Human Resources Development in the Asian and Pacific Region:

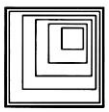
Health, Education and Employment Attainments



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United Nations
Economic and Social Commission for Asia and the Pacific

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Health, Education and Employment Attainments



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Economic and Social Commission for Asia and the Pacific
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Preface

This report strives to be concise and informative. Many new and interesting measures have been included.

The data reviewed in this report indicate that the ESCAP region has made some remarkable achievements. Mortality in all countries is much lower than it was only a few decades ago, and one ESCAP member, Japan, has the highest life expectancy in the world. Students in some ESCAP countries are international leaders in mathematics and science. Countries have expanded schooling, health care and employment in step with the expansion of their workforces and have experienced sustained periods of economic growth that are unmatched in human history.

At the same time, the report also shows that Governments and people in the ESCAP region still have much to do to bring standards of health, education, and employment up to universally satisfactory levels. Mortality and morbidity are still high in some countries, and risks are sometimes spread unevenly across households. Many children still do not attend school. Poor health and inadequate education lead some workforces to perform far below their potential.

The extraordinary mix of success and failure in the ESCAP region is a rich source of lessons for development policy. ESCAP is thus pleased to make this report available to a wide audience for reference purposes.

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Abbreviations

DALE	disability-adjusted life expectancies
DALY	disability-adjusted life years
GDP	gross domestic product
GNP	gross national product
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
ILO	International Labour Organization
OECD	Organisation for Economic Cooperation and Development
PPP	purchasing power parity
TIMMS	Third International Mathematics and Science Study
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization

Introduction

A. THE NEED FOR INTERNATIONAL COMPARISONS OF HUMAN RESOURCES DEVELOPMENT

Gone are the days when human resources development needed elaborate justification. Recognition that human resources development is both an ultimate goal and a means to other goals has become part of the mainstream, both in scholarship and policy. Attention is now concentrated on the practical issue of finding the most effective policies to promote human resources development. The rational assessment of policies depends on measuring their successes and failures, which is the task of this report.

The report brings together and comments upon measures of health, education and employment. All three sectors are broad and multifaceted. It also covers the ESCAP membership, which encompasses 61 countries and territories, comprising more than half the world's population.

Analyses on such a large scale have serious disadvantages. There is space to consider only a small subset of all the available indicators. Differentials within countries by ethnic group, region, or income must be largely ignored. Sustained discussion of policy, institutions, culture and history is impossible. This is despite the fact that most policy-making consists of incremental adjustments in response to details such as these.

Yet, for all its disadvantages, stepping back to look at the big picture is still essential. Only by comparing one country's indicators with those of its neighbours and peers is it possible to assess whether the observed levels are high or low. Malaysia, for instance, spent just over two per cent of its gross domestic product on health in 1997. Is two per cent a little or a lot? Only by looking at other countries in South-East Asia and other countries with the same social and economic conditions can such an evaluation be made (see figure II.1).

One of the main reasons why this report uses graphs rather than tables to present the data is to facilitate comparisons. Another reason for using graphs is that they allow information to be absorbed quickly. A third reason relates to the difficulty of making international comparisons with unreliable data.

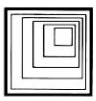
B. MAKING INTERNATIONAL COMPARISONS WITH UNRELIABLE DATA

Even the best data for most countries are only approximately correct. Many published estimates of maternal mortality rates, for instance, probably misrepresent the true rates by factors of three or four; in other words, they are wrong by several hundred per cent (Mauldin 1994).

A common strategy for dealing with faulty data is to describe some of the sources of error, issue stern warnings about limits to international comparability and then proceed to make detailed comparisons as if the data were flawless. There are, however, a few rules of thumb that help to minimize the risk of being led astray.

The first rule is to abstain from using the worst-quality data, even when the phenomenon that the data claim to measure is interesting and important. Observance of this rule is easiest when there are better-quality data measuring a closely related phenomenon. Estimates of infant mortality or overall life expectancy, for instance, are a reasonable proxy for estimates of maternal mortality.

Another rule is that more credence should be given to comparisons between countries with similar social structures than to comparisons between dissimilar countries. The reason is that the errors for similar countries tend to lie in the same direction, and therefore partly cancel out when comparisons are made. Neighbouring countries with similar



attitudes to women's work, for example, can be expected to under-count such work to approximately the same extent. Comparisons of the same country at two different points in time often benefit from the same effect, although there is always a risk that the statistical agency may have revised their definitions or techniques, making comparisons problematic.

Perhaps the most important rule is to concentrate on the big differences and ignore the small ones. If reported life expectancy in Country A is 10 years higher than in Country B and both countries have reasonably complete reporting systems, then we may safely assume that people in Country A live longer than those in Country B. If, however, the reported difference is only two years, and one country has, or both countries have, incomplete reporting systems, then we should ignore the apparent difference. The only conclusion that is really warranted by such data is that people live for about the same length of time in the two places. A major advantage of using graphs rather than tables to present unreliable statistics is that graphs direct people's attention towards the big differences and away from the small ones.

Background I

Putting the health, education and employment attainments of countries and territories into perspective requires, at a minimum, some basic data about their demographic and economic conditions. These basic data are given in the present chapter.

A. DEMOGRAPHY

The populations of countries and territories in the ESCAP region differ so greatly that it is impossible to show them together in one graph. The present chapter therefore begins with one of the few tables in the report. The numbers in table I.1 speak for themselves. However, it should be noted that estimates for countries and territories with political strife or large migration flows involve substantial guesswork, and could easily be wrong by 10 per cent or more.

Figure I.1 shows the extent to which population sizes have changed. The grey bars show the "rate of natural increase", which is the birth rate minus the death rate. Only a few countries, half of which are in South and South-West Asia, still have very high rates of natural increase. In the Russian Federation, natural increase is negative, meaning that deaths outnumber births.

Table I.1. Population in the year 2000: ESCAP region

(Millions)

ESCAP REGION	3 748
EAST AND NORTH-EAST ASIA	1 485
China	1 278
Democratic People's Republic of Korea	24
Hong Kong, China	7
Japan	127
Mongolia	3
Republic of Korea	47
NORTH AND CENTRAL ASIA	241
Armenia	4
Azerbaijan	8
Kazakhstan	16
Kyrgyzstan	5
Russian Federation	147
Tajikistan	6
Turkmenistan	4
Uzbekistan	24
PACIFIC	29 980[a]
American Samoa	70[a]
Australia	18 890[a]
Cook Islands	20[a]
Federated States of Micronesia	820[a]
Fiji	240[a]
French Polynesia	170[a]
Guam	80[a]
Kiribati	60[a]
Marshall Islands	120[a]
Nauru	10[a]
New Zealand	3 860[a]
Niue	2[a]
PACIFIC *(continued)*	
Northern Mariana Islands	80[a]
Palau	20[a]
Papua New Guinea	4 810[a]
Samoa	180[a]
Solomon Islands	440[a]
Tonga	100[a]
Tuvalu	10[a]
Vanuatu	190[a]
SOUTH-EAST ASIA	518
Brunei Darussalam	3
Cambodia	11
Indonesia	212
Lao People's Democratic Republic	5
Malaysia	22
Myanmar	46
Philippines	76
Singapore	4
Thailand	61
Viet Nam	80
SOUTH AND SOUTH-WEST ASIA	1 501
Afghanistan	23
Bangladesh	129
Bhutan	2
India	1 014
Islamic Republic of Iran	68
Maldives	290[a]
Nepal	24
Pakistan	156
Sri Lanka	19

Source: United Nations, 1998. *World Population Prospects: Comprehensive Tables,* vol. I (United Nations publication, Sales number 99.XIII.9).

[a] Population reported in thousands rather than millions.



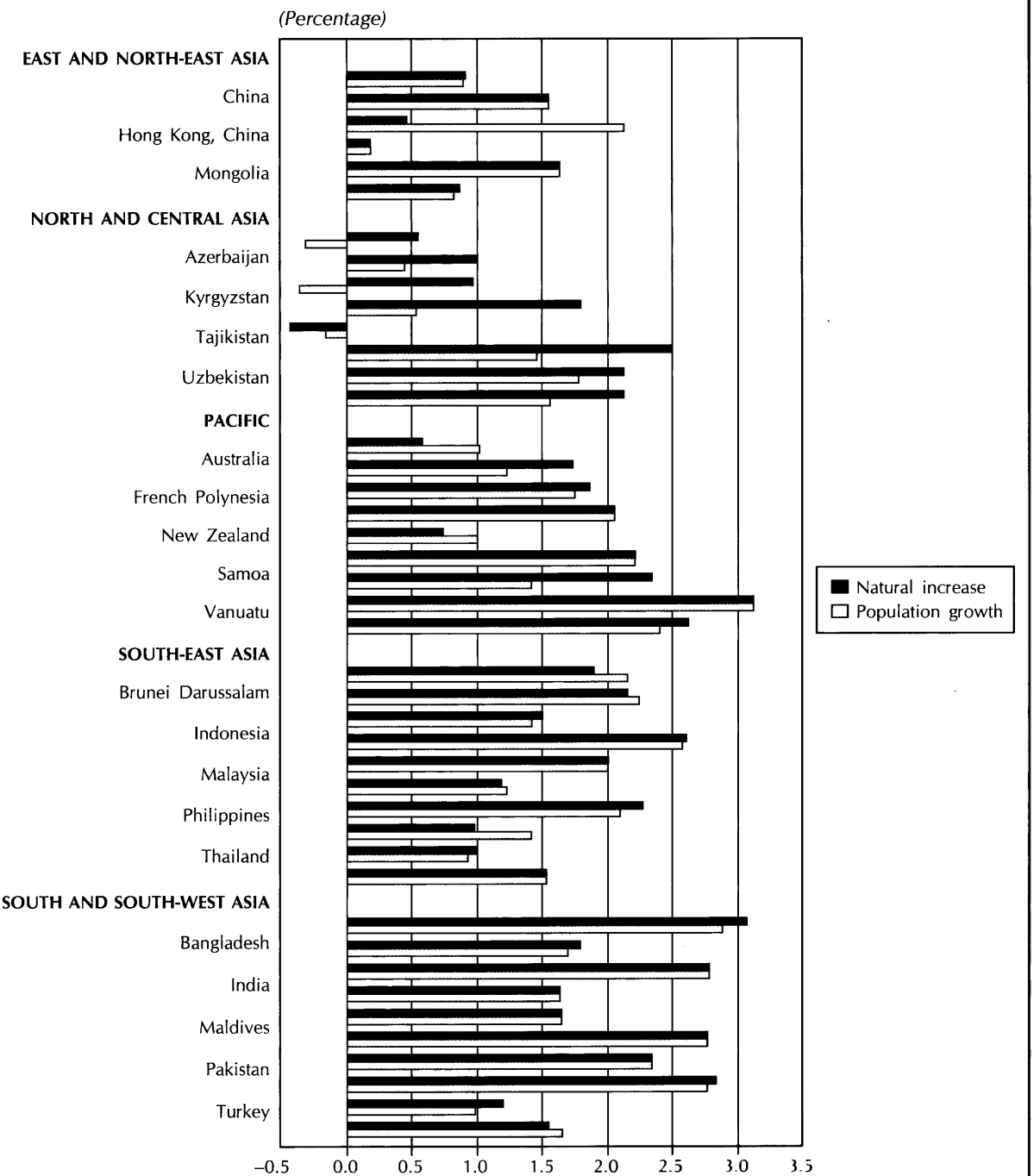
The black bars in figure I.1 show rates of population growth. Population growth equals natural increase plus net migration. If a country's population growth rate is higher than its rate of natural increase, then there must be net migration into the country. A review of figure I.1 shows that higher-income countries and areas such as Australia; Hong Kong, China; New Zealand and Singapore all have a surplus of in-migrants over out-migrants.

Aside from the Russian Federation, the economically troubled countries of North and Central Asia are in the opposite position. Natural increase is moderate or high, but population growth is negative, indicating substantial out-migration. Most of the people leaving are ethnic Russians. The arrival of these and other migrants in the Russian Federation partly offsets that country's negative natural increase and is slowing its population decline.

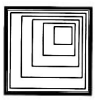
Mortality and fertility have followed a similar course in most ESCAP countries and areas. Mortality generally declined below historical levels over the late nineteenth century and early twentieth century and then declined dramatically after the Second World War, particularly for infants and children. Fertility began to follow mortality downwards after some delay. Australia, Japan and New Zealand depart from this pattern in that mortality and fertility had already declined significantly before the Second World War. The broad pattern of mortality decline followed by fertility decline is known as the demographic transition.

The demographic transition produces a characteristic set of changes in a population's age structure. Summary measures of these changes are given in figure I.2. The dependency ratio referred to in figure I.2 is the ratio of people of non-working age to those of working age, with the working age defined as 15 to 64 years. The "total fertility rate" is the number of births which a woman would be expected to have over her lifetime under prevailing fertility rates. The results shown for the years 2000 to 2020 in figure I.2 are projections and may turn out to be wrong. Age-structural patterns are relatively slow to change, however, so that projected dependency ratios are a fairly reliable guide to the future.

Figure I.1. Average annual rates of natural increase and population growth in Asia and the Pacific, 1995-2000



Source: Calculated from United Nations, 1998. *World Population Prospects: Comprehensive Tables*, vol. I.



The post-Second World War reductions in infant and child mortality increased the dependency ratios of countries. Upward trends in the dependency ratio are visible on the left-most portions of many of the graphs shown in figure I.2.

The reductions in birth rates produced a more complicated and somewhat counter-intuitive set of changes. The initial effect was a reduction in the number of children relative to adults. This implied a reduction in dependency ratios, as can be seen in figure I.2. The shifts are dramatic in some cases, with dependency ratios dropping to half their peak levels. Most of the earliest and sharpest declines occurred in East and South-East Asia, while most of the late declines are occurring in South and South-West Asia, although there are exceptions to both these generalizations.

Recent research has shown that the rise in the proportion of working-age adults made a substantial contribution to the macroeconomic successes of many ESCAP countries in East and South-East Asia. The effect has come to be known as the "demographic bonus". As can be seen in figure I.3, much of the rest of the ESCAP region is set to experience a demographic bonus in the coming decades (Higgins and Williamson 1997; Bloom and Williamson 1998).

The rises and falls in the dependency ratio have important implications for human resources development. The particularly high ratios which occur after mortality decline and before fertility decline make investment in education and health especially difficult. Investment during this period pays off, however, since the young dependants of this period are the workers of the demographic bonus period. Conversely, the low dependency ratios and extra economic growth which follow fertility decline make investment in education and health relatively easy.

The demographic bonus is only temporary. The workers of the bonus period eventually grow old and become old-age dependants, while the children of the bonus period grow up and become workers.

Figure I.2. Total fertility rates and dependency ratios, 1960-2020: ESCAP region

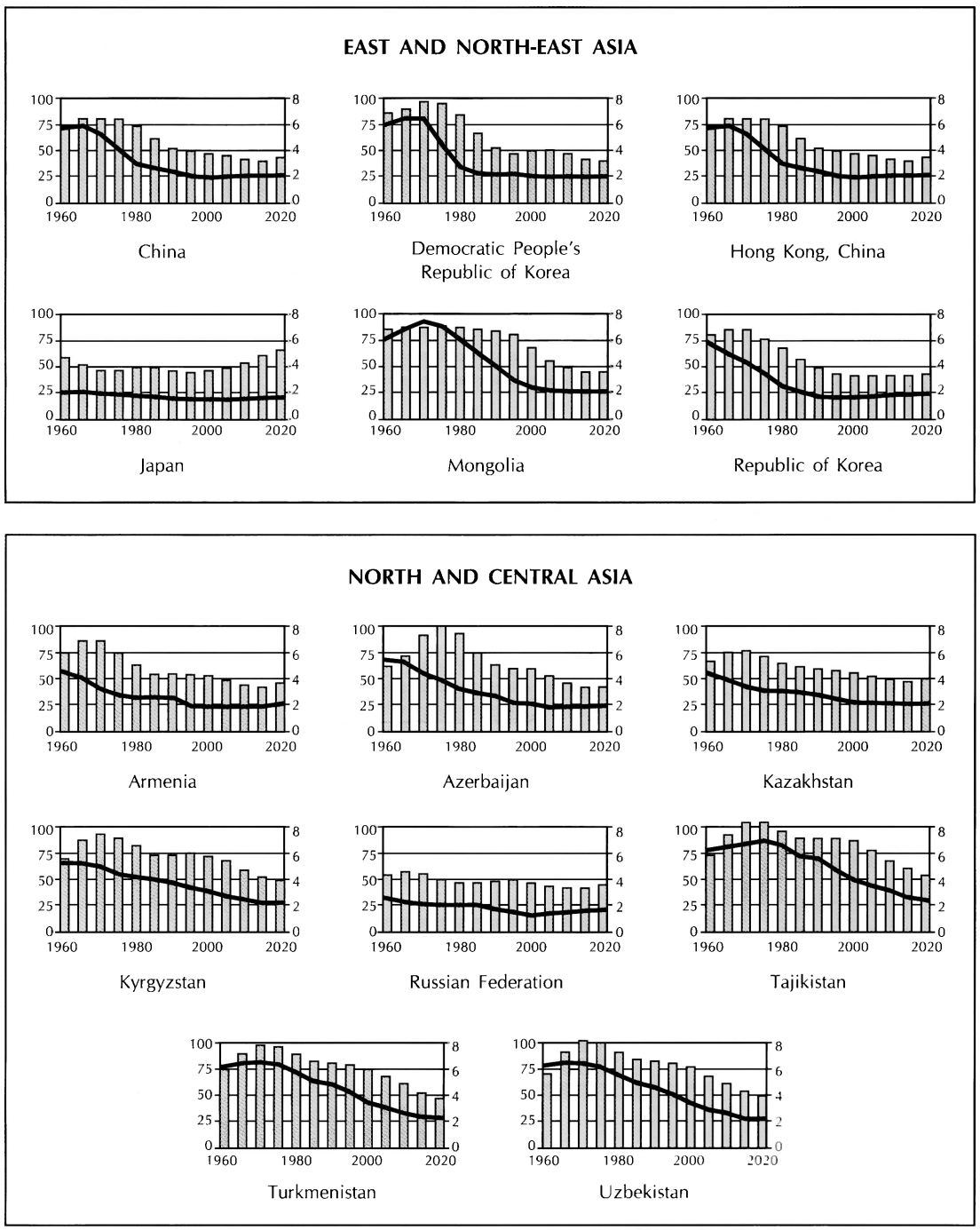


Figure I.2 *(continued)*

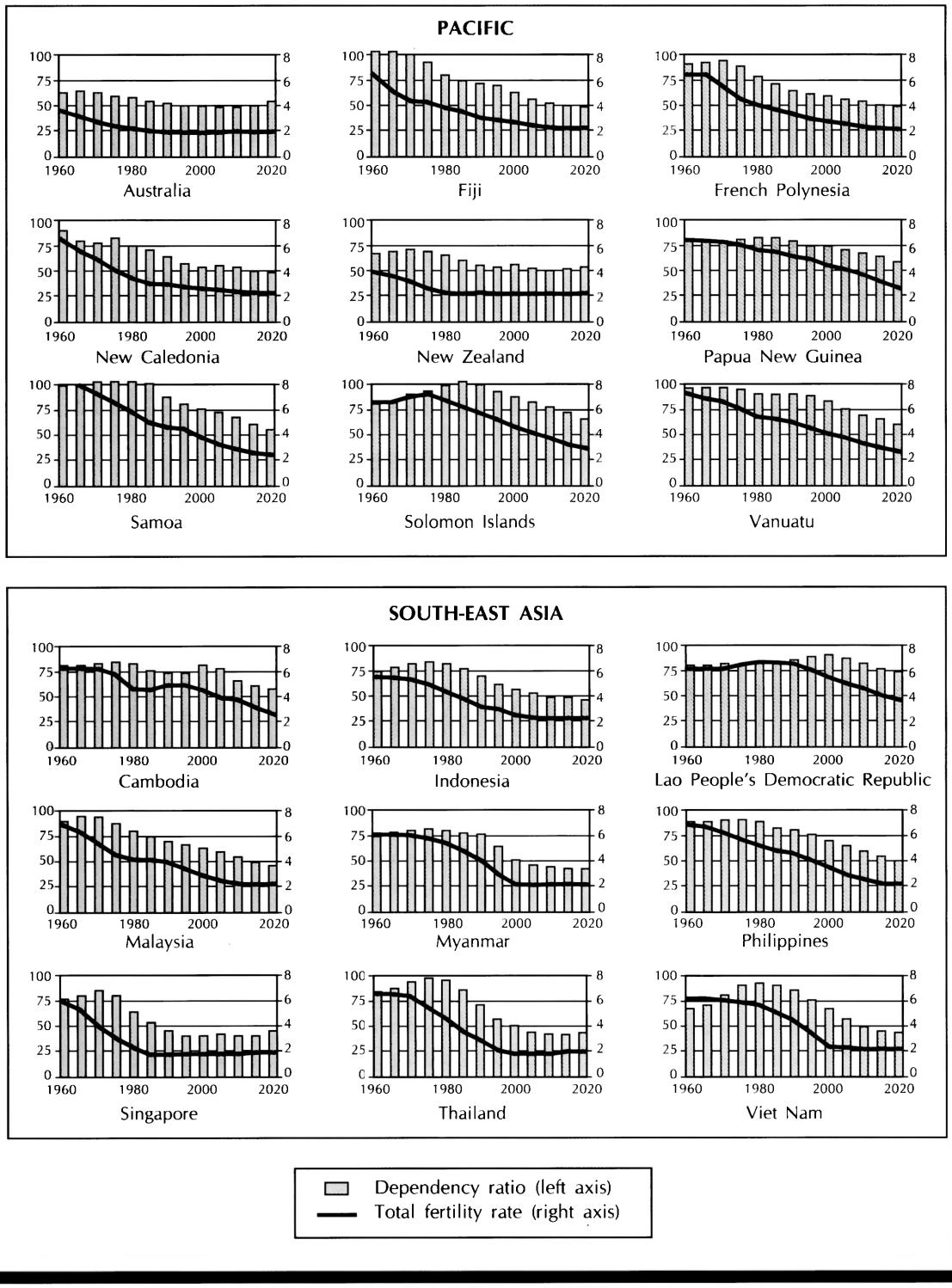
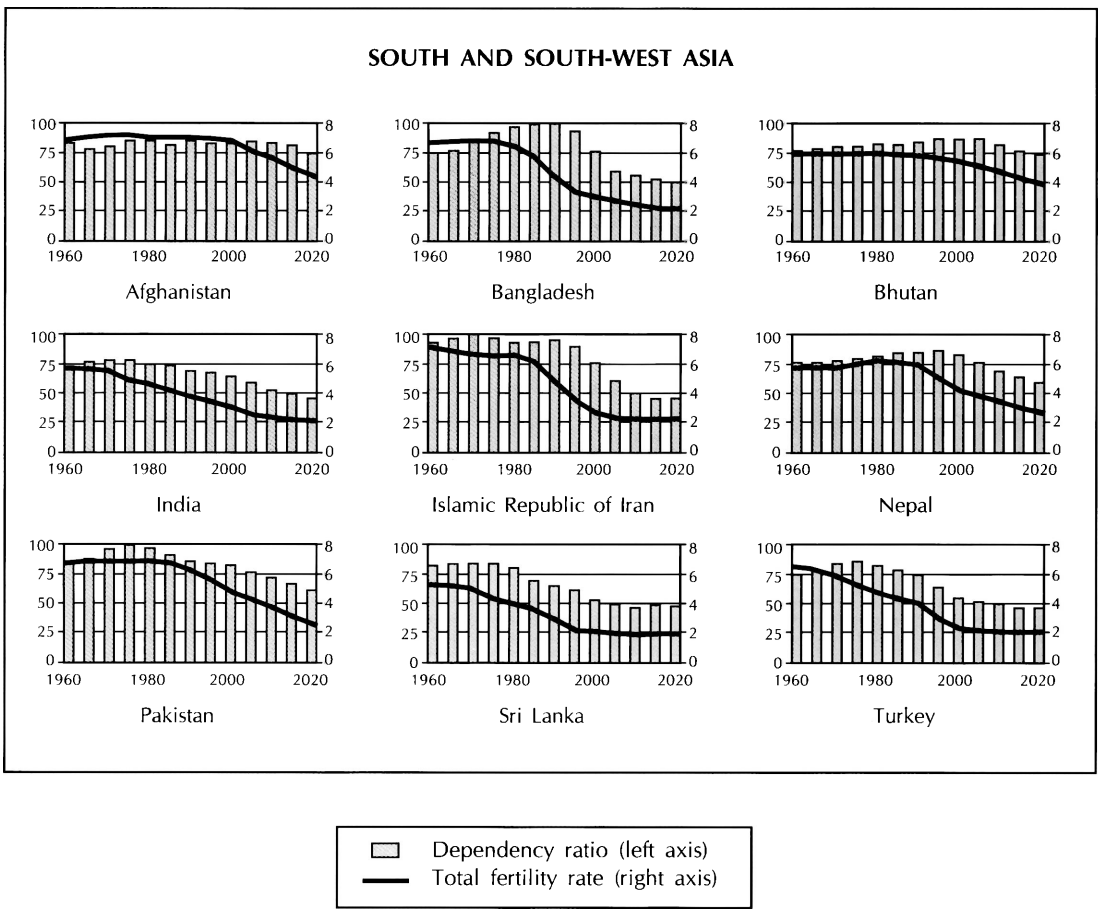


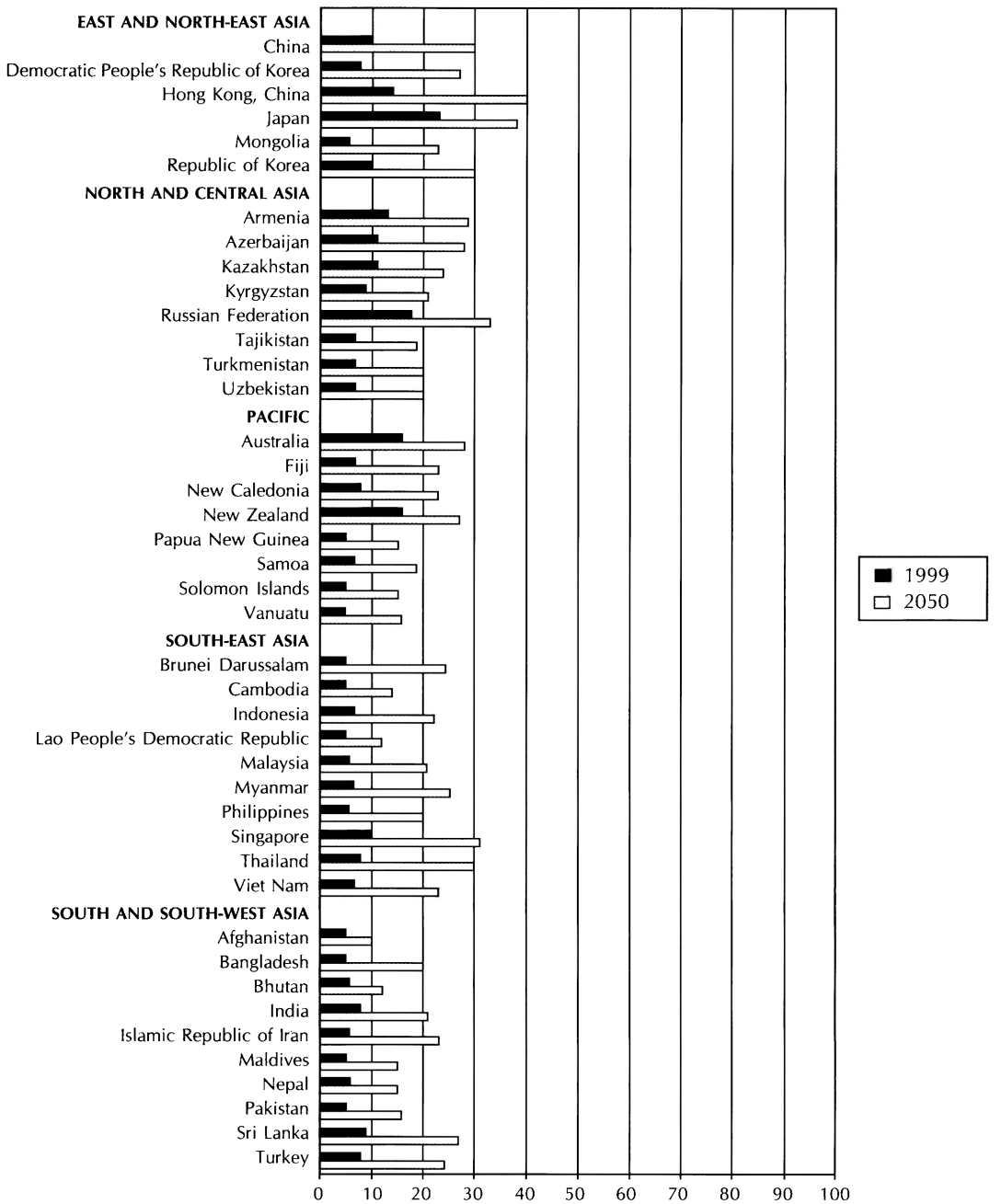
Figure I.2 *(continued)*



Source: United Nations, 1998. *World Population Prospects: Comprehensive Tables,* vol. I (United Nations publication, Sales No. 99.XIII.9).

The high ratio of workers to children during the bonus period translates to a high ratio of old-age dependants to workers during the post-bonus period. The effects of these changes can be seen in figure I.3. As the figure shows, Japan currently has the highest proportion of old people of any country in the ESCAP region, but many other countries will also have high proportions by the middle of this century.

Figure I.3. Percentage of population aged 60 and above in 1999 and projection for 2050: ESCAP region



Source: United Nations, 1999. *Population Ageing, 1999 (wall chart)* (United Nations publication, Sales No. E.99.XIII.11).

B. ECONOMY

The next two figures display estimates of the level and growth of incomes. Figure I.4 shows gross national product (GNP) per capita measured in international purchasing power parity (PPP) dollars. GNP is the sum of economic value added by households, domestically-owned firms (whether or not they are operating inside the country) and the Government.

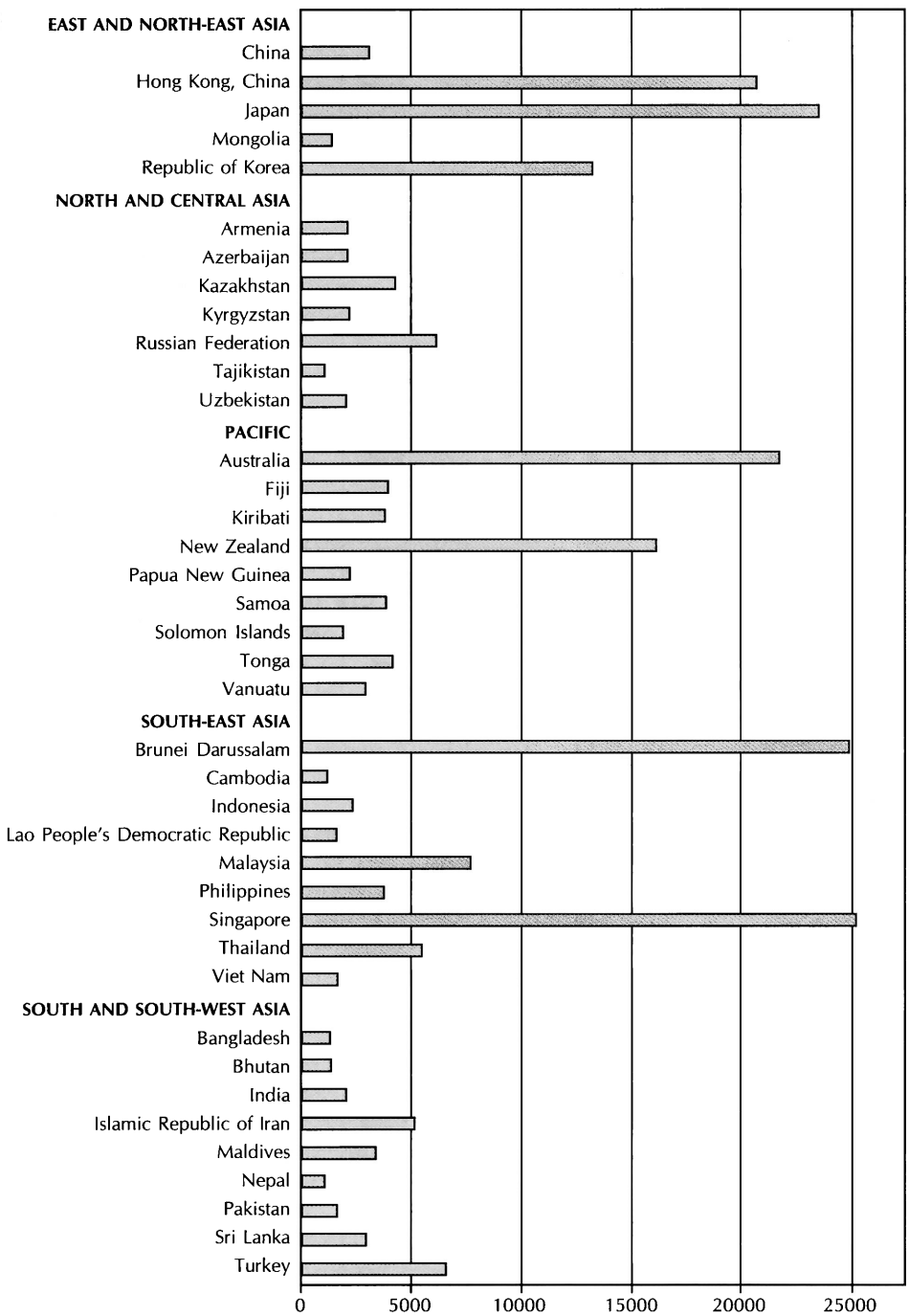
There is considerable debate among economists over whether and how they should measure domestic work, the "underground" economy and the depreciation of environmental capital in their GNP calculations. GNP per capita is a reasonable indicator of average incomes, but it is unwise to put much weight on small differences, especially when comparing developing countries. PPP comparisons control for price differences between countries, making international comparisons more meaningful.

Examination of figure I.5 shows that the differences in average income within subregions are much greater than the differences between subregions. Every subregion contains at least one very poor country, and every subregion other than South and South-West Asia contains at least one very rich country.

Recent economic growth rates, shown in figure I.5, have varied dramatically across the ESCAP region. The economic contraction of 1990-1995 in the former socialist countries of North and Central Asia, and in Mongolia, was, according to official figures, disastrous. Specialists warn that the official figures overstate the real extent of the contraction, since socialist-era statistics exaggerated actual production, and post-socialist statistics miss many new businesses and the activities of the large underground economy (Shimomura 1996: 244). Nevertheless, it is clear that the economic crisis in the former socialist countries during the early 1990s was more severe than the crisis in East and South-East Asia in 1997-1998, despite the much greater attention which the world media paid to East and South-East Asia. South and South-West Asia failed to achieve the spectacular growth rates of some other ESCAP countries, but, with the exception of Pakistan, did manage to attain steady growth in per capita income over the 1990s.

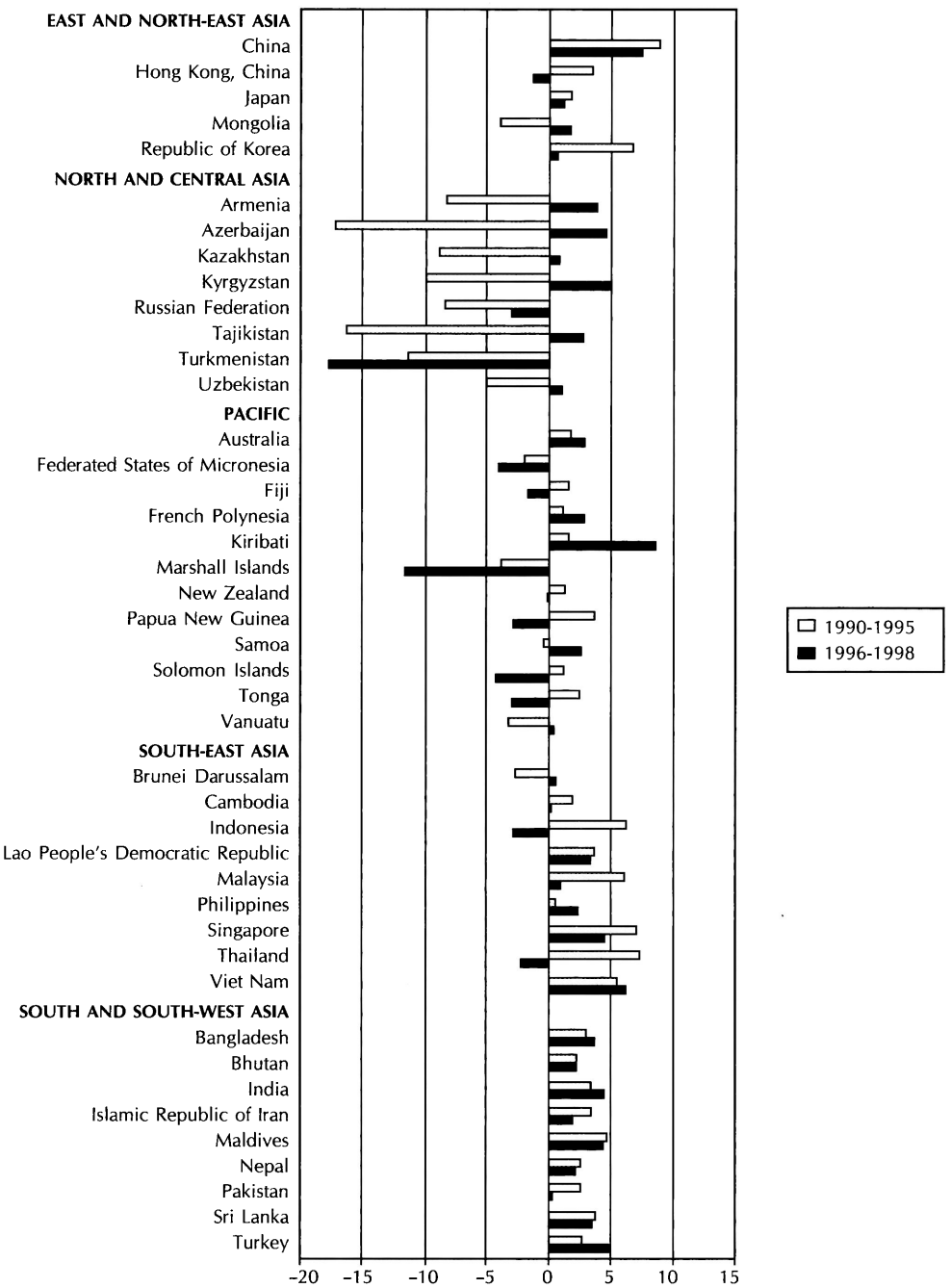
Figure I.4. Gross national product per capita, 1998

(International purchasing power parity dollars)



Source: World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC).

Figure I.5. Average annual growth in gross domestic product per capita, 1990-1995 and 1996-1998



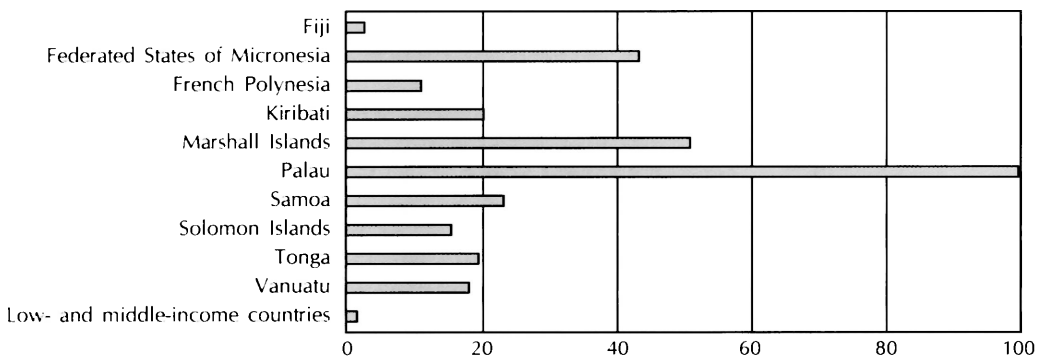
Source: World Bank, *World Bank Development Indicators 2000* (CD-ROM) (Washington DC).

Box I.1. The economies of the Pacific island developing countries and territories

The distinctive features of the Pacific island developing economies are their small populations and isolation. These two conditions virtually rule out the possibility of building diversified, industrialized economies. The only way these economies can obtain the full range of modern goods is by importing them. Indigenous industries, notably tourism, fishing and forestry, pay for part of the import costs and remittances and foreign aid pay for the rest. As box figure I.1 shows, the Pacific island developing economies receive remarkably high levels of foreign aid, measured as a percentage of GNP. The main exception to these generalizations is Fiji, which has a relatively large population (see table I.1) and a relatively diversified economy.

Heavy dependence on foreign markets and income flows leaves the islands vulnerable to external shock. High rates of population growth mean that even small declines in total GNP translate into large declines in GNP per capita. The Marshall Islands are a striking example. Reduced government spending, reduced foreign investment during the 1997-1998 crisis in Asia, and population growth of almost four per cent a year led to sharp declines in per capita incomes, as can be seen in figure I.5. The World Bank (1996) argues that the most promising medium-term economic strategy for the Pacific island developing economies is to improve the management of their fishing and forestry resources and build up their tourist industries.

Box figure I.1. Foreign aid as a percentage of gross national product in the Pacific islands, 1993-1998



Source: World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC).

Note: *"Low- and middle-income" are World Bank categories. The figure shown is the average for all such countries.*

Sources: Central Intelligence Agency, *CIA World Factbook*. Available online at <www.odci.gov/cia/publications/factbook/> (29 August 2001).

World Bank, 1996. *Pacific Island Economies: Building a Resilient Economic Base for the Twenty-first Century* (Washington DC).

Health II

The first section of this chapter looks at the cost of health systems and how countries share these costs across their populations. The second section examines two indicators of coverage by public health services. The third section looks at health system attainment, as measured by life expectancy and malnutrition rates. Many of the indicators used in this chapter have been developed very recently by the World Health Organization (WHO) and were presented for the first time in *World Health Report 2000.*

A. COSTS AND FINANCING

Measuring the cost of a health system is difficult and contentious. Should sanitation and pollution abatement, for example, be included? WHO has been encouraging countries to set up "national health accounts", which measure costs using a standard set of definitions and procedures. WHO includes within the health system all activities for which the primary justification is the promotion of health. This definition puts both hospitals and sanitation systems within the health system, but puts general education outside it: although general education contributes to good health, this is not its primary justification. The favoured method for attributing costs of WHO is to look at expenditures. Expenditures are divided into two types: "public" expenditures incurred by government entities, whether central or local, and "private" expenditures incurred by individuals, firms, or any other non-governmental entity. A payment from an individual to a public hospital, for example, is counted as private expenditure: it is the nature of the payer, not the recipient, which decides the issue (Poullier and Hernández 1997).

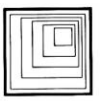
The input data used to calculate national health accounts are obtained from administrative systems and household surveys. Some countries do not adhere strictly to WHO procedures and collection systems are often flawed. The reliability of individual estimates therefore varies. WHO statisticians have divided the estimates shown in figure II.1 into three levels of reliability, ranging from (a) the most reliable, to (c) the least reliable. The notes to figure II.1 give more details.

Figure II.1 indicates that many low- and middle-income countries in the ESCAP region spend relatively large proportions of their gross domestic product (GDP) on health. Most of these high spenders are Pacific island developing economies. Aside from Tonga, the main source of health expenditure in these countries is the Government. Pacific island Governments have supported this high expenditure through high levels of foreign aid (see Box I.1).

The data relating to Armenia, Cambodia, Maldives, and Tajikistan, the other apparent examples of poor countries with high spending in proportional terms, are harder to explain. The quality of the data in all four cases is only moderate, so it is possible that the unusual results reflect nothing more than measurement errors. Singapore represents the opposite type of exception: it is a high-income country with relatively low spending on health. Part of the explanation may be that Singapore has fewer older persons than other rich countries such as Australia and Japan (see figure I.3) and, thus far, has not spent so much on expensive geriatric care.

Aside from these cases, there is a general tendency, evident in figure II.1, for high-income countries to spend larger proportions of their GDP on health care than low-income countries. China, India and Indonesia, the three largest low-income countries, spend significantly less than Australia, Japan and the Republic of Korea, the three largest high-income countries. If expenditure were expressed in dollars rather than as a proportion of GDP the differences would be far greater because of the large differences in GDP.

In North and Central Asia, after the transition from planned to market economies, Governments have retained the responsibility for most health spending. This is not, however, true for the two market socialist countries of China and Viet Nam. Furthermore, in South-East, South and South-West Asia, most health spending comes from private sources.



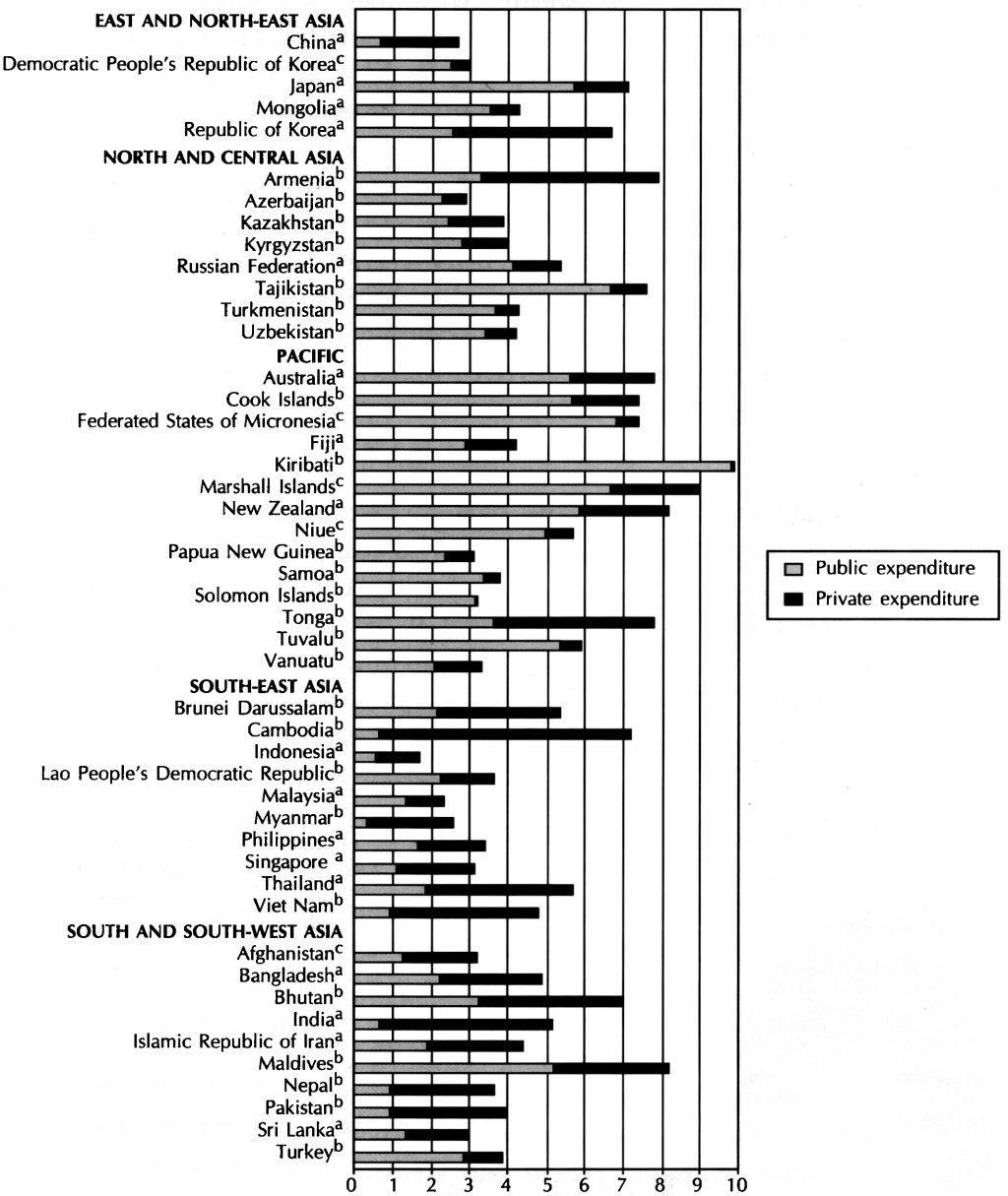
Do countries where the Government takes on a higher proportion of total health expenditure tend to have a fairer distribution of health spending across households? Answering this question requires some way of measuring fairness. WHO defines a fair contributions system as one in which all households, rich or poor, healthy or ill, devote the same proportion of their non-food expenditures to health care. WHO has developed an index to measure adherence to this norm. A score of 1 means perfect equality, and a score of 0 means extreme inequality. WHO has used data from household surveys and from administrative sources such as insurance and social security records to calculate the index directly for a sample of 21 countries. WHO researchers then looked for factors which were correlated with fairness of financial contributions, and used these correlates to estimate fairness in the rest of the world (Murray and others 2000).

Results from WHO calculations are shown in figure II.2. The horizontal lines on the right-hand side of the bars represent the "uncertainty intervals" for the estimates. The statisticians who compiled the estimates consider that there is an 80 per cent chance that the true level lies within the interval shown a 10 per cent chance that it lies to the right of the interval, and a 10 per cent chance that it lies to the left of the interval. The WHO uncertainty intervals are roughly analogous to confidence intervals in statistical inference. In both cases, estimates with wide intervals are less reliable than estimates with narrow intervals.

China, Myanmar, Nepal and Viet Nam all have unusually low scores for fairness, even if the true levels for China and Myanmar are near the right-hand side of their uncertainty intervals. Figure II.1 indicates that these four countries have low public contributions to health spending. Aside from these four, however, the relationship between public-private mix and the fairness of health spending among ESCAP countries is weak. The Pacific island developing countries, in which public outweighs private spending, score very high. However, Pakistan, the Republic of Korea and Sri Lanka, in which private outweighs public spending, score almost as high. North and Central Asia, where public outweighs private spending, do not do any better than South-East Asia, where private outweighs public spending.

Countries in the ESCAP region have achieved impressive levels of fairness with both public and private payment mechanisms. The fairness of a health financing system seems to depend very little on the public-private mix. What counts is the proportion of the population covered by some kind of risk-pooling.

Figure II.1. Health expenditure as a percentage of gross domestic product, 1997



Source: Calculated from World Health Organization, 2000. *World Health Report 2000: Health Systems: Improving Performance* (Geneva, 2000), annex table 8.

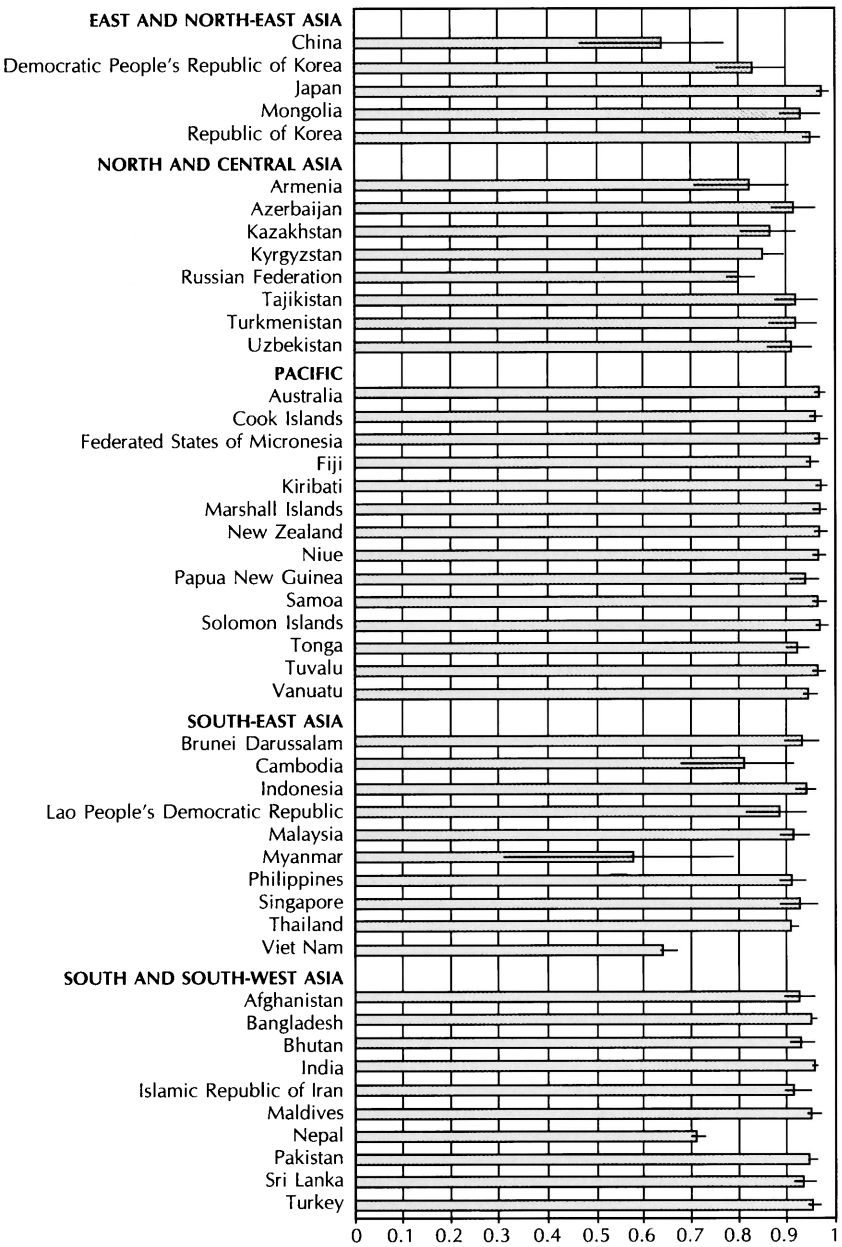
Note: "Public expenditure" includes all spending by government agencies; "private expenditure" includes all spending by households, firms and other non-governmental entities.

[a] According to the World Health Organization, the calculations are based on "complete data with high reliability".

[b] Calculations based on "incomplete data with high to medium reliability".

[c] Calculations based on "incomplete data with low reliability".

Figure II.2. World Health Organization index of fairness of financial contributions, 1997



Source: World Health Organization, 2000. *World Health Report 2000: Health Systems: Improving Performance* (Geneva, 2000), annex table 7.

Note: The horizontal lines at the ends of the bars show the "uncertainty interval" of each estimate. Statisticians at WHO consider that there is an 80 per cent probability that the true figure lies within the interval, a 10 per cent probability that it lies to the right of the interval and a 10 per cent probability that it lies to the left of the interval.

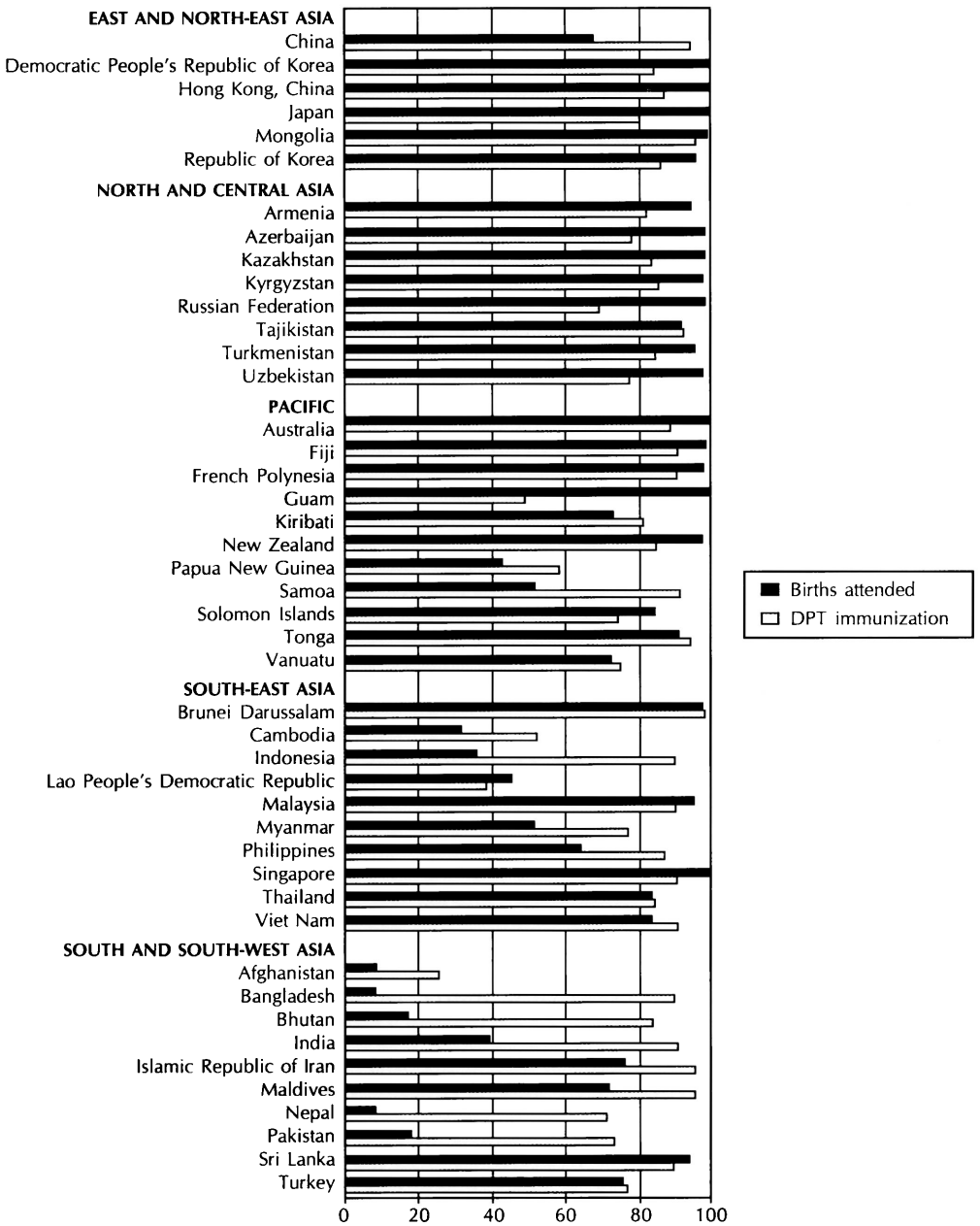
B. COVERAGE BY THE FORMAL HEALTH SYSTEM

The previous section looked at inputs into the health system. This section looks at outputs, as represented by the two coverage measures shown in figure II.3. The first measure is the proportion of births attended by trained health personnel. The second is the proportion of children receiving immunization against three childhood diseases, diphtheria, pertussis and tetanus (DPT). Immunization schedules vary, but children usually receive about three doses. Data for both estimates come mainly from national reporting systems. The accuracy of these systems varies. Health workers often exaggerate the number of births they have attended and vaccinations they have delivered, which imparts an upward bias to the national figures. Definitions of "trained health worker" vary among countries.

A few data patterns are, however, sufficiently pronounced and sufficiently plausible to warrant attention. In general, the higher a country's income, the higher the percentage of births attended by trained health workers. This pattern is not surprising. Building up a comprehensive system of maternal and child health workers is expensive. Richer countries also have better roads and are more urbanized, which makes it easier for health workers and pregnant women to reach each other. The link between coverage and wealth should not, however, be overstated. Socialist and former socialist countries have higher attendance rates than non-socialist countries at similar income levels. Sri Lanka also does much better than would be expected on income alone.

The link between incomes and coverage is weaker with DPT immunization. Although all of the countries with low immunization rates are low-income countries, many of these countries have achieved rates similar to those of high-income countries. One lesson seems to be that national immunization campaigns can achieve good results even in the lowest-income countries. Countries with low immunization rates would benefit from making the improvement of these rates a national priority, as childhood immunization is one of the most cost-effective ways of improving the health of a population (World Bank 1993).

Figure II.3. Percentage of births attended by skilled health worker (average of available figures 1990-1998) and percentage of children receiving DPT (diphtheria-tetanus-pertussis) immunization (average of available figures 1990-1997)



Source: World Bank, *World Development Indicators 2000* (CD-ROM]) (Washington DC, 2000).

Note: The abbreviation DPT refers to diphtheria, pertussis and tetanus.

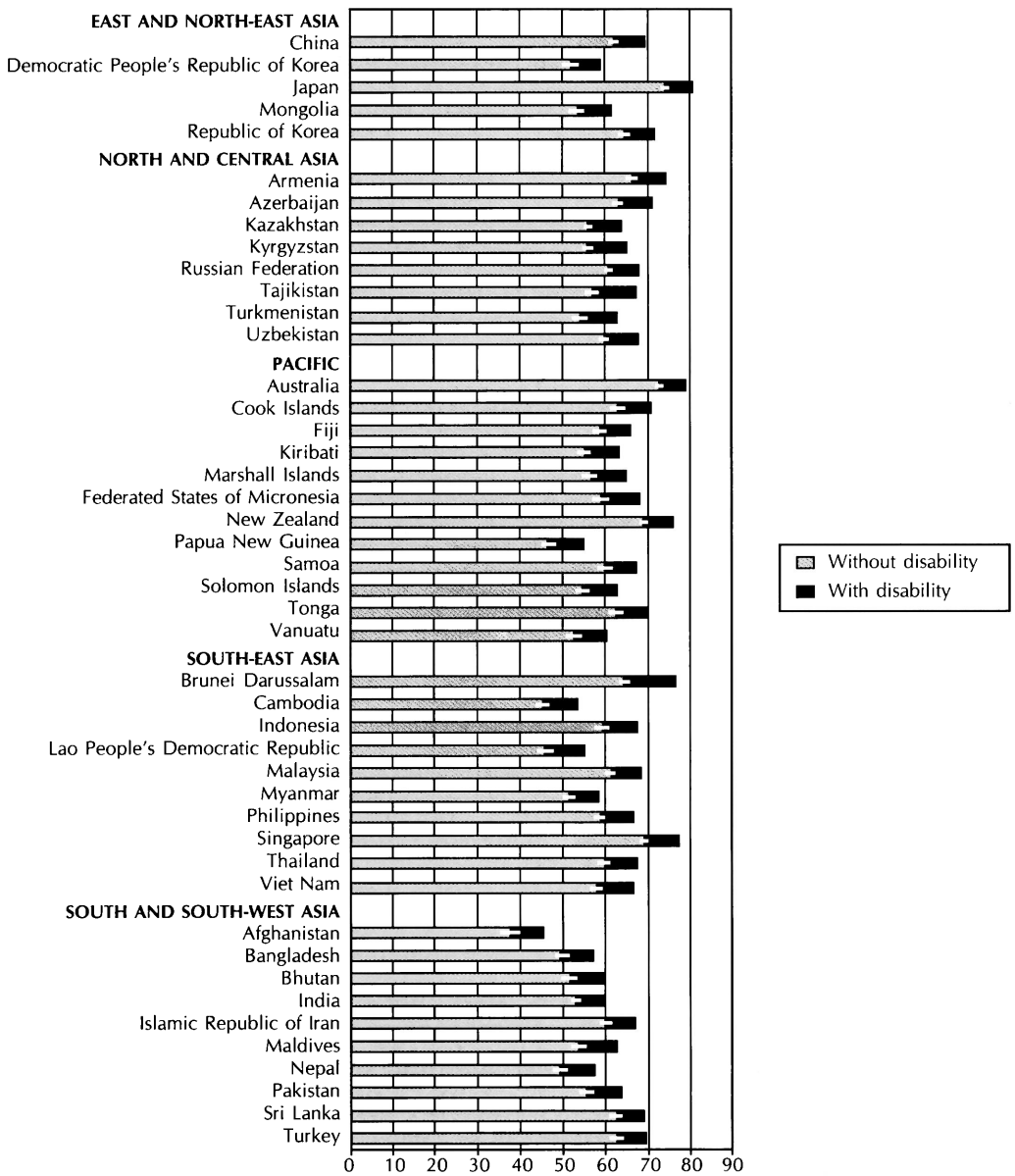
C. HEALTH ATTAINMENT

Turning from outputs to outcomes, figure II.4 shows life expectancy at birth. The estimates are for males and females combined. Total years lived have been divided into years with and without disability, using estimates of each country's "disability-adjusted life expectancy", another new indicator introduced by WHO. The input data are derived from a range of sources, including censuses, cause-of-death statistics and epidemiological studies. These data have been adjusted by WHO to correct for problems such as wrongful classification and under-reporting. Medical conditions have been rated by an international panel of health workers according to the extent of disablement they cause. Conditions that are not completely disabling add partly to years without disability and partly to years with disability. For instance, conditions such as unipolar major depression, blindness and paraplegia add 0.3 to 0.5 years with disability and 0.5 to 0.7 years without disability (Harvard School of Public Health 2000). The horizontal white lines in figure II.4 show the uncertainty intervals for disability-free life expectancy.

Life expectancies in the ESCAP region range from slightly over 80 years in Japan, to the mid-40s in Afghanistan. Even Afghanistan's life expectancy is an improvement over the situation 100 years ago, when most of the world's population had an expectancy of only 20 to 30 years. National variation in life expectancy is far less than variation in income (figure I.4).

Scientists have debated for many years whether morbidity (the prevalence of illness and disability) goes up, down, or remains stable when mortality falls. The main reason for believing that morbidity would go down is that morbidity and mortality share many of the same causes. The main reason for believing morbidity would go up is that high mortality removes many sick people from the population. The new WHO life expectancy estimates are a major step towards resolving the debate. In the ESCAP region, as in the rest of the world (WHO 2000: 28), the number of years lived with disability seems to remain roughly the same as the number of years without disability increases. This means that the proportion of people's lives spent in a state of illness or disability falls. Morbidity, in other words, goes down.

Figure II.4. Life expectancy at birth, divided into years without disability and years with disability, 1999



Source: Calculated from World Health Organization, 2000. *World Health Report 2000: Health Systems: Improving Performance* (Geneva, 2000), annex table 5.

Note: The horizontal white lines at end of the "without disability" portion of the bars show the "uncertainty interval" for disability-free life expectancy. Statisticians at WHO consider that there is an 80 per cent probability that the true amount lies within the interval, a 10 per cent probability that the true amount lies to the right of the interval, and a 10 per cent probability that it lies to the left of the interval.

The five highest life expectancies belong to the five highest-income countries, all of which are shown in Figure II.3 to have achieved good coverage rates for health services. Similarly, the lowest-income countries and those with the lowest coverage rates have the lowest life expectancies. Some results are, however, surprising. The Pacific island developing countries and territories do not perform nearly as well as would be expected from their high health expenditures and coverage rates. China, Sri Lanka and Viet Nam do well for their income levels.

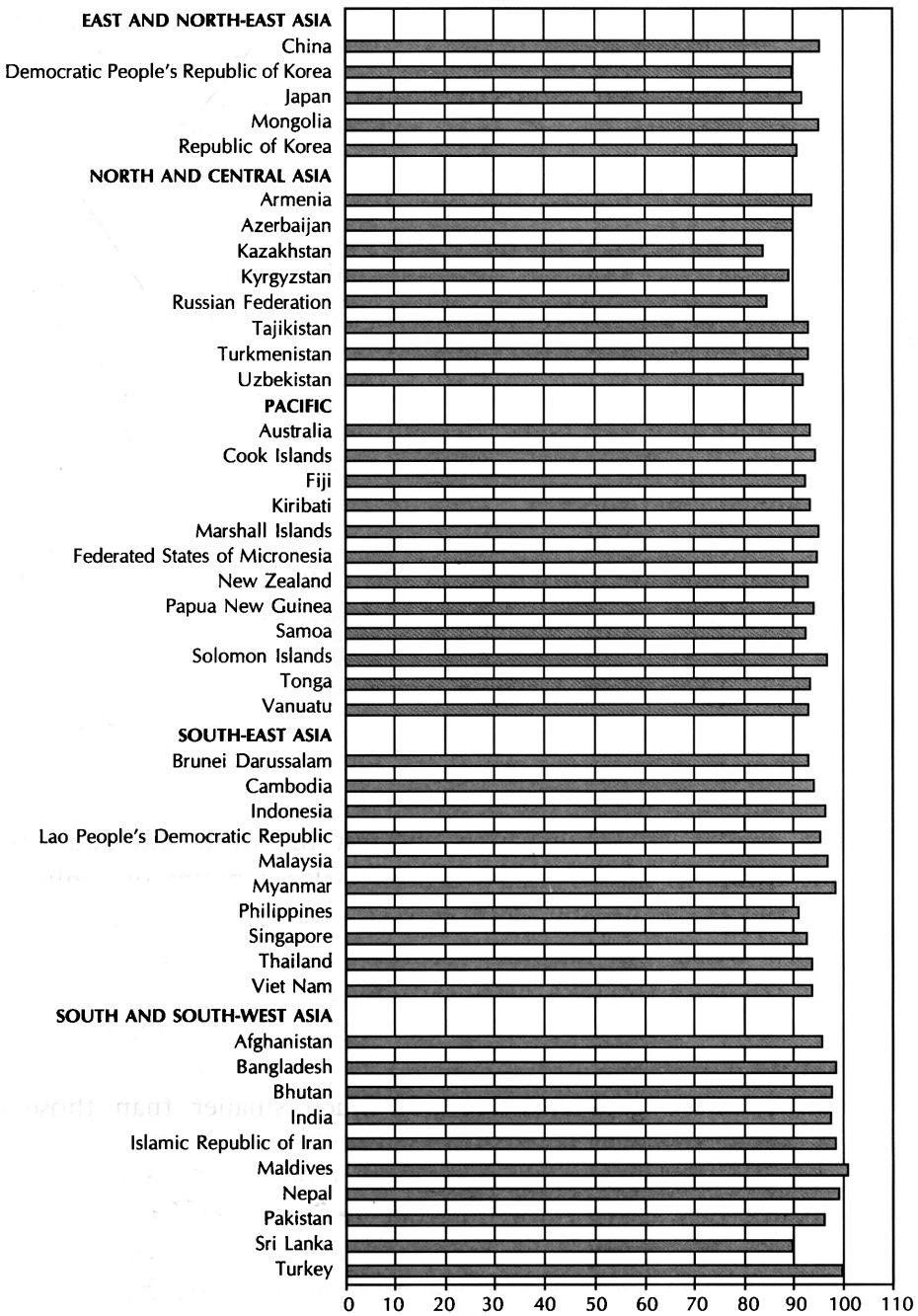
Statistical analyses that compare inputs such as expenditure with outcomes such as life expectancy, while controlling for external influences such as income and education provide some indication of the efficiency of a country's health system. WHO has attempted this sort of analysis in its *World Health Report 2000*, and has ranked countries according to the efficiency of their health systems (WHO 2000: annex table 10).

The difficulty with these types of analysis is that they do not control for important external influences such as differences in diet and age structure, even although these are known to affect health expenditures and outcomes. Until workable solutions to difficulties of this type are found, the ranking exercises may mislead more than enlighten.

Women generally live longer than men. Figure II.5 shows the extent to which this is true in the ESCAP region. The results are as expected, with men in most countries living only 90 to 95 per cent as long as women. The gap is smallest in South and South-West Asia, aside from Sri Lanka. This subregion also contains the only country in this region, the Maldives, where males seem to outlive females. Many writers have pointed to the connection between the small mortality gap of South Asia and its patriarchal social structure. WHO statistics, however, indicate that mortality patterns in South Asia are less distinctive than is commonly supposed. Quite a few other ESCAP countries have gaps that are not much smaller than those of South Asia. Among such countries are those that are not usually regarded as particularly patriarchal. The large gender gap in the Russian Federation reflects a serious deterioration in the health of adult men.

A second kind of health inequality relates to differences between the mortality risks of households. Studies of mortality differentials invariably find that members of poorer and less educated households have higher mortality risks. Figure II.6 presents results from the WHO index measuring the extent to which child survival probabilities

Figure II.5. Male life expectancy as a percentage of female life expectancy



Source: Calculated from World Health Organization, 2000. *World Health Report 2000: Health Systems: Improving Performance* (Geneva, 2000), annex table 5.

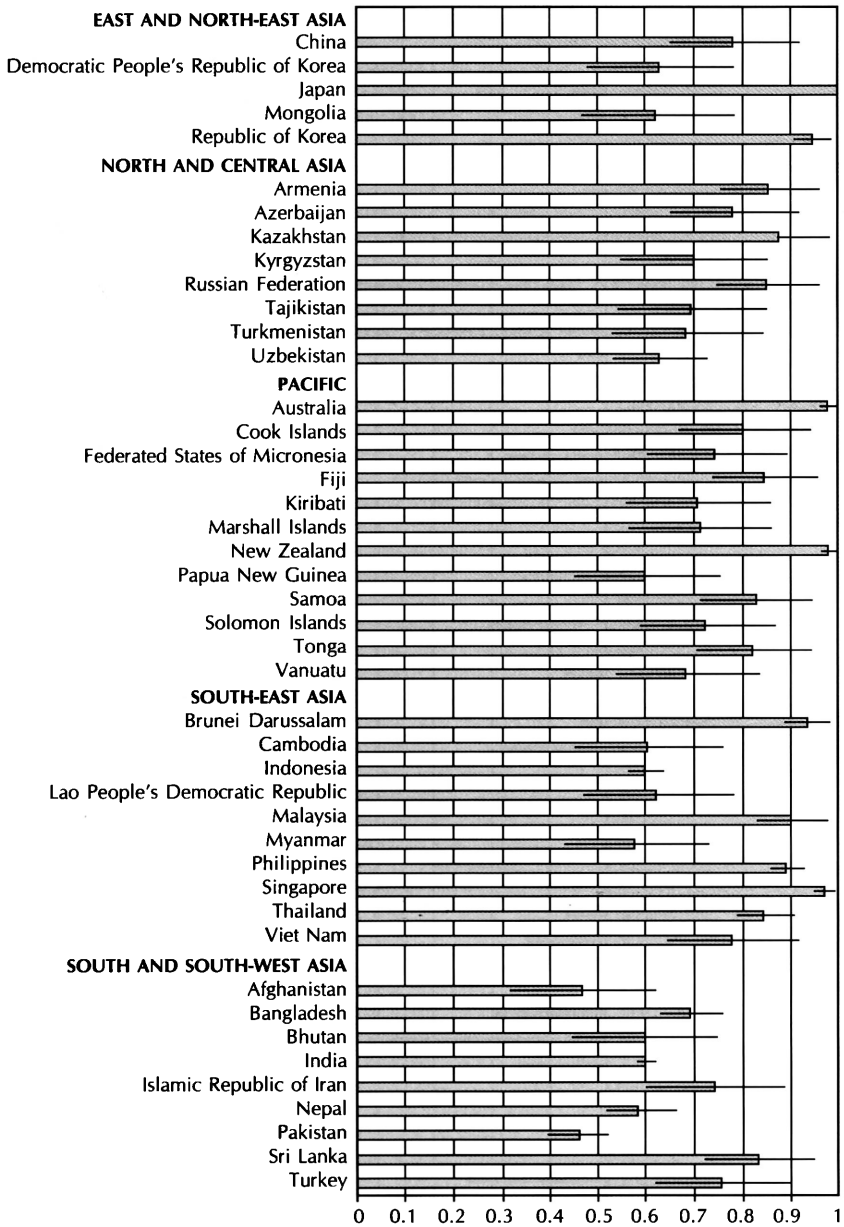
vary among mothers. A value of 1 signifies perfect equality, and a value of 0 signifies extreme inequality. Wherever possible, data used to calculate the index have been taken from demographic and health surveys and from vital registration systems (the official systems for registering births and deaths). For some countries, however, the index has been estimated indirectly, using covariates of inequality such as poverty and education (Gakidou, Murray and Frenk 2000).

Comparison of figures II.4 and II.6 shows that countries with low mortality have high equality, and countries with high mortality have low equality. This is not surprising. Given that each successive increment in mortality reduction is harder to achieve, countries obtain the maximum mortality reduction for a given amount of effort by spreading this effort across all social groups. One intriguing result is that China and Viet Nam, the two market socialist countries with low scores on equality of financial contributions, score reasonably well on equality of child survival.

The final indicator considered in this chapter is the proportion of babies with low birth weights. A baby is defined as having a low birth weight if it weighs less than 2,500 grams when measured within a few hours of its birth. The most common cause of low birth weight in developing countries is that the mother was chronically undernourished, and therefore smaller than normal, or because the mother obtained insufficient nutrition during pregnancy. There is increasing evidence that low birth weight contributes strongly towards ill health and poor school results later in life (United Nations ACC/SCN 2000: 2, 44). Weighing of newborns is usually only carried out at hospitals and estimates are usually based on hospital records. In countries where significant numbers of births take place outside hospitals, babies born in hospitals may not be representative of the whole population, which biases the estimate.

The latest available data are for various dates between 1990 and 1996. Figure II.7 shows the average of the reported estimates. Some of the estimates vary sharply for different years: the Lao People's Democratic Republic, for example, is reported as having rates of 60 per cent in 1991 and 1994, and 18 per cent in 1994. The data must obviously be interpreted with caution. They do, nevertheless, suggest that a number of low-income countries in the ESCAP region have worryingly high rates of malnutrition. Figure II.7 also confirms the well-known fact that malnutrition is particularly prevalent in South Asia.

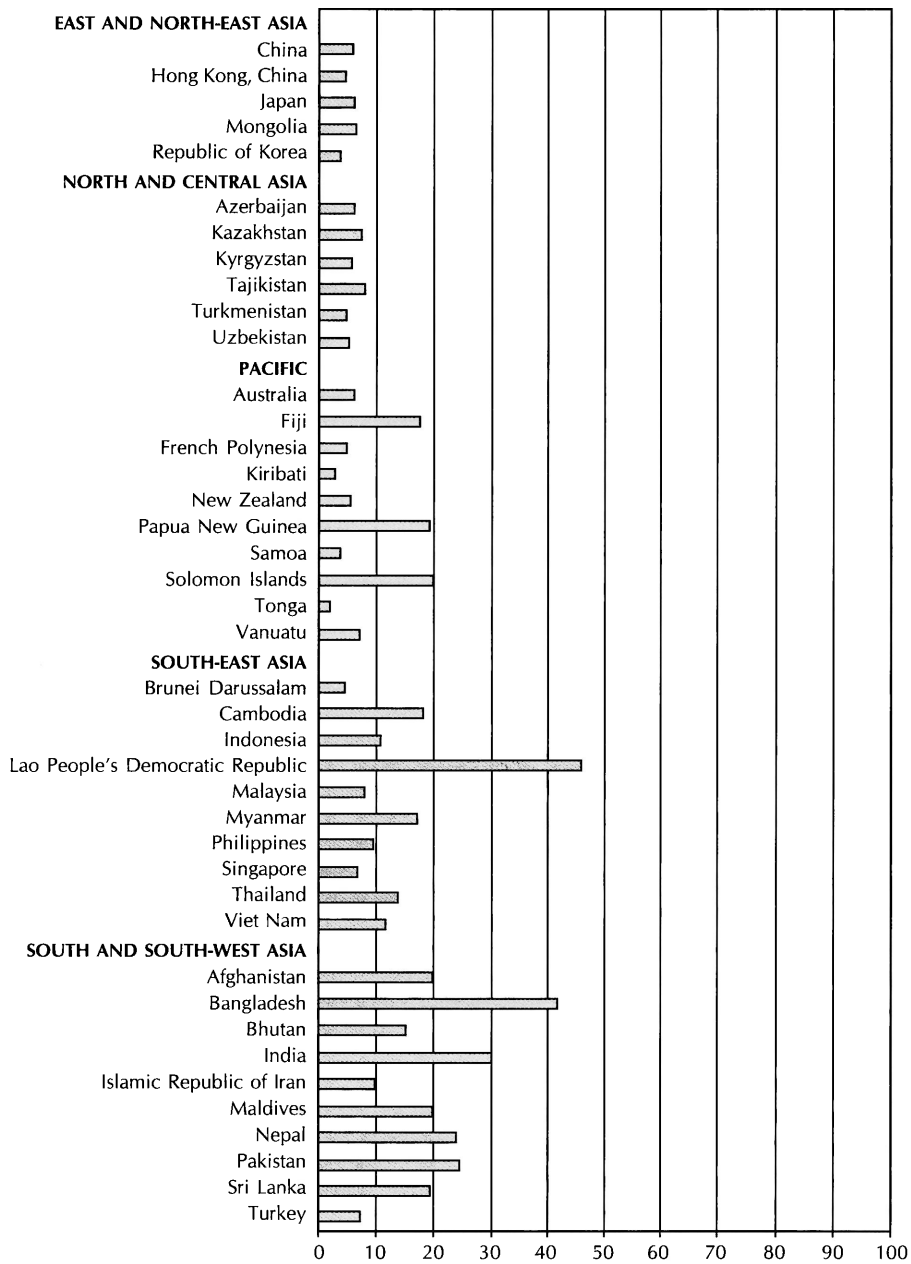
Figure II.6. World Health Organization index of equality of child survival, 1997



Source: World Health Organization, 2000. *World Health Report 2000: Health Systems: Improving Performance* (Geneva, 2000), annex table 5.

Note: The horizontal lines at the ends of the bars show the "uncertainty interval" for each estimate. Statisticians at WHO consider that there is an 80 per cent probability that the true amount lies within the interval, a 10 per cent probability that it lies to the right of the interval and a 10 per cent probability that it lies to the left of the interval.

Figure II.7. Percentage of babies having low birth weights (average of available figures 1990-1996)



Source: World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).

Note: A baby is defined as having a low birth weight if, measured within a few hours of birth, it weighs less than 2,500 grams.



Box II.1. Disability-adjusted life years

WHO has developed two main indicators to summarize data on disease burdens. Disability-adjusted life expectancies (DALE), which are described in the main text, are used to measure overall health attainment. Disability-adjusted life years (DALY), which are shown in Box table II.1, are used to summarize patterns of ill health and death. DALYs show the gap between actual population health and a chosen standard. In current WHO publications, the standard is 80 years of perfect health for males and 82.5 years of perfect health for females. The calculation of DALYs starts

Box table II.1. Percentage distribution of disability-adjusted life years (DALYs) in the Asian and Pacific region, 1999

	Overall mortality level		
	High	***Low***	***Very low***
Communicable diseases, maternal and perinatal conditions, and nutritional disorders	**47.5**	**24.3**	**6.2**
Infectious and parasitic diseases	24.1	9.3	2.0
Respiratory infections	9.9	1.4	2.6
Maternal conditions	2.0	0.7	0.1
Nutritional deficiencies	4.1	3.5	0.9
Non-communicable conditions	**37.5**	**56.3**	**82.9**
Malignant neoplasms (cancer)	3.8	9.2	18.9
Other neoplasms	0.1	0.1	0.5
Diabetes mellitus	0.9	0.9	2.0
Nutritional/endocrine disorders	0.1	0.9	1.3
Neuropsychiatric disorders	8.1	14.6	27.3
Sense organ disorders	1.3	1.1	0.2
Cardiovascular diseases	12.0	11.4	17.0
Respiratory diseases	3.5	10.6	4.9
Digestive diseases	2.8	3.3	2.9
Diseases of the genito-urinary system	1.2	1.3	1.2
Skin diseases	0.0	0.0	0.0
Musculoskeletal diseases	0.6	1.7	5.4
Congenital abnormalities	3.1	2.6	1.4
Oral diseases	0.3	0.3	0.5
Injuries	**15.0**	**19.4**	**10.9**
Unintentional	13.1	14.9	7.1
Intentional	1.9	4.5	3.8
Total	**100.0**	**100.0**	**100.0**

Source: Calculated from World Health Organization, 2000. *World Health Report 2000: Health Systems: Improving Performance* (Geneva, 2000), annex table 4.

Note: A DALY is a year of full health lost. See the text for details.

Box II.1 *(continued)*

with premature deaths. A man who dies at age 55, for instance, contributes 80-55=25 DALYs. This figure is then adjusted in a number of ways. If the man had a condition which was 25 per cent disabling for four years before his death, then one extra year is added, giving 26 DALYs. In line with social preferences, which WHO ascertained through an international study, years that are lost at very young ages and very old ages are counted at less than their full value. In the calculations shown, years that would have been lived a long time after the actual death are also given reduced weights, to reflect people's usual preference for receiving something sooner rather than later. DALYs are calculated from a wide variety of data sources, including censuses, surveys, cause-of-death statistics, and epidemiological studies. WHO has tried to correct for known biases in the data.

Patterns of disease and death vary sharply according to prevailing levels of mortality, so Box table II.1 gives separate results for each mortality level. The results have been calculated from data for WHO-defined regions, which do not coincide precisely with the membership of ESCAP. This is unlikely, however, to have a significant effect on the results.

Box table II.1 illustrates the process of epidemiological transition, whereby non-communicable conditions take over from communicable conditions as the main source of illness and death. This shift is due to a change in prevalence rates within each age group, and to a shift in the age structure away from young age-groups, which are disproportionately susceptible to infectious diseases, towards older age groups, which are disproportionately susceptible to non-communicable diseases. The epidemiological transition can occur quite rapidly. Ministries of Health need to be able to reorient themselves to respond to these changes.

A more surprising finding in Box table II.1 is the large contribution of neuropsychiatric disorders to the overall burden of illness and death. These disorders account for over one quarter of the total disease burden in populations with very low mortality, and a non-negligible 8 per cent in populations with high mortality. Mental illness is rendered invisible by standard mortality-based measures of health status.

DALY calculations also help draw attention to injuries and their contribution to disablement and premature death. A report on the DALY results (Harvard School of Public Health and WHO 2000) claims that, for men aged 15-44, the leading cause of death worldwide is traffic accidents. For women aged 15-44, the leading cause is tuberculosis, with the second most important cause being suicide.

Sources: Harvard School of Public Health and WHO, 2000. *How the World Dies Today.* Available online at <http://www.hsph.harvard.edu/organizations/bdu/gbdsum/gbdsum2.pdf> (29 August 2001).

Murray, Christopher J.L. and Alan D. Lopez, 2000. "Progress and directions in refining the global burden of disease approach: A response to Williams" *Health Economics* 9(1): 69-82. Available online at <http://www-nt.who.int/whosis/statistics/discussion_papers/pdf/paper01.pdf> (29 August 2001).



Box II.2. Confronting tobacco

Worldwide, 1.1 billion people smoke. The total will rise to 1.6 billion by the year 2025, if current trends continue. Half of all long-term smokers eventually die of smoking-related illnesses. These illnesses currently account for about 1 in 10 deaths worldwide, and are expected to account for about 1 in 6 deaths within 30 years. About 70 per cent of these deaths will occur in developing countries. Curbing the tobacco pandemic should clearly be a top priority for all Governments, including those in the ESCAP region.

A 1999 World Bank study of past experiences with tobacco control recommends that the ideal control policy should contain the following elements.

- Banning tobacco advertising and sponsorship
- Information campaigns, health warnings on cigarette packets and anti-tobacco advertising
- Raising tobacco taxes. Statistical research shows that increased taxes deter use, particularly among children and the poor. Revenue from tobacco taxes can be used for public health campaigns. Tobacco taxes are regressive, in that they are paid equally by rich and poor, but these effects can be offset by changes to other taxes and transfers
- Addiction treatment. Curing current smokers' nicotine addiction could substantially reduce the number of tobacco deaths over the coming years. People who want to give up smoking have trouble obtaining treatment in many countries. Nicotine replacement therapy has been shown to be effective and should be more widely offered

The study concluded that supply-side interventions such as crop substitution were unlikely to have much effect in the presence of continued strong demand for tobacco.

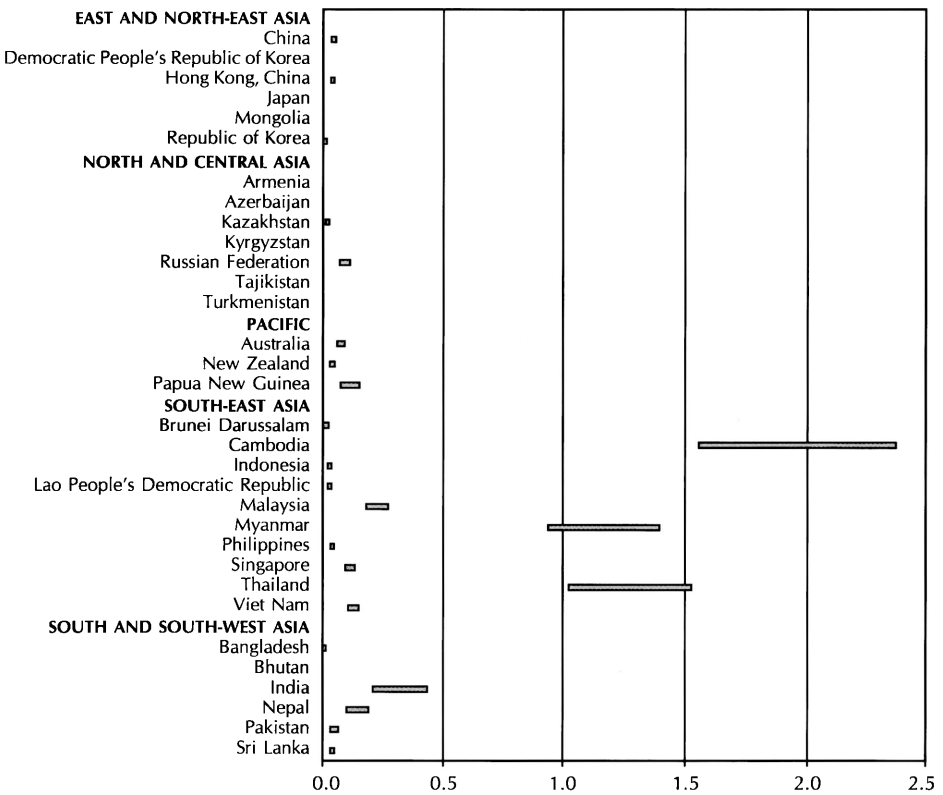
Sources: World Bank, 1999. *Tobacco Control Can Prevent Millions of Deaths Worldwide.* Press release available online at <http://www.worldbank.org/html/extdr/extme/2189.htm> (29 August 2001).

Prabhat, Jha, Joy de Beyer and Peter S. Heller, 1999. "Death and taxes: Economics of tobacco control", *Finance and Development.* 36(4). Available online at <http://www.imf.org/external/pubs/ft/fandd/1999/12/jha.htm> (29 August 2001).

Box II.3. The HIV/AIDS epidemic

The HIV/AIDS epidemic is a significant threat to population health in many ESCAP countries. Box figure II.1 shows recent prevalence estimates from the Joint United Nations Programme on HIV/AIDS (UNAIDS). The left edge of each bar shows the lower estimate and the right edge shows the upper estimate. Countries for which no bar is visible on the graph are considered by UNAIDS to have very low prevalence rates. Box figure II.1 gives prevalence rates for the whole population. If prevalence rates had been calculated for adults only, as is often done in the HIV/AIDS literature (for those aged 15-49), the rates would be higher. Furthermore, over 50 per cent of all new HIV infections (2.6 million) have occurred among young people.

Box figure II.1. Percentage of total population with HIV/AIDS (UNAIDS estimates for the end of 1999)



Source: Calculated from Joint United Nations Programme on HIV/AIDS (UNAIDS), 2000. *Report on the Global HIV/AIDS Epidemic.* (UNAIDS/00.13).

Note: The left edge of each bar shows the lower estimate of UNAIDS and the right edge shows its upper estimate. Countries for which no bar is visible are thought to have very low prevalence rates.



Box II.3 *(continued)*

HIV/AIDS surveillance systems in high-income countries are able to generate fairly reliable estimates, since people have themselves tested to obtain anti-retroviral drugs. In low-income countries where the HIV virus is spread mainly through heterosexual contact, data from routine testing of pregnant women can be fed into epidemiological models to give acceptable estimates. Calculation of prevalence rates is hardest in countries where HIV is concentrated among intravenous drug users, men who have sex with men and sex workers and their clients, because it is often difficult to obtain information about these groups.

Cambodia, Myanmar and Thailand stand out as having the highest prevalence rates in the ESCAP region. In Cambodia, the estimated number of adults and children living with HIV/AIDS as of end 1999 was 220,000; of these, 210,000 were adults aged 15 to 49, with an adult prevalence rate of 4.04 per cent. The comparative figures for Myanmar were 530,000 adults and children living with HIV/AIDS, of whom 510,000 were adults, with an adult prevalence rate of 1.99 per cent. Thailand had 755,000 adults and children living with HIV/AIDS. Of these, 740,000 were adults, with the adult prevalence rate being 2.15 per cent.

Countries with lower rates have no reason to be complacent, however. India, with an adult prevalence rate of 0.7 per cent, had 3.5 million adults estimated to be living with HIV/AIDS as of end 1999.

Prevalence can rise quickly if the epidemic spreads out of high-risk groups such as intravenous drug users and into the general population. There is always some mixing between different groups, so crossovers are always possible.

The United Nations aims to halt and begin to reverse, by 2015, the spread of HIV/AIDS (Millennium Declaration, September 2000). To achieve this, a number of policy lessons may be drawn from countries such as Australia, Thailand and Uganda which have been notably successful in slowing the spread of the disease.

Government leaders need to commit themselves to fighting the epidemic, acknowledging the existence of the epidemic clearly and openly and dedicating sufficient resources to public health measures. Education campaigns are needed to inform people about risks and prevention and to reduce stigma. Finally, politicians need to be willing to push through contentious but demonstrably effective measures such as sex education for all youth, the wide provision of condoms and needle exchange to reduce the risk of transmission through injecting drug use.

Sources: Caldwell, John C, 2000. "Rethinking the African AIDS epidemic", *Population and Development Review* 26(1).

Joint United Nations Programme on HIV/AIDS (UNAIDS), 2000. *Report on the Global HIV/AIDS Epidemic.*

(UNAIDS/00.13E). Available online at <http://www.unaids.org/epidemic_update/report/Epi_report.htm> (29 August 2001).

United Nations Millennium Declaration, 2000. Available online at <http://www.un.org/millennium/declaration/ares552e.htm> (29 August 2001).

Education III

This chapter follows the same overall structure as the previous one, proceeding from inputs (expenditure) to outputs (enrolment) and outcomes (literacy).

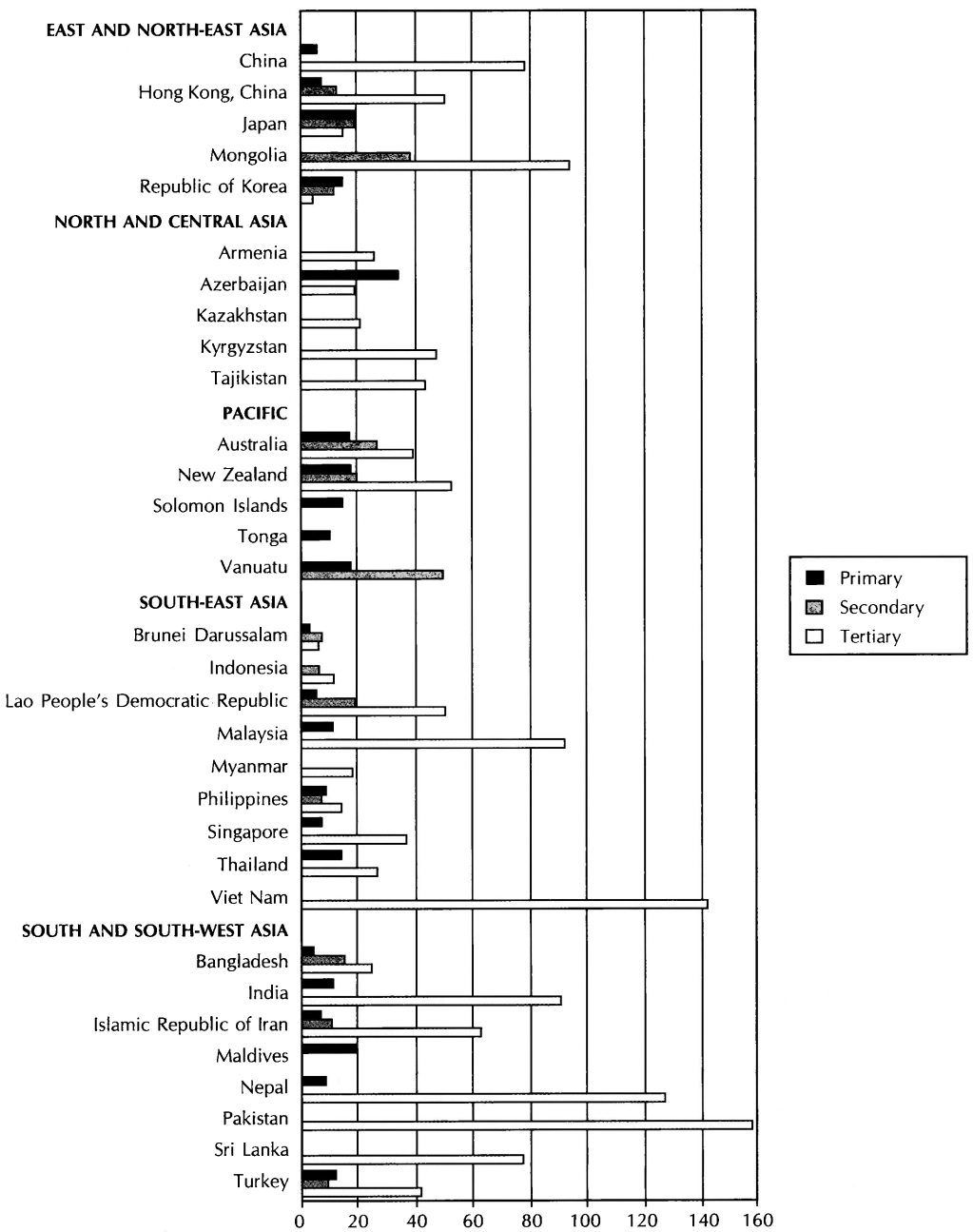
A. EXPENDITURE

The World Bank (2000: 73) estimates that about 25 per cent of education expenditure in developing countries comes from private sources. The equivalent figure for developed countries is 12 per cent. Percentages vary between countries: Uganda, for instance, derives almost 60 per cent of its total education expenditure from private sources (World Bank 2000: figure 2.9). A full analysis of education expenditures needs to consider both public and private sources. Regrettably, internationally comparable data on private expenditures do not exist. This report will therefore look only at public expenditures.

Figure III.1 shows average public expenditure per student at the primary, secondary, and tertiary levels. Expenditures are expressed as a proportion of GNP per capita. The figure shows, for example, that China's public expenditure per primary school student is equivalent to about 6 per cent of its GNP per capita. Estimates of GNP per capita are given in chapter I, figure I.4.

The most striking feature of figure III.1 is the large public expenditure on tertiary education in some countries. Few of the countries spending heavily on tertiary education have the data to make direct comparisons with spending on primary and secondary education. As figure III.1

Figure III.1. Expenditure per student as a percentage of gross national product per capita (average 1990-1996)



Source: Calculated from World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).



shows, however, none of these countries spends particularly large amounts overall, indicating that spending at lower levels may be fairly small. Mongolia may be an exception.

Figure III.1 indicates that the allocation of public expenditure in Japan, the Philippines and the Republic of Korea follows a different pattern: public spending at tertiary levels is not much higher, or is in fact lower, than spending at primary and secondary levels. In the absence of quantitative information about private expenditures, it is impossible to say precisely how much variation in public expenditure on tertiary education is due to variation in total expenditure and how much is due to variation in the public-private mix. It is nevertheless clear that the public share is greater in countries such as Pakistan and Viet Nam than it is in countries such as Japan and the Republic of Korea.

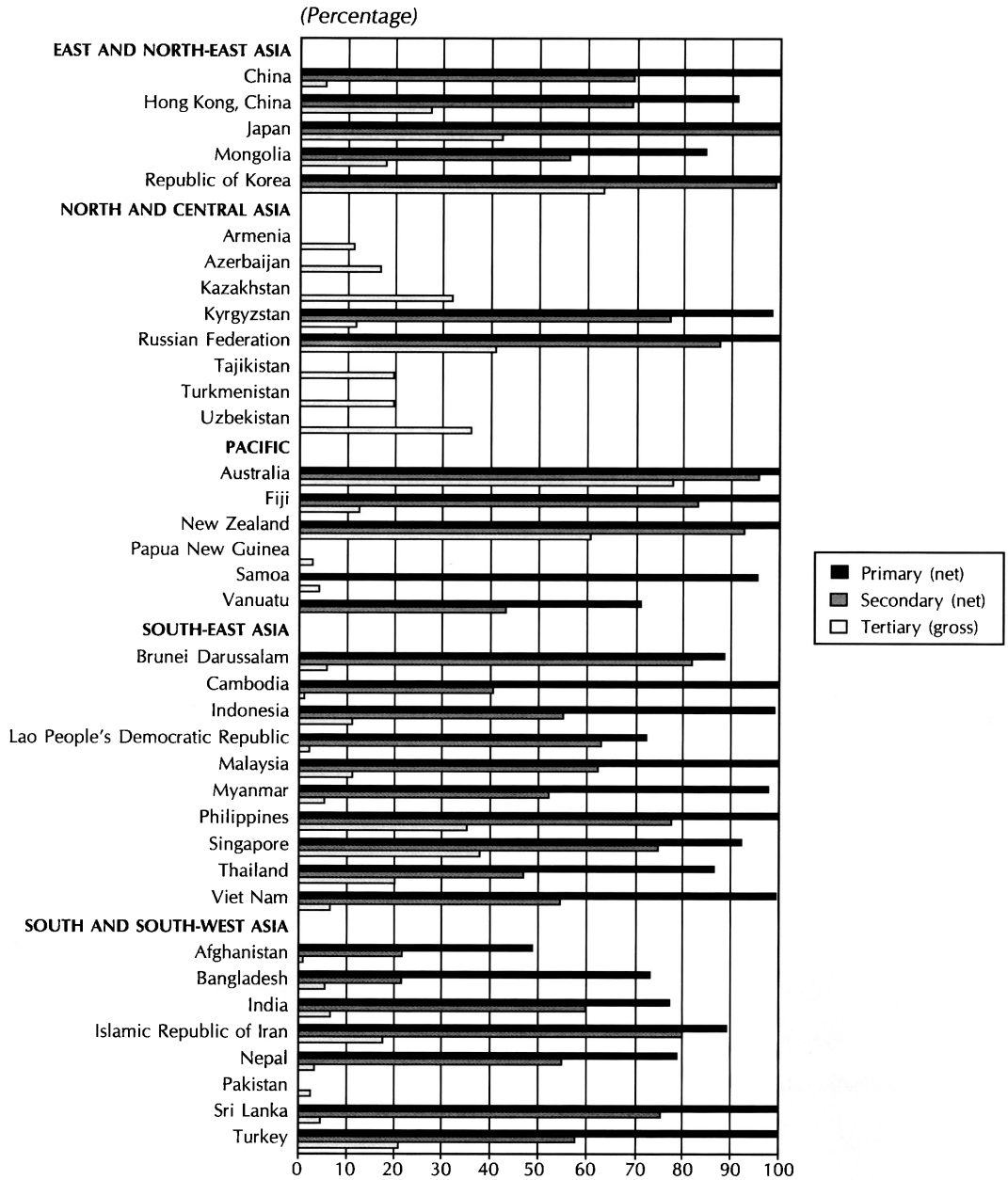
What proportion of tertiary education costs should the Government pay? Should it be the dominant source of tertiary education funds, as is usually the case for primary and secondary education? One way to try to answer these questions is to use the economists' yardsticks of efficiency and equity.

Efficiency arguments for government subsidy usually rely on the existence of spillover benefits, such as an enhanced ability to provide health care to others, which are not captured by the individual. Most studies find substantial spillovers for primary and secondary education, but not for tertiary education. Heavy subsidies of tertiary education are even harder to justify on equity grounds, since tertiary students are disproportionately drawn from richer groups, particularly in developing countries (Birdsall and James 1993).

Economists sometimes ask why heavy subsidization of tertiary education is so common, given that it is hard to justify from the principles of welfare economics. The usual explanation is that members of the elite, who benefit most from public subsidies, use their influence to establish and defend the subsidies (Birdsall and James 1993).

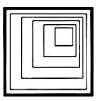
If these arguments are accepted, then countries with substantial public subsidization of tertiary education might be wise to look for ways to pass on a greater proportion of the costs of tertiary education to affluent tertiary students and their families. The case for doing so would be particularly strong if public money could be redirected towards primary education, since many countries which provide large subsidies to tertiary education have yet to achieve universal primary education (see figures III.2 and III.3).

Figure III.2. Net enrolment ratios for primary and secondary education, and gross enrolment ratios for tertiary education (average of available figures 1993-1997)



Source: Calculated from World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).

Note: The net enrolment ratio equals the number of people attending school at the official school ages divided by the number of people at the official school ages. The gross enrolment ratio equals the number of people attending school regardless of age divided by the number of people at the official school ages.



B. ENROLMENT

In 1990, delegates at the World Conference on Education for all, held in Jomtien, Thailand, set a goal of universal primary education by the year 2000. However, it may be several years before it is clear how many countries have attained this goal. There is a new impetus to ensure that, by 2015, children everywhere will be able to complete a full course of primary schooling, and that girls and boys have equal access to all levels of education (United Nations Millennium Declaration, September 2000).

Statistics on enrolment are intrinsically difficult to collect. Children begin their education at different ages. They repeat or skip years, enrol but do not attend, or change schools. A Ministry of Education that wants to construct accurate and meaningful measures of this activity needs to keep very detailed records and carry out some difficult calculations. Few ministries in low-income countries have the capacity to do this.

To make matters worse, the practice of allocating budgets according to enrolment figures sometimes tempts schools to overstate actual enrolment figures. It is no surprise that detailed investigations of country enrolment statistics often turn up strange inconsistencies. Cross-country comparisons suffer from additional problems: school ages differ; statistical coverage of private or religious schools is uneven; some countries include adult education courses or vocational training, while others do not.

The statistic most commonly used for international comparisons of enrolment levels is the net enrolment ratio. This is defined as the number of children attending school who are at the official school ages, divided by the number of children within the official school age group. The requirement that the children attending school are at the official school ages is a rough but practical method of reducing misleadingly high ratios caused by grade repetition and by older students returning to school. A primary school net enrolment rate of about 100 per cent suggests that universal primary education has been achieved, although only if the underlying data are sound.

The enrolment data in figure III.2 should be treated with caution. For example, contrary to expectation, an educational star in mathematics and science study such as Singapore (see box III.4) has failed to attain universal primary enrolment. One safe generalization about

cross-country patterns in primary school enrolment is that South Asian countries tend to have lower enrolment rates than elsewhere and low-income countries tend to have lower enrolment than high-income ones.

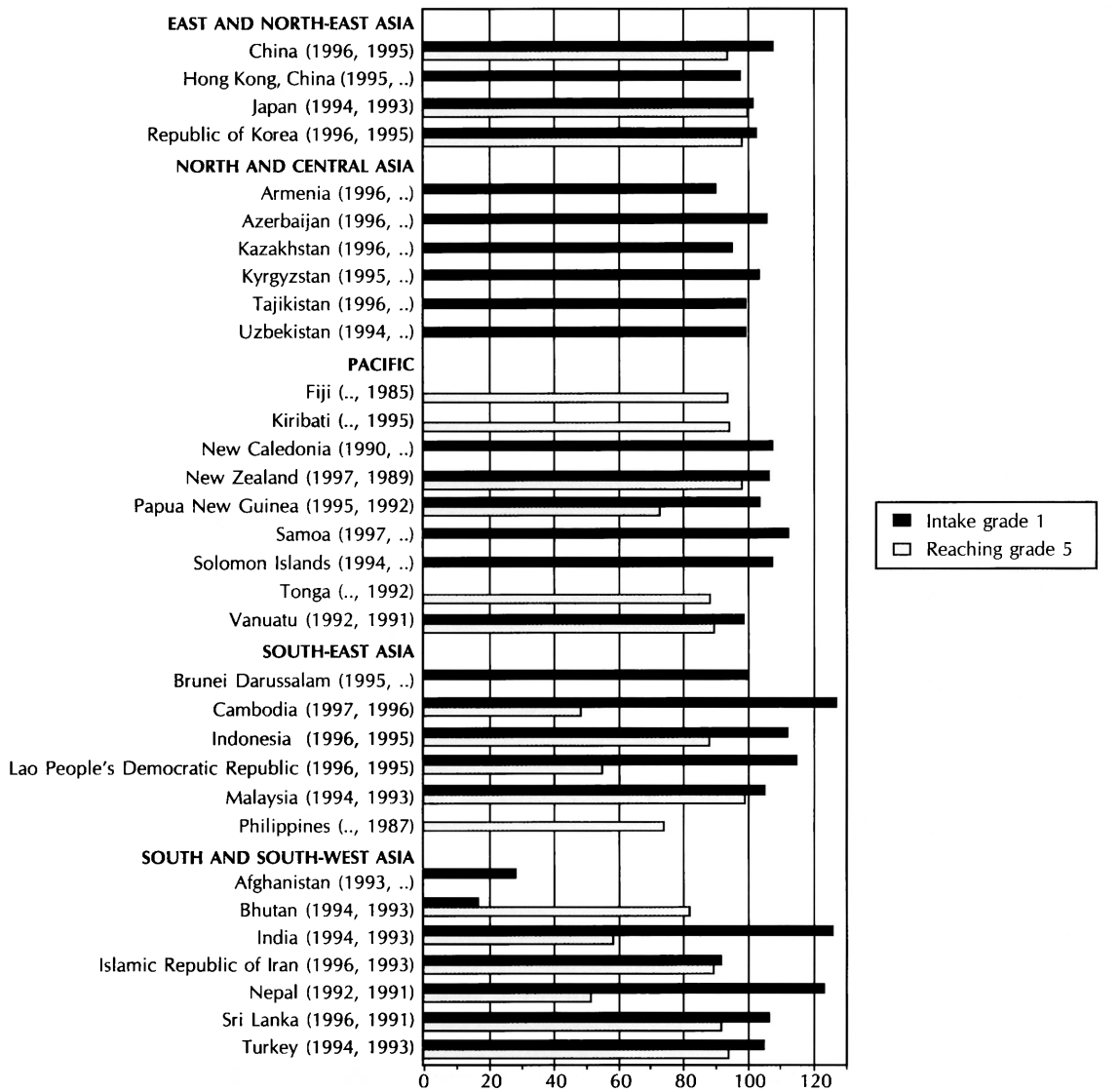
The privileged in South Asia have been unusually successful at funnelling education budgets towards quality education for the few. Low-income countries have smaller education budgets than high-income countries. It is also worth noting that most South Asian countries and most low-income countries currently have high dependency ratios (see chapter I).

Figure III.3 shows estimates of "gross intake at grade one". This is the number of children entering primary school for the first time, divided by the number of people at the age where they should officially enter primary school. It is called a "gross" rate, as opposed to a "net" rate, because it does not require the people entering school to be at the official age for entering school. Many people in developing countries enter primary school late, particularly in rural areas. However, delayed entry is not in itself a serious fault, so omitting these people from the calculations seems unnecessarily restrictive.

Figure III.3 also shows the proportion of people entering school who reach the fifth grade. This proportion is rarely calculated directly. Instead, statisticians construct estimates from repetition and progression rates. Estimates of intake and completion derive from the same shaky data as net enrolment rates and are much less widely available. They do, however, measure school attendance patterns in a more natural and comprehensible way.

It appears from Figure III.3 that, during the mid-1990s, most children in the ESCAP region were entering primary school. The very high rates in countries such as Cambodia, India and Nepal probably owe something to over-reporting. However, they also suggest a rise in intakes, with people who had missed out during earlier years entering school at the time the data were collected. Some of these people may be attending adult education courses like those described in box III.2. The available data on percentages reaching grade five suggest that, in some countries, substantial numbers of children who enter primary school do not complete it. This is true even for the Philippines, which has high net enrolment rates, and which is widely praised in the development literature for its commitment to education.

Figure III.3. Gross intake at grade one and percentage of cohort reaching grade five (latest years for which data are available)



Sources: Gross intake rates from UNESCO Institute for Statistics, World Education Indicators. Available from the online database at *http://unescostat.unesco.org/en/stats/stats0.htm,* where they are referred to as "apparent intake rates". Data on reaching grade 5 from World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).

Notes: The first number in the brackets shows the date of the grade one data; the second number shows the date of the grade five data. The symbol '..' is used when no data are available.

The "gross intake rate" is the number of new entrants to grade one, divided by the number of children at the official entry age.

The "percentage of cohort reaching grade five" is the percentage of children entering school who eventually reach grade five.

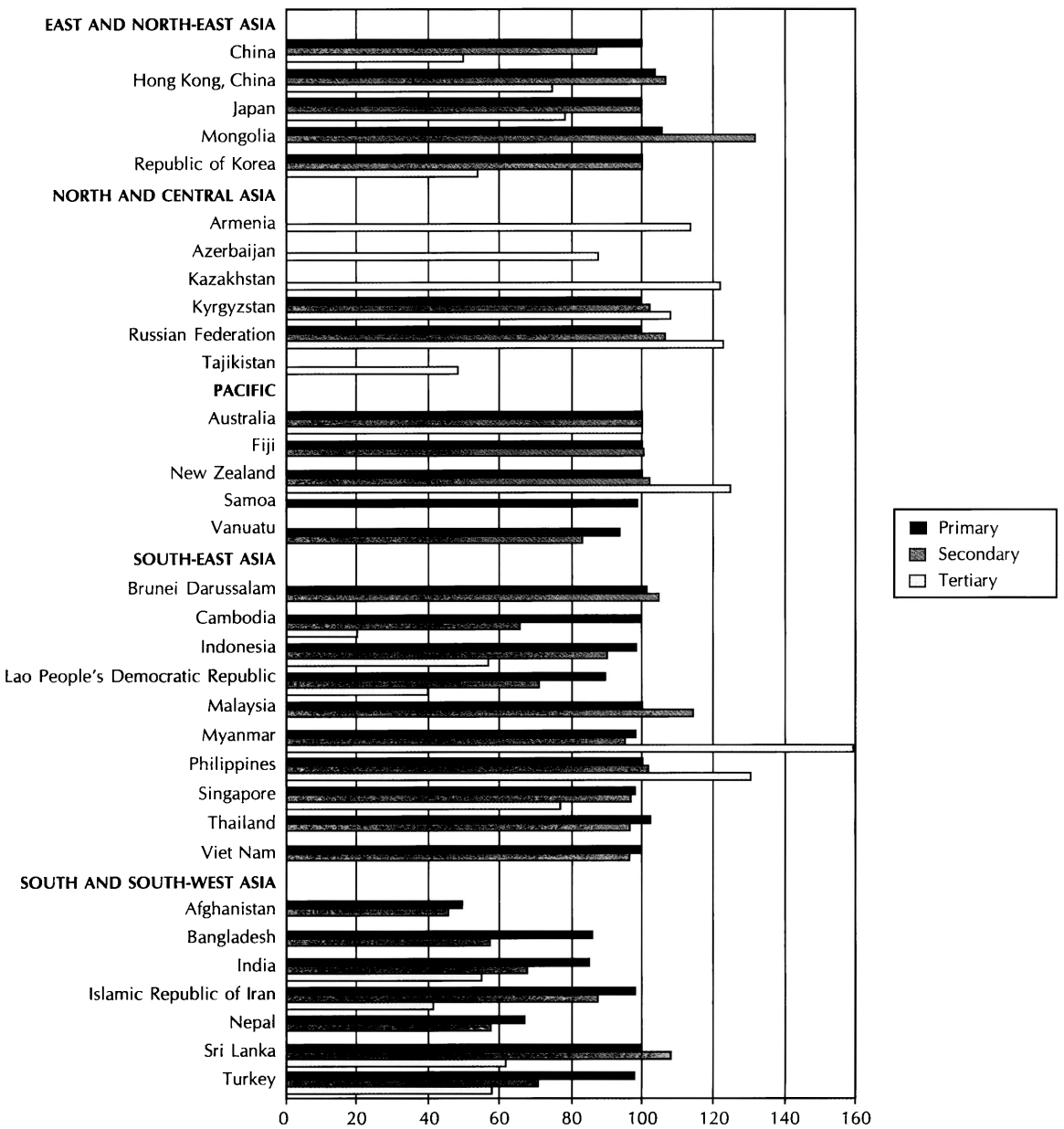
Figure III.2 shows net enrolment ratios for secondary education and gross enrolment ratios for tertiary education. No net enrolment data were available for tertiary education and no intake or grade completion data were available for either secondary or tertiary education. The figure suggests that universal or near-universal secondary education is essentially confined to high-income countries, although some low-income countries such as Sri Lanka seem to have surprisingly high enrolments. India, Mongolia and Nepal have much higher secondary school enrolment than would be expected from their relatively low primary school enrolment. It does not seem to be possible to explain these by differences in the length of schooling, which are not markedly different from other countries (UNESCO 1999: table II.1). If the reported rates are approximately correct, then they suggest marked inequality of opportunity, with many children receiving little or no schooling and many receiving both primary and secondary schooling.

Figure III.4 shows female net enrolment ratios as a percentage of male net enrolment ratios. A result of 100 per cent indicates that females have the same attendance rates as males. A result of less than 100 indicates that females have lower attendance rates. The figure shows, for instance, that girls in Afghanistan in 1997 had only about half the attendance rates of boys.

From the available data, it appears that there is little or no gender bias in primary school attendance rates across the ESCAP region, except for most countries in South and South-West Asia, where the bias can be quite strong. Some gender bias is evident in secondary school attendance rates both outside and inside South and South-West Asia: notable examples are Cambodia, Lao People's Democratic Republic and Mongolia, although in Mongolia the bias favours girls rather than boys. Gender bias in South and South-West Asia is stronger for secondary education than for primary education, except in Sri Lanka. Gender bias in tertiary education shows even more diversity: in many North and Central Asian and some South-East Asian countries, more women receive tertiary education than men, while in most other ESCAP countries the bias goes the other way.

Knodel and Jones (1996) have argued that standard policy prescriptions on access to education have been off-target, emphasizing gender bias in access to education when income bias is actually more important.

Figure III.4. Female enrolment ratios as a percentage of male enrolment ratios (average of available data 1993-1997)



Source: Calculated from World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).

Note: Results for primary and secondary education calculated from net enrolment using 1996-1997 data; results for tertiary education calculated from gross enrolment using 1993-1996 data.

The data shown in figure III.3 are crude, and further investigation might turn up biases in other dimensions, for example, subjects studied. But the data do suggest that, in the Asian and Pacific region, the existence of an enrolment bias in favour of males cannot be taken for granted at all educational levels.

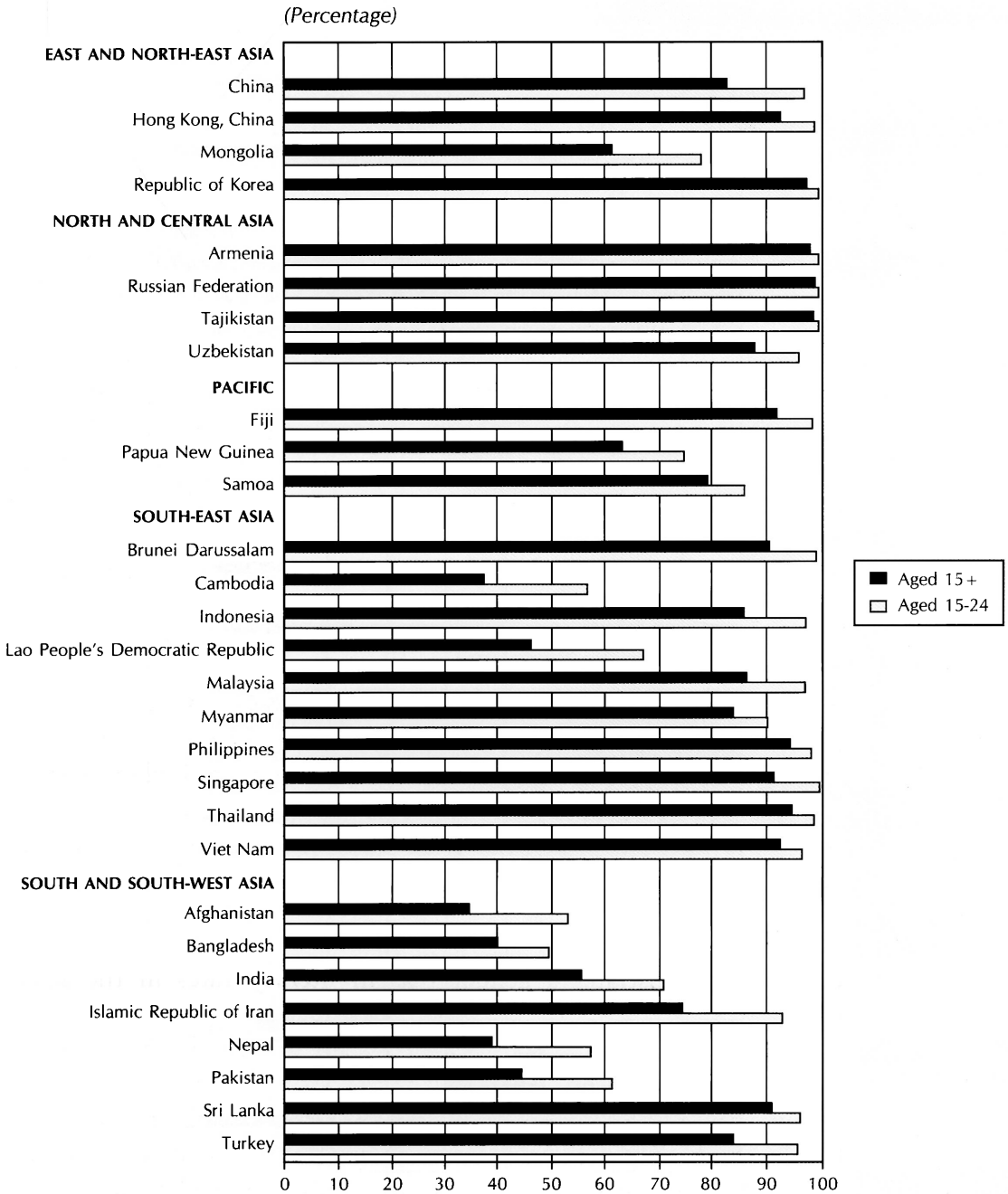
C. LITERACY RATES

UNESCO defines as literate a person aged 15 years or over who "can with understanding both read and write a short simple statement about everyday life" (<http://www.accu.or.jp/litdbase/glossary/index.htm>). Statistical agencies in some countries do not follow the UNESCO definition. Some, for instance, define everyone who has attended school at least once in her or his life as literate and everyone else as illiterate. Even when statisticians do follow the official definition, they still have to decide where the exact cut-off point between literacy and illiteracy lies. Some countries report very high literacy rates despite the fact that few people read for work or leisure, which suggests that the cut-off points have been set fairly low. The main sources of data on literacy are censuses and household surveys.

The countries with low primary school enrolment rates in figure III.2 have low literacy rates in figure III.5. The South and South-West Asia subregion once again reports the lowest rates. A striking result in figure III.5 is that, apart from countries that have attained universal adult literacy, the rates for the 15-24 age group are higher than for the whole adult population. This indicates that young adults have been achieving higher literacy rates than earlier generations. While universal literacy is still a long way off in some countries, progress has been made.

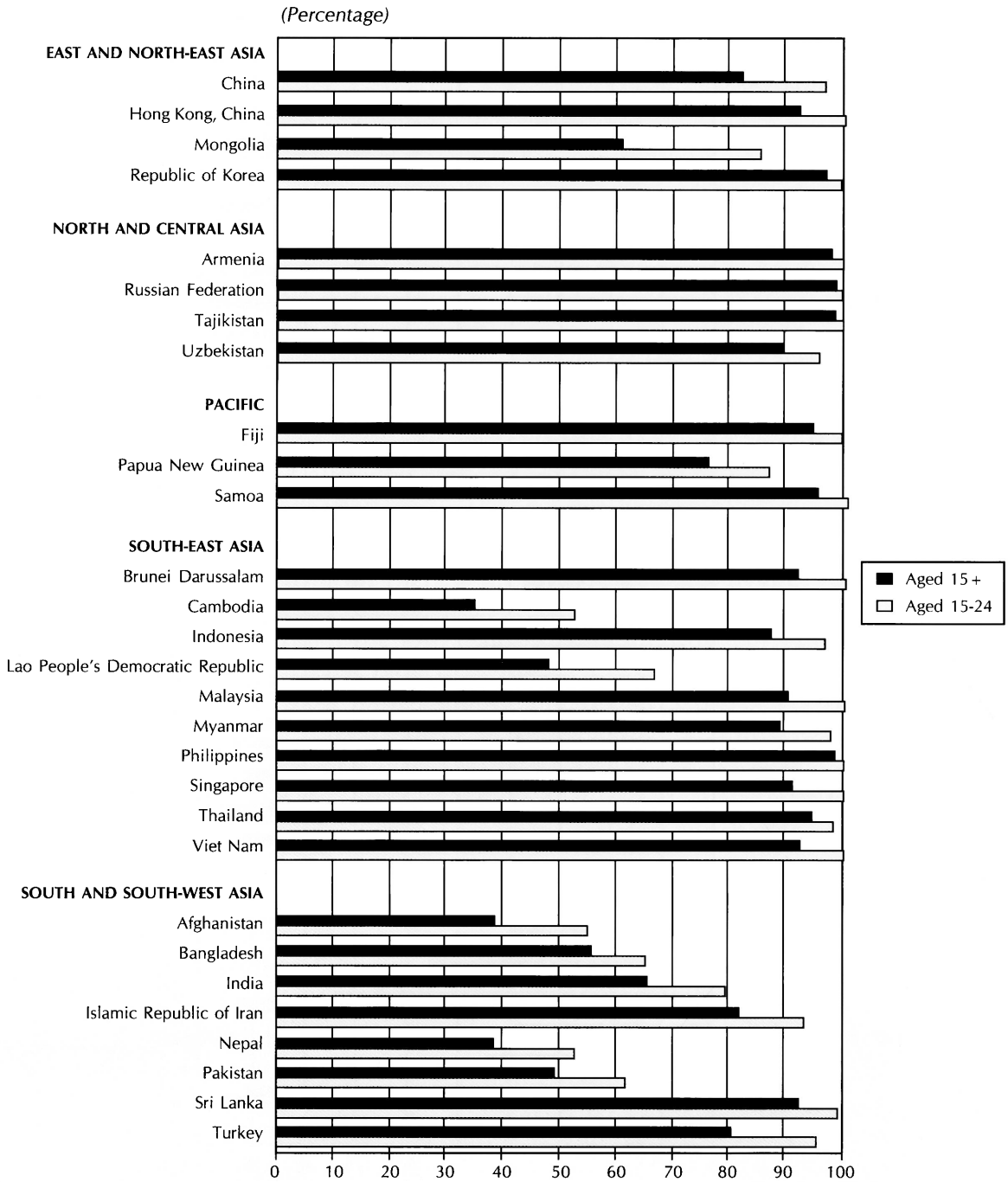
Figure III.6 illustrates a gender bias in literacy rates in the same way that figure III.4 illustrates gender bias in enrolment rates. As with enrolment rates, the greatest concentration of gender bias is found in South and South-West Asia, although Cambodia and the Lao People's Democratic Republic also show large biases. High literacy rates and low gender bias go together; it is impossible to obtain high overall rates unless the literacy is common among both men and women. Comparison of the rates for those aged 15 to 24 with those for all adults suggests that gender bias is being reduced over time. The countries with the largest biases have seen the largest reductions.

Figure III.5. Literacy rates for the population aged 15 and over, and for the population aged 15-24, 1998



Source: World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).

Figure III.6. Female literacy rates as a percentage of male literacy rates, 1998



Sources: World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).

Box III.1. Under-nutrition and school performance

Researchers have in recent years placed increased emphasis on the links between poor nutrition and poor outcomes at school. Some, although not all, studies have found that children who had low birth weights, or who were malnourished as infants, show impaired cognitive development. It is universally acknowledged that children who are hungry at school are unable to learn properly.

Some countries, such as India and Thailand, have managed to improve nutrition directly through the provision of school meals. Treating parasites and infections can be highly cost-effective. In some places, the delivery of micronutrients such as iodine and iron also has substantial pay-offs.

Many studies have shown that, even when other factors such as income are held constant, better-educated women tend to have better-nourished children, providing yet another justification for female education.

Source: United Nations Administrative Committee on Coordination, Sub-Committee on Nutrition (ACC/SCN), 2000. *Fourth Report on the World Nutrition Situation* (Geneva, ACC/SCN in collaboration with the International Food Policy Research Institute): chapters 1, 4.

Box III.2. Effective adult education

As can be seen in Figure III.5, substantial numbers of adults in the ESCAP region are illiterate. In 1998, ESCAP used its Human Resources Development Award to recognize the work of non-governmental organizations and governmental agencies working to reduce adult illiteracy and to promote adult education. An independent, international panel of judges assessed 102 candidates for the Award, looking at programme responsiveness, innovation, impact, sustainability and commitment to human resources development. All six candidates in the judges' shortlist are described below. The winner was Thailand's Department of Non-Formal Education. More information on the Human Resources Development Award is available online at <http://www.escap-hrd.org/award/index.html>.

1. The Department of Non-Formal Education, Ministry of Education, Thailand

The biggest achievement of the Department of Non-Formal Education has probably been its national literacy campaign, launched in 1983. The campaign enlisted 360,000 volunteers to give individual instruction to 590,000 illiterates. Wherever possible, the instructor and learner were members of the same family or community. The curriculum drew on people's everyday life. At the completion of their course, learners could sit a literacy test at their local primary school, and received a certificate if they passed. The main campaign was supplemented by special programmes for vulnerable groups, such as persons with disabilities, ethnic minorities and migrants. Other activities of the Department of

Box III.2 *(continued)*

Non-Formal Education included training prisoners, establishing village reading centres and broadcasting educational radio programmes. The Department also runs courses allowing people to complete high school through part-time study, including some independent and some classroom-based learning.

2. The Shanghai Television University, China

The Shanghai Television University used television for distance education for adult learners. It now combines computer-based multimedia technology with traditional techniques. This has led to the use of systems for email, telephone mailbox and two-way video conferencing. In 1998 it had 1,500 teaching staff and 5 million adult learners. Among them were laid-off women workers undergoing retraining. Many people sit for its proficiency exams in computer applications, and international finance and accounting. The university also broadcasts radio and television programmes for people with special learning needs and those with mobility constraints.

3. Micronesian Seminar, Federated States of Micronesia

Micronesian Seminar was founded by the Catholic Church. It combines adult education with discussion of local social issues. It runs workshops among community leaders, prepares and disseminates videos, radio and television programmes, publishes a newspaper, runs a web site and gives classes on subjects such as education and health.

4. PROSHIKA, Bangladesh

PROSHIKA is a non-governmental organization carrying out a wide range of developmental activities. Its biggest contribution to the field of adult education has been the establishment of 25,000 adult literacy centres, each of which gives two six-month courses per year. Separate courses are held for men and women. The men's courses are held during the day and the women's in the evening, to suit their different work schedules. Course materials cover a variety of topics, including the history and culture of Bangladesh, health and nutrition, and marketing. PROSHIKA has established over 3,000 centres to encourage people to maintain their literacy skills after graduating from literacy courses.

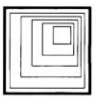
5. The Notre Dame Foundation for Charitable Activities, The Philippines

The Notre Dame Foundation for Charitable Activities is a Christian organization providing training to Muslim women and girls in war-prone areas around Mindanao. The Foundation's Christian origins initially aroused suspicions in the local community, but staff have gradually built up people's trust. The Foundation runs 99 schools, reaching about 5,000 learners. Besides literacy training the schools also give instruction in business skills, microcredit, nutrition, hygiene and civic consciousness.

6. The Institute for Integrated Development Studies, Nepal

The Institute for Integrated Development Studies undertakes both research and development projects. Its development work includes the establishment of literacy groups in remote rural areas. Participatory rapid appraisal methods are used to identify illiterate people and target groups within the local community. Teachers use literacy packages developed by the Ministry of Education and international organizations. In places where it would be impossible for women to attend the same classes as men, women and men are taught separately. Child care is provided for women attending the courses. The Institute aims to enable literacy groups to be self-funded. It promotes the formation of income-generating groups, whose savings are used to buy learning materials.

Source: ESCAP, 2000. *HRD through Adult Education: Innovative Approaches Submitted for the ESCAP HRD Award* (ST/ESCAP/2052).



Box III.3. The International Adult Literacy Survey

No single number such as the percentage of literates does justice to a phenomenon as complex as literacy. The International Adult Literacy Survey, carried out by the Organisation for Economic Cooperation and Development (OECD) and Statistics Canada, provides a more satisfactory picture. The survey was carried out in 12 OECD countries in 1994-1995.

The survey distinguishes three types of literacy: "prose literacy", which is the ability to read and understand written texts; "documentary literacy", which is the ability to locate and use information from sources such as job applications, maps, schedules, and graphics; and "quantitative literacy", which is the ability to carry out calculations needed in everyday life such as balancing a checkbook and calculating a tip. Instead of the conventional two grades of literacy, "literate" and "illiterate", the survey uses four. Data were collected from a representative sample of those aged 15 to 64 years old in each country.

The top-scoring country on all three literacy measures was Sweden. Belgium, Canada, Germany and the Netherlands also did well. Of countries in the ESCAP region, only Australia and New Zealand were included in the study. In some countries, such as Ireland, the United Kingdom of Great Britain and Northern Ireland and the United States of America, almost 20 per cent of the population lacks the minimal skills which, according to educationalists, are essential for operating effectively in an industrial society.

Statistical analyses suggest that individuals with better literacy skills earn more, even among people with the same level of education. Cross-country studies suggest that countries with higher literacy levels are richer, even after levels of education have been controlled for.

Sources: Barro, Robert J. and Jong-Wha Lee, 2000. International data on educational attainment: Updates and implications Working Paper No. 42, Center for International Development at Harvard University. Available online at <http://www.cid.harvard.edu/cidwp/042.htm> (29 August 2001).

Organisation for Economic Cooperation and Development (OECD) and Statistics Canada, 1998. *Highlights from the Second Report of the International Adult Literacy Survey: Literacy Skills for the Knowledge Society:*. (Paris). Available online at <http://www.nald.ca/nls/ials/ialsreps/ialsrpt2/ials2/HighE.pdf> (29 August 2001).

Box III.4. The Third International Mathematics and Science Study

Enrolment statistics measure the quantity of education. Policy makers and scholars would also like to be able to measure educational quality. The World Bank, UNESCO and other organizations try to fill this gap by publishing statistics on the numbers of students per teacher, teacher salaries and numbers of repeaters. It is not clear, however, that these statistics convey any information at all. Even if the statistics were accurate and comparable, which they are not, they are only loosely correlated with quality.

A more promising approach is to measure educational outcomes through internationally standardized tests. The Third International Mathematics and Science Study (TIMSS), carried out by the International Association for the Evaluation of Educational Achievement, attempted to do precisely this. The study was conducted in 1994-1995 in 45 countries, using tests constructed by an international committee. The study organizers tried to make sure that students selected for the test were representative of the national student population in each country and that students in different countries were approximately the same age and had experienced approximately the same number of years of schooling. As the TIMSS reports admit, however, sample

Box table III.1. Average country scores for students in the eighth grade in the Third International Mathematics and Science Study

Mathematics		*Science*		*Mathematics*		*Science*	
Singapore	**643**	**Singapore**	**607**	Sweden	519	**Thailand**[a]	525
Republic of Korea	**607**	Czech Republic	574	Germany[a]	509	Israel[a]	524
Japan	**605**	**Japan**	**571**	**New Zealand**	**508**	**Hong Kong, China**	**522**
Hong Kong, China	**588**	**Republic of Korea**	**565**	**England**	**506**	Switzerland	522
Belgium (Fl)	565	Bulgaria[a]	565	Norway	503	**Scotland**[a]	**517**
Czech Republic	564	Netherlands[a]	560	Denmark[a]	502	Spain	517
Slovak Republic	547	Slovenia[a]	560	**United States of America**	**500**	**France**	**498**
Switzerland	545	Austria[a]	558	**Scotland**[a]	**498**	Greece[a]	497
Netherlands[a]	541	Hungary	554	Latvia (LSS)	493	Iceland	494
Slovenia[a]	541	**England**	**552**	Spain	487	Romania[a]	486
Bulgaria[a]	540	Belgium (Fl)	550	Iceland	487	Latvia (LSS)	485
Austria[a]	539	**Australia**[a]	**545**	Greece[a]	484	Portugal	480
France	**538**	Slovak Republic	544	Romania[a]	482	Denmark[a]	478
Hungary	537	**Russian Federation**	**538**	Lithuania	477	Lithuania	476
Russian Federation	**535**	Ireland	538	Cyprus	474	Belgium (Fr)[a]	471
Australia[a]	**530**	Sweden	535	Portugal	454	**Islamic Republic of Iran**	**470**
Ireland	527	**United States of America**	**534**	**Islamic Republic of Iran**	**428**	Cyprus	463
Canada	527	Germany[a]	531	Kuwait[a]	392	Kuwait[a]	430
Belgium (Fr)[a]	526	Canada	531	Colombia[a]	385	Colombia[a]	411
Thailand[a]	**522**	Norway	527	South Africa[a]	354	South Africa[a]	326
Israel[a]	522	**New Zealand**	**525**				

Source: International Association for the Evaluation of Education Achievement (IEA), 1996. *Highlights of Results from the Third International Mathematics and Science Study* (Boston), table 1.

Notes: Belgium (Fl) is the Dutch-speaking and Belgium (Fr) is the French-speaking region of Belgium; Latvia (LSS) is the Latvian-speaking schools in Latvia.

[a] Indicates that participants for this country or region failed one or more of the sampling guidelines. ESCAP members are printed in **bold** typeface.



Box III.4 *(continued)*

selection was not always ideal. There is debate among educationalists over the validity of the findings. Some people contend that students in a few countries were drawn from elite schools, or were much older than students from other countries; supporters of TIMSS argue that these biases were not significant (see, for instance, Rotberg 1998, and Schmidt and McKnight 1998).

Some representative results from the study are shown in Box table III.1. Assuming that the results are at least approximately correct, they indicate that Japan, the Republic of Korea, and Singapore lead the world in educational achievements in mathematics and science study.

To what extent do these superior achievements reflect superior school systems? TIMSS collected detailed information on school systems and teaching methods. Japanese, Republic of Korea and Singaporean systems do seem to share some distinguishing features, such as a commitment to providing a decent education, even to the weakest students.

Educationalists agree, however, that factors external to schools have also made a large contribution. The high-scoring populations share a strong belief in the importance of education as a route to success and a willingness to make large sacrifices to get educated. These beliefs are normally traced to longstanding traditions, although, as Birdsall, Ross, and Sabot (1997: 111) point out, belief in the value of education must also have been fortified by the countries' recent development experiences.

A second contributor to the children's success is the coaching and support which they receive from their mothers, who generally do not return to the workforce after the birth of their children (see chapter IV).

Ironically, many people in Japan, the Republic of Korea and Singapore criticize their countries' education systems and are trying to reform them. The critics claim that the education systems are good at imparting facts, but bad at encouraging creativity and critical thinking, compared with the European and American systems. Although the critics' claims are presumably not groundless, it is worth noting that the TIMSS exams did in fact require students to apply their knowledge in novel contexts and to show some creativity.

One limitation of TIMSS and of any research on current students, is that it cannot measure the retention and expansion of skills after leaving school. As shown in the International Adult Literacy Survey (see box III.3), the countries which do well on this measure are not necessarily the same ones which do well in TIMSS. Although Sweden, for instance, obtained mediocre scores in TIMSS, it came out top in every category, including "quantitative literacy" in the Literacy Survey. The difference cannot be explained by a recent deterioration in the quality of Swedish schools, since Swedes in the age group 16-25 did even better than those in older age groups. Unfortunately, the Literacy Survey was not carried out in Japan, the Republic of Korea, or Singapore.

Sources: Barro, Robert J. and Jong-Wha Lee, 2000. International data on educational attainment: Updates and implications Working Paper No. 42, Center for International Development at Harvard University. Available online at <http://www.cid.harvard.edu/cidwp/042.htm> (29 August 2001).

Birdsall, Nancy, David Ross, and Richard Sabot, 1997. "Education, growth, and equality", In Nancy Birdsall and Frederick Jaspersen (eds.), *Pathways to Growth: Comparing East Asia and Latin America* (New York, Inter-American Development Bank).

International Association for the Evaluation of Education Achievement (IEA), 1996. *Highlights of TIMSS* (Boston).

Organisation for Economic Cooperation and Development (OECD) and Statistics Canada, 1998. *Highlights from the Second Report of the International Adult Literacy Survey: Literacy Skills for the Knowledge Society:*. (Paris). Available online at <http://www.nald.ca/nls/ials/ialsreps/ialsrpt2/ials2/HighE.pdf> (29 August 2001).

Rotberg, Iris C., 1998. "Science education: Interpretation of international test score comparisons", *Science* 282: 1030-1031.

Schmidt, William H. and Curtis C. McKnight, 1998. "What can we really learn from TIMSS?", *Science* 282: 1830-1831.

Employment IV

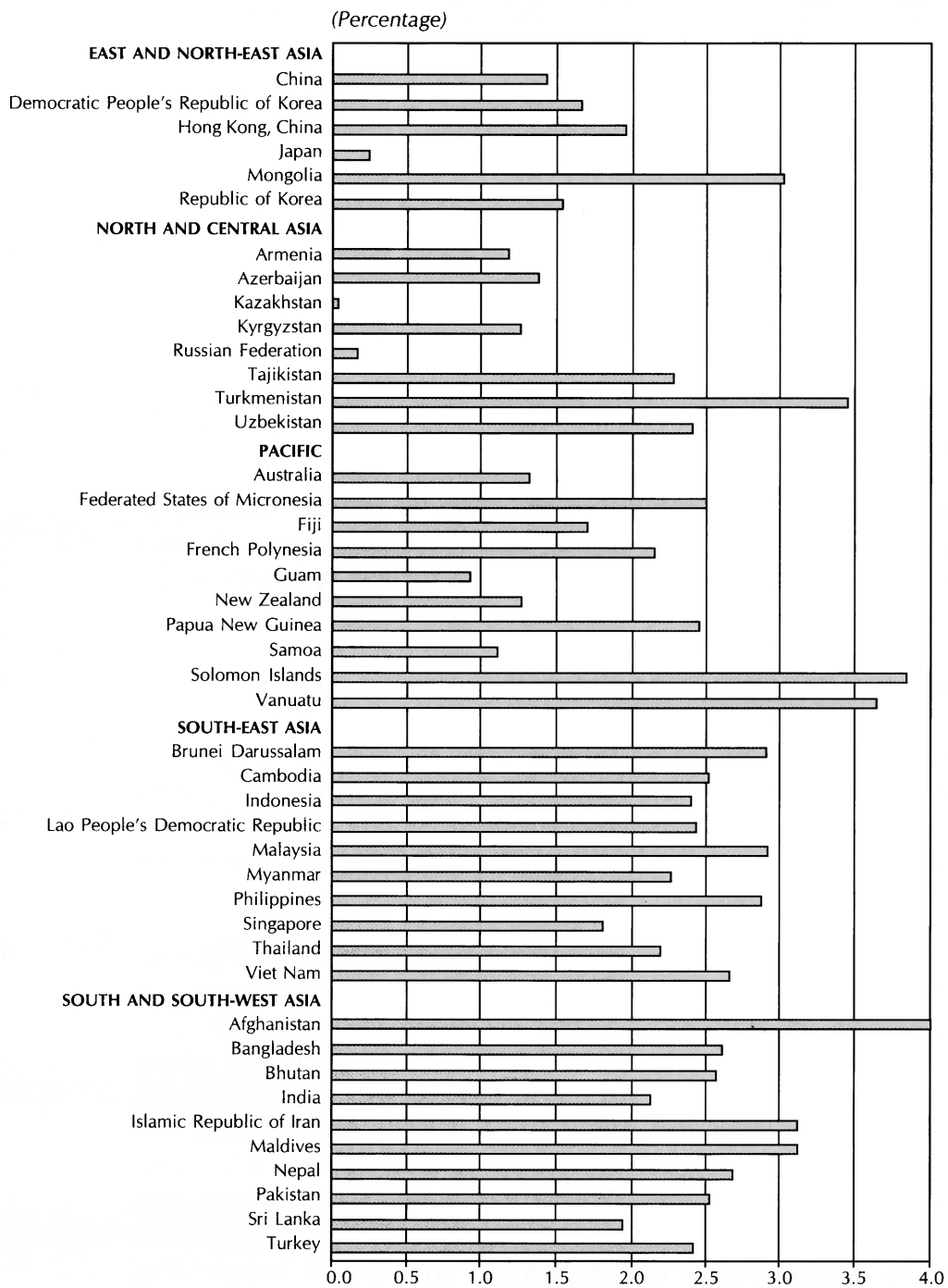
This chapter begins by looking at the growth of the working-age population and at levels of market-related employment. It then discusses the distribution of employment by sector. It concludes with a brief review of youth unemployment.

A. GROWTH IN THE WORKING-AGE POPULATION

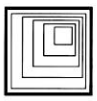
Growth in the working-age population can push down wages, feed unemployment, bring in new skills and boost economic growth, possibly all at once. Actual outcomes depend, among other things, on the state of labour markets and on previous investments in the human capital of the new workers.

Figure IV.1. shows recent rates of growth in the working-age populations of the ESCAP region. Following conventional practice, the working ages are set at 15 to 64 years. Migration (shown indirectly in figure I.1) has had an important effect on the growth of some working-age populations, lowering growth rates in Central Asia, Fiji and Samoa, and raising them in Australia; Hong Kong, China; New Zealand and Singapore. Comparing Figure IV.1 with figures I.1 and I.2, which show population growth rates and fertility rates, yields an apparent paradox: the growth rate of the working-age population is often about the same in countries with low population growth and low fertility, such as Thailand, as it is in countries with high population growth and high fertility, such as Pakistan. The resolution of this paradox was discussed in chapter I.

Figure IV.1. Annual growth rate of working-age population, 1988-1998



Source: Calculated from World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC, 2000).



The current growth rate of the whole population depends mainly on current fertility levels, while the current growth rate of the working-age population depends on fertility levels of a generation before or earlier. Countries such as Thailand which are experiencing slow overall growth, but rapid growth in the working-age population are said to be enjoying a "demographic bonus". This bonus can provide a temporary boost to savings and economic growth.

Rapid growth in the working-age population is more likely to be a burden than a benefit in countries where the economy is doing poorly for other reasons. During the 1990s, economic conditions were not good either in much of Central and North Asia, or in the Pacific (figure I.4). This is, of course, one reason for the high rates of out-migration in these subregions. Statistics on economic growth are not available for Afghanistan, the country where the working-age population has been growing fastest. Given that the country has been fighting a civil war, however, it is reasonable to assume that the rapid growth in the workforce has been difficult to absorb.

B. EMPLOYMENT LEVELS

Data on employment levels generally come from censuses, household surveys and enterprise surveys. Statisticians normally define employment as the production of goods and services for market, or for home use, if the goods and services in question are widely sold on markets. The actual dividing line between work and non-work depends on the collection method, the definition given in the questionnaire and the implementation by the interviewers. When interpreting statistics on employment levels, the following points need to be borne in mind.

(a) Definitions of employment, and hence the meaning of employment indicators, can vary widely between different surveys and censuses, even within the same country. In the 1991-1992 Pakistan labour force survey, statisticians revised the definition of employment to include gathering firewood, fetching water, raising livestock and processing grains after harvesting. The survey reported a female labour force participation rate of 45 per cent. Using the same data but leaving out the newly-included activities would have yielded a female participation rate of 14 per cent (Elson 1999: 614). The International Labour Organization (ILO) promotes a standard definition of employment (which is available online at <www.ilo.org/public/english/120stat/res/ecacpop.htm>). This definition clarifies

some issues: it specifically includes both payments in cash and in kind, for instance, and explicitly excludes students and "home-makers", but it still leaves a great deal of scope for individual interpretation. Substantial ambiguity is probably inevitable, given the slipperiness of the concept of work and international variations in the types of work performed.

(b) Official definitions of employment include only some things which could be considered as work or productive activity. A woman who is paid to look after someone else's children is counted as employed, for instance, while a woman who is looking after her own children is not. The only productive activities which statisticians count as employment are those that, loosely speaking, are part of production for the market. Although the distinction between market and non-market activities is unavoidably fuzzy, it is nevertheless useful for measuring broad changes in the structure of an economy. Statisticians could prevent a great deal of misunderstanding if they used terms such as "market employment" rather than simply "employment". In practice, however, statisticians make matters worse by using terms such as "economically productive population" to describe those undertaking, or hoping to undertake, work for the market, and terms such as "inactivity rate" when referring to people not engaged in market production.

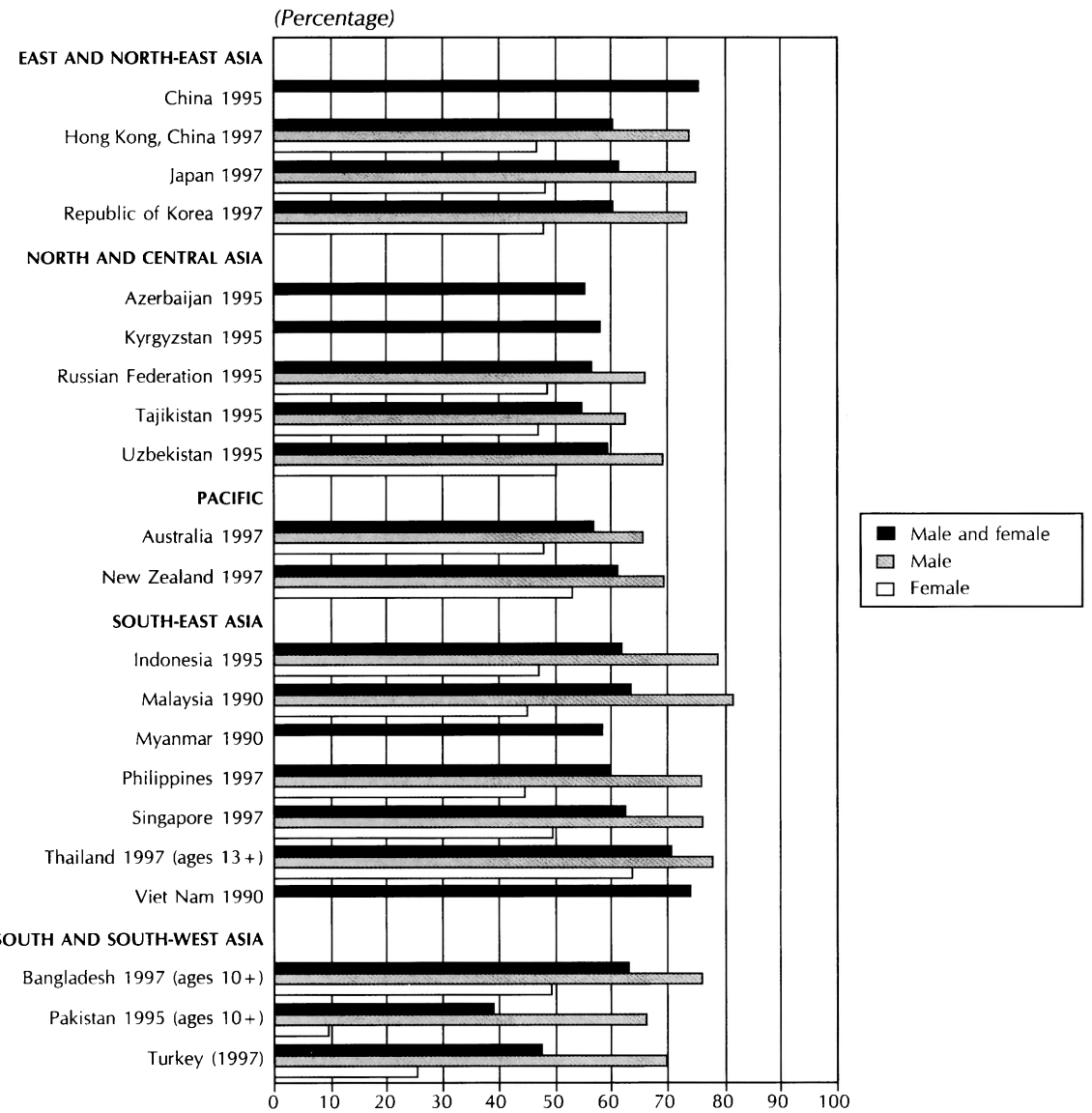
(c) Official definitions of employment particularly obscure work performed by women. Although both men and women perform work not directly associated with market production, women carry out the majority of such work. Statistics showing lower employment levels among women do not mean that women have more leisure time than men. Time-use surveys in developing countries almost always find that the opposite is true (Waring 1989).

(d) Statistics on employment are more meaningful in developed countries. The official definitions were first constructed in developed countries and are less difficult to apply there than they are in developing countries. This is because production for home use is less important in developed countries, and monetization has proceeded further.

All these complications mean that the interpretation of figure IV.2, which shows the percentage of working-age people who are employed, is not easy. The definition of working age used in figure IV.2 is generally 15-64 years.



Figure IV.2. The employed population as a percentage of the working-age population, various years



Source: International Labour Organization, 1999. *Key Indicators of the Labour Market, 1999* (Geneva), table 2.

Note: The definition of working age used in this figure is generally 15-64 years.

Bangladesh, Pakistan and Thailand use starting ages of 10, 10 and 13 however, and China and Viet Nam did not supply ILO with definitions. Younger starting ages generally lead to lower ratios, since many young people are in education rather than employment. Note that the

result for Pakistan, which comes from a 1995 household survey, seems to have been based on a more restrictive definition of employment than the definition discussed above and the definition used in Bangladesh.

Figure IV.2 confirms the standard observation that involvement in market work is greater among men than among women. The gap between male and female employment rates in Hong Kong, China; Japan; the Republic of Korea and Singapore is greater than the male-female gap in Australia and New Zealand. Women in the four higher-income East and South-East Asian economies are more likely than women in the two developed Pacific countries to exit permanently from the labour market after marriage or pregnancy (Horton 1995: 10-11; see also the upper panel of box figure IV.1).

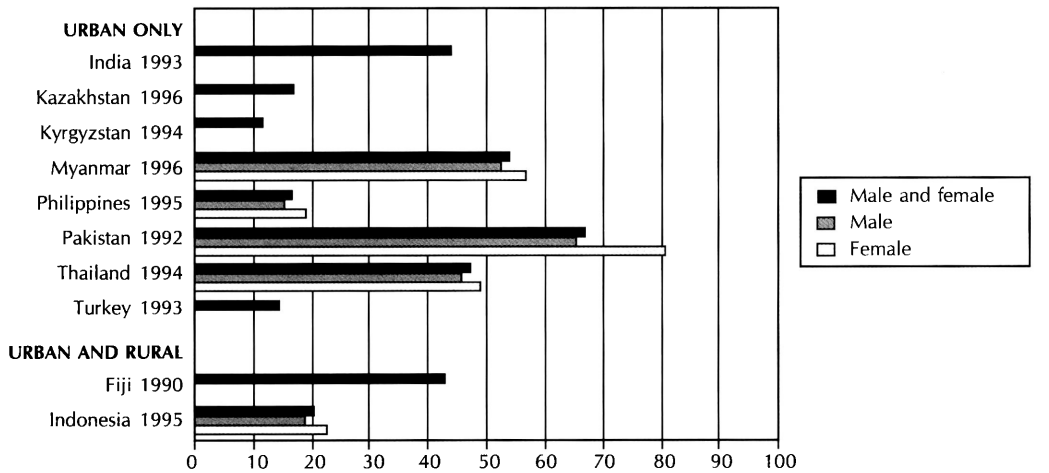
Thailand is shown by Figure IV.2 to have an unusually high female employment rate. This finding has been verified by more detailed studies (Horton 1996: 10). Thai women show little tendency to exit from the labour market after marriage or childbearing; their age profile is much the same as men's everywhere.

Despite uncertainty over the age group used, the high employment levels reported in China and Viet Nam are plausible. The economies in both countries have been doing well over recent years and post-revolutionary campaigns to raise the status of women reduced some of the traditional obstacles to women's labour market participation.

Much employment in developing countries (and some developed countries) is in the informal sector, which generally implies small, unregistered enterprises, consisting of relatives or friends. ILO has been encouraging countries to gather and process data on the informal sector. Figure IV.3 shows some findings from this effort: the percentage of employment that is provided by the informal sector. Most of the data refer to urban areas, as ILO (1999: 169) found that the identification of informal enterprises was easier in urban areas.

Collection methods varied, so cross-country comparisons are unwise, it is difficult to see, for instance, why informal employment should be so much less important in the Philippines than in Thailand, even if the Philippines data refer only to Manila. One finding which is consistent across all countries where data are available is that the informal sector accounts for about the same proportion of men's work as it does of women's work.

Figure IV.3. Informal employment as a percentage of total employment



Source: International Labour Organization, 1999. *Key Indicators of the Labour Market, 1999.* (Geneva), table 7.

Note: The data for the Philippines refers to Manila only.

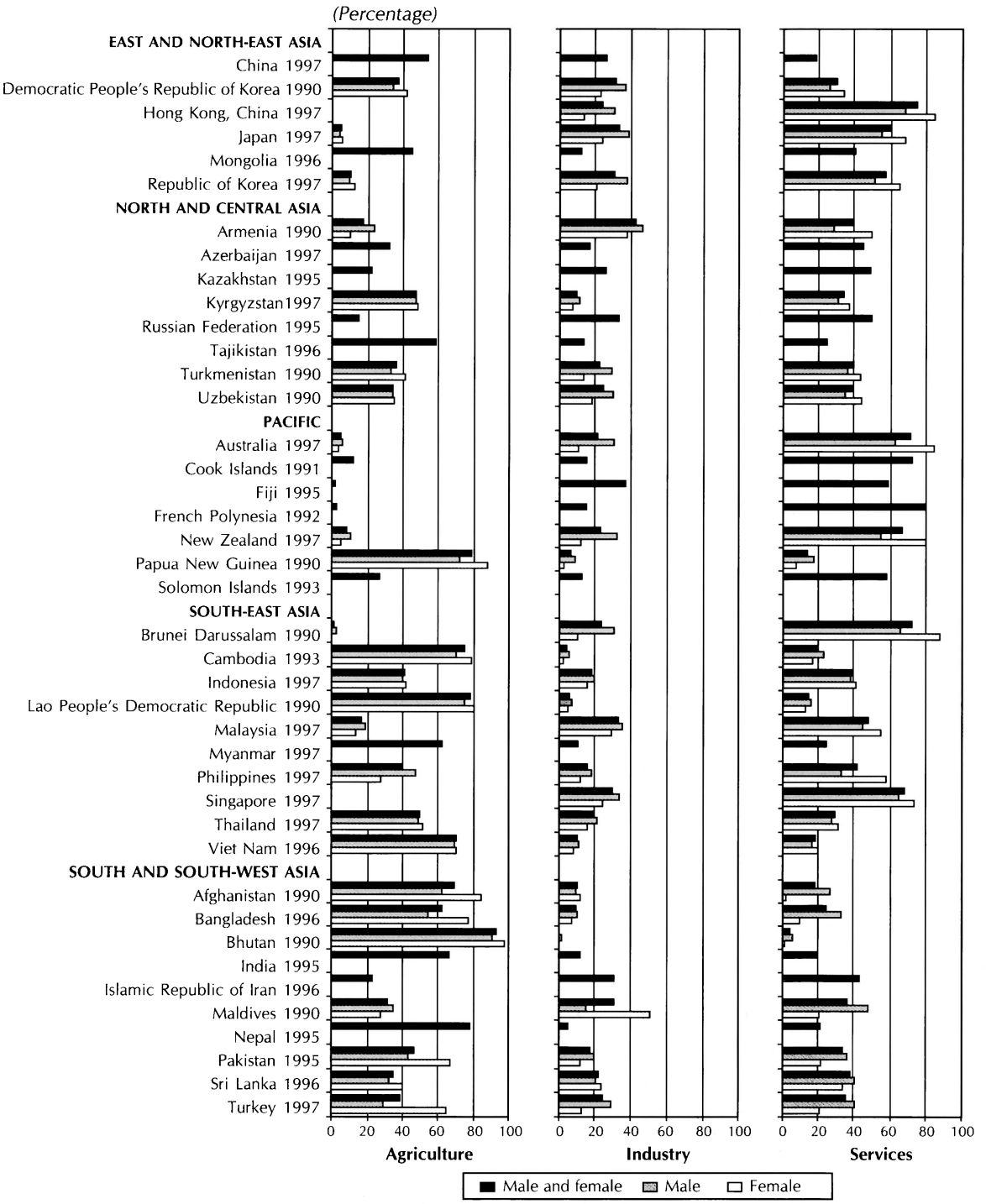
C. EMPLOYMENT BY SECTOR

During the course of development, labour shifts out of agriculture and into industry and services, with services coming to dominate as countries reach high levels of income. This generalization, which is one of the best established in development economics, is nicely illustrated by figure IV.4. The figure does suggest, however, that the balance between industry and services can vary sharply for countries at similar levels of development. For instance, in China, far more of the non-agricultural labour force seems to be concentrated in industry than is the case in the Philippines, even though both countries have roughly similar income levels (figure I.4). Services appear to account for a surprising proportion of employment in Mongolia and the Solomon Islands.

In Cambodia, the Lao People's Democratic Republic, Papua New Guinea and Viet Nam, all of which have low incomes and small service sectors, the service sector accounts for a larger proportion of male employment than of female employment. The same is also true for South and South-West Asia.

In all the other places for which there is data, however, services are a more important source of female jobs than of male jobs. In these same countries, industry is a more important source of male jobs,

Figure IV.4. Employment by sector, various years



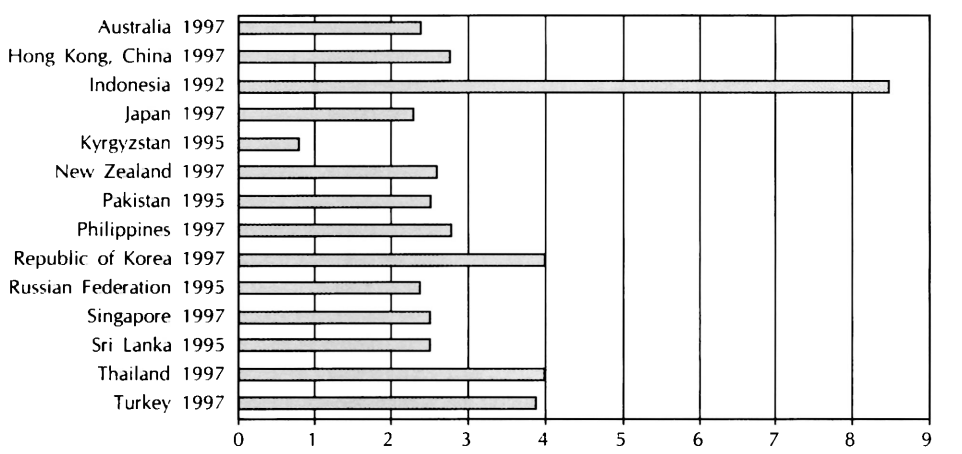
Source: International Labour Organization, 1999. *Key Indicators of the Labour Market, 1999* (Geneva), table 4.

notwithstanding the prominence of women workers in export-processing industries. Detailed analyses generally show that, within the service sector, women are over-represented in the relatively informal and poorly paid subsectors of "trade, restaurants, and hotels" and "community, social, and personal services". Men tend to be over-represented in the relatively formal and well paid subsectors of "finance, insurance, real estate, and business services" (Mehra and Gammage 1999: 543-4).

D. YOUTH UNEMPLOYMENT

The standard definition of an unemployed person is someone who is looking for market-based work. In practice, definitions depend on institutional arrangements such as eligibility for benefits and vary across countries even more than definitions of employment. That is one reason why analysis of the labour force, which is defined as the employed plus the unemployed, has not been a feature of this report. Comparing unemployment rates for youth and for older adults within the same country does, however, make sense, because both rates are based on the same definitions. Figure IV.5 shows the ratio of youth unemployment to adult unemployment in countries for which data are available. Youth, for the purposes of this table, are people aged 15 to 24 and adults are people aged 25 to 64. Figure IV.5 does, however, confirm the standard assumption that unemployment is more common among young workers than among older ones.

Figure IV.5. Ratio of youth unemployment to adult unemployment, various years



Source: International Labour Organization, 1999. *Key Indicators of the Labour Market, 1999* (Geneva), table 8.

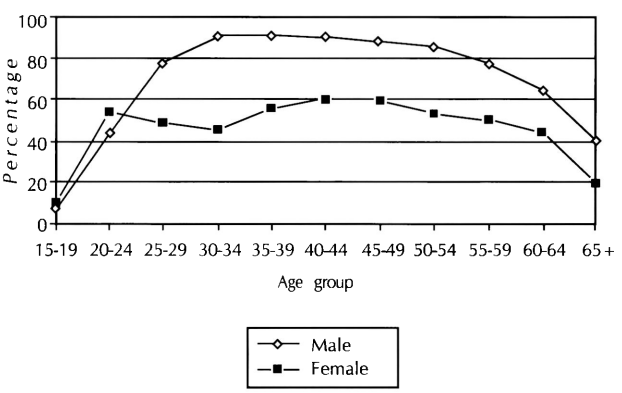
Box IV.1. Changes in age structure, female employment rates and the ratio of workers to retired people in the Republic of Korea

The Republic of Korea provides a representative example of the age-structural changes facing ESCAP countries that have attained low fertility. In 1999, about 10 per cent of the Republic of Korea's population was aged 60 or above. By the year 2050, the proportion will triple to about 30 per cent (Figure I.3). Policy makers and social commentators are starting to worry about the long-term effects of these changes on the Republic's economy. Given that the rise in the population share of the working ages has boosted economic growth significantly (see chapter I), it is likely that the rise in the population share of the old ages will indeed have a large effect.

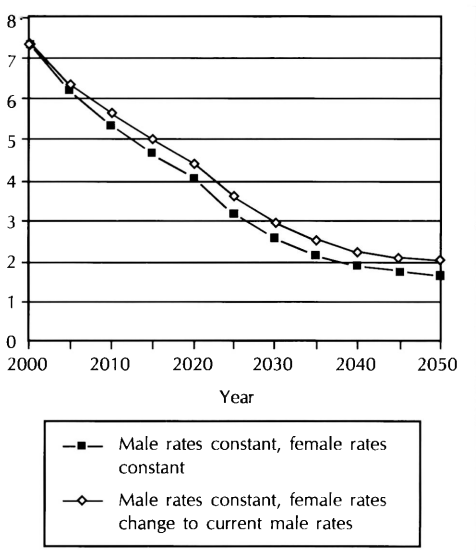
Some researchers argue that the age-structural effect could be offset by a rise in female employment rates. As can be seen in figure IV.2 and in the upper panel of box figure IV.1, in the Republic of Korea, female employment rates are currently much lower than men's and there is substantial scope for them to increase. But how far could this offsetting go?

Box figure IV.1. Age-specific employment rates and the ratio of employed people to retired people in the Republic of Korea

Percentage of males and females employed, by age group



Ratio of employed people (all ages) to retired people (aged 65+)



Sources: Calculated from National Statistical Office of Korea, 1999. *Korea Statistical Yearbook 1999* (Seoul), tables III.2, III.3, III.7 and United Nations, 1998. *World Population Prospects: Comprehensive Tables*, vol. 2, p. 685.

Box IV.1 *(continued)*

The lower panel of box figure IV.1 shows two projections for the ratio of employed people (of any age) to retired people (aged 65 and above). One projection assumes that the age-profile for male and female employment stays the same as it is at present. The other projection assumes that the age-profile for females shifts towards that of men, and is identical to it in the year 2050. Although the second assumption does affect the ratio of employed to retired noticeably, the principal conclusion from the projections is that the age-structural changes are likely to overwhelm any changes in female employment rates.

Performing the same calculations for Japan and Singapore, which also have ageing populations and low female employment rates, would yield similar conclusions. In countries such as China and Thailand, which already have high female employment rates, there is even less scope for increased female employment to offset the age-structural changes.

Box IV.2. Evidence of the link between health and productivity

Common sense suggests that investment in the health of current and future workers yields returns in the form of improved productivity. It is, moreover, plausible that the rate of return would be highest in developing countries: these countries have the heaviest burden of ill health (see chapter III), their disease patterns are tilted towards adult illnesses and childhood illnesses with long-term consequences for adult health, and more work in developing countries depends on strength and endurance. The same set of considerations suggests that, within developing countries, investment in health would particularly benefit the poor.

Preliminary evidence for these ideas is contained in many country studies that have shown, for instance, that adult height, a good indicator of health, is strongly correlated with income. The well-known Whitehall Study showed that higher grades of male British civil servants had significantly better health than lower grades.

It has, however, proved surprisingly hard to obtain reliable estimates of the effect of health on productivity. At least some of the observed relationship between health and income is presumably due to richer people buying better food and better health care. It is also easy to think of independent factors, such as family background or self-control, which would lead both to good health and high incomes. Moreover, health is multi-dimensional and extremely difficult to measure; much more so, for instance, than education.

There are policy issues whose resolution depends on accurate and detailed knowledge of the links between health and productivity. If planners are to use improved labour productivity as a criterion for the selection of health interventions, they need to know what types of interventions have the greatest impact on productivity. They need to know, for instance, whether an anti-malarial campaign or a nutritional programme would contribute more to improved productivity in the intervention area. They also need to identify interactions between health and productivity where public policy might make a particularly big difference. Economists have long wondered, for instance, whether some very poor people might be caught in a nutritional trap, in which they are too badly nourished to be able to work and earn money, but have too little money to be able to nourish themselves.

Box IV.2 *(continued)*

A recent authoritative review on nutrition, health, and economic development concluded that in recent years, substantial progress had been made in documenting the existence of a causal impact of health on wages and productivity in low-income settings using both experimental and non-experimental methods. A small number of studies suggested that health had a larger return at very low levels of health.

Some of the evidence supporting this conclusion is fairly clear cut. One example is a social experiment carried out by the RAND Corporation in Indonesia, in which a randomly selected treatment population facing higher user fees at public health facilities visited the doctor less often and experienced worse health compared to the control population. The treatment population spent less time working than the control population.

Most of the evidence, however, comes from studies that were forced to make one or more dubious assumptions to cope with the complexity of the interactions. These study findings have become accepted mainly because their results are plausible and consistent.

Some useful findings have been accumulated on specific links between health and productivity. It appears, for instance, that supplementation of micronutrients such as iron can be a particularly cost-effective way to boost productivity. It also appears that very few people in contemporary developing countries obtain so little nutrition that they are caught in a nutritional trap, although, as Nobel laureate Robert Fogel has shown, a trap of this type may have held back development in pre-industrial Europe.

Sources: Fogel, Robert W., 1994. "Economic growth, population theory, and physiology: The bearing of long-term processes on the making of economic policy", *American Economic Review* 84(3): 369-395.

Smith, James P., 1999. "Healthy bodies and thick wallets: The dual relationship between health and economic status" *Journal of Economic Perspectives* 13(2): 145-166.

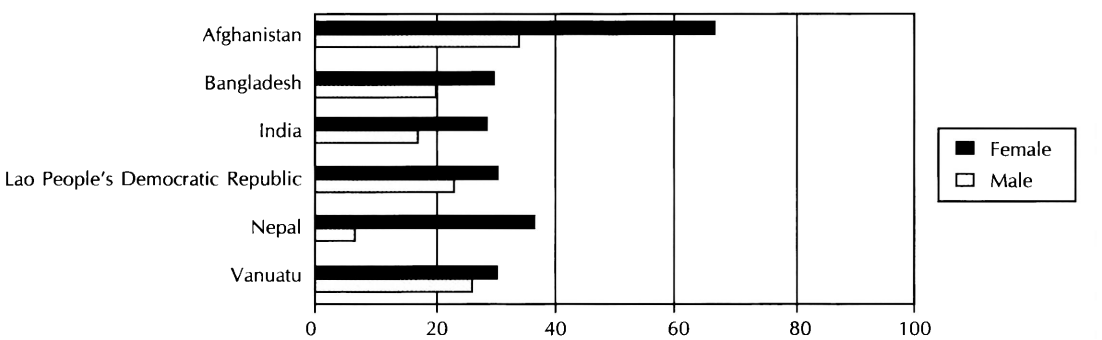
Strauss, John and Duncan Thomas, 1998. "Health, nutrition, and economic development", *Journal of Economic Literature.* 36(2): 766-817.

Box IV.3. How many children work?

The official statistics on working children vary for all countries and are problematic. A few statistical agencies simply deny that child labour exists in their countries. Even when statistics are collected, employers, and many children, are reluctant to reveal the truth to survey data collectors. Non-governmental organizations (NGOs) often publish estimates of numbers of child workers, but NGOs, like schools reporting enrolment statistics, have a financial incentive to overstate.

One way to obtain a rough indication of the number of working children in a country is to look at the number of children of primary school age who are not at school. Few people in developing countries are idle and it is likely that a large proportion of the non-enrolled children work. Box figure IV.2 shows the proportions of non-enrolled children in the ESCAP countries which provide statistics on enrolment, and report non-enrolment rates of at least 20 per cent. Afghanistan stands out as particularly worrying, but non-enrolment rates are also high elsewhere in South Asia. No estimates are available for Pakistan.

Box figure IV.2. Percentage of primary school age group not enrolled in primary school, 1997



Source: Calculated from World Bank, *World Development Indicators 2000* (CD-ROM) (Washington DC).

Principal Findings and Policy Implications V

This chapter distils the main points from the health, education, and employment chapters. The use of the term "policy implications" rather than "policy recommendations" in the title of this chapter is deliberate. Given the report's emphasis on international comparisons, detailed information on the institutions, history and present policies of each country was omitted. Specific policy recommendations made without reference to such information are almost certain to be misleading or irrelevant. This report has, accordingly, refrained from making such recommendations.

International comparisons can, however, reveal unexpected relationships and they provide a standard for assessing each country's policies and achievements. These patterns and standards have implications for the design of policy.

A. HEALTH

- Although there are many exceptions, high-income countries tend to spend a larger proportion of their total incomes on health care than do low-income countries

- In some countries, government agencies are responsible for virtually all health expenditures. In most cases, however, households and firms are responsible for a significant proportion of expenditures, and, in a few cases, for the vast majority of expenditures
- Most ESCAP countries score quite well on the WHO index measuring the fairness of health expenditures. The few countries that score badly all have low levels of public spending. Among the remaining countries, however, there is no apparent relationship between fairness and the public-private mix. The key policy issue is not the public-private mix, but the percentage of the population covered by some form of risk-pooling mechanism
- The relationship between average income and the percentage of births attended by a trained health worker is weak, and the relationship between average income and the percentage of children immunized against diphtheria, pertussis and tetanus is even weaker. This implies that low-income countries can regard high coverage rates for basic health services as an attainable goal
- Life expectancies in the healthiest countries in the ESCAP region are almost twice as high as those in the least healthy countries. The cross-country differences in life expectancy are, however, far smaller than cross-country differences in income, the other main indicator of material well-being
- Countries with low mortality rates also have low morbidity rates (prevalence of illness and disability)
- Women generally live longer than men. Although the female-male gap is smaller, or even non-existent, in South and South-West Asia, South Asia's mortality patterns may be less distinctive than is often supposed
- Malnutrition appears to be a serious problem in a number of low-income ESCAP countries, particularly in South Asia
- Many countries in the ESCAP region have advanced a long way through the epidemiological transition, in which non-communicable conditions take over from communicable conditions as the main source of illness and death. Ministries of health need to take this into account when they set priorities
- Once illness and disability, as well as death, are counted as part of the total burden of disease, neuropsychiatric disorders are seen to contribute a significant proportion of the total burden. This is



particularly true in countries with low mortality. Ministries of health need to set their priorities accordingly

- Tobacco addiction is a major public health threat facing the ESCAP region
- Cambodia, Myanmar, and Thailand have the highest HIV/AIDS prevalence rates in the ESCAP region, although the risk of a sudden increase is present in many others. Past experience has shown that the epidemic can be slowed or contained, provided that policy makers are willing to take a strong lead on contentious issues such as condom availability and high-risk behaviour

B. EDUCATION

- In some countries, tertiary students receive much larger public subsidies than primary or secondary students, despite evidence that primary and secondary schooling have larger social benefits and are more likely to be received by the poor. Some of the countries spending heavily on tertiary education have not yet achieved universal primary education. These countries may be wise to reallocate resources
- Constructing accurate and informative measures of school enrolment is difficult, and many of the published statistics on enrolments are unreliable. The statistics do suggest, however, that substantial numbers of children still do not complete primary school, even in countries where the "net enrollment ratio" is apparently close to 100 per cent
- The pattern of gender bias in enrolment is more complicated than is often supposed. Females have less access to all levels of education than do males in most of South and South-West Asia. In the rest of the ESCAP region, access to primary education seems to be fairly equal, and access to secondary and tertiary education less so. The appropriateness of special policies to address gender bias needs to be decided on a case-by-case basis
- Standard measures of literacy are extremely crude. They do, however, reveal one important pattern: literacy in all ESCAP countries is higher among younger age groups than among older age groups and an upward trend in literacy levels over time is evident
- A number of organizations in the ESCAP region have developed effective strategies for improving adult literacy. These can serve as best practices for other organizations to emulate

- Under-nutrition can be a serious impediment to educational performance and nutritional interventions can be an effective way to improve performance
- Students from Hong Kong; China; Japan, the Republic of Korea and Singapore performed exceptionally well in the Third International Mathematics and Science Study, despite domestic criticism of their educational systems

C. EMPLOYMENT

- Working-age populations have been growing quickly in most ESCAP countries. This includes countries whose overall rate of population growth is small; such countries are said to be enjoying a "demographic bonus"
- Employment statistics are subject to especially difficult measurement and definitional problems, and need to be interpreted with care
- Work for the market is generally more common among men than women, although there is considerable cross-country variation
- The informal sector is an important source of employment in some countries. Available evidence suggests that its importance is about the same for men and women
- ESCAP countries conform to the standard pattern in which workers from low-income countries are concentrated in agriculture and workers from high-income countries are concentrated in industry and services, with services dominating among the highest-income countries. There does, however, appear to be considerable diversity in the balance between industry and services for countries at similar income levels
- Available statistics indicate that unemployment is more common among youth than among older age groups
- Age-structural changes will lead to a sharp reduction in the ratio of workers to retirees in many low-fertility ESCAP countries. Calculations for the Republic of Korea suggest that increases in female employment rates could make only a minor contribution towards slowing this trend
- Examination of primary enrollment figures suggests that child labour remains common in a number of low-income countries, particularly in South and South-West Asia

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