, competition for resources from national budgets is likely to be fiercer than in the past. There is a real danger that social spending may suffer disproportionately. If this happens, the financial savings will be short-lived and the achievement of medium- to long-term development goals is likely to become more difficult.

A growing number of industrialized countries have sought to limit or reduce educational expenditure and truncate the growth characteristic of the last decade. Because changes in the climate for policymaking in the North often have an impact on the countries of the South it is important to appreciate the nature of recent shifts in emphasis. In the U.K. and the U.S., for example, governments skeptical of the value of much educational spending have sought successfully to reduce expenditure. This has resulted from the limits on spending imposed by governments in response to sluggish or zero growth during recession, the preference for sectors other than education for public spending (e.g., defence), and the application of monetarist philosophy to the financing of education (e.g., in supporting the transfer of more costs to private individuals). Thus, in the U.K. spending on universities has been reduced by up to 20%, and undergraduate enrolments have been reduced (by 4%) for the first time since World War II. Student loans are being considered as alternatives to grants. Educational expenditure as a proportion of gross national product (GNP) has declined continuously since the mid-1970s (Times Higher Education Supplement 19/02/82). Sir Keith

### Adjusting to the 1980s: Taking Stock of Educational Expenditure

**Keith Lewin, Angela Little, and Christopher Colelough**

Education Area and Institute of Development Studies, University of Sussex, Brighton, Sussex, England.

The purpose of this paper is to develop the general case for maintaining real educational expenditure at the levels of the 1970s, although recognizing the need to shift emphases. This is undertaken through identifying current pressures on educational budgets in developing countries, establishing the range of contemporary and historical rationales used to justify educational expenditure, and reviewing current evidence on the effectiveness of educational expenditure in promoting development objectives.

Recent developments in the economic climate that are likely to constrain the capacity of many countries to maintain their education expenditures at existing levels in real terms and political and social factors that are likely to influence levels of spending are discussed. An historical analysis of spending rationales is given to consider contemporary justifications as represented in a selection of National Plans. This provides a context for the examination of current evidence on the effectiveness of educational expenditure in promoting development. In particular, the balance of evidence is discussed on the effects of education on productivity in the modern sector, the urban traditional sector, and in agriculture; on income inequality; and on fertility, mortality, health, and nutrition. The case for maintaining expenditures at broadly similar levels to the 1970s is emphasized and the desirability of shifts in emphasis is highlighted, particularly toward spending on primary and basic education, on systematic programs of quality improvement, and on integrated planning and development strategies. Areas where policy-oriented research could usefully be undertaken are also identified.

We would be the first to admit to the large differences between countries in the form, funding, and development of their education systems and recognize that no simple
Joseph, the English Secretary of Education, reports that the U.K. government (Times Education Supplement 12/02/82):

... has made its priorities very plain. Four great areas are being protected. They are pensions, defence, the national health service and the police... there is no precise link between spending and quality in education within limits... I have long been fascinated and perturbed by the endless increasing expenditure and the apparent endless failure to achieve all our hopes or anything like all our hopes.

In the U.S. defence spending has been substantially increased, partly at the expense of health, education, and welfare, and attempts are being made to reduce substantially the state subsidies of student loans and grants to transfer more of the costs to individuals. Cuts in both countries have so far concentrated on the noncompulsory areas of the systems, e.g., higher and further education, preschool provision. This is understandable because legal obstacles exist to substantial reductions in support for the compulsory cycle. Moreover, demographic factors account for the numbers participating in compulsory education; the numbers involved in programs where attendance is voluntary (and subsidized) are much more a product of the supply of places that can be more easily regulated.

In a more general sense, most of the industrialized countries have reduced expenditures on education as a proportion of their national budgets. Thus, of 13 industrialized countries for which statistics are available, nine reduced the proportion of the national budget allocated to education between 1970 and 1978/79 (Table 1). Most of those who modestly increased their proportions were countries on the European periphery (e.g., Ireland, Spain) (UNESCO Statistical Yearbook, 1981).

The climate for funding education has, therefore, changed and become less favourable than it was in the mid-1970s. Certainly the expansionary development of postcompulsory, state-funded education characteristics of the 60s and 70s now seems firmly in the past. Moreover, expenditure on research and curriculum development programs has also suffered (with large cutbacks in the funds available to research councils and development groups, e.g., the U.K.'s Social Science Research Council and Schools Council). In public debates it is increasingly common to hear the earlier optimistic faith in educational development providing a solution for a plethora of social and economic problems replaced by a skeptical questioning of the results of 2 decades of investment. This questioning often seems to overlook the substantial achievements of the development that has taken place and to concentrate selectively on problems on which it has had little impact.

In the South, education expenditures are also vulnerable to public spending cuts. Because they make up the largest or second largest proportion of many governments budgets it could hardly be otherwise. First of all, however, it must be pointed out that the available evidence does not indicate that downward trends in expenditure are as widespread as they are in the North. Between 1970 and 1977/78, proportions of total public budgets allocated to education did decline in the developing countries of Africa, Asia, and Latin America by an average of 0.95 percentage points (from 16.12 to

Table 1. Number of countries in which the proportion of public expenditure allocated to education increased or decreased between 1970 and 1978/79a and between the most recent 2 years available.b

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Increase</td>
<td>Decrease</td>
</tr>
<tr>
<td>Africa</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Asia</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Latin America</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Caribbean</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Oceania</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total developing countries</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Socialist countries</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Market economies</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Total industrialized countries</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>34</td>
</tr>
</tbody>
</table>

a Latest figure available taken.

b 1976 and later only considered.

15.17%), which was slightly less than the decline in industrialized countries of 1.18 percentage points (from 14.31 to 13.13%). Average levels of proportionate expenditure between 1965 and 1970 had increased for both groups but by less than the fall from 1970 to 1977/78 (see Table 2).

More detailed data on changes in educational expenditure from specific countries and from regions within the South point to a very mixed picture. No clear systematic trends are indicated (Tables 1 and 3). Expenditure in the market economies does appear to have been reduced as a proportion of budgets, although real levels of expenditure in these countries are of course very high. In the developing countries, there are nearly as many examples of increase as there are of decrease in proportions over a 7-year period with little evidence of a tendency for reduction late in the decade. Surprisingly, perhaps, data for the period 1965–70 (Coombs and Chaudhury 1981) indicate a similarly mixed pattern. Of 24 developing countries spread across the regions, 12 increased their expenditure proportion and 12 decreased it.

The picture shown by Table 1 is broadly consistent with a leveling off of the increases in funding that many countries experienced in the 60s and early 70s. These general findings are at variance with those of Coombs and Chaudhury (1981) who identify decreasing trends with more confidence using slightly earlier data. From the most recent data available it does seem that some countries were beginning to reduce proportions at the end of the decade but the picture remains mixed (Table 3).

Thus, the case for maintaining levels of educational expenditure in developing countries is one that may seem premature. There are good reasons, however, to believe that an anticipatory strike to defend budgetary allocations is in order. First, although current figures do not show substantial drops in proportional allocations, this does not mean that no changes are taking place. Educational budgets are notoriously “sticky” because much recurrent spending is on salaries, which cannot be rapidly reduced. Thus, when changes in priority do take place it may be several years before the effects of low pay and reduced recruitment make themselves felt in budgets. Second, low, or even negative, economic growth rates along with high inflation may be reducing the resources available for education in real terms even though proportional spending is maintained. (Recent events in Zambia are perhaps the best known example of this.) In such cases, it is crucial that educational quality and provision not be allowed to suffer substantially if prospects for recovery are not to be severely damaged. Third, changes in allocation within the education sector, for example, to support the high cost of expansion of tertiary education have characterized recent developments in some countries. This may have the effect of reducing, in real and proportionate terms, resources available to other sectors, e.g., primary/basic education. If education budgets are allowed to decrease, the sectors within education that suffer will not necessarily be those with least development value. Fourth, and most important, the impact of the recession in the Organization for Economic Co-operation and Development (OECD) countries combined with the introduction of “hard” monetarist policies, has only been a feature of the last 2 years. The worst effects of these policies on the developing countries are yet to come and will only begin to show up in published statistics in 2 or 3 years’ time.

For these reasons we believe that the current position may not be as evenly balanced as the data suggest. If public expenditures are reduced in real terms, as, for example, is predicted for sub-Saharan Africa (World Bank 1981b), then pressure will undoubtedly fall heavily on education budgets with adverse consequences for medium- and long-term development goals. The impact of reductions in spending in many developing countries is not likely to parallel experience in the industrialized countries for a number of reasons. Most obviously it will be those areas of the budget that are seen to be most politically expendable that will suffer, and in many countries these are likely to include basic and primary education provision, rural education programs, and nonformal and adult education. Nonsalary recurrent expenditure is also vulnerable although the savings may be small and making them may compromise the impact of salary expenditure. Core sectors, closest to the hearts of the urban elite, are less likely to suffer, e.g., secondary and tertiary provision in high-cost institutions, although they may not represent the most effective use of available resources. In many

---

Table 2. Average percentage of public expenditure allocated to education.

<table>
<thead>
<tr>
<th></th>
<th>Industrialized countries (13)</th>
<th>Developing countries (26)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average (%)</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>1965</td>
<td>13.96</td>
<td>6.43</td>
</tr>
<tr>
<td>1970</td>
<td>14.31</td>
<td>6.56</td>
</tr>
<tr>
<td>1977/78*</td>
<td>13.13</td>
<td>5.76</td>
</tr>
</tbody>
</table>

* Latest figures available taken.

countries chronic shortages of educated manpower are still a substantial problem despite the emergence of “educated unemployment” in others. Reducing educational spending in these circumstances is likely to be counterproductive. Even those systems that are “overproducing” in terms of available modern-sector employment are unlikely to improve their quality or change their orientation if funding is reduced. Austerity is not a sine qua non for educational reform, indeed successful innovation and qualitative development usually require additional resources. It would, therefore, be useful to consider what the pressures on budgets are and how influential they are likely to be. This can provide a framework for examining contemporary rationales and the evidence on their validity.

**Pressures on Educational Budgets**

There are several different pressures on the reduction of educational budgets in developing countries that are likely to be important in the 1980s. In general, they fall into two main categories — those that affect the overall level of public expenditure and those that influence the priority accorded to education within a given level of expenditure. These categories are not mutually exclusive. For any particular country their importance in determining budgetary allocations varies, as does the strength of countervailing pressures.

The slow down and stagnation of economic growth in the countries of the North has had predictable effects on the economies of the South (Brandt 1980). Although the newly industrializing countries and most net oil exporters have been able to increase public expenditure budgets in line with their economic growth, the bulk of low- and middle-income oil importers have experienced considerable difficulty in maintaining expenditure in real terms. Rapidly increasing energy costs (with oil prices increasing by 80% between 1978 and 1980 in real terms), growing balance of payments problems, and stagnant or declining volumes of international trade have combined to produce growing current account deficits in many countries. Consequent exchange rate pressures have fueled domestic inflation and reduced the real value of resources available to governments. In some highly import-dependent economies, effects of the economic crisis have led to acute shortages and bottlenecks, to the suspension of public-sector projects, and to an inability to transform financial resources into the purchase of imports that are needed for development. Tanzania and Zambia are two of the most pressing examples of countries in this predicament. There are many others that are, or soon will be, in similar positions. As a result of this overall pressure on resources, education budgets are under pressure. However, it must be remembered that educational budgets are particularly vulnerable in the conditions described above because they are not as easily defended as are some other forms of investment. Projects that have short-term returns and make immediate contributions to reductions in deficits and balance-of-payments problems may well appear more attractive, although their long-term developmental impact is less.

The unfavourable economic climate for development has had further consequences for public"
expenditures. International institutions have taken a greater role in the adjustment process than previously, and an increasing number of countries have taken advantage of the facilities offered by leading institutions to overcome pressing financial problems. Simultaneously, with this growth of lending there has been an increase in the conditionality of loans. This has most often been of a kind that favours tight controls on public expenditure and reductions in its level (Daniel 1981). The recently published World Bank report on "Accelerated Development in Sub-Saharan Africa" (World Bank 1981) provides an example of some of the tensions this can create. Although the report argues for increased expenditures on human resources, including education, the effects of the macroeconomic policy it advocates are likely to exert a dominant influence in a contrary direction, which would make any such increase difficult to finance. The general points that must be made are that: many countries, especially in Africa, spend up to 40% of their public budgets on education, health, and agricultural extension; because of the magnitude of these expenditures and because large proportions of them are spent away from the centre (rural rather than urban, often supporting nonestablished rather than established posts), these are the areas where cuts are most likely; this result is made more, rather than less, likely by World Bank emphasis on short-term and directly productive expenditure; and it is expenditure in these areas (expenditure that will not be replaced by the private sector) upon which medium- to long-term growth in production in developing countries heavily depends.

The effects of recession and increasing conditionality of loans are, therefore, likely to threaten social development expenditures in general and education in particular, as are any reductions in the resources available from donor agencies. This is especially critical for the low-income, oil-importing developing countries where the bulk of external finance is provided by Official Development Assistance (ODA) (World Bank 1981a). Real ODA receipts in these countries in 1978 and 1980 were, in fact, below the level reached in 1975, and there was no increase in the flow of commercial loans. The outlook for the immediate future is not very encouraging. The largest industrialized donor country (the U.S.) anticipates a 25% reduction in disbursements in 1982/83; the fourth largest (the U.K.) has planned for a reduction of 11% in overall commitments for 1982/83, with the possibility of more reductions subsequently. Because most external finance for education is provided by bilateral aid (World Bank 1980b), and multilateral contributions are difficult to renegotiate in the short term, the overall reductions quoted above are likely to be greater for educational aid programs. To some extent these reductions in available funds may be offset by increases in levels of support from Arab OPEC countries and the other OECD donors, but this is by no means certain. At a time when the needs for concessionary funds are increasing, it would be highly undesirable to allow the amount available to decrease in real terms.

Complementing those pressures on education budgets, which arise from difficulties in maintaining aggregated expenditure levels, are those that are likely to reduce the priority accorded to education. The emergence of major competing sectors for public expenditure over the last decade has increased competition for resources as most governments have sought to provide more services in different sectors. In some regions, defence spending has risen dramatically and preempted large proportions of available resources, although the effectiveness of much of the expenditure is questionable. Certainly the developmental implications of the 40 000 village pharmacies or thousands of basic primary schools that could be provided for by the cost of one jet fighter are substantial. Price support and food subsidies have been increasingly used, and have made substantial demands on public expenditure as have infrastructure development projects. Newly identified needs for population, environmental, and employment programs have also added to the demands on scarce resources (although, of course, some of these have an educational component).

In addition to the increase in the competition for funds, shifts in the international climate for development also affect the priority accorded to educational spending. The impact of human capital theory on educational plans in the 60s and 70s is one example of the possible influence of theoretical paradigms developed primarily in the North for the North on the South. It seems reasonable to suppose that some of the arguments currently influential in the North, which are leading to reductions in educational expenditure, may well be projected onto the South in a similar fashion. Thus, Seers (1981) has already argued that:

... because many governments have had to go to the IMF for assistance in meeting their deficits they have had to adopt open door development strategies and monetarist policies irrespective of social needs or economic structure. ... neoclassical influences, originating overseas and parleyed through many other channels, academic and official, have prepared the ground for such pressures.
Conditionality of loans is, therefore, linked with the export of ideas that, indirectly, are likely to increase pressure on education budgets. Among other things, a need to transfer more of the costs of education to private individuals is likely to be implied by shifts to more monetarist policies. Even if the need for lower levels of public expenditure were accepted in the North, and there is growing evidence in the U.K. and the U.S. that it is not, conditions are sufficiently different in most developing countries for no direct translation of policy to be appropriate. As far as education is concerned in many countries (with some exceptions) private education is of poor quality and expensive and surplus income is not available, in the majority of households, to substitute for government spending in this area. Neither is public support for education obviously less attractive or of less long-term importance for developments in countries with low levels of basic educational provisions, than are alternative investments.

In a more general sense, disillusion with the results of educational investment and expansion in the last 2 decades has become fairly widespread and many of the criticisms of outcomes are familiar. Much of the skepticism is concentrated in the countries of the North and it is in the North that levels of expenditure have started to decline in some educational sectors, at least partly as a result of shifts in priority away from education. It is still rare, but not so rare as it was 5 years ago, to hear politicians and political commentators in the South question the value of much of the educational spending that has taken place. The extent to which this kind of disillusion and skepticism is projected onto the South clearly has substantial implications for budgetary allocations; the extent to which it is justified depends on close examination of the existing evidence on the relationships between educational expenditure and development as reviewed later in this paper. Two observations are pertinent here. First, it is now much clearer than even a decade ago that the problems to which educational investment was thought to be the key are far more intractable than they appeared at first. For example, few would argue now that problems of income distribution inequalities might be solved by greater access to education alone or that economic development would follow necessarily from success in technically matching the output of schools with the educational demands of the labour force. Second, is that success is relative to expectations. Much of the disillusionment with educational development stems from wholly unrealistic expectations of both the magnitudes and rates of change of economic variables that it could promote. This lack of realism was a characteristic of much of the development literature that focused upon constraints on economic development. Formulating the problem in this way, and identifying the lack of educated people as a constraint, which it certainly was, had the disadvantage of implying that overcoming the constraint was the key to development. Reality was far more complex. The search for the constraint was similar to the search for Methuselah’s elixir. Overcoming one constraint may have been a necessary condition, but it certainly was not a sufficient one. Moreover, a concentration on the removal of constraints carried with it the implication that development was a natural process that was being impeded, in contradiction to those who saw development as a dynamic process that could be consciously planned and deliberately accelerated.

Neither of these two observations, however, implies that some reassessment of priorities is not needed for the 1980s. Particularly in those countries that have seen costs spiral, especially at the highest levels of education, and educational provision exceed the absorptive capacity of the labour market, it is essential to reexamine what evidence there is on the efficacy of educational investment. The proportion of public expenditure spent on education in developing countries exceeds that of the industrialized countries by less than 2% on average (Table 2) and is considerably less in real terms (World Bank 1980a). Education needs, on any reasonable definition, are a long way from being met in most developing countries and substantially so in the poorest. If changes are needed they are most likely to be in the distribution of educational expenditure between sectors rather than any reductions in the overall level, except, perhaps, in those countries that are spending more than 25% of their public expenditure on education.

Opposing those pressures that tend to reduce the overall level of public expenditure and the priority given to educational expenditure are those that act to increase spending. Because most formal educational systems are organized bureaucratically, with incremental salary scales for teachers, and teacher salaries represent 85% or more of recurrent costs, there is some built-in tendency for costs to increase from year to year where average teacher age and length of teaching service increases. Expansion in enrolments, still a dominant concern in many countries, also increases overall costs, although not necessarily costs per student. Thus, education budgets need to grow at least as fast as the combined effects of increases in salary costs (and other recurrent expenditure) and increases resulting from the provision of more places as population
Educational growth in industrialized countries and in most developing countries has followed substantially different trajectories. Any attempt to characterize these must necessarily gloss over the finer points of difference, because neither group of countries is homogeneous. There are considerable differences between the English and German experience as there are between the Indian, Brazilian, and Kenyan. Nevertheless, we feel it is useful to highlight aspects of the development process that seem characteristic of countries that industrialized before the 20th century, in the first half of the 20th century, and those that are still in the process of industrializing.

Among the first group of countries five characteristics stand out. First, growth in enrolments and in public spending was slow and continuous over long periods of time. In England, for example, schools existed as far back as medieval times and their growth proceeded sporadically until the late 19th century when a phase of slow, continuous expansion set in. As many schools existed in the 16th century as in the 19th century (Anderson and Bowman 1965). In the U.S., the first schools were established by statute as early as 1647; growth in provision was not very even, although by the middle of the 18th century the number of colleges
Second, in most countries dual systems operated in parallel with few, if any, connections between them. This was especially true in Europe. Characteristically, old established schools provided for the education of gentlemen from the higher social classes in the tradition of a liberal education that could trace its origins back to Homeric Greece (Muir 1981). This contrasted with provisions for other social groups that tended above all else to stress moral virtue and the basic skills of the three R's — reading, writing, and arithmetic — as the basis of a sound education. More than anything else perhaps, the differences between the two parts of the dual system can be highlighted by noting that, by and large, one group of schools confirmed social status for those whose family background gave them access, whereas the other conferred status by providing some limited opportunities for advancement through academic achievement.

Third, the provision of mass formal education followed rather than preceded the transition from agriculturally to industrially based economies. In these instances, there is no convincing case that economic growth depended directly on educational provision because there was so little available. Indeed many of the 18th century entrepreneurial innovators and inventors in Britain did not have the benefit of any systematic education (Ashby 1961). Basic literacy was fairly widespread in 18th century England, however, and it is very plausible that this contributed directly to the spread of new ideas and the growth of knowledge of new techniques. Although schooling probably did not provide many specific skills of use in industrial and agricultural production, the development through them of literacy, numeracy, and some social values (punctuality, discipline, etc.) may well have been instrumental in providing conditions favourable to economic growth.

The fourth observation is that when growth did take place in most systems it was the elementary level that grew fastest toward universal provision and only when substantial progress had been made with this did higher levels grow substantially. Thus, in the U.K. in 1870 when Fosters' Education Bill introduced universally available primary education, about 40% of the relevant age group were enrolled at the primary level and 2% at the secondary. Thirty-two years later, when local authorities were finally charged with the responsibility of providing secondary education, primary enrolments had risen to include over 80% of the relevant age group, although secondary enrolments remained constant at around 2% (Dore 1976a). It was also at the elementary levels that government control and integration into unified systems first began to occur. Thus, as early as 1849, Horace Mann in Massachusetts was advocating a publically supported primary school system open to all children. In many countries this process was never completed and there is still a considerable diversity of funding and, to a lesser extent, control of school systems.

Finally, in most early industrializing countries private sources of funding provided very substantial proportions of the finance necessary to support the formal education system. Early educational legislation in the U.S. tended to favour provision without mandatory conditions on sources of funding (Storr 1965). Philanthropy in the U.K. was responsible for the founding of many early schools, and this provided a model for the fast-growing American states. In the 19th century, the benefits of running schools and colleges as profitable private enterprises added another dimension to the growth and financing of mass schooling, particularly in the U.S. Characteristically, early expansion was not hampered significantly by dependence on scarce government funds and education was not often in direct competition with other state-financed sectors. Higher levels of education were frequently funded from sources other than the state. As late as 1920, U.K. universities as a whole were more than 50% privately funded (Levy 1981), and some still draw on very substantial private resources.

The general characteristics of educational development in early industrializing countries can, therefore, be listed as: slow and continuous growth over a long period, coexistence of dual systems serving different clientele that have only gradually and partially merged, industrialization before the mass provision of formal education at any level, growth in elementary school enrolments to a high level before substantial growth in secondary and tertiary numbers, and high levels of private support for educational provision with generally increasing state support.

These patterns are not universally valid and there are certainly significant departures from them. However, they do represent a characteristic mode of development that is in sharp contrast to those in many developing countries. Before considering these in detail, it is useful to examine how Japan, as an “early” late developing country, might fall into the pattern described above.

Japanese educational development was undertaken in a political climate much more similar to that in which many developing countries currently find themselves than to that which accompanied
educational growth in Europe and North America. After the Meiji restoration, Japan embarked on a deliberate, state-directed policy of modernization (Dore 1976a) that included the development of a modern education system as an essential element of the policy. A dual system of education existed before 1868 that catered for the sons of Samurai, on the one hand, and those commoners fortunate enough to be considered worthy of some basic education, on the other. This had grown gradually over more than a century and was not centrally organized or funded. After the first tentative efforts at reform the momentum of change rapidly increased and, in 1872, a plan was announced for a centralized, unified education system on the French model. This reflected a determination

\[ \ldots (a) \text{ to bring the whole nation within the scope of the elementary system and (b) to make the national school system a unitary pyramid of graded layers in which all children started from the same place, moving as far up the ladder as, in the words of the 1872 decree, their 'ability and their means' permitted. (Dore 1976a)} \]

As a result, the slow period of growth in educational provision was superseded by a rapid expansion in elementary school enrolment in government-sponsored and controlled schools, which increased enrolment ratios at this level from 28 to 98% between 1870 and 1910. Only after elementary school enrolments included more than 90% of the relevant age group did secondary provision start expanding. Moreover, these growths in enrolment were achieved at a time when the majority of the labour force was employed in agriculture not industry (83% in 1870 and 59% in 1910) (Japan Education 1965).

Thus, after 1872, Japan’s educational growth can be characterized as: fast and discontinuous with the past (new institutions were created in proliferation based in large part on imported models rather than developments of existing schools), abandoning the dual system pattern of organization under the pressure to modernize and the general rejection of ascription in favour of more meritocratic methods of selection for jobs and acquisition of social status, largely preceding industrialization and high rates of economic growth, focusing initially on elementary school growth, and heavily state subsidized.

It is very difficult to generalize about educational expansion in developing countries. The experience of Latin American countries with long periods of independent government is very different from that of Asian countries with a strong colonial legacy and historically rich educational heritage. Both differ markedly from African countries recently indepen-
countries. The school, as the bridgehead to the modern sector, plays a crucial role in acting as a conduit from rural poverty to urban affluence. A second consequence of this is that the burden of supporting a mass education system falls on a population where many are engaged in economic activities that do not generate large surpluses.

A fourth feature is the imbalances in investment at different levels of the system. In sub-Saharan Africa, unit costs in higher education are up to 100 times greater than in elementary education. In Latin America, and South and East Asia, this ratio is of the order of 8–10:1 (World Bank 1980a). Forty-one percent of total expenditure on education was on primary, 27% on secondary, and 31% on higher education in developing countries in 1975, although enrolment in primary schools in many countries was substantially short of universal primary education levels and average enrolment ratios in higher education were less than 5% (World Bank 1980b). In a substantial number of countries, but by no means all, investment in higher education has been disproportionately generous, partly at the expense of secondary and primary schools.

Fifth, in the great majority of countries growth has been heavily financed at all levels by the state. Even in those cases where community resources have been mobilized e.g., Kenya, the recurrent costs have usually been met by governments. Although private expenditures vary greatly from country to country, they are not usually of the same magnitude as state support. Where they are, this is usually the result of the maintenance of a dual system, catering for different clients. Some Latin American countries have particularly buoyant private sectors.

Finally, it should be noted that the growth described above occurred in most cases within pedagogical tradition, patterns of organization, and curricula materials derived from industrialized countries. It is rare to find education systems in the developing world that do not bear strong hallmarks of one or more culturally alien sets of curricula assumptions. Thus, from the outset, the state had a more instrumentalist view of education and played a greater part in supporting its development in most developing countries (and in Japan) than was the case in Europe and North America during their industrialization. Rapid and uneven growth has led to problems in maintaining quality and matching educational outputs with economic needs. This has led some to doubt the effectiveness of the investment that has taken place. The centrality of state support and a dominantly instrumentalist view of the purposes of educational expenditure has increased the sensitivity of educational budgets to changes in economic climate and interpretations of relationships thought to exist between educational investment and economic growth. Differences in experience between industrial countries and developing countries suggest that even if a case could be made for reducing educational expenditure in the former it would not necessarily be valid in the latter. They also suggest that the consequences of reductions may be very different in developing countries, as they have been with respect to the expansion of resources in the past.

**Financing Education**

In England in the 19th century, two contrasting points of view were prevalent. The majority, it seems, were unconvincing of the possible benefits and, it was said: "...dread the consequences of teaching the poor more than they dread the effects of their ignorance" (Dore 1976a). Thus, one reaction to the establishment of a Society for the Diffusion of Useful Knowledge in the early 19th century was to warn that: "A scientific education for the working classes would derange the base of society. ...any alteration there will level the superstructure to the dust" (Layton 1977). This attitude contrasts with that of those who believed that mass access to education would lessen the problems of working-class crime, improvidence, and immorality; they, felt, should be viewed as organizations to socialize the lower orders. They were also necessary, as a number of commentators observed, if England were to maintain its competitive position. Lyon Playfair speaking in 1851 (Layton 1977) noted: "As surely as darkness follows the setting of the sun surely will England reede as a manufacturing nation unless her industrial population become more conversant with science than they are now."

In contrast, in Japan the dominant classes after 1868 seem to have had little doubt that education would contribute to both the loyalty and productivity of the population as a whole. Indeed the central component of the modernization strategy was to be found in the building up of the education system. Although there were some misgivings concerning the penetration of Western culture, this was balanced by deliberate emphases on moral and ethical education in school curricula designed to act as a counterbalance. As the Minister of Education observed in 1890 (Dore 1976a), teachers were:

>...in the first instance to nurture virtuous characters in their charges and to teach them to observe the Ways of Man; in particular it is necessary to develop a spirit of patriotism and
reverence for the Emperor; to prepare pupils to become loyal and good citizens who will work hard for their teachers and be of exemplary behaviour.

Perceived purposes, therefore, stressed the absolute necessity of acquiring Western technical skills through an appropriate state-provided education system. They also stressed the importance of social and moral skills. No country in Europe underwent as radical an upheaval in social structure as Japan in the 1860s, in which the traditional ascritive patterns of access to wealth and status were replaced by more meritocratic ones based on performance in the education system. Nor did any see the need to catch up in quite the same way. The proportion of time devoted to ethics and morality in Japanese curricula was high and went beyond those topics included in Western religious curricula (Japan Education 1965). One possible result of this has a direct consequence for economic development. It has been argued that the historically high levels of saving in Japan (consistently of the order of 20% since 1900), which have provided much of the investment funds to support development, are a result of appropriately oriented education. Certainly thrift, diligence, honesty, frugality, and elimination of waste are all character traits actively promoted in Japanese schools and school curricula (Japan Education 1965).

Colonial rationales for expenditure on education varied greatly from country to country but have had some characteristic forms and have left a legacy that continues to influence contemporary policy. British education policy toward its colonies really only gained some coherence in the 1920s with the publication of the Phelps Stokes Commission’s reports (Jones 1922) and the “White Paper on Education Policy in Tropical Africa” (U.K. 1925). Up until this time, administrations in the colonies had enjoyed considerable autonomy in their policies toward educational development and, within certain limits, were able to exercise considerable freedom. The conditions imposed were, essentially, that any support for education had to be self-financed, rather than constitute a burden on the colonial budget, and that it should be in the interests of the indigenous people (Lugard 1929).

Up until the 1920s, in most British colonies education was linked to church support and to the principles of voluntarism (Loveridge 1978). As a consequence, enrolments were small and attitudes toward them ambivalent. Some felt that the consequences of unchecked expansion would be disastrous. Others felt that growth accompanied by appropriate “educational adaptation” would serve to control potential unrest in the colonies of the kind that had afflicted British India (Carnoy 1974). Changes that promoted the acquisition of manual and agricultural skills through vocationally oriented curricula had the added attraction that: “...the right form of mass education increases the productivity of local communities so substantially as to more than recompense the government for expenditures made” (Jones 1922).

The French treated their colonies as a more integral part of the metropolis. This meant that what schools were established were tied to French curricula to a much greater extent than in British colonies where repeated attempts were made to provide a locally relevant education aimed at: “...giving him (the colonial subject) an understanding of his own environment rather than giving him the kind of education which is really only suitable in the environt of a country like Great Britain” (U.K. 1926). Education for women did not figure prominently in any plans, although, of course, their potential contribution to the development process was considerable.

From the 1930s onward some differentiation in provisions for education took place between those areas that were colonies of settlement and those that were not. Even in the latter, administrations typically spent more in aggregate on the education of expatriates than on indigenous people and development was slow. In those colonies with some measure of self-government involving local participation and representation (e.g., Ceylon), increased educational provision became one of the most persistent demands and largest components of public expenditure.

Historically, therefore, colonial rationales for providing educational services at particular levels depended on the balance of a number of factors. The first of these was primarily financial; until after 1945 state intervention and subsidy of education on a substantial scale was rare. Usually all developments had to be self-financing, or at least met from local revenue raising. Along with this constraint there was a strong tradition of voluntarism with various organizations, notably the churches, providing support for schools without state assistance. Lack of involvement in financing education coexisted with a laissez-faire attitude that essentially stressed nonintervention and left government resources free to invest in activities most directly related to trade and the interests of settlers.

Because educational provision had developed in a fairly arbitrary way it seemed necessary to many colonial administrations to establish some principles through which provision could be controlled. This stemmed from a genuine concern for “native interests” as well as disquiet with the effects of
overzealous missionary activity and the vaguely formulated paternalism of many administrations. Gradually, therefore, it came to be seen more in the colonial governments' interest to sponsor some level of educational provision. Much has been made of the association between the early growth of schooling and the needs of colonial administrations for literate clerks and educated nationals who could speak European languages. There is some truth in the argument that institutions were often established with this in mind but the demand for government employees in many countries was not so great that provision was justified by this alone at the levels at which it existed.

After World War II, colonial governments gradually began to invest more in educational development. This was a continuation of a trend that had started in the self-governing territories at an earlier time. Because social demand was growing and because the realization of independence brought with it the need to localize the posts of large numbers of educated expatriates, systematic support for education and planned growth became a feature of most countries' development plans. The conventional wisdom of the late 1950s and 60s was increasingly influenced by beliefs in the efficacy of formal education to transform traditional agricultural economies into modern industrial states with some judicious assistance from rich countries. Few argued with the overriding priority given in many countries immediately before and after independence to educational expansion. Politically, the demand for such policy was usually irresistible and it was backed by general agreement that manpower needs had to be met as expatriates left. It also opened up a channel for social mobility to wide sections of the population who had previously been denied access. Increasingly, the possession of education began to legitimate differences in status and power that had previously been ascriptively determined.

This brief summary of rationales that have been used to support educational development highlights a wide range of arguments that have appeared under different conditions. In the early industrializing countries where educational growth was typically slow, preceded industrialization, and was substantially privately financed for long periods, ambivalence as to the effects of extending the educational franchise is a key feature. Social reformers argued for the civilizing benefits that would follow from basic schooling for the "lower orders." More conservative elements were alarmed at the prospect of a literate working class better able to organize itself and challenge the existing socioeconomic structure. Both groups were concerned with the importance of transmitting moral and ethical values through schooling; conservatives tended to doubt the effectiveness with which this could be achieved, however. Throughout the 19th century economic arguments gathered force as it became more difficult to deny the connections between production processes and the possession of general and specific skills, some of which might best be acquired in schools. Social demand for equitable access to education also became a potent force that culminated in mass education systems in most industrialized countries by the early 20th century.

In Japan there was far less ambivalence among the ruling classes to education. Modern schools were established within an integrated national system (replacing traditional ones) with the express purpose of hastening the modernization of Japan, particularly through the diffusion of Western knowledge. It nevertheless remained a strong and central part of the educational process to sustain traditional values that were not incompatible with new knowledge and technology. Schools were not regarded, in general, as potentially subversive but as necessary to ensure continuity of the Japanese way of life in competition with the superior technology of the West.

In developing countries rationales have varied greatly over time. Generally, colonial administrations saw little purpose in extending educational franchises particularly when it would involve significant state expenditure. Often the provision of schools was left to voluntary agencies (usually missionary societies), and state involvement was restricted to the education of a local ruling class sharing many values and adopting the language of the colonial administrators. Few colonies had economies that were thought to need large numbers of educated workers, and the most the schools were expected to do was to ease the transition from traditional to more modern societies and provide a smattering of literacy and numeracy. Some of the more liberal administrations did attempt to develop schools related directly to major economic activities, usually in agriculture, with some success. In Latin America, where schools developed over much longer periods of time than in the rest of the developing world, little expansion took place until it was considered as in the interests of the ruling classes to do so. Indeed, it has been argued that a major factor leading to the enrolment expansion occurring at the end of the 19th century was a response to a perceived threat of social conflict if the more marginal groups were not given some chance to participate more fully in the productive sectors of the economies and enjoy
some benefits from surpluses generated by the export trade (Carnoy 1974).

From this analysis three main types of rationale for educational expenditure are apparent. These are interrelated and are focused on:

- **Economic development** — particularly the supply of adequate numbers of sufficiently educated workers and the effective diffusion of knowledge of productive processes;
- **Socialization** — either into an existing normative consensus (for example, to legitimate differences in socioeconomic status) or to ease the transition to modern values required by changes in the production process; and
- **Political goals** — for example, the education and renewal of a ruling class with a particular ideology.

**Rationales in Recent Educational Plans**

The dominant rationales for spending public money on education in developing countries over the last 2 decades have focused on the provision of suitably educated manpower for development. Most plans have contained similar statements to that made by former President Echeverria of Mexico in 1973: “The contribution of education to development is obvious. It shows itself in the formation of qualified individuals, in the ability of a people to produce and absorb technological knowledge and in the level of productivity on the job.” Increasingly, however, other rationales seem to have been given more prominence in the later part of the 1970s. To examine this in more detail we have undertaken a content analysis of 29 national plans from 16 countries throughout Africa, Asia, and Latin America. We have concentrated on identifying general emphases in the plans and have noted the arguments used to justify the levels of spending proposed. The plans cover the period from 1966 to 1985 and, where possible, at least two plans for each country were examined. Where changes in emphasis over time within countries existed they were noted. It was significant that in none of the plans analyzed were doubts expressed about the major role of education in the development process, although differences in emphasis certainly did exist.

The relationship between plans and what was actually implemented varied a great deal from country to country. Indeed it could be argued that some plans were in themselves no more than facades, although many clearly represented detailed planning much of which was taken seriously. Short of the detailed, country-specific examination of expenditure and educational development that ideally needs to be undertaken, some insights were still possible using the chosen method and time available and could be used to form the basis of a further study.

More than 30 kinds of rationale were identified in the plans and these were distilled into five main categories: manpower development, social equity, nation building, improving quality of schooling, and improving efficiency of schooling (Table 4). Manpower development rationales included general arguments concerned with the need for an educated labour force with the basic skills provided by schools. They also included specific arguments related to the development of particular skills and knowledge (most frequently in science and technology, in agriculture and for rural development activity, and as part of vocational and nonformal training programs).

Social equity rationales were directed toward the need to equalize provision in different areas and among different groups. Further quantitative expansion was often a part of the strategies associated with them. The provision of primary education as a basic human right was included in this category because low enrolment ratios are usually related to inequalities of provision. Although more countries increased rather than decreased the proportion of their public expenditure budgets for primary education (10 increased and six decreased between 1970 and the latest available figures), there was no strong shift in emphasis in the plans toward primary provision. It is in any case difficult to generalize across countries because some have achieved universal primary education, e.g., Sri Lanka (and will, therefore, only increase primary expenditure by increasing unit costs and, hopefully, quality), whereas others are still far from this goal, e.g., Pakistan (and may increase expenditure even though unit costs may fall). In some, concern for social equity in education was focused on higher levels in the system. Some social equity rationales concentrated on the role of education in reducing economic imbalances and saw adequate provision as a key factor in reducing income inequality and occupational discrimination between groups.

Nation-building rationales include a mixed range of arguments. First, there are those that put the case for education as a tool to consolidate national identity. A major function of education is, therefore, to develop and socialize students into a shared set of values and attitudes that will contribute to political stability and development. The stress is on noncognitive outcomes of schooling and emphasizes the importance of such things as tolerance, cooperation, strengthening of national
Table 4. Summary of rationales for educational expenditure found in 29 national plans.

<table>
<thead>
<tr>
<th>Manpower development rationales</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase the possession of general skills relevant to development</td>
<td></td>
</tr>
<tr>
<td>Increase the possession of skills relevant to the modern sector</td>
<td></td>
</tr>
<tr>
<td>Improve scientific and technological capabilities</td>
<td></td>
</tr>
<tr>
<td>Provide agricultural development knowledge and skills</td>
<td></td>
</tr>
<tr>
<td>Provide rural development knowledge and skills</td>
<td></td>
</tr>
<tr>
<td>Increase the prospects for self employment</td>
<td></td>
</tr>
<tr>
<td>Provide specific vocational training</td>
<td></td>
</tr>
<tr>
<td>Extend literacy to increase productivity and innovation</td>
<td></td>
</tr>
<tr>
<td>Develop nonformal education programs</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social equity rationales</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Equalize educational opportunities and reduce regional disparities in access</td>
<td></td>
</tr>
<tr>
<td>Reduce income inequalities</td>
<td></td>
</tr>
<tr>
<td>Reduce occupational differences between groups assuming from educational imbalances</td>
<td></td>
</tr>
<tr>
<td>Provide basic education as a human right</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nation-building rationales</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop and consolidate a national identity</td>
<td></td>
</tr>
<tr>
<td>Promulgate a national language</td>
<td></td>
</tr>
<tr>
<td>Promulgate a national ideology</td>
<td></td>
</tr>
<tr>
<td>Promote self-sufficiency and self-reliance</td>
<td></td>
</tr>
<tr>
<td>Reduce cultural and psychological dependency</td>
<td></td>
</tr>
<tr>
<td>Strengthen local institutions</td>
<td></td>
</tr>
<tr>
<td>Develop individual potentials fully</td>
<td></td>
</tr>
<tr>
<td>Localize expatriate manpower</td>
<td></td>
</tr>
<tr>
<td>Ensure physical well-being and health</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improving quality of schooling rationales</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve educational quality through curriculum development</td>
<td></td>
</tr>
<tr>
<td>Improve quality through localizing examinations</td>
<td></td>
</tr>
<tr>
<td>Improve teacher training</td>
<td></td>
</tr>
<tr>
<td>Improve in-service professional development</td>
<td></td>
</tr>
<tr>
<td>Improve resources available to teachers</td>
<td></td>
</tr>
<tr>
<td>Enhance planning and research capabilities</td>
<td></td>
</tr>
<tr>
<td>Increase private education standards</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improving efficiency of schooling rationales</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce dropouts</td>
<td></td>
</tr>
<tr>
<td>Reduce repetition rates</td>
<td></td>
</tr>
<tr>
<td>Increase enrolments</td>
<td></td>
</tr>
<tr>
<td>Improve cost effectiveness of teacher training</td>
<td></td>
</tr>
<tr>
<td>Improve efficiency of plant utilization</td>
<td></td>
</tr>
</tbody>
</table>

Another dimension of both nation building and manpower development. This may have both cognitive and noncognitive facets. Educational development may be justified to provide skilled personnel to replace expatriates and reduce dependence through the development of local institutions, for example, to undertake research on local agricultural products. It may also be deliberately used as a vehicle to reduce more subtle pressures that maintain European and North American dominance of, for example, culture and consumption patterns. Self-development rationales, which argue the importance of the full development of personal attributes through education, are often tacitly underpinned by the assumption that self-fulfillment and realization of individual potential will result in national development in the interests of the community as a whole.

Arguments for spending to improve educational quality centre around those concerned with improving the relevance of curricula to national aspirations; introducing special programs to improve language, mathematics, and science skills; ensuring that examinations are locally controlled; improving the professional skills of the teacher population and increasing their awareness of new techniques; improving the resources available to schools; and developing the educational research and planning capacity of Ministries of Education. Spending rationales concerned with improving efficiency seek to find ways of reducing wastage in education systems through, for example, reducing dropout and repetition rates, increasing the cost effectiveness of teacher training, and utilizing more fully plant and equipment available through shift systems and loan facilities.

The analysis considered major emphases and sought to examine emerging trends. As anticipated, all the plans included stress on manpower development rationales. Although these constituted the main focus of most of the early plans examined, later plans characteristically included other themes regarded as at least as important. Prominent among these were social equity and nation-building considerations. Those arguments concerned with manpower development were most frequently addressed to providing sufficient qualified entrants to the modern sector labour force, and, thus, concentrated on expansion and improvement in the quality of secondary and tertiary institutions. Stress on science and technical education was more common in the latter plans. Education addressed to rural and agricultural development was not as much of a priority in most plans and was most commonly mentioned in African plans. All the plans clearly assumed links between educational characteristics
of the labour force and productivity, although none spelt out these assumptions in other than the most general terms. Frequently, rationales given for spending on lower levels of the education system, which have increasingly tended to be argued in terms of basic education being a human right that should be universally provided, were differentiated in the plans for those for higher levels, which were often directly linked to perceived manpower needs.

The importance of social equity considerations increased in later plans. Most contained provisions to extend primary education to all and reduce regional inequalities of access. Equalizing opportunities for women was explicitly mentioned in only one plan (Peru). In some countries education is clearly seen as a major instrument in reducing income inequality and occupational discrimination between groups, e.g., in Malaysia. In most countries the emphasis on social equity was more concerned with equalizing access to schools than reducing differences in the resources and quality of schools (which may, of course, be important in determining how far the competition for higher education places and jobs is).

Nation-building rationales were also more common in later plans, particularly those arguments that stressed the importance of appropriate values and attitudes and the goal of self-sufficiency. Not surprisingly, those countries with large ethnic minorities tended to stress these reasons for spending money on education most and clearly saw the education system as a socializing force intended to commit different groups to a single national identity. The stress on the noncognitive outcomes of schooling in some later plans was in marked contrast to the comparatively little emphasis given to values and attitudes in earlier plans among the ones studied. An increasing concern to use educational development to reinforce and invigorate culture was paralleled by more attention to institution building and localization of educated manpower at all levels. Thus, a justification used for spending, particularly at higher levels, has been to provide manpower to lessen dependence on the countries of the North. A complementary aspect of this is the intention to reduce sociocultural dependence on the North and preserve a national way of life.

Most of the countries included in the study have undertaken widespread curriculum reform in the 1970s, and this is reflected in the plans through emphasis on improvements in quality. In some, the continued importance of investment in effective vocationally oriented schooling has continued to be emphasized, in others the stress has been on localizing curricula materials designed overseas. Teacher education and in-service training has also been a growing concern. By the end of the 1970s most plans indicated concern for improving the internal efficiency of their systems. To this end investment took place in the establishment of planning divisions, the training of staff, reviews of teacher training methods, and organizational changes to increase the utilization of scarce resources (e.g., in Sri Lanka). In the plans we examined, there is only limited evidence of the development of integrated approaches to educational development that maximize the interactive effects for development of education coordinated with other programs (e.g., nutrition, family planning).

Contemporary Evidence on the Effects of Education

The range of arguments presented by governments for spending on education are general, political, often rhetorical, and usually based on faith; characteristics that the critics of contemporary education systems are quick to acknowledge. Here we shall attempt to review selectively the research evidence bearing on those arguments. For the sake of argument and presentation we shall assume that most of our readers share our value stance when we say that more income, greater levels of productivity, a more equal distribution of income, greater levels of knowledge, reduced levels of fertility, better health and nutritional standards and higher life expectancy are all desirable development objectives. Therefore, a relation will be considered as positive if it implies that more education leads to more income, a narrowing of income differentials, reduced levels of fertility etc.\(^1\) What we shall be reporting are, for the most part, empirical correlations. We wish to urge caution on the part of those who wish to make the single transition between empirical correlations and policy for two reasons. First, causality is not implied when, for example, education is positively related to income. Just because education is positively related to income does not imply necessarily that more education causes more income. Causal relations are often inferred spur-

\(^1\)Conventional discussion of education and fertility refers usually to the negative or inverse relation of education to fertility, i.e., higher levels of education are associated with lower family size. This inverse or negative relation is statistical. The implied value or policy stance is positive. A smaller family size is considered best.
ously from empirical statistical relations. Second, the goals of educational spending are never singular. They are multiple and sometimes contradictory. For example, the development of scientific and technological skills might be a major goal of an education policy. We might also observe that boys perform better at science than girls. Does this imply that science education be confined to boys? Of course not, because to do that might well be in conflict with other goals, such as the creation of equality of access to educational provision and jobs.

The dominant rationale lying behind education spending in the 60s and early 70s, which tended to justify and strengthen the increases in education spending witnessed during that time, has been referred to earlier. Education, it was argued, led to an increased rate of economic growth through enhanced labour productivity. Theoretical credence was lent to the belief that increased levels of expenditure on education would lead to increased levels of GNP per capita by the very influential human capital school of thought. Correlations between GNP and educational provision across countries, and within-country comparisons of educational level, occupation, and economic status, were marshaled as evidence for the causal link between education and economic growth. In addition, residual econometric studies attributed large amounts of the unexplained increase in national output over time to improvements in the quality and quantity of human capital. (Schultz 1961; Denison 1962; Harbison and Myers 1964; Bowman 1980). Human and physical capacity, were now given equal importance in providing the key to economic growth and rapid development. These studies were later supplemented by a large number of individual level analyses comparing lifetime earnings with educational levels (see, for example, Psacharopoulos 1973, 1980a). The results were unequivocal. More education is associated with more income. The details of these studies and findings will not be spelt out here. They are well known and have formed the bedrock of much education and manpower planning over the last 2 decades. Generally speaking, the association between education and income has been interpreted as a causal relation where education is the independent variable and income the dependent variable.

The faith in the ability of education systems to promote economic growth became somewhat less optimistic in the late 60s and early 70s when the phenomenon of the “educated unemployed” appeared. Contrary to expectations, the more educated began to display higher unemployment rates than the less educated. More precisely, a curvilinear pattern emerged for some countries. It was the intermediate, secondary level graduates who were more likely to be unemployed than either illiterates and the primary educated or the university educated (Blaug et al. 1969; Turnham and Jaeger 1971; Psacharopoulos 1973). The phenomenon of educated unemployment was linked with fears that the creation of a mass of frustrated educated youth would lead to widespread political instability. Other phenomena also began to create a mood of skepticism about the supposed benefits of education that had been promised by the planners and politicians of the 60s. These included the well known brain drain of high-level, qualified manpower from Third World countries to First World countries (Godfrey 1976); qualification escalation in the labour market where the response to an oversupply of educated labour was a raising of the qualifications deemed necessary for the adequate performance of jobs (Dore 1976a; Deraniyagala et al. 1978); a rural—urban migration attributed to the rural qualified searching for work (Caldwell 1969); an increasing concern with the irrelevance of the curricula of primary, secondary, and tertiary level institutions (Hawes 1979); and a concern that the hidden curriculum of schools that taught students how to pass exams, to be punctual, docile, and obedient was dominating students’ learning experience at the expense of later creativity, initiative, and independence in the workplace and the political sphere (Illich 1974; Bowles and Gintis 1976; Dore 1976a). Finally, as if this list of complaints was not enough, doubt was raised about the capacity of the educational system to bring about social and economic equality in the absence of more widespread (and important) economic reforms (Carney 1977; Jallade 1977; Colclough 1978; Fields 1980).

These widespread doubts coincided with more general doubts and shifts in the concept of development prevalent in the 60s. The shift away from a sole emphasis on the levels of GNP and economic growth to the inclusion of the distribution of income was reflected in thinking about the purposes of education. The promotion of social and economic equality came to be regarded as a new goal for education systems. Complaints about the performance of education systems are easy to make and provide powerful weapons for the critics. But how detrimental are those effects and do they justify a reduction in expenditure on education?

**Manpower Development – Education and Productivity**

Does a better-educated person perform a job better than a lesser-educated person, produce more
in the same unit of time, produce better goods in the same unit of time, or respond more creatively to new technological demands? The evidence is scattered and varied, although recently a number of comprehensive reviews surveying much of the available evidence on the link between educational level and agricultural productivity, modern-sector productivity, and urban traditional-sector productivity have been published (Berry 1980; Colclough 1980; Lockheed et al. 1980; Hallak and Caildads 1981).

**Education and Agricultural Productivity**

The review of farmer education and farm efficiency by Lockheed et al. (1980) provides a very comprehensive synthesis of the available literature. The authors analyze 31 sets of data from Africa, Asia, Europe, and Latin America. They examine the relation between number of years spent in formal education and agricultural productivity, measured either by crop yield or crop yield value. Twenty-five demonstrated a positive relation between education and agricultural productivity, and six demonstrated a negative relation. The authors estimated a mean gain in output for 4 years of primary education of 7.4% i.e., just under 2%/year of education.

A separate analysis divided the data sets into those where the general environment in which the farmer was working was either modern or nonmodern. A nonmodern environment was indicated by primitive technology, traditional farming practices and crops, and little reported innovation or exposure to new methods. A modern environment was indicated by the availability of new crop varieties, innovative planting methods, erosion control, and the availability of capital input such as insecticides, fertilizers, tractors or machines, market-oriented production, and exposure to extension services. The results were impressive. The relationship between education and productivity was much stronger under modern than under nonmodern conditions. The mean increase in output for 4 years of education under traditional conditions was 1.3% compared with 9.5% under modern or modernizing conditions. The contribution of education to productivity under nonmodern conditions then is fairly small, but under modern conditions its contribution is marked.

These findings represent an important step forward in understanding the role of education in promoting productivity. What they suggest is that there is an interaction between education and factors such as the availability of new crop varieties, fertilizer, exposure to extension services, etc. The relationship of education to productivity is strong and positive only when certain levels of these other factors are present. When absent the relationship between education and productivity changes.

An interesting extension to this relationship between educational level and agricultural productivity is provided by studies of agricultural productivity and education in the Philippines by Halim (1976) and in Mexico by Bautista Villeges (1981). Halim found that the more educated not only seemed to produce more from a hectare of land but also made larger incomes in off-farm activities. Bautista Villeges on the other hand found that although farmers with 6 years or more of primary schooling did not produce more per hectare their off-farm incomes were, again, greater.

**Education and Modern-Sector Productivity**

However, these positive findings for primary education in modern agricultural areas are not yet matched by similar results for modern urban areas. Research on the relation between education and productivity in urban areas poses a number of problems. Perhaps the most obvious one is the measurement of productivity. Income measures are confounded by many factors other than productivity. If confined to more objective measures then we must examine the relation between education and productivity within particular job categories. It becomes impossible to say whether, for example, a lawyer is more productive than a welder and then to compare their educational levels. We can only compare the performance of people performing the same or very similar jobs and must resist the temptation of generalizing these findings across the entire structure of urban jobs.

Comparisons of productivity within jobs have been made by the Institute of Development Studies and are reported elsewhere (Little 1980). Forty-seven microstudies were conducted in Ghana, Sri Lanka, and Mexico on a variety of jobs for which

---

2Lockheed et al. (1980) discuss the problem of comparing studies that examine interfarmer differences in the quantity of output with those that examine the value of output, because a value of a crop is dependent on prevailing price structures. It is unclear, however, how many of the 31 data sets analyzed used quality of output and how much used value of output. In those studies that did measure productivity via output value it is unclear whether price structures have been adequately controlled. Although the studies typically use data from the same locale (in which case one can assume that the price structure is constant) some of the studies clearly compared data and, presumably, values from different locales (Lockheed et al. 1980, p. 113, 116).
general educational qualifications were required. In general, these findings confirmed the earlier findings of Berg (1970) in the U.S., Fuller (1972) in India, and Godfrey (1977) in Kenya. They also confirm the mixed evidence on the impact of teacher qualifications on student outcomes reviewed by Avalos and Haddad (1981). Within job categories the contribution of education to productivity is less than obvious (cf. Echeverría p. 25).

Other reviews of modern-sector productivity fail to find any further studies that measure productivity in a way other than through income. Some studies, however, have attempted to measure productivity at the firm rather than at the individual worker level. Layard et al. (1971), for example, compared firm level output in the electrical industry in England with the proportions of qualified personnel employed. The proportion did not affect firm output but it did seem to be related to technical change. Newer products were being produced in firms with the highest proportion of qualified personnel. Perhaps this is the important aspect of productivity overlooked by previous studies. Although the more educated may not perform well-defined and static job requirements any better than lesser qualified peers, they may have developed the potential for creative and innovative responses to changing economic conditions.

**Education and Productivity in the Urban Traditional Sector**

An attempt to draw together the research on the contribution of education to productivity in the urban traditional sector has recently been made by the International Institute for Educational Planning (Hallak and Caillods 1981). They review studies on education and entrepreneurship in Latin America and Africa. None of the studies reviewed was there a clear relationship between educational level and productivity (measured by the firm’s income) in a wide range of jobs in the informal sector. Given the highly competitive nature of the informal sector economy, the use of a firm’s income as a measure of its productivity is, arguably, valid. However, in some of the studies, it is not clear whether or not differences in capital stock have been controlled.

Of interest, however, is the suggestion from the Ghanaian study that there is first a threshold effect and then a diminishing effect for education. Aryee (1977) examined the effects of no formal education, primary (6 years), middle (10 years), and technical education (15 years) on the gross output and gross earnings of heads of manufacturing enterprises in the informal sector of Kumasi, Ghana. The gross output and gross earnings of those heads of enterprises having no education were compared with those having primary, middle, and technical education separately. In all cases, the comparisons were positive, i.e., the more educated produced more. But only the comparison of middle school proved statistically significant. The next largest coefficient was provided by technical education. The suggestion here then is that the relationship between education and productivity is S-shaped. It is gradual and slight up until middle level when it becomes optimum. Thereafter it levels off.

In summary, the relationship between educational level and agricultural productivity is, on balance, positive under modern environmental conditions. In other economic sectors, however, the data are equivocal. However, it should be pointed out that even though a number of negative findings have been made it does not follow logically that education has nothing to do with productivity. To claim that would be absurd. First, in the modern sector studies it must be recognized that all the people included in the work groups had at least a primary level of education. Second, in most cases the employees did not hold specialized qualifications. Generally, the jobs studied did not require specialized subject qualifications. What the studies do suggest, however, is that a higher level of general education qualifications will not always guarantee a better level of job performance.

Much more research is needed in this area. Even the agricultural studies that show strong correlational evidence do not succeed in determining why it is that education is correlated with productivity in a modern environment. There are several possible hypotheses. It may be because modern environments are themselves linked to particular types of traditional peasant culture. The current studies do not differentiate between cultures, and may well have confounded culture with modern environments. Cultures may vary not only in their response to modern conditions but also in their response to and use of educational provision. It may also be because only when there are enough educated people in a community can advantage be taken collectively of modern inputs that assume literacy. This may be because modern inputs are not provided until there are thought to be enough people in a community with the requisite amount of education. Alternatively, it may be that educated people need support from enough other educated people to gain the confidence to take advantage of such inputs, i.e., one of the major externalities of widespread education may be the provision of positive reinforcement required for individual behavioural change.
More controlled and systematic studies are needed of the impact of education on workers’ productivity in the informal sector of the urban economy, in the off-farm sectors of rural economies, and on the impact of education on worker productivity in the modern sector of employment. In all three, special attention needs to be paid to the measurement of productivity and to the measurement of education. In many studies, the education variable is measured simply through the number of years spent in school. Given the extremely wide difference in quality of educational provision this is, at best, a rather crude measure. More important, we have little idea what current education indicators imply by the way of specific abilities. Are the more educated thought to possess more job-specific knowledge than those with less, more general knowledge, more open attitudes, more preparedness to take risks, and more ability to solve new problems? If so, do those abilities and attitudes derive from school experience or out-of-school factors?

Education and Income Equality

A positive relation between individual levels of education and individual levels of lifetime earnings within entire societies is one of the most universal findings in this century. The precise explanation for this correlation is the subject of much controversy (Blaug 1972; Wiles 1974; Dore 1976b). However, neither the correlations nor the putative causal mechanisms that produce them have a direct bearing on the rather separate question of the relationship between the expansion of educational opportunities and the reduction of income inequality. Does an expansion of primary schooling produce a change in the distribution of income in society as a whole? Does an expansion of university education produce a similar change? Does the simultaneous expansion of all levels of education have the same impact on the distribution of income as a serial expansion, which in itself has many possible forms.

Research on education and income distribution is summarized by Fields (1980). Studies generally fall into four types:

- The correlation between average education level and income inequality by comparing information from several countries at single points in time;
- The correlation between the distribution of education and the distribution of income;
- The correlation between increases in the average educational level within a country and increases or decreases in the distribution of income inequality within a country; and
- The correlation between changes in the distribution of educational provision and changes in the distribution of income within a country.

The first two types of study are inadequate because without time-lagged data causal direction cannot be inferred. The widely cited study of Jallade (1977) in Brazil falls into the third type where changes in the overall level of education are related to changes in the distribution of income. In general, an increased level of education has not led to a narrowing of income differentials. These findings are cited widely but their interpretation varies. Simmons and Alexander for example, conclude that educational expansion (or increase in overall educational level) “has served to increase rather than decrease income inequality” (Simmons and Alexander 1980). Others, Carnoy among them, are more cautious about the role of education in the process. Rather than arguing that it is education that has caused the inequality, he attributes the inequalities to the persistent differentiation of job categories in the labour market. The root causes of income distribution lie in the economy not in the distribution of educational opportunities.

It does seem a little odd, in any case, to relate a change in educational level or a change in total education to a change in income inequality. Educational level is not a distributional measure. The same average level can imply marked differences in educational distribution. What is needed is to know whether or not changing the distribution of opportunities can affect the distribution of income. Ideally, changes in educational distribution with later changes in income distribution should be examined. Leonor and Richards (1980) attempt to do this in their study of education and income distribution in Sri Lanka and the Philippines. Although they argue that the overall distribution of work incomes probably owes much more to the distribution of occupation and to factors operating on occupational income independently of educational levels than to the distribution of education their educational data fail to substantiate this claim. They compare the distribution of educational assets and work incomes among workers at two points in time. Unfortunately for their arguments, the distribution of education and income appears to improve over time in both Sri Lanka and the Philippines.

Convincing correlational evidence on the relationship between changes in the distribution of educational opportunities in developing countries and changes in the distribution of income has still to be collected. The nature of that evidence is almost certain to vary across countries. Differences in taxation, income policy, professional association
and union bargaining power, the degree to which professionals are incorporated into an international job market, and different historical traditions surrounding the appropriate price for different levels of qualification are just some of the country-specific factors that are likely to affect the nature of the relationship. Even when that correlational evidence has been established, there will still be controversy over the precise mechanisms through which educational distribution does or does not relate to income distribution. Whatever the evidence and whatever the general hypotheses used to interpret that evidence, sound internal policy implications for particular countries will only emerge through an appreciation of the specific and detailed nature of the range of determinants of income differences and the institutional mechanisms through which education in particular is used to determine those differences. Detailed case studies of specific countries and specific historical contexts form a necessary part of that approach.

Education and its Noncognitive Outcomes

Education has always been seen as a socializer, as a process that encourages desirable social and political attitudes. Certainly there is ample evidence that differences in educational experience are associated with differences in adult attitudes. Inkeles’ and Smith’s (1974) large-scale survey of the values and attitudes held by 6000 men in Argentina, Chile, India, Israel, Nigeria, and East Pakistan pointed to the very strong association of school experience with modern values and attitudes. Modern men were defined as those who:

... i) take an active interest in public affairs; ii) exercise their rights and perform their duties as members of a community larger than that of the kinship network and the immediate geographical locality; iii) keep to fixed schedules; iv) observe abstract rules; v) make judgements based on objective evidence; vi) defer to authority legitimated not by traditional or religious sanctions but by technical competence; vii) show a readiness to adapt to innovation; viii) display a tolerance of diverse backgrounds of others; ix) display persistent efforts and confident optimism and show little tolerance for fatalism and passivity.

These were the characteristics required of men to work in modern institutions in a modernizing world and formed the modern pole of a modern vs. traditional scale of individual development. Years of school experience proved to be the most powerful predictor of modernity when compared with the effects of factory experience and exposure to the mass media. One year of schooling led to median gains on the modernity scale of 1.6 points for rural-origin factory workers and of 1.9 points for urban-origin factory workers. Others point to a rather different set of attitudes, values, and behaviours associated with school experience. Punctuality, obedience, conformity, a sense of duty, and deference to authority are highly valued in modern, large-scale organizations, and are reproduced rather faithfully in the school. However, attitudes and behaviour such as creativity, curiosity, independence, and cooperative group work are not highly valued in the typical workplace and are, therefore, not encouraged in schools (Illich 1974; Bowles and Gintis 1976; Dore 1976a; Bowles et al. 1978; Simmons and Alexander 1980). Although the empirical base for many of these effects is American, there are a number of sources that offer cross-cultural evidence in support of the general position (e.g., Torrance 1965; King 1969; Brooke and Oxenham 1981; Lewin 1981).

The precise mechanisms through which students do learn these noncognitive attitudes, values, and behaviour are often thought by education policymakers and curriculum developers to lie in the precise content of civics, religion, and social studies curricula. An equally, if not more important, explanation, however, is acknowledged by all the writers cited above. They refer to different aspects of the social organization and meaning of the school experience, "the hidden curriculum." The hidden curriculum refers to a large number of different aspects of school organization and its relationships to the wider economy (e.g., the nature of authority relations between teacher and pupils; the nature of rules and regulations; the time scheduling of learning activities; the relative emphases on cooperative, competitive, and individualistic learning; and the importance of selection mechanisms, etc.). Differences in length of exposure to formal schooling will result in different amounts of experiences of the hidden curriculum, but this is complicated by the fact that different stages of the education system offer different kinds of hidden curriculum and that similar stages will differ as between public and private systems, between urban and rural systems, rich and poor, socialist and capitalist, etc.

The attitudes and values of one group of people will perhaps be especially crucial during periods of economic recession. These are the people in developing countries whose jobs are instrumental in linking international and national economies. We have referred already to the range of pressures likely to be exerted on national resources and priorities during the next decade. As worldwide recession bites deeper, and as hard and software
technologies are exported to the South in a
desperate attempt to expand markets, the shrewd-
ness, wisdom, and values of those who provide the
entire will be stretched to the full. Terms of trade
have to be bargained for, multinational companies
have to be dealt with, aid grants and loans have to
be won and accounted for, and the sophisticated
and often mystifying techniques and concepts of
international advisers have to be mastered with
confidence. (The success of the Commonwealth
Secretariat Technical Assistance Group demon-
strates the need for improvements in the negotiating
capacity of many countries in the South.) The
knowledge required for all of these interactions is
considerable. But so too are the commitment and
will to ensure that links with the international
system are turned to the advantage of the country as
a whole.

To what extent can different forms of education,
and higher education in particular, affect this
commitment and will? Higher education systems in
different countries display marked differences in
the content of curricula, the social and work
relevance of curricula, and in the selection of
students who benefit from such education.

The long-term implications of different types of
curricula both hidden and overt are unknown. Does
a school experience dominated by external rewards
like examination success lead to a different set of
work attitudes and behaviours from a less examina-
tion-dominated experience? Do more modern
attitudes really lead to more innovatory behaviours
in the workplace? Do competitive classroom
atmospheres have different long-term outcomes
from cooperative ones? Do work-experience pro-
grams at primary, secondary, and university levels
make any difference? Do different types of
selection systems affect the quality of people who
end up in key sectors of the economy? Current
research is designed to extend considerably our
understanding of the complex set of noncognitive
factors that school systems encourage and of the
long-term impact of noncognitive attitudes and
values developed by the school on work attitudes
and values.

**Education and Fertility**

In a recent comprehensive survey of the evi-
dence, Cochrane (1979) shows that the amount of
schooling received by females has an impact on
their fertility. The evidence suggests that in
low-income countries a few years of schooling (up
to 4 years) leads to an increase in fertility. Subsequent years of schooling lead to a decrease in
fertility. In high-income countries where the
majority of people complete a basic primary
education and where the differences that do exist
are between levels of secondary and tertiary
attainments, more years of education are generally
associated with a decline in fertility. A number of
studies examined the relationship between female
and male education on completed family size. The
impact of the mother's education was considerably
stronger than that of the father. The evidence also
suggests that fertility decline is much more likely to
be associated with levels of education when
education is widely available.

Two main policy implications are drawn out
from the extensive review. The work suggests that
fertility levels could be reduced in low-income
countries by making primary schooling accessible
to all. First, initial increases in fertility will be
offset later by substantial decreases. Second, a
decline in marital fertility is more likely to be
affected by changes in the amount of female
education rather than male education.

The causal mechanisms thought to produce these
data are complex. Cochrane (1979) cites three main
types of intervening mechanism. First, education
affects the biological supply of children. This
works in opposing directions. Education raises the
age of marriage, reduces the proportion of women
who are married, and reduces the chances of
pregnancy. However, education also tends to
improve health, which in turn increases fertility.
Second, education affects the demand for children.
Education tends to reduce the desire for a large
family and the perceived benefits of having more
children. Yet the demand for children might
increase through a greater perceived ability to
afford children. Third, education affects the use of
contraception. A number of different factors are
important here — the attitude to and knowledge
of contraceptive practices and the nature of
husband—wife communication. Improvements in
all three would lead to a reduction in fertility.

The reasons why schooling affects fertility more
when it is widely available than when confined only
to a few are also not clear at this stage. Is it because
in illiterate societies attitudes toward modern
contraception are negative and educated females
lack the widespread support they need to change
their behaviour? Or is it because modern con-
traceptive advice for both men and women is only
made available when a society reaches a certain
level of literacy? There are many other possi-
bilities.

One final comment about further studies on
education and fertility echoes what was said earlier
about research on education and productivity. The
number of years spent in school is an inadequate
measure of school experience. If we are to understand why it is that schooling makes a difference, we need to get inside those schools and see what is happening in detail. What are children learning about children that is different from what they would learn at home? What are children learning about themselves that is different from what they would learn at home?

**Education and Health**

There is considerable evidence on the impact of education and literacy on a number of different health indicators — infant and child mortality, life expectancy, and improvement of diet. Recent reviews show a strong correlation across countries between life expectancy and literacy (Cochrane et al. 1980). Moreover, with regard to data relating to up to 29 developing countries, both bivariate analysis and multivariate studies show that infant and child mortality are lower the higher the mother’s level of schooling. The evidence suggests that a wife’s education has a greater total effect on mortality than that of her husband’s but that the combined effects of both parents being literate (as compared to having no schooling) may be such as to reduce mortality by up to 27/1000. Finally, there is evidence that maternal education not only reduces child mortality, but also improves the health of the survivors: children of more-schooled mothers tend to be better nourished. It is also possible that they tend to suffer illness less frequently and less severely than other children, but the evidence for this is as yet insufficient.

Health of course has at least two separate components. The first is physical health encompassing all the indicators mentioned above. The second is mental or psychological health. Limited evidence from some developing countries in this underresearched area suggests that the level of the mother’s education does have an impact on the rate and type of psychological development of the child (Levine 1980). Links between psychological development and physical health status can also be charted. Brozek (1978) reviews the available data on the association between diet and nutritional status and the psychological development of the young child although the generally positive causal interpretation of the data has not always gone undisputed (Warren 1973).

As with other research reviewed in this paper the precise causal mechanisms through which education affects health are not well established. In principle, schooling can be expected to affect people’s health in two main ways: first, for households at a given income level, schooling should increase their ability to improve the nutritional content of diets and to initiate earlier and more effective diagnosis of illness; second, the increased household income brought by schooling, via its productivity effects, should lead to increased expenditures on food, housing and medical care, particularly among poorer households (mainly because of higher income elasticities of demand for food among the poorer groups), bringing improved family health as a consequence. Thus, it is reasonable to expect better health among both adults and children in more-schooled households (for a theoretical treatment of the plausible effects of education on health see Cochrane et al. (1980)).

Most of the available evidence on these matters concerns the relationship between parental education and infant and child health. This is for two main reasons: first, children’s health is more sensitive to current diet and surroundings than that of adults, thus the impact of nutritional and environmental disadvantage is more easily measured among this group; second, there are strong grounds for imputing causality between more schooling and better health based upon correlations between the education of parents and the health of their children, in the sense that a causal relation could not, in this case, work the other way around. By contrast, it would be possible to question the direction of causality in the case of correlations between the schooling possessed by adults and their own health.

**The Importance of Primary Education**

We have reviewed the research evidence on the impact of different numbers of years spent in education, and have argued that although there are many gaps in our knowledge the high priority accorded to spending on education should be maintained. However, that by no means implies that current priorities within education budgets be maintained; that current allocations to primary, secondary, tertiary, and nonformal be maintained; nor that the nature of these levels remain unchanged.

We wish to restate the cases that have been made, although through different routes, for a greater relative investment in primary education in many countries of the South (Jallade 1977; Bowles 1978, Colclough 1980; World Bank 1980a,b). The economic and social returns to investment in primary schooling are very high — relative both to other levels of education and, indeed, to other sectors for a large number of developing countries. Investment in primary schooling may well be the single most effective means of improving the incomes and social outcomes of the poor over the medium to long term. Both economic analysis and
analyses of the distributional benefits of an expanded primary education call for a greater degree of attention to that sector. But there are at least two other reasons why we would call for increased quantitative and qualitative emphasis of that sector. First, and for reasons already discussed, spending on the primary level of education is likely to be more vulnerable than other levels in times of economic crisis. Increased emphasis for spending in that sector may do no more than offset its vulnerability. A second argument for increased attention to primary education derives from a relatively neglected literature on child development. The nature of early psychological development places certain constraints on the effectiveness of public expenditure on older children and adults. Conversely, certain stages of psychological development offer themselves as prime targets for public expenditure if change is what is desired.

Although we do not deny the great importance of adult education programs, especially for those who have never had the benefit of a primary education, we would suggest that: it is easier to effect general cognitive and noncognitive change among children than among adults, it is essential to provide a rich environmental experience for children at periods when the potential for psychological change is greatest, and that high-quality secondary and tertiary education imposed on a low-quality primary education is considerably less cost-effective than a high-quality primary education followed by medium-quality secondary and tertiary education.

The measurement of cognitive and noncognitive skills is notoriously difficult. Not only is it difficult to develop sensitive and reliable measures it is also rare to find absolute rather than relative measures of development. Physical and economic characteristics such as height, weight, and income are usually measured in absolute terms on a scale that starts at zero and has no upper fixed limit. But most measures of cognitive and noncognitive psychological development are relative. For example an intelligence quotient (IQ) score allows one to conclude that person A with a score of 126 is more intelligent than person B with a score of 109 if they are both of the same age. If the scores of persons A and B remain the same the following year we know only that they have maintained their relative positions. We are unable to say how much intelligence each has gained during the year.

Most measures in psychology are of this relative kind and are concerned with the measurement and explanation of interindividual differences. Psychological approaches that attempt to shift focus away from interindividual differences and concentrate instead on intraindividual changes are notable for their more qualitative approach to measurement (Piaget, Freud, Erikson, etc.). The classic psychological study on rates of developmental growth in both the cognitive and noncognitive domain is Bloom's (1964) "Stability and Change in Human Characteristics":

...in terms of intelligence measured at age 17 at least 20% is developed by age 1, 50% by age 4, 80% by age 8 and 90% by age 13...we would expect the variation in the environment to have relatively little effect on the IQ after 8 but we would expect such variations to have marked effect on the IQ before that age with the greatest effect likely to take place between the age of one and five years...while the "half development" of intelligence occurs at age 4, the "half development" of height occurs at age 2 1/2, of aggressiveness in males at age 3, of dependence in females at age 4, and of general school achievement at grade 3, or age 8.

Bloom's policy implications are that the provision of a rich environment for the periods of rapid change is essential. Bloom's conclusion is certainly plausible and is consonant with the importance placed on early experience by countless other psychologists (Freud, Bowlby, Whiting, and Piaget). Bloom's findings are about the life cycle periods of greatest plasticity in an individual's relative performance in tests. However, it is not unreasonable to infer that these would also be the periods when environmental stimulation for the brain would be greatest even if we could measure psychological characteristics on absolute scales. Note, however, that Bloom's findings are American findings about an American context. Without the necessary cross-cultural evidence one does not know whether the curves would be of the same shape in a quite different society with poor-quality formal educational provision.

Most public expenditure programs on education are concerned about both aspects of psychological development — first the overall change that can be effected for all individuals and second the distributional or relative benefits for particular individuals. From the distributional or relative point of view Bloom's findings are compelling. If one is concerned primarily about the relative position of individuals in society then educational policies designed to help the poor groups in society are best implemented at an early age.

How early or how late is difficult to say precisely, but the recent syntheses of evidence on school achievement (Simmons and Alexander 1980; Heyneman and Loxley 1981) suggest that the "half-life" for the development of school.
achievement characteristics may be later in Third World countries than in North America. The quality of primary and secondary school in many Third World countries does appear to have a marked effect on the levels of achievement. This general finding stands in marked contrast to the accumulated evidence on school achievement in industrialized countries where differences in achievement are explained more by the home environment than by the school. This is encouraging evidence. The disappointments experienced in America in the 60s and 70s over the less than startling impact of public expenditure on compensatory education programs should not be exported yet to Third World countries. The quality of the school experience can still significantly affect differences between student outcomes (although the potential distributional impact of investment in high-quality primary education on the distribution of school outcomes may well be a transitional phenomenon — and if not made now the opportunity may be lost for ever).

**Summary**

The research evidence points to a powerful impact of formal education on human development and social organization. The evidence on education and agricultural productivity is strong and positive for those agricultural sectors where complementary attempts are made to change the farming environment by the provision of roads, access to marketing facilities, fertilizers, better crop varieties, etc. It is weak for the nonmodernizing agricultural sector. The impact of education on modern-sector and urban traditional-sector productivity is much less clear. Research in this area is hindered because of the difficulties involved in measuring productivity rather than income. The research evidence on the empirical link between educational provision and income distribution is also somewhat equivocal at this stage. The difficulty of collecting good-quality education and income data spread over long periods of time hinders the policy recommendations that can be made in this area. The evidence on the relationship of education to physical health, nutrition, and fertility is considerably better and more consistent. In general, more educated people, especially women, tend to have fewer children, have better health, and better nutritional standards although there are important qualifications to this near universal trend. Finally, education does seem to be very effective in the development of certain sets of social, political, and personal values. Whether one considers these values to be desirable, however, depends ultimately on one’s definition of what constitutes a desirable form of economic and social development.

**Conclusions**

We have examined the evidence on the financing of education in the recent past. Although the most recent evidence available on proportions of government expenditure devoted to education does not suggest that expenditure has decreased, we have argued that the 80s and 90s could well see a change of climate in both the resources and the commitment to spend on education.

We argued that state intervention in the provision of education has usually been greater in developing countries than in the early industrializing countries of the North. For this reason and because of a dominantly instrumentalist view of the purposes of educational expenditure, educational budgets in the South may be even more sensitive to changes in economic climate than in the North. Differences in past experience between countries in the North and the South suggest that monetarist policies currently used in some countries in the North to justify reductions in educational expenditure are not necessarily appropriate for many countries in the South. Differences in past experience also suggest that the consequences of reductions may be very different in the South — as indeed they were for expansions.

We also traced the range of rationales that have been used to justify educational expenditure. The historical analysis pointed to three main goals — economic development, socialization, and political goals. A survey of 29 national plans over the last decade from 16 countries throughout Africa, Asia, and Latin America reinforced the importance of these goals. In addition, however, social equity concerns were more apparent as were concerns with the consideration of the educational process itself through improvements in the quality and efficiency of schooling. The more detailed analysis of changes in plans over the last decade showed a shift away from the dominant stress on manpower development apparent in many of the plans of the late 60s and early 70s. Prominent among the new themes were social equity and nation building (although equalizing opportunities for women was mentioned explicitly in only one plan, Peru). A stress on science and technical education was more common in later plans.

In our research review we attempted to assess the evidence relating to the substance of the arguments used in national plans to justify educational expenditure. The overview of the research evidence on the impact of education on development goals
pointed to the complexity of that impact. There was considerable evidence for the positive association between education and many development goals, although there was also evidence that education was not always a sufficient condition for change. A common theme running throughout, however, was that of the need of integrated investment policies. In the 50s and 60s education was seen as one of the single most important variables for affecting economic growth. Over time, education came to be relied on as a force not only for growth but also for social mobility, income redistribution, reduction of fertility, etc. More recently it has become clear that education is not a sufficient condition for either of these two sets of changes to occur. There are enough zero or negative correlations in the literature to substantiate this. On the other hand, there are enough positive findings to suggest that education interacts (in the statistical sense) with other factors, which in combination produce an impact on productivity or on attitudes.

Increases in agricultural productivity were more likely to be related to increases in education in modern environments where other inputs were available to farmers. In nonmodern environments education was not related to agricultural productivity. Increases in the modernity of attitudes were more likely to be related to increases in education in urban areas than in rural areas. Reductions in marital fertility were more likely, in the long term, to be related to increases in education for females rather than males, and in regions where schooling is generally available to a particular population group rather than when it is available only to a few people. Reductions in infant and child mortality are more likely to be associated with efforts to improve the education of women rather than men.

Education will be more or less effective when other conditions exist. This does not imply that less money should be spent on education. On the contrary, it suggests that money spent on education should be integrated with money spent on other sectors. Education by itself is unlikely to create productive employment. It can certainly contribute to increases in productivity and employment generation provided other conditions are supportive. Equally, without it, investment in other sectors will be subject to rapidly diminishing returns.

However, the review of the literature also pointed to our ignorance about precisely how education is related to other development outcomes, and a number of areas where fruitful research could be done were indicated. In the area of education and productivity, more work could usefully be done on productivity in all economic sectors taking care to develop valid measures of productivity and of education. The education variables should attempt to specify what kinds of abilities and attitudes are thought to be developed (or screened for) by a school experience that may or may not contribute to productivity on the job.

Further analysis of education and agricultural productivity data could usefully be done to examine more closely the characteristics of modern agricultural communities. Do those communities that respond to new crop varieties also respond to education initiatives? Conversely, are there some communities that resist both? If so, how can the latter be encouraged to develop?

In the area of the relationship between educational distribution and income distribution we need, first, better data and, second, more precise hypotheses about how differences in educational assets do or do not lead to differences in income. However, attention should be paid to the importance of country-specific factors in the mediation of that relationship (e.g., incomes and tax policies) and the importance of factors outside the education system and common to groups of countries (e.g., the degree of job segregation in the modern sector) in the determination of income distribution.

We concentrated on the accumulated evidence on education and income distribution. Income distribution is just one aspect of a broader set of equity concerns. Equality of income does not necessarily imply equality of power, of status, or of prestige. The implications of change in educational distribution for each of these is little understood in developing countries.

Research on the noncognitive outcomes of schooling is relatively diffuse. Measurement of noncognitive outcomes is difficult and may explain why the development of work in this field has been slow. This work is, nonetheless, important. The attitudes and motivations of people may explain as much if not more of the differences in development patterns than of the differences in knowledge. The attitudes and motivations developed in the education system may be a necessary, although not sufficient, condition for certain types of work organization attitudes and values. To what extent do different school systems have different hidden curricula? To what extent do these lead to different sets of work attitudes and behaviours?

Research on education and fertility and health is more readily available in that a number of major attempts have been made to pull the work together. However, the precise causal mechanisms through which education is thought to have its effect are still unclear. Does education have an effect through
specific knowledge imparted through the formal curriculum of schools and/or through attitudes to the self and others imparted through the hidden curriculum and/or through a different kind of approach to out-of-school learning encouraged by exposure to general formal education?

Research on the periods of greatest plasticity in psychological development in developing countries is scarce. The evidence from North America points to the importance of the first few years of school experience for the relative performance of individuals. In developing countries, the critical period might extend upward a few years but the primary years remain crucial for determining who, eventually, will end up in different positions in society and the economy. The only way to chart the psychological development of children both in and out of school is through longitudinal studies or extensive matched cross-sectional data. Linked with this kind of research enterprise is the need for further work on the qualitative changes that can be made in school environments and their influence on the absolute and distributional dimensions of school outcomes.

In most developing countries, public expenditure per pupil at all levels of education will grow only very slowly in real terms. Under these circumstances, the question of how best to improve the quality of primary schooling becomes very important. Should the priority be to increase the number of trained teachers or to improve the quality of their training? Should it be to abandon double-shift teaching or to reduce average class size? Should it be to increase the quantity or the quality of school books and equipment? Should it be to reform the examination systems that so dominate the goals and motivation of students and teachers? Should it be to improve feedback mechanisms whereby teachers can be helped positively to improve levels of learning of their students? There are examples of all these options in different Third World countries, although they have not been subjected to evaluative research, even though they represent critical decisions faced by most ministries of education at the present time.

We have argued that the current worldwide recession is likely to threaten spending on education in many Third World countries during the 80s. We do not know of course whether things will turn out in this way. Some countries' education budgets are likely to suffer more than others. Close monitoring of these budgets, and, in particular, of shifts in emphasis in spending between the different levels of education, will aid our understanding considerably.

The fundamental concern of most critics of school systems in the Third World has been with the quality of student learning. Because that quality is generally low, however, it is not usually implied that formal education systems be scrapped or reduced in size. On the contrary, most would argue that ways must be found of using education systems to develop more effectively the powers of initiative, independence, creativity, skill, and competence. To do these things effectively will require more, rather than less, expenditure. Thus, few critics of contemporary Third World educational development would argue that expenditure on education should be cut and even the most ardent critics of education systems in market economies usually do not advocate the abolition of formal education. Even then, education is seen as the main road to salvation, although frequently it is conceived of as requiring a transformation in emphasis and content often in conjunction with more widespread economic and social reforms going well beyond education itself. Planners would do well to look beyond the physical plant of schools and university buildings to the wider society to see where changes can be made that would support current efforts of education systems to promote change. Equally, planners would do well to look beyond the physical plant of schools and university buildings and take a closer look at what is happening inside them. What are children learning about authority, about personal relations, about initiative, about solving problems collectively, about production skills? No amount of curriculum rhetoric about moral and political values will substitute for a learning experience in which those values attain some meaning, and no amount of curriculum rhetoric about scientific methods will substitute for the experience of solving scientific problems.

We are grateful for comments on an earlier draft of this paper from Ade Aderinto, Rex Akpofure, Bill Dodd, Ron Dore, Eric Hewton, Des Hogan, Ken King, Paul Morris, John Oxenham, Dudley Seers, Jasbir Sarjot Singh, Sheldon Shaeffer, Tony Somerset, and MA students from a number of Third World countries currently studying at Sussex. We are also grateful to Ricardo Carciolfo for his comments and for his analysis of the Latin American national plans.