Economic Growth, Changing Employment Structure and Implications for Educational Planning in ASEAN Countries

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C O N T E N T S

T A B L E S

F I G U R E S

A B S T R A C T

The strong economic growth in ASEAN economies in recent decades has been attributed to a number of factors, one of which is notable improvements in the quality of their human capital. Structural change has led to declines in the share of the workforce in agriculture, and a rise in the share of the workforce in occupations requiring higher levels of education. Despite their failure to increase education's share of GDP or of government budgets, ASEAN countries have made important gains in keeping young people longer in school, though the improvements in educational quality are more debatable. The paper reviews the evidence for education's contribution to economic growth, and questions the equity implications of government-subsidized high school and tertiary education which serves mainly the wealthier groups in the population. Finally the paper deals with issues raised by the rapid growth in the number of graduates of high school and tertiary education and the inability of particular occupations to absorb the increasing numbers of graduates who have traditionally entered them. Key issues are the appropriate rate and pattern of expansion of the educational system, and appropriate funding mechanisms.

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I. Introduction

The record of economic growth in the ASEAN region over the period since the mid-1960s has been so strong that it is viewed with some bewilderment by planners from Africa and Latin America, where economic trends in many countries have been dismal. The "honeymoon" period ended in the mid-1980s, when growth rates in all ASEAN countries slowed considerably, and even went into reverse in 1985 in Singapore, Malaysia and the Philippines, remaining in reverse in 1986 in Singapore and barely positive in Malaysia and the Philippines.

Table 1, cols. 8-13, portrays the trends over the high growth period. A number of points can be made:-

- The growth performance was not uniform. In Singapore, Malaysia and Thailand growth rates of GDP were consistently high over the entire 20-year period 1965-85, whereas in Indonesia growth slowed markedly in the early 1980s and in the Philippines it went into reverse.

- Thailand and the Philippines provide a stark contrast in growth. Countries of much the same population size, they started out the period with much the same per capita GNP. However, the consistently higher growth rates in Thailand over the period and its decelerating rate of population growth gave it a sizeable per capita GNP edge over the Philippines by 1985.

- Comparison of cols.10 and 11 show that one way in which growth was achieved was through the traditional mechanism of relative shift from agriculture to industry. The share of industry in GDP rose in all ASEAN countries, though the rise was rather slight in the Philippines. By contrast, in Australia and Japan, industry's share of GDP declined, reflecting a "post-industrial" move into services.

Table 1. Demographic, Economic and Social Indicators for ASEAN Countries and Selected Other Countries, 1985

	Population (millions) (1)	Average annual growth of population 1980-85 (2)	Total fertility rate (3)	Area (million hectares) (4)	Population density (persons per sq.km) (5)	GDP ($US billions) (6)	GNP per capita ($US) (7)
Singapore	2.6	1.2	1.7	0.1	2600	17.5	6730
Indonesia	162	2.1	3.7	190	85	86.5	534
Malaysia	16	2.5	3.7	33	48	31.3	1960
Philippines	55	2.5	4.3	30	183	32.6	593
Thailand	52	2.1	3.2	51	102	38.2	735
Australia	16	1.4	2.0	769	2	162.5	10150
Japan	121	0.7	1.8	37	327	1327.9	10974
Rep. of Korea	41	1.5	2.4	9.8	418	86.2	2100

* 'Industry' includes mining, manufacturing, construction and electricity, water and gas.

Sources: World Bank 1987; Jones, 1982.

- In the first half of the 80s, Malaysia, Singapore and Thailand performed strongly in industrial growth and export growth. Indonesia's performance was weak and that of the Philippines very poor (see cols.12 and 13).

Later in the paper, attention will be given to the link between educational development and economic growth. At this point, it may

Table 1. (continued)

Real GDP growth rate (%p.a.)		Industry's* share of GDP		Real industrial growth (% p.a.)	Real growth rate of exports (% p.a.)	Urban population (% of total)	Number enrolled in secondary school as % of age group	
1965-80 (8)	1980-85 (9)	1965 (10)	1985 (11)	1980-85 (12)	1980-85 (13)	(14)	1965 (15)	1984 (16)
10.2	6.5	24	37	5.9	5.9	100	45	71
7.9	3.5	13	36	1.0	1.1	25	12	39
7.3	5.5	25	...	6.7	10.7	38	28	53
5.9	-0.5	28	32	-2.8	-2.1	39	41	68
7.4	5.1	23	30	5.1	8.4	25	14	30
4.2	2.5	40	33	1.0	5.7	86	62	94
6.3	3.8	43	41	5.9	7.3	76	82	95
9.5	7.9	26	41	9.6	13.0	64	35	91

simply be noted that secondary school enrollment rates rose substantially in all countries over the period, but Thailand and Indonesia continue to lag behind the other countries. Singapore and the Philippines showed much the same levels and growth in secondary school enrollment rates, in contrast to the striking divergence in rates of economic growth.

II. Factors Responsible for Strong ASEAN Growth

In view of the poor economic growth performance of many developing countries over the past two decades, it is important to discover causes of the relatively strong showing of the ASEAN countries. Factors frequently mentioned include the relatively stable political climate, high levels of both public and private investment, efficient use of advanced technology, either home-grown (as with Malaysia's rubber and oil palm research) or imported, and improving human resource endowments. Williamson (1988: 2-8) has stressed the likely role of the relatively egalitarian income distribution in ASEAN countries. Among other things, this may have fostered the development of education, whose role in improving the stock of human capital will be discussed later.

Another important factor influencing rates of development is undoubtedly the degree of outward orientation in trade policy. The 1987 World Bank "World Development Report" compares the economic growth performance of countries arrayed according to their degree of outward orientation in trade policy. Three groups of countries are identified:

- Strongly outward oriented: trade controls nonexistent or very low; little or no use of direct controls and licensing arrangements etc.

- Moderately outward oriented: overall incentive structure biased toward production for domestic rather than export markets. But average rate of effective protection for home market relatively low. Use of direct controls and licensing arrangements limited.

- Moderately inward oriented: overall incentive structure distinctly favors production for domestic market. Rate of effective protection relatively high and range of effective protection rates relatively wide. Use of direct import controls and licensing extensive, distinct bias against exports, exchange rate clearly overvalued.

Table 2. Classification of ASEAN Countries by Trade Orientation, 1963-73 and 1973-85

	Strongly outward oriented	Moderately outward oriented	Moderately inward oriented	Strongly inward oriented
1963-73	Singapore	Indonesia Malaysia Thailand	Philippines	-
1973-85	Singapore	Malaysia Thailand	Indonesia Philippines	-

Source: World Bank, World Development Report 1987, Fig. 5.1.

Definitions of strongly inward oriented trade policies need not be given as no ASEAN country falls into this category (see Table 2).

Singapore has been in the strongly outward oriented camp throughout the past two decades, and Malaysia and Thailand in the moderately outward oriented group. Indonesia moved from this group in the more recent period to join the Philippines in the moderately inward oriented group. The relative growth performance of these countries is consistent with the World Bank's evaluation, based on data for a much larger number of countries, that the economic performance of the outward oriented economies has been broadly superior to that of the inward oriented economies in almost all respects. Outward orientation encourages efficient firms and discourages inefficient ones. By creating a more competitive environment for both the private and public sectors, it also promotes higher productivity and hence faster economic growth (World Bank, 1987, ch.5).

III. Changing Employment Structure

Table 3 shows the change in employment structure over the 1965-80 period. The relative shift out of agriculture was achieved through a rise in both the share of employment in industry (except in the Philippines) and in services (except in Singapore). The share of agriculture in total employment remained much higher in Thailand than in the other countries. It should be noted that Thai censuses and surveys tend to overstate agricultural employment relative to that in other countries of the region, by taking approaches that capture a very high proportion of rural women in the "unpaid family worker" net. Even so, the continuing relatively high share of agricultural employment cannot be gainsaid, and suggests that rising productivity per agricultural worker must have played an important part in Thailand's strong economic growth. But although this is undoubtedly true, there is an increasingly wide gap in labor productivity and income between agriculture and other sectors, and a continuation of the Thai "Success story" will require a shift of large numbers of workers out of agriculture into higher productivity sectors.

In linking economic change with educational development later in the paper, the growth of employment in different occupations will be

Table 3. ASEAN Countries: Percentage of Labor Force in:

	Agriculture		Industry		Services	
	1965	1980	1965	1980	1965	1980
Indonesia	71	57	9	13	21	30
Philippines	58	52	16	16	26	33
Thailand	82	71	5	10	13	19
Malaysia	59	42	13	19	29	39
Singapore	6	2	27	38	68	61
Korea	55	36	15	27	30	37
Japan	26	11	32	34	42	55

Source: World Bank, World Development Report 1987, Table 32.

of special importance. Instead of attempting to show occupational change in all ASEAN countries, Table 4 shows the changing situation in Indonesia and Thailand. It is clear that differences in definitions affect the inter-country comparison. In particular, Thailand appears to include a large category of government officials in the "managers and administrators" group, thus raising it well above its relative size in Indonesia, where only high level government officials are included in this group. But it is still meaningful to compare the combined growth of the three occupational groups--professional, managerial and clerical--which employ a high proportion of better educated workers. In Indonesia, their combined growth (exactly 100 percent over the 1971-85 period) was double the overall employment increase of 51 percent. On the other hand, because of their relatively small initial size, these occupational groups provided only 11 percent of the total growth of employment over this period. In Thailand, the total increase of the three groups (almost 150 percent) was three times the overall employment increase of 45 percent). As in Indonesia, however, because of their very small initial size, this impressive growth provided only a small proportion (14 percent) of the total growth of employment over the period.

This brief overview of economic growth and changing employment structure has highlighted the rapid growth and marked structural change that has occurred over the past two decades in the ASEAN region. Many factors have undoubtedly been responsible for this growth, but the question to be raised in this paper is--how important was the upgrading of the educational levels of the labor force in contributing to this growth, and even more importantly, how much can further upgrading contribute in future? To set the scene for this discussion, I will briefly summarize trends in educational development in the region in recent times.

IV. Trends in Education

All the ASEAN countries except Thailand and Indonesia have achieved universal primary education. Thailand and Indonesia are approaching this state but still face problems of early dropout. At the secondary and higher level, great progress has also been made (see

Table 4. Indonesia and Thailand: Change in Employment by Occupation 1970-1985

	Indonesia Number ('000)		% incr.	Thailand Number ('000)		% incr.
	1971	1985	1971-85	1970	1985	1970-85
Professional, technical and related workers	844	2,151	143	284	789	178
Managers and administrators	189	98	-48	247	402	63
Clerical and related workers	1,271	2,439	92	190	588	209
Sales workers	4,188	9,180	119	833	2,447	194
Service workers	1,573	2,300	46	472	888	88
Farmers and agricultural workers	25,143	34,198	42	13,217	15,340	16
Production, transport equipment operators and related workers	4,645	11,445	146	1,378	3,857	180
Total	41,261	62,457	51	16,652	24,220	45

	Percentage Distribution			
	Indonesia		Thailand	
	1971	1985	1970	1985
Professional, technical and related workers	2.1	3.4	1.7	3.3
Managers and administrators	0.5	0.2	1.5	1.7
Clerical and related workers	3.1	3.9	1.1	2.4
Sales workers	10.2	14.7	5.0	10.0
Service workers	3.8	3.7	2.8	3.7
Farmers and agricultural workers	60.9	54.8	79.4	63.1
Production, transport equipment operators and related workers	11.3	18.3	8.3	15.8
Others and unknown	8.1	1.0	-	-
Total	100.0	100.0	100.0	100.0

Source: Indonesia: 1971 and 1980 Population Censuses; 1985 SUPAS;
Thailand: 1970 Population Census; 1985 Labour Surveys. Figures for the two years are not strictly comparable. The figure used for 1970 is the economically active population, which comprises those employed on the census date, or who had worked on any day during the 7 days preceding the census date, as well as experienced workers who were looking for work and those waiting for the farm season. For 1985, the figures are the employed population averaged over the three rounds of the Labour Force Survey.

Table 5. ASEAN Countries: Percentage Enrolled in Secondary and Higher Education as Percentage of Age Group

	Secondary		Higher	
	1965	1984	1965	1984
Indonesia	12	39	1	7
Philippines	41	68	19	29
Thailand	14	30	2	23
Malaysia	28	53	2	6
Singapore	45	71	10	12
Korea	35	91	6	26
Japan	82	95	13	30

Note: Secondary school age range depends on national definitions. It is most commonly considered to be 12-17 years. The age range for higher education is taken to be 20-24 years.

Source: World Bank, World Development Report 1987, Table 31.

Table 5 and Figure 1). Enrollment rates in Thailand and Indonesia still lag at the secondary level, and in Indonesia enrollment of girls relative to boys also lags at this level, but the rise in enrollments of both boys and girls has nevertheless been sharp and is continuing.

Because of differences between countries in the number of years required to complete junior secondary school and the definitions used in the censuses, too much should not be made of inter-country differences in the proportions with this level of educational attainment, although wide differences (e.g. the much higher proportions in the Philippines than in Thailand) obviously are meaningful. The figure should be used more to study time trends for each country, differences in relative access of boys and girls to secondary schooling, and trends in these differences. Moving from right to left in the diagram (i.e. from older people, educated in earlier decades to younger people who have only recently passed through the high school ages), the sharpest increases over the past two decades appear to have been those in Brunei and Peninsular Malaysia, though all the countries

Figure 1. ASEAN Countries: Percent Completed Junior Secondary School, by Age Group, 1980

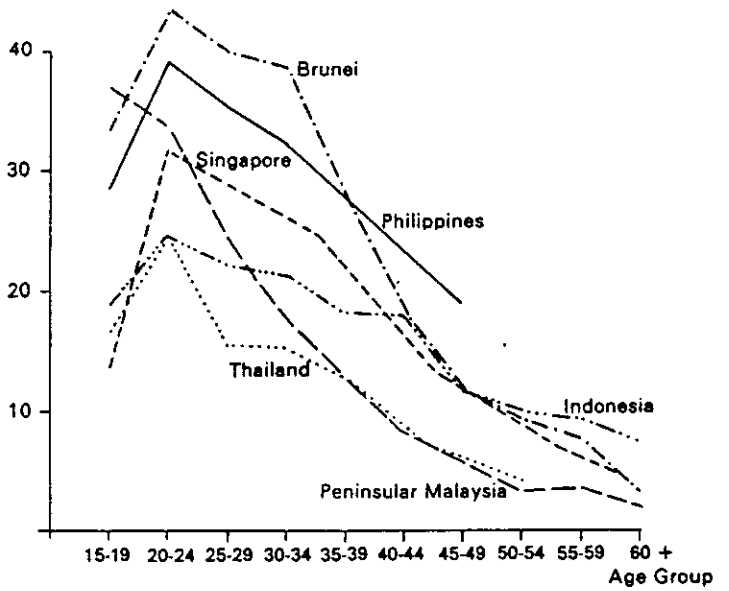
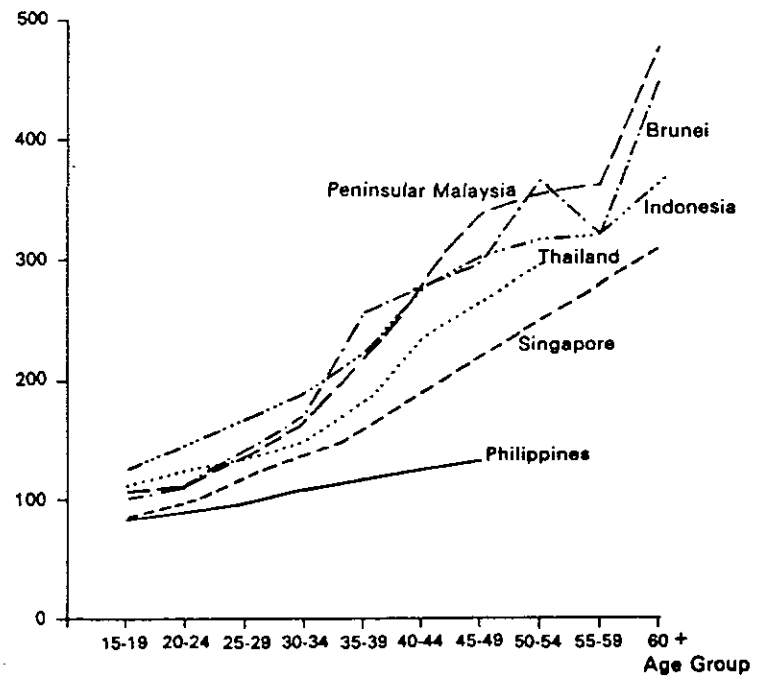
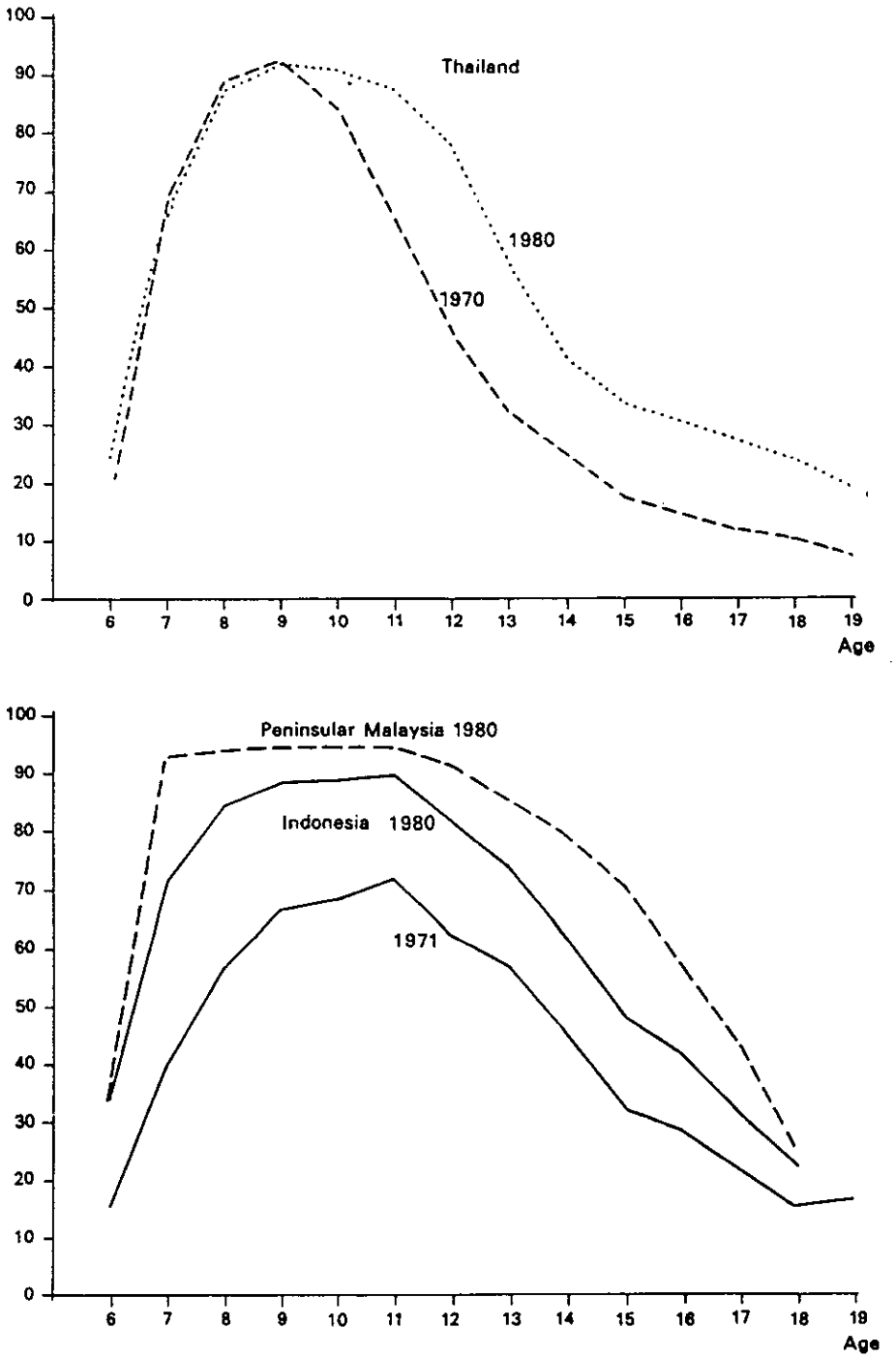


Figure 2. ASEAN Countries: Sex Ratio* of Population with Completed Junior Secondary School, by Age Group, 1980



* *Males per 100 Females*

Figure 3. Percentage of Children Currently Attending School by Age, 1970 and 1980



have made substantial gains. Along with the overall gains, there has been a narrowing of sex differences, indicating an especially rapid increase for girls (except in the Philippines, where sex differentials in access to secondary education were already almost non-existent in earlier years).

The social change engendered by these trends would be hard to exaggerate. One can imagine the implications, for example, of the shift in the modal level of educational attainment of women in Peninsular Malaysia as revealed by the 1980 Census from no education for women in their 50s to primary education for those in their 30s and secondary education for those in their teens.

Table 5 also shows trends over the 1970s at the tertiary level. The most noteworthy features are the very high rates for the Philippines; the sharp increase in enrollment rates in Thailand over the same period, due mainly to the provision of an "open university" which had enrolled over 500,000 students by 1981 (Watson, 1981); and the continuing very low third level enrollment rates in Malaysia and Indonesia. In Malaysia, this stems partly from the continuing heavy reliance by the government on overseas university training, particularly for non-Malay students; in Indonesia, it is more a matter of giving higher priority to achieving universal primary education in a situation of limited budgetary capacity and an underdeveloped educational system at all levels. The situation has changed recently in Indonesia with the opening of an open university in 1984, which is projected to have half a million students by 1990. This will convert what would have been a decline in tertiary enrollment ratios into a rise. But in both Thailand and Indonesia the open universities are expected to contribute much more to tertiary enrollments than to tertiary graduates, because course completion rates are (Thailand) or are expected to be (Indonesia) relatively low and course completion time long (Jones, forthcoming, fn.6).

The rapid expansion of education in ASEAN countries over the past two decades has made the task of raising the quality of education exceedingly difficult. Large numbers of new teachers have had to be recruited and trained, new schools built, new curricula developed and new textbooks produced. It has not been easy to provide adequate in-service training to the existing teaching force when the force itself is growing so rapidly. Nor has it been easy to provide education of

an adequate standard in the rural areas, where teachers are generally more poorly trained, facilities inadequate, repetition of grades among pupils high, premature school leaving and absenteeism common and the appropriate content of education still unresolved.

There are few appropriate indicators of trends in educational quality in the region in recent years. Most countries have sought to lower repeater, dropout and failure rates. Automatic promotion systems adopted in Malaysia have cut the repeater rate but no such easy solution is available to cut dropout rates. Consolidation of small rural schools into more viable educational units has been tried in Malaysia (and is being considered in Thailand), as have reforms in teacher education and improved educational media services.

In Thailand, considerable progress was made in the 1960s in raising teacher qualifications, and this progress continued into the 1970s. Even so, Thai educational authorities admit that "most of the educational expenditure was used to finance the establishment of physical facilities due to the emphasis on providing more places in schools so as to promote equality of education. The quality improvement in education has not yet materialized" (UNESCO, 1982, p.10). In the Philippines, student retention rates in both primary and secondary schools have not improved since the mid-1970s and scores in achievement tests in recent years have not been encouraging. For example, in 1982-83 and 1983-84, only 55 percent of secondary students who took the National Collegiate Entrance Examination passed at the 45 percentile cut off score (Herrin, 1988: 15).

The main barrier to improvements in educational quality has undoubtedly been the rapid expansion of the school system. With the attainment of universal primary education, and the decline in birth rates, there are now prospects of a less frenetic growth of enrollments and a greater opportunity to emphasize the improvement of educational quality. However, given the cost structure of education in the region, with very low expenditure per head on primary school children, the resources freed by the slower growth of primary enrollments should not be overestimated. For example, in Thailand, it has recently been argued that efforts to simultaneously improve the quality of primary education and raise secondary school enrollment rates would require additional resources over and above those freed by the cessation of growth of primary school enrollments (Thailand

Development Research Institute, 1987: 105-112).

Expenditures on education as a percentage of GNP and of government expenditures are shown in the last two columns of Table 1. On the whole, the share of GNP spent on education is lower than in Western countries. The share of the government budget devoted to education varies widely. Over the 1970s the share of educational expenditure in GNP, government budgets, or both, tended to decline or remain steady rather than to rise, in all the ASEAN countries (see Table 6). Even so, a steady or declining share of rapidly rising GNP and government budgets still represented a sharp increase in real expenditure on education. The one exception is the Philippines, where the growth of GNP was so sluggish, and the drop in education's share of government expenditures so sharp that the figures must be interpreted to indicate a run-down in education facilities, as in other aspects of human resource development, during the Marcos era.

Table 6. ASEAN Countries: Total Educational Expenditure as Percent of GNP and of Total Government Expenditure, 1970, 1975 and 1980

	As percent of GNP			As percent of total govt. expenditure		
	1970	1975	1980	1970	1975	1980
Indonesia	2.8	3.0	1.9	-	13.1	8.9
Malaysia	4.4	6.3	6.3	17.7	19.3	16.4
Philippines	2.6	1.9	1.6	24.4	11.4	10.3
Singapore	3.1	3.0	3.0	11.7	8.6	7.3
Thailand	3.5	3.6	3.3	17.3	21.0	20.6

Note: For Indonesia, private expenditure relating to private education is included in 1970 and probably 1975 figures, but not for 1980.

Source: Unesco Statistical Yearbook, 1983, Table 4.1.

V. Role of Education in Economic Development

The progress made in the provision of secondary and higher education in the region raises the issue of appropriate levels of educational provision. Proportions completing secondary and higher education in ASEAN countries are (with the exception of the Philippines) still well below those in most Western countries, and certainly well below those in Japan or the United States. Yet provision of education at these levels is expensive, and the very diversity of levels observable in Western countries in itself suggests that there is no universally appropriate level to aim for. Therefore hard choices must be made. Given the varied purposes of education, multiple criteria will influence these choices, but education's role in economic development will be very important among them, and we will now turn to a consideration of this role.

An early source of the interest in the role of education in development was the finding in empirical investigations that output was growing much faster than factor inputs as conventionally measured. One reason identified (e.g. by Denison and Schultz) was an increase in the quality of labor inputs, and this led to the growth of a new field, the "economics of human capital" (see Journal of Political Economy, 1962 and Becker, 1964). An enormous literature has developed in this area (Blaug. 1976).

There is consensus that improvements in the quality of the work-force make a major contribution to economic development. Though the exact mechanisms of the contribution are not fully understood, many diverse impacts have been demonstrated or claimed: for example, that the supply of entrepreneurial capacity is increased by additional schooling; that educated people can deal better with disequilibria associated with economic modernization; and that farmers given basic levels of education are more successful in raising their productivity and adopting innovations than uneducated farmers. (see Schultz, 1979: 353; Colclough, 1982: 176-7; Jamison and Lau, 1982).

Rates of return studies (to be discussed in a later section) demonstrate that in developing countries as a whole, the net social return from investment in education is normally higher than that from investing in physical capital, and the highest returns tend to be from investment in primary education. But education is also conducive to

many other changes contributing to socio-economic development which the narrow economic approaches fail to capture. "These arise from the interactive or strengthening effects of schooling upon objectives of various aspects of social policy, including family size, health, nutrition, literacy and awareness of national culture." (Colclough, 1982: 178)

Female education may be particularly important for:

-lowering infant mortality (see Caldwell, 1986)
-the quality of child rearing
-increasing the likelihood that a woman will work outside the home
-increasing use of family planning and hastening fertility decline

Cochrane (1979), from a comprehensive examination of reported findings on the relation between fertility and education, concluded that, although increasing educational levels may at first be associated with rising levels of fertility in a community, as the process continues fertility ultimately falls. Caldwell (1980) claims that the onset of sustained fertility decline has been associated with the attainment of mass education. Mechanisms through which female schooling may affect fertility include rising age at marriage, reducing the demand for children (because of the more independent status education gives women and the greater opportunity costs educated women incur in having children) and increased knowledge of contraceptive methods. The marked underinvestment in female education in countries such as Pakistan and Bangladesh certainly helps to explain the failure, to date, of their family planning programs.

The direct role of educated workers in raising output, then, does not nearly exhaust the contribution of education to development and to economic wellbeing. One study of Western countries, which attempted to place a rough value on factors such as the contribution of *education to own and family health, child quality,* social cohesion and crime reduction, estimated that standard human capital estimates capture only about one half of the total value of an additional year of schooling (Haveman and Wolfe, 1984).

Easterlin (1981) has made a case for giving the expansion of

formal education systems a central place in explaining international differences in rates of economic growth. It is reasonable to assume that the generally very strong economic performance of ASEAN countries in the past two decades was not unrelated to their success in expanding the coverage of their educational systems. But the relative role of education is very hard to determine, and it undoubtedly depends on the context. Thus, in Singapore, which achieved universal primary education just before its economic take-off, many other things went right as well. Thailand, whose economic performance has been very strong, continues to have very low levels of educational attainment among a key segment of the workforce: those aged in their 30s and 40s. The Philippines, the best educated nation in the region, and with almost equal opportunities for women, frittered away these advantages through inappropriate macro-economic policies, nepotism, and underinvestment in maintaining its education and other social overhead capital.

VI. Education and Equity

Though it is a tenet of faith throughout the developing world that expansion of education systems will benefit everybody, it can plausibly be argued that public investment in education in fact reinforces the inequality and uneven access to wealth and opportunity in most societies, both developed and developing. In ASEAN countries, revenues for publicly funded university education, which is many times more expensive per student-year than primary education, are frequently based on regressive taxation measures. And yet those who stand to gain most from it are the children of the elites. Having gone to the better schools in the cities and enjoyed a home environment favoring educational achievements, they are much more likely to reach this level of education than are children from poor rural backgrounds.

In Thailand, one of the least urbanized countries in the region, students from agricultural households continue to constitute only about 5 percent of the total university students. Survey results from 1976 show the probabilities of school attendance in upper elementary, high school and post high school levels. For "worst off" children whose fathers had the lowest income, lowest education, the most

brothers and sisters, living in the rural northeastern region, the respective probabilities were .53, .14 and .02. The corresponding figures for the "best off" children whose fathers had higher income and post-secondary education, who had only one brother/sister and who lived in Bangkok were .99, .97 and .56 (Tan and Naiyavitit, 1980:ii). In Malaysia, because of government policies to promote Malay education, children of farmers are much better represented in university education than they are in Thailand. Even so, "access to university education ... is heavily regressive, benefitting inordinately the rich and the well-to-do". (Mehmet and Yip, 1986: 142)

The key policy issues, then, relate not only to the appropriate pace of development of different parts of the educational system, but also to ways to enhance the access to the more advanced levels of education of bright children from disadvantaged backgrounds. The present situation, in which "survival" to upper secondary and university education has more to do with social class than with inherent ability, is not only unjust but also extremely wasteful from a human resource development point of view.

VII. The Lessons from Rates of Return Studies

One contribution toward evaluating appropriate levels and "mix" of educational investment is to calculate the rate of return on investment in different levels of education; or to express it in more technical terms, to calculate the rate of interest that will equate to zero the discounted net benefits (i.e. the benefits discounted back to year 0 compared with the costs cumulated forward to year 0). These rates of return can then be compared, not only between different levels of education, but also with returns in other competing areas of investment, e.g. physical capital.

Before mentioning the many weaknesses of such studies, we might note briefly the points of consensus which (according to Psacharopoulos, 1973, 1981, 1985) emerge from a comparative study of a large number of rates of returns studies for various countries:

(1) Rates of return tend to decline with increasing level of education, and also with increasing level of economic

development.

(2) Private returns exceed social returns, especially at the tertiary level.

(3) All average regional rates of return to investment in education are well above the 10 percent commonly used as a yardstick for the opportunity cost of capital.

Certain implications follow: top priority should be given to primary education, but secondary and tertiary education are also socially profitable investments; there is considerable scope for reducing the subsidy levels of higher education without deterring private investment in this level of education. From the additional finding from the few available time series studies for individual countries that returns tend to be relatively stable over quite long periods, one might also conclude that further educational expansion is unlikely to lead to serious increases in graduate unemployment.

But when we restrict the analysis to ASEAN countries, (see Table 7) a certain untidiness creeps into the picture, and some of Psacharopoulos' conclusions appear less convincing. For example, Hoerr's (1973) study on Malaysia (presented in the first row for Malaysia in Table 7) shows disappointing rates of return at both primary and tertiary levels; the rates of return for all levels of education in the Philippines are probably below the returns on physical capital, as is the return on primary education in Singapore. In any case, since universal primary education is now pretty well achieved by all ASEAN countries, the rates of return at this level have little practical interest, unless we are prepared to take the leap of faith that would equate the return to investment in what has been primarily an expansion of the quantity of primary education with what the return would be if the emphasis shifted to raising the quality of primary education (which is still a budgetary option).

One aspect of the ASEAN studies that makes good sense is that returns to primary education appeared to be highest in the two countries (Indonesia and Thailand) where there was still a scarcity of even this level of education at the time the studies were conducted. And all studies except the Philippines showed higher returns for secondary than for tertiary education, though the margin was not convincingly wide given the shaky quality of the underlying estimates.

Table 7. ASEAN Countries: Returns to Education by Level and Country

(Percent)

Country	Year	Private			Social		
		Prim.	Sec.	Higher	Prim.	Sec.	Higher
Indonesia	1977	25.5	15.6	-	-	-	-
Malaysia	1967-8	12.9	18.9	11.4	8.2	15.3	5.8
	1978	-	-	-	21.9	16.2	14.8
	1978	-	32.6	34.5	-	-	-
Philippines	1971	9.0	6.5	9.5	7.0	6.5	8.5
	1977	-	-	16.0	-	-	8.5
Singapore	1966	-	20.0	25.4	6.6	17.6	14.1
Thailand	1970	56.0	14.5	14.0	30.5	13.0	11.1
	1972	-	-	-	63.2	30.9	18.4

- denotes not available

Source: George Psacharopouloa, "Returns to Education: A Further International Update and Implications", Journal of Human Resources, XX(4), 1985. (For detailed sources, see Appendix to his paper).

(One notes that two cited studies for Thailand, conducted only two years apart, give rates of return on secondary education of 13 percent and 31 percent, respectively!).

Further uncertainty about the policy implication of rates of returns studies follows from concerns about the methodology of these studies. (For details, see Psacharopoulos, 1981 or Blaug, 1976). The returns from education are normally based on a marginal rate of return to a whole educational cycle (e.g. secondary to primary education), derived from cross-sectional data on earnings profiles, which it is assumed do not too seriously misrepresent the likely time-stream of earnings. Earnings differentials are used as a proxy for increased productivity that goes along with more education. Adjustments are sometimes made for factors such as productivity growth over time, the probability of the person being unemployed at a given age, and the need to attribute part of the earnings differential, not to the "pure" effect of education, but to factors such as ability, social class background and motivation that are correlated with proceeding further

in school.

Perhaps the most serious concern in using rates of return studies in the ASEAN region to guide investment decisions is the possible discontinuity in earnings from higher education because the supply of those with this level is increasing sharply at a time when economic growth has slowed and government sector employment opportunities have contracted. It would be a brave person who would accept that earnings relativities existing at a previous point in time, when tertiary education almost guaranteed employment in a government sector whose wage levels bore little relationship to those elsewhere in the economy, would continue to hold in such a situation.

In general, I would conclude that the rates of return studies for the ASEAN region are of little help in decisions at the margin about raising the quality of primary school education versus expanding the coverage of secondary and tertiary education; or about the relative investment in secondary and tertiary education.

VIII. Education and Employment: Some Issues

a. Demographic factors

The growth of the workforce presently constitutes one of the greatest opportunities as well as one of the greatest headaches in ASEAN countries. It is an opportunity in the sense that the labor force age groups are constituting an ever-increasing share of the total population, due to ongoing declines in fertility[1/]. This means that provided that employment can be found for the new workers, even modest increases in labor productivity have the potential to translate into faster increases in income per head. The headache is the need for employment to grow rapidly to realize this potential, in the face of labor-saving technological change in a number of sectors.

There is another dimension to the opportunity represented by the underlying demographic growth of the working-age groups. This is the possibility of replacing fairly rapidly the present workforce, with its low level of education and its often-outmoded skills, with younger, better-educated workers (see Leibenstein, 1971). In developing countries, over 40 percent of the labor force is aged less than

30, whereas in Western countries this proportion is more like 30 percent. This means that the tempo of replacing the base-year workforce with younger workers is quicker in developing countries; indeed, in a fairly typical case, it takes only about 18 years to replace half the base-year workforce with new workers (Jones, 1976: 577-9). The replacement is slower, of course, if levels of education of the younger workers are rising, because the process of acquiring education delays their entry into the workforce. It will also become slower when rapid fertility declines in earlier years slow the growth of the younger age groups now entering the labor force. This is beginning to be the case in Thailand and for the Chinese and Indians in Malaysia, and will soon be the case in parts of Indonesia.

The dynamics of this change, in the case of Thailand, are shown in Table 8. The 15-19 year age group will effectively cease to grow after 1985, the 20-24 year age group after 1990 and the 25-29 year age group after 1995. The replacement rate of older workers will therefore decline, and the labor force will age. By the year 2000, males aged 30-64 will be 34 percent more numerous than those aged 15-29, whereas in 1985 they were 7 percent less numerous. In terms of those effectively in the workforce, the contrast will be even greater, because more of the younger age groups will stay longer in educational institutions and so delay their entry into the workforce.

Although the deceleration in the rate of labor force replacement is in some respects disadvantageous, much depends on how rapidly the education of the youth cohorts is increased. Even with slower replacement, the average educational level of the workforce can be raised quite rapidly if the educational levels of younger age groups are increasing sharply, and though there is some controversy over whether average levels of education of young age groups will tend to be increased more rapidly in the case of a sharp decline in fertility (see Schultz, 1985; Simon and Pilarski, 1979; Meeks, 1982; Miyashita et al., 1982) it is certainly clear that there will be an enhanced potential to raise educational levels more rapidly if that is what the government strongly desires to do (Jones, 1976: 574-6).

The rising educational levels of the workforce, then, provide the opportunity for rapid increases in productivity induced by the upgrading of the human capital stock, and the rising share of workers in the total population provide the opportunity for such increases to

Table 8. Thailand: Index of Growth of Male Labor Force Age Groups, 1985-2000, (medium fertility)

Age Group	1985	1990	1995	2000
All Ages 15-64	100	114.6	128.9	142.6
15 - 19	100	101.4	101.0	102.6
20 - 24	100	115.2	117.0	117.0
25 - 29	100	115.7	133.6	135.8
30 - 34	100	120.7	140.0	161.9
35 - 39	100	127.0	153.7	178.6
40 - 44	100	129.6	156.7	186.3
45 - 64	100	114.4	132.4	159.0
Ratio, pop. 30-64/15-29	.933	1.012	1.144	1.341

Source: Population Projections for Thailand 1980-2015, Human Resource Planning Division, NESDB, Oct. 1985.

be translated into even more rapid increases in real income per head. Both of these desirable outcomes are, however, contingent on suitable work being available for the rapidly growing workforce. Are the educational trends in the ASEAN region, in fact, consistent with the evolving labor needs? The remainder of this paper will consider various aspects of this question.

b. The education-occupation matrix

The simplest way to approach this issue may be to look at what jobs workers with different levels of education do at present, and to see whether the expected growth of these jobs will be consistent with the expected growth of the labor force with different levels of education. "Consistent" in this context means consistent with leaving

the education-occupation matrix unchanged. There is nothing normative, however, about prevailing education-occupation matrices[2/]. If the underlying trends in education and in employment opportunities make it impossible for them to be maintained unchanged, all this means is that the "mix" of occupations engaged in by persons with given levels of education will have to alter. This is not a problem unless rigid expectations make many people inflexible about the kind of work they are willing to do, or unless economic growth is too slow and employment elasticities too low to raise total job opportunities fast enough to absorb all the growing workforce, even if the various educational groups are flexible in their job demands.

Tables 9 and 10 present the education-occupation matrix for Indonesia, Thailand and Malaysia. In broad terms, the situation they face is very similar. Whereas workers with a primary school education or less are heavily concentrated in agriculture, production and sales occupations, for those with a high school education (especially senior high school and vocational high school) the balance of employment shifts toward clerical and professional employment. At the top end of the educational range, among those with academy or university education, more than half (over 60 percent in Thailand and Malaysia) are in the professions (including, of course, the teaching profession), and fewer than a fifth are found in occupations outside the trio: professional, managerial and clerical.

From Table 11, it would appear that in recent years the growth of employment in professional, managerial and clerical occupations has been fast enough in Indonesia to maintain the proportions of the senior high school and college educated who find work in these occupations. But in Thailand, there is some evidence of "slippage" of the better educated into other, lower status occupations. In both countries, the real testing period is yet to come, with expected rapid increases in numbers graduating from these levels of education, and in the proportion of the better-educated among total entrants to the job market.

The issues arising can be illustrated from the Indonesian case. As mentioned earlier, professional, managerial and clerical occupations, though they grew faster than jobs as a whole, provided only 11 percent of the net increase in employment in Indonesia over the 1971-85 period. Given the high proportion of employment for the

Table 9. Percentage Distribution of Occupations of Employed Population at Each Educational Level: Indonesia and Thailand 1985, Malaysia 1980

Main Occupation	No Schooling	Incomplete Primary	Primary School	General High School Junior	General High School Senior	Vocational High School	Academy	University	Total
INDONESIA									
Professional	0.1	0.1	0.5	2.3	10.5	36.0	50.3	50.8	3.4
Managerial	0.0	0.0	0.0	0.2	1.4	0.3	3.7	5.2	0.2
Clerical	0.1	0.5	2.1	9.7	34.4	17.0	30.2	33.9	3.9
Sales	13.9	13.8	16.4	21.8	17.7	9.2	3.4	2.5	14.7
Service	3.4	3.2	4.3	5.5	4.4	3.4	1.2	0.8	3.7
Agriculture	70.8	64.3	52.8	29.8	9.5	11.0	2.3	2.0	54.8
Construction	-	-	-	-	-	-	-	-	-
Production	11.2	17.4	23.1	27.5	18.8	21.2	6.1	3.6	18.3
Others	0.0	0.0	0.3	2.9	3.1	1.7	2.7	1.2	0.5
Total Occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Numbers (thousands)	13562	21489	17233	3535	2194	3658	471	326	62457
THAILAND (average February and August Rounds Labor Force Survey)									
Professional	0.2	0.2	0.2	2.7	7.4	13.8	68.2	51.8	3.4
Managerial	0.5	0.6	0.5	3.5	5.5	6.9	4.1	24.5	1.4
Clerical	0.2	0.4	0.6	10.6	18.5	36.1	9.5	8.9	2.3
Sales	12.0	9.1	7.9	17.4	17.1	13.4	4.7	6.8	9.6
Service	2.0	3.2	9.9	12.3	10.5	2.2	1.7	4.4	4.7
Agriculture	75.6	70.8	66.5	29.1	24.0	8.6	6.0	1.2	63.5
Construction	0.6	2.8	2.0	6.2	4.2	3.6	0.9	0.6	2.6
Production	8.9	12.9	12.4	18.2	12.8	15.4	4.9	1.8	12.5
Others	-	-	-	-	-	-	-	-	-
Total Occupations	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Numbers (thousands)	1789	15541	3921	1225	337	515	682	318	24447
MALAYSIA									
Professional	0.6	1.2	3.0	21.8	39.9	27.8	65.3		7.1
Managerial	0.2	0.4	0.5	2.3	4.2	1.7	14.1		1.1
Clerical	0.5	1.3	5.3	34.0	34.9	25.6	11.2		8.5
Sales	7.5	9.7	12.0	8.7	5.6	5.1	4.1		9.9
Service	6.3	8.6	11.6	11.9	6.8	13.6	1.6		9.8
Agriculture	68.2	51.9	27.3	4.6	2.8	5.1	0.9		35.0
Construction	-	-	-	-	-	-	-		-
Production	16.7	27.0	40.3	16.7	5.8	21.0	2.8		28.5
Total Occupation	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0
Numbers (thousand)	10959	11324	26182	8693	1053	176	1406		59793

For all countries: "Primary School" includes those with incomplete junior high school; "Junior High School" includes those with incomplete senior high school.
For Indonesia: Vocational High School - Junior and Senior Vocational High School.
For Thailand: Incomplete Primary - Less than Pratom 4 and Lower Elementary;
Academy - Technical Vocational and Teaching Training.
Numbers and percentages may not total: - Indonesia: Occupation - not stated is excluded;
- Thailand: Educational Level - short course training, others and unknown is excluded.

Table 10. Percentage Distribution of Educational Level of Employed Population in Each Occupation Group: Indonesia and Thailand 1985, Malaysia 1980

	Profes-sional	Mana-gerial	Clerical	Sales	Service	Agricul-ture	Const-ruction	Produc-tion	Others	Total
INDONESIA										
No Schooling	0.7	1.0	0.5	20.5	19.9	28.1	-	13.3	0.7	21.7
Incomplete Primary	1.3	4.3	4.1	32.2	29.7	40.4	-	32.7	2.0	34.4
Primary School	3.7	7.3	14.7	30.7	32.2	26.6	-	34.8	17.0	27.6
Junior High School	3.7	7.1	14.0	8.4	8.4	3.1	-	8.5	32.7	5.6
Senior High School	10.7	32.6	30.9	4.2	4.2	0.6	-	3.6	22.1	3.5
Vocational High School	61.2	12.8	25.5	3.7	5.3	1.2	-	6.8	20.2	5.9
Academy	11.0	17.7	5.8	0.2	0.2	0.0	-	0.2	4.0	0.8
University	7.7	17.2	4.5	0.1	0.1	0.0	-	0.1	1.3	0.5
All Education Levels	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0
Numbers	2151	98	2439	9180	2300	34198	-	11445	311	62457
THAILAND (average February and August Rounds Labor Force Survey)										
No Schooling	0.5	2.5	0.6	9.1	3.2	8.7	1.8	5.2	-	7.3
Incomplete Primary	4.7	28.6	11.5	60.1	42.8	70.8	67.5	65.7	-	63.6
Primary School	1.1	5.9	4.2	13.2	33.5	16.8	12.2	15.9	-	16.0
Junior High School	4.0	12.8	22.7	9.1	13.0	2.3	11.8	7.3	-	5.0
Senior High School	3.0	5.5	10.9	2.5	3.1	0.5	2.2	1.4	-	1.4
Vocational High School	8.7	10.6	32.5	3.0	1.0	0.3	2.9	2.6	-	2.1
Academy	57.0	8.4	11.3	1.4	1.0	0.3	1.0	1.1	-	2.8
University	20.2	23.3	5.0	0.9	1.2	0.0	0.3	0.2	-	1.3
All Education Levels	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0
Numbers (thousands)	817	336	573	2341	1153	15527	645	3054	-	24446
MALAYSIA										
No Schooling	1.7	3.4	1.1	13.8	11.9	35.7	-	10.7	-	18.3
Incomplete Primary	3.1	6.6	2.9	18.5	16.7	28.0	-	18.0	-	18.9
Primary School	18.4	21.8	27.0	52.9	51.8	34.1	-	62.0	-	43.8
Junior High School	44.4	30.8	57.9	12.8	17.7	1.9	-	8.5	-	14.5
Senior High School	9.8	6.7	7.2	1.0	1.2	0.1	-	0.4	-	1.8
Vocational High School	1.1	0.5	0.9	0.2	0.4	0.0	-	0.2	-	0.3
Tertiary	21.5	30.2	3.1	1.0	0.4	0.1	-	0.2	-	2.4
All Education Levels	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	-	100.0
Numbers (thousands)	4270	655	5105	5929	5835	20942	-	17037	-	59793

For all countries: "Primary School" includes those with incomplete junior high school; "Junior High School" includes those with incomplete senior high school.
For Indonesia: Vocational High School - Junior and Senior Vocational High School.
For Thailand: Incomplete Primary - Less than Pratom 4 and Lower Elementary;
Academy - Technical Vocational and Teaching Training.
Numbers and percentages may not total: - Indonesia: Occupation - not stated is excluded;
- Thailand: Educational Level - short course training, others and unknown is excluded.

Table 11. Percentage Distribution of Employment in Different Occupations, and of Employment Growth in Each Occupation by Educational Level: Indonesia 1980 and 1985: Thailand 1977 and 1985.

Main Occupation	Junior High School (General)			Senior High School (General)			Tertiary Academy/University		
INDONESIA									
	1980	1985	Growth	1980	1985	Growth	1980	1985	Growth
Professional	7.1	3.9	-0.9	32.6	29.3	24.9	40.4	50.5	61.3
Managerial	0.2	0.2	0.2	0.7	1.8	1.1	3.9	4.3	4.7
Clerical	12.9	9.8	5.3	26.0	25.9	25.9	36.8	31.6	26.0
Sales	16.8	20.7	26.4	9.3	11.9	15.4	4.1	3.0	1.8
Service	5.9	5.3	4.4	3.8	3.6	3.3	2.2	1.1	0.0
Agriculture	22.6	28.8	37.9	7.9	8.0	8.2	3.1	2.3	1.3
Construction	-	-	-	-	-	-	-	-	-
Production	29.2	28.5	27.5	16.9	18.2	19.9	6.3	5.1	3.9
Total	100	100	100	100	100	100	100	100	100
Numbers (thousands)	2631	4402	1771	2893	4975	2082	418	797	379
THAILAND (average February and August Rounds Labor Force Survey)									
	1977	1985	Growth	1977	1985	Growth	1977	1985	Growth
Professional	8.2	2.7	-3.8	11.2	7.4	6.4	71.7	63.0	57.5
Managerial	5.4	3.5	1.4	11.4	5.5	3.5	12.4	10.6	9.5
Clerical	15.7	10.7	4.8	30.8	18.5	14.1	5.7	9.3	11.6
Sales	20.3	17.4	14.1	23.9	17.1	14.7	3.5	5.4	6.6
Service	11.3	12.3	13.4	4.4	10.5	12.7	1.6	2.5	3.1
Agriculture	20.5	29.1	39.0	4.9	24.0	30.6	2.2	4.5	5.9
Construction	7.0	6.2	5.4	4.2	4.2	4.2	0.7	0.8	0.9
Production	11.6	18.2	25.8	10.1	12.8	13.8	2.2	3.9	4.9
Others	-	-	-	-	-	-	-	-	-
Total	100	100	100	100	100	100	100	100	100
Numbers (thousands)	656	1224	568	87	337	250	386	1001	615

For Thailand: Academy - Technical Vocational and Teaching Training Numbers and percentages may not total: - Indonesia: Occupatuion - not stated is excluded.

better educated provided by these occupations, and the dominance of the better educated in employment in these occupations, then if the share of professional, managerial and clerical occupations in total employment rises only gradually, there will clearly not be enough new jobs in these occupations for all new upper secondary and tertiary graduates. This is because the supply of secondary and tertiary graduates will be growing much faster than other segments of the workforce. A recent World Bank study projected the following rates of increase in the labor force with different levels of education, over the 1980-90 period:

Less than completed primary	-0.9 %
Completed primary	5.3 %
Completed junior high	9.5 %
Completed senior high	11.6 %
University and college	8.0 %

Supposing that employment were to grow by 4 percent per annum (an optimistic forecast, given current economic prospects), then if the occupational structure were to remain unchanged, growth in job opportunities in occupations traditionally employing the university and high school educated would clearly not grow rapidly enough to absorb the rapidly increasing numbers with this level of education. In actual fact, development of the economy can be expected to favor occupations requiring more education, so that growth of these kinds of occupations may in fact reach 5 or 6 percent per annum. Even so, a large gap would remain.

In such a situation, the options are only two:

- Rising unemployment of the better-educated.
- Increasing absorption of upper secondary and tertiary graduates in occupations which they have traditionally not entered; in other words, a "pushdown" in the status of occupations available to the better educated, or viewed differently, a rise in the qualifications of the typical incumbent of a wide variety of jobs (see also Keyfitz, 1986; Jones, 1986).

A similar situation is faced in Thailand, with a different twist:

new opportunities for civil service employment, the traditionally dominant career channel for vocational graduates and the university educated, is drying up due to government policy at just the time when large numbers of additional arts and law graduates are coming out of the open universities.[3/] In 1981, 24 percent of high school educated, 62 percent of vocational graduates and 53 percent of university graduates were employed by the government, not counting those employed in state enterprises. Until recently, employment growth in the government sector was rising at 6 to 7 percent per year, but during the last few years the government decided to restrict the hiring of new employees to no more than 2 percent per annum (Hongladarom, 1985: 145). In the past, "the government, in a simplistic sense, essentially produced educated workers for its own use" (Sussangkarn, 1987: 49). The problem now is that labor markets in Thailand are not working efficiently to absorb more of the better-educated workers in non-government activities through adjustments in the wages of better-educated compared to less educated workers (Sussangkarn, 1987).

A recent set of projections for Malaysia shows a very similar set of issues, a set of issues persisting over the longer term. Table 12 shows the average rates of increase projected for the "potential workforce" (the total population aged 20-64) over 10-year periods beginning in 1985. The projections for the 1985-95 period do not Odiffer greatly from those presented above for Indonesia, except that, because of a higher level of average educational development in Malaysia, the group with completed primary school was already projected to be declining in this initial period. The growth rates of those with upper secondary and tertiary education are very rapid during the first decade, falling only gradually to still-high levels of 4 percent per annum in the 2005-15 period. Such trends are causing great concern in Malaysia, because they are occurring at a time when economic slowdown has weakened the capacity of the government to keep expanding job opportunities in government for the rapidly rising number of Malay university graduates, and has forced the government, in the interests of economic efficiency, to back off from some elements of its "new economic policy" favoring the Malays. Thus there are ethnic overtones to a problem that would be complex enough in a more homogeneous society.

c. Appropriate rates of expansion of education

To state the issue, in countries such as Indonesia, Malaysia and Thailand, is simple enough. Over the coming years, supply will greatly outstrip "demand" for educated workers, if by "demand" is meant the supply of job opportunities in the occupations that traditionally absorbed such workers. But to choose appropriate policy responses is less easy.

One thing is clear: unless a substantial proportion of the better-educated (60 percent in the Malaysian study, over a 40-year period) are willing to accept occupations with a lower status than those their education would lead them to expect at present, unemployment rates for the high school and college educated will inevitably rise. Should expansion of higher education therefore be delayed? Probably not, at least not for this reason. It was a mistake to sell education as a means to upward mobility, for it can be that only when it is relatively rare. The adjustment now required in expectations and aspirations will be painful, not least because of parents' single-minded pursuit of education for their children as a

Table 12. Malaysia: Average Annual Rates of Increase of "Potential Workforce" (aged 20-64), 1985-2025, by Educational Level

Level of Education	1985-95	1995-2005	2005-15	2015-25
None	-2.7	-5.1	-5.4	-6.6
Primary	-0.4	-1.4	-2.8	-3.9
Lower Secondary	4.5	1.9	1.2	0.0
Upper Secondary	8.1	5.7	4.1	2.9
Tertiary	8.3	6.0	4.2	3.1
Total	3.0	2.5	2.2	1.7

Source: Economic Planning Unit: Economic-Demographic Planning Project.

passport to high status, white collar employment.[4/] But it would be inappropriate to delay the expansion of upper levels of education on these grounds. An important element in the process of economic development has been precisely the rising stock of well-educated, forcing an increase in the educational level of the incumbents of jobs previously performed by those with lesser education. The common belief that better education would not raise the productivity of those employed in more lowly tasks is not correct. Education does make for more efficient taxi drivers and shop assistants, provided their competitive edge is not dulled by bitterness about their missed opportunities in other walks of life. Indeed, education is becoming increasingly important for farmers, with increasing mechanization, availability of more varied extension materials, and the need to deal with officialdom in its many forms (see Oshima, 1983).

As Gannicott (1987: 65) notes, "The entire international experience is that educational expansion contributes to economic development by the diffusion throughout the occupational structure of better educated workers -- and this process itself aids employment creation through raising labor productivity, through cost savings, through widening the range of techniques which can be adopted, through the better responsiveness of the labor force to entrepreneurial initiatives, and so on".

The rates of return studies summarized earlier do not provide very clear guidance on appropriate rates of expansion of upper levels of education. They do show that, although returns tend to be lower in more advanced economies where the supply of the well educated is greater, the returns still equal or outstrip the returns on physical capital. Other studies show a high elasticity of substitution between different kinds of labor. On the whole, unemployment of graduates in the ASEAN region (except the Philippines) appears to be frictional, reflecting job search.

On the other hand, some rates of return studies in the region do not show very good social rates of return on secondary and higher education. This is particularly the case in the Philippines, where these levels of education are very widely spread and economic growth in the period to which the studies refer was only modest. Moreover, trends in graduate unemployment in other countries sound a note of warning. High levels of graduate unemployment in India (Blaug, Layard

and Woodhall, 1969), Sri Lanka (Srivastava and Selvaratnam, 1972) and the Philippines over lengthy periods provide a salutory warning of what can happen if economic growth is slow and tertiary education does not adapt to changing needs.

The main worry is that expectations will be too rigid, and that labor market rigidities will prevent appropriate adjustments in wage relativities between better-educated and less educated workers. Current private demand for higher education in the region, based on the generally favorable experiences of those who pursued this level of education in the past, may prove to be ex ante rational but ex post misplaced. This certainly appears likely in Indonesia, Malaysia and Thailand, in all of which government employment has played a very large role to date in absorbing university graduates, but which cannot possibly do so in future, both because the output of graduates is increasing very rapidly and because all three countries have recently either frozen public sector employment or set their face against further rapid increases in such employment.

In terms of national resource allocation, we can envisage two situations in which the rates of return studies (which can be seen as being generally supportive of further expansion of secondary and higher education) may turn out to be giving inappropriate signals, or at least signals that tend to be inappropriately interpreted:

(1) the case mentioned earlier: where a discontinuity in economic prospects is linked with a discontinuity in supply of graduates in particular levels of education, such that rates of returns as measured at a particular point in time may have little predictive value.

(2) where private rates of return are well above social rates of return, but governments succumb to the strong private demand for secondary and higher education by expanding the provision of publicly funded educational institutions.

In such a context, there is a lot to be said for the conclusion of Edwards and Todaro (1974: 324):

"Making the beneficiary . . . bear a larger and rising proportion of his educational costs as he proceeds through the system (with appropriate subsidies for the able poor at low levels of education and through loan programs at high levels of education) is the most effective, practical means of rationing available places".

Finally, whether given levels of education investment are economically justified cannot be evaluated independently of the prospects for continued economic development. Continuation of moderate or rapid economic growth should ensure that upgrading of the educational level of the workforce is not misplaced; and education itself should contribute to this economic growth. But the point made earlier should once more be stressed: that education plays such diverse roles in a society that its contribution to the welfare of individuals and the society to which they belong should not ultimately be judged only on the basis of its contribution to their economic welfare, even if that can be accurately measured.

Notes

1. Dependency ratios (ratio of the population aged 0-14 and 65+ to the population aged 15-64) are projected to decline in Singapore until 1995, in Thailand and Indonesia until around 2020, in the Philippines until around 2025; and in Malaysia until around 2040 (although until only around the year 2000 for the Malaysian Chinese). After that point dependency ratios will begin to rise again due to the passage through the working age population of the smaller birth cohorts of the period of rapid fertility decline, and the continued increase in the elderly population. Despite this gradual rise, however, in the middle of the 21st century dependency rates will not yet have regained their 1985 levels.

2. The approach to measuring labor underutilization based on "mismatch" between education and occupation, popularized by Hauser in the 1970s (Hauser, 1974, 1977), though it did recognize that an appropriate "match" between occupation and education could not be precisely defined, nevertheless tended to foster the belief that there were a wide range of occupations in which the education of those who had been through high school or college would be, from a societal point of view, wasted.

3. Most of these open university graduates already have jobs, so in that sense they do not face unemployment. But it was precisely to escape a boring, hard, or low-status job that many of them undertook university studies in the first place, and to remain in the same job may not appear to be an option.

4. It is difficult to know how great a lag there is in public awareness of changing employment prospects for the better educated. Disillusionment with the potential of higher education as a sure road to economic and social betterment is reflected in a song titled roughly "Higher Education, Higher Deception", which was very popular in Thailand in 1985. It tells of rural young people who come to study in the university in hopes that higher education will be the key to a good job, but when they graduate they discover that such jobs are few and they lack the connections needed to get them (Knodel et. al., 1987: 135).

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