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**SOCIAL INVESTMENT,
PRODUCTIVITY
AND POVERTY
A SURVEY**

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with Geeta Kingdon**

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◆ Preface

In 1994, the Swedish International Development Cooperation Agency (Sida) set up a Task Force on Poverty Reduction to review its experience in reducing poverty, examine the needs and achievements of partner countries, and propose methods and approaches to improve its effectiveness in reducing poverty. UNRISD was requested to assist the Task Force in two areas: the productivity of social services and measurement of poverty with special reference to women's poverty.

This Discussion Paper has evolved out of the work carried out on the first theme. In recent years, there has been a renewal of interest in academic and policy circles on the problems and policies connected with enhancing human development in poor countries. A number of new theoretical and empirical contributions (such as the new growth theories and the work on flexible production in manufacturing) have emphasized the importance of investments in human capacities as both inputs and outputs of economic development. In addition, high levels of human development are being increasingly viewed as a necessary ingredient for successful structural adjustment in developing economies. In spite of these developments, there seems to be a lack of clarity in the development literature on the input and output effects of human development and the way it relates to structural adjustment programmes in developing countries.

This paper attempts to fill this gap by providing a simple, coherent and practical approach to human development. It reviews several diverse strands of theoretical and empirical literature concerned with human development and highlights the nexus of relationships among them. The authors review work on population change, education and health, poverty, productivity, international trade and technological capability and structural adjustment, among other subjects. They go on to focus on the steps involved in formulating a human development strategy, and point out the costs of inaction. Finally, they set out the main elements of best practice human development strategies. The paper thus covers, in a non-technical fashion, a wide range of topics of relevance to many contemporary debates. It should be of interest to academics, development practitioners, NGOs and others interested in human development and adjustment issues.

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◆ Contents

INTRODUCTION	1
I. THE NEXUS OF INTERRELATIONSHIPS	2
◆ Social and Economic Development	2
◆ The Role of Population Change	3
◆ Education	5
◆ Health	8
◆ Relations with Poverty	10
II. HUMAN RESOURCES IN PRODUCTIVITY, TRADE AND TECHNOLOGICAL CAPABILITY	12
◆ Education and Individual Productivity	12
◆ Comparative Advantage and Human Resources	14
◆ Industrial Productivity and Human Resources	17
◆ Industrial Technological Capability and Human Resources	19
◆ Agriculture and Human Development	22
◆ Services and Human Development	23
III. STRUCTURAL ADJUSTMENT	24
◆ Social Expenditures under Structural Adjustment	24
◆ Wages, Employment and Poverty under Structural Adjustment	26
◆ Other Social Indicators	28
IV. FROM PRIORITIES TO POLICIES	29
◆ Rates of Return	30
◆ Other Information	31
◆ Costs of Inaction	32
◆ Some Measures of the Cost of Neglect	33
◆ Supply, Demand and Quality	34
V. HUMAN DEVELOPMENT STRATEGIES	35
◆ Education	36
◆ Population, Health and Nutrition	45
◆ Appendix: The Clothing Industry Training Institute in Sri Lanka	53
◆ Bibliography	55
◆ Notes	70

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Geeta Kingdon contributed the section on Education and Individual Productivity in part II, as well as commenting on the text.

◆ Abbreviations and Acronyms

AIDS	Acquired Immune Deficiency Syndrome
CBA	cost-benefit analysis
DAC	Development Assistance Committee (OECD)
DALY	disability adjusted life-year
ESF	engineering service firms
GDP	gross domestic product
H-O	Heckscher-Ohlin (model)
HD	human development
HDI	Human Development Index
IMF	International Monetary Fund
IQ	intelligence quotient
IRDP	integrated rural development project
NGO	non-governmental organization
NIE	newly industrializing economies
ODA	Overseas Development Assistance
OECD	Organization for Economic Cooperation and Development
SAP	structural adjustment programme
SME	small and medium-sized enterprises
TFP	total factor productivity
TFPG	total factor productivity growth
UNICEF	United Nations Children's Fund
UPE	universal primary education
WHO	World Health Organization

INTRODUCTION

Most things that individuals and societies are capable of depend on the investments that are made in human capacities. Yet when economists have, in the past, talked of investment — although there was a respectable history of attention to human capacities — it was usually a matter of factories and buildings, roads and power-plants. “Human capital” in the growth literature was, until relatively recently, discussed mostly as an adjunct to physical capital. In the last few years there has been a spate of literature on “human development” (HD), which has served, in particular, to establish human and social welfare as the principal objectives of economic development. But economists have also become much more aware of the range of benefits from social investment.

The human development approach owes much to Amartya Sen, and in particular to his efforts to show the weaknesses of considering welfare as a function of the “utility” provided by commodities. The replacement of utility analysis by that of capabilities has been a profound change in welfare economics (Sen, 1993). If this paper concentrates on the productive aspects of human development, it is not out of any lack of sense of the importance of viewing individual welfare in this way. But human development comes about from the social and economic order. At the same time, it contributes to that order, and it is these productive contributions of HD that we focus on here: the contributions to productivity, growth and competitiveness in manufacturing, agriculture and services, and to social integration and avoidance of social costs.

Some recent developments in particular have lit up the stage of research on human resources as inputs. One has been the new growth literature, with its emphasis on the production and use of knowledge and the ways it can be endogenized (Romer, 1986; 1994; Lucas, 1988).¹ New inter-country estimates incorporate education variables which explain a considerable share of economic growth (Barro, 1991).² And the phenomenal growth of the East Asian countries has been shown to be due to a considerable extent to their human investment (Ogawa et al., 1993; World Bank, 1993a). (A small stir was created in 1994 by an article questioning whether there was anything unusual in East Asia’s development; it claimed that everything could be “explained” by high levels of accumulation — including education of course (Krugman, 1994 citing such works as A. Young, 1994). But sustained high levels of accumulation in the neo-classical growth framework leave something *unexplained* (*why* were levels of investment so high — or what is, even to a neo-classical economist, the same thing, why were rates of return so high that these investments continued?). In the “new growth” models, these things may be less puzzling.

Another development has been in the world of manufacturing itself. First, competition has been widely seen to have been affected by “lean production”, “flexible production” and other changes. Second, countries facing competition from new lower cost producers as their own wages rise have had to “upgrade” their products, product-mix and technological capabilities to succeed in world markets. It is well known that this has much to do with human skills; even in some industrialized countries, falling behind in the skilling of the labour force has been a frequent topic in the media and in academic research.³

These “input” and “output” strands have only rarely met. Clearly, the two approaches have to be integrated with each other, and with a third. Structural adjustment, which has formed the dominant macro-economic context of development in the recent past, has often failed to attend adequately to HD issues. The present paper attempts to address the need for a more coherent analytical and practical approach to human development. It attempts to bring together the humanitarian and productivity objectives of human development; the roles of government, and the private and “third” sectors in service provision; the place of supply of and demand for services; and the relative roles of quantity and quality of services. In much of the better known literature on human development, the second half of each of these pairs of dimensions is relatively neglected. Here they are given fuller emphasis, and related to structural adjustment.

The more traditional literature concentrates on the myriad interrelationships in human development. These too are reviewed, and form our point of departure; we have extracted from a huge range of studies those findings which bear particularly on policy.

I. THE NEXUS OF INTERRELATIONSHIPS

◆ Social and Economic Development

At a national level, there is a broad correspondence of social indicators with per capita income: the higher the level of income, the more governments and individuals can afford to spend on basic services. But as is well known, income is far from being the only determinant: if for any indicator one plots a curve relating its level in each country to per capita income, there will be a considerable spread of countries around the curve, with some distinct “outliers” well above and below it. Very commonly if it is a health indicator, a large part of the variation from the curve can be explained by education, particularly female education.⁴

This is true even at relatively high income levels. In several high-income countries where life expectancy is below the average for their level of income, female education is relatively neglected. The extent of female education often proves to be a key factor for the outliers, positive and negative, at low income levels as well. Female education has been found to be the most important single positive correlate of life expectancy in the developing world (Caldwell, 1986). Yet income is also one of the principal determinants of education level.

One could say that the national level of income is an indicator of capacity to afford the activities that produce given levels of social indicators; how far that capacity goes will be a function of many things, including the extent of poverty and the distribution of income; policies; and cultural, religious and political factors.⁵

At the same time, as we are now increasingly aware, levels of education and health enter into a society’s capacity to *generate* income. Something similar is true at the individual and household levels: households’ capacities to give good standards of health and education to their children depend in part on their incomes, which in turn are strongly influenced by *their* education and health. There is thus considerable inertia in societies’ social indicators, especially when they are at

lower levels; and considerable transmission of conditions from one generation to another at the household level. (In societies as different as China and the United Kingdom, for example, a principal determinant of years of schooling is parents' years of schooling. See Knight and Song, 1992; Connolly et al., 1992.) This mutual determination makes research on the determinants of social welfare difficult, and also poses particular issues for policy. Understanding the causal linkages will contribute to the formulation of strategies that can break the inertia.

◆ The Role of Population Change

The effect of population growth and high fertility should also be noted at this early stage. Although many aspects of the link between population and development are still controversial in the research community, the specific links with human development are much less so. At the national level, one of the few cross-country regressions in the field which is significant and negative is that between population growth and educational expenditures per pupil. The faster population grew in the 1980s, the less was spent (Schultz, 1988). This is not surprising, since education budgets typically grow slowly, while school populations grow quickly. (Many other things which would not be surprising do *not* show up in such regressions.) The sums are large: it has been estimated, for example, that had Korea still had in the 1980s the levels of fertility which prevailed in the 1960s, its public costs for primary schooling would have been higher by 1 per cent of GDP — at the per pupil cost of the 1960s (World Bank, 1984). Similar effects are observable for health.

At the household and individual levels, the effects of high fertility can be seen from household surveys. There is in fact considerable, though not uniform, evidence of negative consequences for children of having large numbers of siblings; and for mothers in bearing them.⁶

Not all the consequences for children are purely related to the number of siblings. Children born less than eighteen months after a previous birth have a risk of dying roughly twice that of a child born after an interval of two years or more; and children born to young mothers (less than 18 years), or very much older mothers, also have higher than average mortality risks. It is commonly the case, though, that short birth intervals and early and very late births are associated with high fertility. Much the same is true of maternal mortality: it is a function of both age and parity, as well as socio-economic setting. It is also a function of whether births are wanted or not — one of the highest mortality risks for mothers in developing countries is from unsafe abortion. When all the risks for mothers are joined together, it is clear that bearing numerous children is a dangerous activity for Third World women: a woman experiencing high fertility levels common in Africa has about one chance in six of dying as a result. It is also in some respects restrictive of life-opportunities: at such fertility levels, a woman will spend one third of her adult life in pregnancy or lactation (Dasgupta, 1993). The first conclusion, therefore, is clear enough: significant mortality risks to mothers and children are often associated with high fertility.⁷

The number of siblings, or “sibsize”, also affects parents' investment in their children. Two main effects have been studied: the impact on children's nutrition, and on their education. Whether or not sibsize has a negative effect seems to depend both on socio-economic conditions and on the stage of the demographic transition; and when there are negative effects, there is frequently a gender dimension. It seems that when socio-economic conditions are poor and fertility

high, there is not much effect of sibsize. This is not as paradoxical as it might seem. Certainly as far as education is concerned, very poor families who are barely sending children to school and who are having six or more children will not differentiate much among their children; and when everyone's nutrition is low, again few differences among children may be observed.

The main differences are found when total fertility is in the range of 4-6, and real economic opportunities exist. At these mid-range fertility levels, two conditions are present: a higher proportion of children are unwanted,⁸ and there are both incentives to parents for educating their children, and higher costs of doing so. Even in these conditions there are variations depending on cultural and other factors. In African societies the first-born tend to be favoured; in others the older siblings, especially girls, may perform farm or household tasks and younger children become educated. It is commonly the later-born siblings who will suffer from malnutrition; the gender dimension is evident particularly in societies where there is a strong preference for male children.

While at very high levels of fertility — total fertility of 6 and above — sibsize effects are not pronounced, at these intermediate levels there is a clear association in a number of studies between sibsize and malnutrition; there is also a negative association with educational attainment. Again there is often a particular effect on girls — in education, especially the older girls in the family, who are more commonly made to sacrifice for their younger siblings or, more frequently, brothers. The gender effect has some subtle characteristics. In smaller families there is a higher probability that one sex will be under- or un-represented, and thus children with fewer siblings may cross traditional gender boundaries of working roles in the domestic economy; but whether this helps girls depends on whether they get access to other resources. Where female status is low and gender discrimination in the family common, even in smaller families girls will contribute by household and farm work to releasing family resources for their brothers' education (Jejeebhoy, 1993).

As Cynthia Lloyd (1994) observes, if girls do not receive an education, they will themselves as adults be more dependent on their own children; they will for that and other reasons be likely to experience high fertility. There is a strong likelihood, given these difficult socio-economic conditions, of the intergenerational transmission of poverty, high fertility and poor human development.

The household effects are likely to be compounded by societal ones in a low-income country. One thing that is fairly constant independent of the level of development and the stage of the demographic transition is that household educational expenditures per child decline with family size. If rapid population growth dilutes governmental per-pupil expenditures on education, the effect at the household level is reinforced. If, in addition, fiscal revenues are compressed by slow growth or the need for adjustment, the consequences for poor families of the combined squeeze on private and public resources can be severe.

To the extent, therefore, that human development helps immediately to reduce mortality, fertility and population growth, it will contribute to further improvement in human development in the future, breaking a part of the inertial restraint through the population mechanism.

Two objections are possible to this argument. If we suppose that population growth makes a positive contribution to the growth of per capita income, the lowering of population growth may be unhelpful. The answer to this is that while the general question of the relations between population and per capita income growth is unsettled, there is no evidence that the contribution is positive in poor countries. On the contrary, for what it is worth, a negative association has been found between population growth and per capita income growth in the 1980s — and the poorer the country, the more negative the effect.⁹

A further argument is that while population growth may have reduced per capita public expenditure on education, there is no correlation between such expenditure and educational outcome, so it does not matter much. The absence of such a correlation is widely noted; but the reasons for the fact in developing countries, to the extent that it is a fact, do not support the conclusion. The truth has much to do with the *quality* of education: if it is low, declines in per capita spending may not make it lower; if expenditure is inefficiently allocated, raising it may also not help. In fact many countries, until the 1980s at least, were increasing school enrolments faster than population; but the consequences of reduced per capita expenditures have very commonly been a reduction in the quality of education, with often strongly deleterious results. We return to this all-important issue below.

◆ Education

Education is in some sense the key sector. It has more widespread links with other aspects of development, and contributes more to other objectives than the fulfilment of those objectives does to it. Further, the educational system can serve as a “delivery” vehicle for other social sectors. Research has concentrated on relations with health and fertility, and on the returns to educational expenditure. There are also, of course, important effects on productivity; these are treated in a later section.

Education and health

Relationships between education and health, of the educated *and* their children, are fairly well attested, even if the mechanisms are uncertain: via nutritional knowledge, via greater likelihood of demanding and using health services, via knowledge of disease transmission. It may be even more general, through socialization and modernization, and through increasing female status within the family, with consequences for family resource allocation to children and health.¹⁰

Not all studies show female education to be more important at the aggregate level; but the widespread tendency for mothers to be the principal providers of health care for children within the family is one of many considerations emphasizing the importance of female education. The path may be through income: educated mothers will earn more; and mothers’ income in some settings may have a multiple of the effect of fathers’ income on children’s health and nutrition (see Hoddinott and Haddad, 1995; Thomas, 1994).

Education and fertility

Again, the relationship is well attested. The “mechanism” by which it works has three components: those affecting exposure to the likelihood of childbearing, most

importantly age at marriage; those affecting desired family size; and those affecting the ability to regulate fertility. Female education commonly emerges as more significant than male. Many of the consequences of education, from changing aspirations and labour market effects, to better understanding of contraceptive use, play significant parts. Since improved child survival contributes to fertility decline, and fertility decline contributes to mothers' and children's health, there are many possible interactions and causal sequences.

Some studies in some regions show positive (statistical) effects of the early years of education on fertility, but probably because of intervening variables such as improved health and ability to conceive, or "modernization" and interference with traditional fertility-restraining practices such as post-partum abstinence. These effects occur most commonly at lower levels of economic development, and when only a few years of primary education are completed. More commonly the association is monotonic — lower fertility is associated with each additional year of education (Cochrane, 1986; 1988).

Returns to educational investment

Rates of return to education have been much studied at the micro-level, and found to be sizeable and positive. There is some question whether these findings are the most persuasive part of the case for human development. A particular problem is that externalities at the societal level — health, fertility, productivity, institutional capacity — are rarely estimated, but may be at least as important as the micro effects that are measured. Rate of return calculations are useful to give confidence in the worthwhileness of particular educational investments, and for comparing their relative value. But even as guides for investment choices in education, they need considerable supplementation.¹¹

The main method of estimating returns to education is to look at "valued added", typically comparing wages derived from age-earnings profiles for people of different schooling levels as measured by years of education. Even the private rate of return is not measured accurately: all that is usually measured is that part of the return that is contributed by market wages. There are in fact numerous private benefits of education that are not thus captured, marketed and non-marketed, within and beyond the household;¹² this is particularly the case with women's education.

There is some concern in the literature that returns to educational investment have been exaggerated because of a lack of control for unincluded variables, such as family background or innate intelligence, or because average rather than marginal effects are often measured. One of the principal sources of this concern overlooks two points (Behrman, 1990). First, a child's family background and capacities may account for performance attributed to education — but where did the preceding generation acquire its capacities, if not from education? Educated parents may be able to transmit many of the benefits of their education to their children, but that should hardly be allowed to imply that it is therefore less important that their children go to school. Second, the author concerned is perhaps also overly impressed by the fact that in some studies with sibling controls, the experience of the unschooled sibling is similar to that of the schooled one in relevant respects. It is possible that the schooled child imparts his or her knowledge to the unschooled sibling. Indeed, the ability of children to teach each other is known, and reflects possibilities of which advantage can be taken (see Hawes, 1988).

Most of the “missing” elements in standard rate of return estimates would only add positively to the estimated rate. The exception is the “marginal versus average” issue, that is, the possibility that *current* age-earnings profiles exaggerate the *prospective* earnings of current school-goers. If this effect is small, then the standard estimate gives a lower limit to the true rate of return. However, we do not know that it *is* small. Altogether, one cannot be content with the commonly cited rate of return estimates based on market wages.

Primary education: The generality of high returns in primary education should not distract attention from the widespread problems of poor quality of education, poor facilities, high dropout rates, and a lack of family motivation to send children to school (especially in rural areas). There is, at the least, a question (referred to below) of how to resolve the discrepancy between the high estimated returns to primary education, and its commonly poor quality. It is also observed that quality may have deteriorated, for example, in sub-Saharan Africa under high population growth and economic retrenchment. (A World Bank report [1988a] on education in Africa emphasized that the rate of return may have declined.) As education expands, there may be a tendency for rates of return to decline secularly (Psacharopoulos, 1987). Broadly, however, despite all the problems, it is primary education which has the highest returns, and makes important contributions to economic growth.¹³

Secondary and tertiary education: Although the returns are usually found to be lower than for primary education, secondary and tertiary education are now seen to be of growing importance because of skill shortages and lack of administrative/management capacity. At least some studies question the primacy of primary education, or at any rate of pursuing universal primary education at the expense of more balanced educational development (for example, Knight and Sabot, 1990). There are equity problems, in particular with tertiary education, mainly to do with funding methods and the fact that it is the better-off who tend to take most advantage of opportunities at higher educational levels — but this is in part related to the fact that the children of better-off families in developing countries are more likely to complete and do well in primary education.

Private returns to secondary schooling do sometimes exceed those to primary schooling, most often in countries that already have fairly complete primary education; these would seem to be cases of countries where secondary schooling has not expanded fast enough to satisfy the demand for workers with better education (Jain, 1991; Schultz, 1993).

The returns to tertiary education may be found to be low for a number of reasons: it is often high-cost and inefficient; it is often of low quality; and it is often devoted to subjects with relatively low market returns. The average return to tertiary education being low should not overshadow the fact that there may be very high returns for specific parts of it.

It is probably time to abandon the conventional wisdom that the highest returns are in primary education, followed by secondary, and then tertiary with the lowest — not because it is in general wrong about the relative priorities of the three levels of education, but because the rate-of-return studies do not always show it to be right; and as a generalization, it may be somewhat misleading for educational policy. Some of the rate of return analyses on which the conventional view is based were

carried out with ancient or faulty data; and some current assessments in Africa and Latin America have shown higher returns to secondary than other education (see Bennell, 1994; Jain, 1991; Schultz, 1993). A much wider range of factors than conventional rate of return estimates must be examined to determine educational priorities.

Vocational education: Almost all studies (one for China is an exception) find vocational training in schools to be an expensive way of doing the wrong thing. There is a preference for general education plus on-the-job or formal training by enterprises. But this leaves the problem to enterprises, which will not automatically provide solutions. Government-enterprise collaboration may be important in ensuring good results.¹⁴ Strictures on vocational education in schools do not apply to artisan and higher level training in purpose-designed institutions. The subject of training is treated at greater length below.

◆ Health

Like education, health influences productivity and fertility, as well as being valued in its own right.

Health and productivity

Both old studies and new testify to the relationship, but it is not strong at the individual level. The “old” studies considered, for example, the influence of tsetse fly or onchocerciasis on land-use; the role of malaria and other diseases in worker productivity; the relations between iron supplementation and labour productivity. More recent studies have shown significant relationships between health/nutrition and educational performance (Pollitt, 1989 surveys the field); or between health and income. The strongest effects occur among the very poor.

Health and fertility

Health affects fertility first via fecundity, the ability to conceive. There is not much evidence that nutrition is important, except under acute deprivation. Malaria and other diseases *do* affect fecundity. So some health improvements may increase fertility. But still, second, the main expectation is that better child-survival is important for fertility decline where fertility is high and children are regarded as economically important to families. Since parents’ education affects child survival, this is yet another avenue of the education-fertility relationships, and illustrates the complexity of interactions.

Fertility also affects health. As already noted, under prevailing conditions of childbirth in most developing countries, risks of maternal mortality are high. There is also evidence that child numbers and spacing influence child survival. Where contraception is not available and unsafe abortion is resorted to, there is an additional major source of female mortality.

Health interventions

It is well known that it is hard to account for health improvements. It is also important not to attribute too much to the health care system. The principal factors are easy to list:

- Health care (government or private)
 - technology, organization/management, expenditure
- Non-medical factors
 - environment (housing, water, sanitation, air quality, workplace)
 - reproduction (age, parity, spacing)
 - nutrition (agriculture, food, prices)
 - the economy (income, employment)
 - household capacity (role of women, education, motivation)¹⁵

What is less easy is to understand or predict are the interactions among the various factors, which makes for difficulty in determining priorities in health. The situation is further complicated by the fact that economic development does not have unambiguously positive effects on health. While the poor need higher incomes for most health-related purposes, marginal expenditure out of additional income on food, for example, is not always nutritionally efficient. And the problems of the epidemiological transition are becoming more apparent, as countries move from conditions in which the main problems are those of maternal and child health and communicable diseases, to those of chronic and non-communicable illness, often related to economic growth and sometimes bringing — if sufficient progress has been made with the first set of conditions — rising mortality. The “modern” pattern of disease may include lung and other cancers associated with smoking, heart disease, and industrial and traffic accidents.

An unfortunate development in poor countries with populations growing rapidly under conditions of poverty is worsening urban environments. The consequences for health are particularly undesirable. In India, for example, local governments have simply been unable to keep up with growing populations in urban areas in terms of providing jobs and services. The health status of the urban poor is often appalling. A report on health in a Bombay slum, for example, finds that

70 to 75 per cent of the women suffer from anaemia, 50 to 60 per cent . . . from chronic malnutrition . . . 25 to 30 per cent . . . from repeated attacks of gastro-enteritis and infestation of worms, 15 per cent complain of respiratory tract infections, and 13 to 15 per cent suffer from skin infections like scabies, pediculosis, and pyoderma. Apart from these common ailments, they also suffer from pulmonary tuberculosis, urinary tract infection, typhoid fever, infectious hepatitis, malaria . . . (Repetto, 1994:62 citing **The Economic Times**, 28 April 1985).

This gives a clear meaning to what is meant by urban environmental conditions. The fact that health conditions and health services are often even worse in rural areas gives an indication of the magnitude of the tasks to be accomplished.

A new factor in the epidemiological transition is AIDS, which has particularly devastating social and economic effects. There is uncertainty about the likely effect of AIDS on mortality; though even at the currently anticipated worst, for example in Africa, it is mostly expected to keep mortality from falling rather than lead to greatly increased mortality. (Only one or two epidemiologists suggest AIDS could generate actual population decline in the countries of greatest prevalence; their views are not widely shared, though it could happen in one or two countries, such

as Zimbabwe, where AIDS incidence is high and fertility is relatively low and declining.) The consequences for attitudes to fertility and other social matters are incalculable.

◆ Relations with Poverty

Human development relates to poverty bi-directionally: incomes, health and nutritional status affect people's access to and ability to benefit from services; and their education and health have important consequences for their ability to earn income. As with all these relationships, there are of course numerous mediating variables.

Income as a determinant of human development

Incomes clearly play a major part in people's health and education. Income is, first of all, a major determinant of nutritional status. This does not mean that raising income is the only important means to overcome malnutrition. Studies show that increases in the income of the poor are not always well spent nutritionally (there is substitution of higher "quality" for more nutritious foods, such as polished for unpolished rice, and diversion of expenditure to non-food items — though the latter may have to do with whether the income is father's or mother's).

The imperfect correlation of household income with nutritional status also relates to education and to health status and community variables influencing health: a study in Pakistan, for example, concluded that "household food availability does not appear to be the most binding constraint on children's nutrition" — the health of parents and children was also important, with water-supply, sanitation and other community inputs which contributed to health playing a significant part.¹⁶ Clearly where protein-calorie deficiencies are large, income and food availability will be essential; but very commonly they cannot by themselves address the nutritional problems of the poor.

Income *is* an important determinant of access to services such as health and education. The children of poor families will be under more pressure to earn money, or do household tasks that release their parents for gainful employment. They will also lack the means to cover the direct costs of attending school, transport if the school is far away, writing materials and the like, and uniforms where those are required. Since education is increasingly becoming a self-help or fee-paying activity, the poor will be less able to participate. But access to education also relates to other factors, such as ethnic or social characteristics, which form the basis of discrimination. Here again, a web of circumstances combine to penalize the poor and to keep them poor, since very often poverty itself is associated with social groups disadvantaged in a variety of ways.

This set of issues raises one of the key problems facing the policy maker wishing to promote human development, namely that of supply versus demand. All too often the job is thought to be done when supply is attended to, whether it be school places (even school places made suitable for girls where this is important), or health clinics. In the case of education, it is very often the same thing that makes people poor that keeps their children out of education. If they possess some characteristic for which they are discriminated against in the labour market, their children, facing the same discrimination, will find the returns to schooling lower

than they should be, and parents will be discouraged from making sacrifices to put their children through school.

Another important factor is the lack of attention poor parents (and sometimes not-quite-so-poor parents) may give to children in specific ways important to their development. This is not just nutrition and health, but intellectual and social stimulation that assist a child's mental and emotional development. There is considerable evidence that what happens to a child in the first four to five years of life is critical, sometimes irrecoverable, in determining his or her later progress (Martorell and Habicht, 1986; M.E. Young, 1994).

Human development as a determinant of income

The rate of return evidence cited above, however imperfect, bears clear witness to the potential role of education for improving the incomes of the poor. The poor commonly lack assets and human capital is among the most important (and least expensive) assets with which they can be provided. The section on productivity in manufacturing and agriculture below provides further evidence, if evidence is needed. What is perhaps more important is to bring out the "nexus of interrelationships" surrounding this issue too. Health and education contribute to income — but also to each other.

As already noted, education contributes to the health of the educated and their children. But health also contributes to education: again, there is widespread evidence that ill and poorly nourished children perform less well in school. Both health and education are important to improved survival prospects for children and for lesser fertility, leading to the smaller families in which human development is more likely to be well provided for.

It goes without saying, of course, that other assets are of crucial importance as determinants of poverty and wealth. Ownership of land, or secure rights to land-use, access to common property resources and credit, together with other productive resources, are all important matters that have to be addressed in an anti-poverty strategy, even though strictly outside the confines of the present paper.

II. HUMAN RESOURCES IN PRODUCTIVITY, TRADE AND TECHNOLOGICAL CAPABILITY

◆ Education and Individual Productivity

A large body of research has examined the association between education and individuals' productivity, with productivity being measured either by physical output or, in urban settings, by wages. A substantial positive association suggests that education significantly enhances workers' productivity, and this has come to be known as the human capital interpretation of education. However, the screening or credentialist hypothesis¹⁷ challenges this interpretation, arguing that employers may be using education as a way of identifying the most able workers. In other

words, the apparent large productivity returns to education may really accrue not so much to education as to ability, with which education is likely to be highly correlated.

If true, the screening hypothesis has potentially far-reaching implications, the chief one being that the efficiency rationale for public investments in education would be much weakened: society would derive less benefit from the education of individuals, although the individuals themselves would still enjoy private returns to education. This challenge inspired a number of studies that aimed to isolate the effect, on productivity, of education and ability, usually in the context of Mincerian earnings functions. Many imaginative ways of separating out the effects of education and ability have been tried in the applied literature, the main ones being the following:

- (i) Controlling for ability by using IQ-type tests. The results of these studies, both in developed and developing countries, did not reject the human capital interpretation. With IQ included, the returns to education typically fell only a little. However, the criticism of these studies has been that no IQ test can adequately capture all aspects of innate ability and, in any case, there is scepticism about whether any IQ test can be truly orthogonal to education.
- (ii) An influential study on Kenya and Tanzania (Boissière et al., 1985) found that when schooling, IQ, and a measure of cognitive skills were included as independent variables in the earnings function, returns to education did not collapse, and there were high returns to skills. This constituted at least a partial rejection of the screening hypothesis.
- (iii) Controlling for ability using a sample of identical twins, that is, regressing the difference in earnings on the difference in education between pairs of identical twins (Taubman, 1976). The results showed substantial returns to education even after the strong controls for both genetic and environmental ability, and they vindicated the human capital interpretation of education. Although the regression involving differences was shown to suffer from measurement error problems, a recent twin study using a measurement error model to correct for such problems (Ashenfelter and Krueger, 1992) concluded that the rate of return to schooling was even higher than that obtained from standard cross-section regressions.
- (iv) Controlling for ability by using an instrumental variables approach. A recent US study uses the Viet Nam draft lottery number to separate out the effect of education and ability in the earnings function (Angrist and Krueger, 1992). The draft number, which was randomly assigned to adult males in the United States in 1970, formed the perfect instrument in that it was uncorrelated with ability but highly correlated to years of schooling. Those with low draft numbers were the most likely to be called up for action and, therefore, had an incentive to enrol in education as a way of avoiding the draft. As a result, those with low draft numbers had, on average, more education than those with high draft numbers. The method of instrumental variables isolated that bit of extra schooling which was due to this random allocation. The study found that the return to education was 7 per cent, suggesting little ability bias in conventional estimates. These results were corroborated by another study using birth quarter as an instrument for education (Angrist and Krueger, 1991). Together, these studies are seen as a fairly decisive rejection of the screening hypothesis.

Other attempts in the literature have included comparing returns to schooling among groups that are likely to face screening — such as waged workers, migrants, new recruits, etc. — and those that are unlikely to be paid according to their educational credentials, such as non-migrant (or local) workers and existing workers (as opposed to new recruits), etc. (Wolpin, 1977; Albrecht, 1981). Though there is some evidence of “weak” screening in some developing countries — that is, workers being paid according to their education signal at recruitment and in the early years of employment — the results of most such studies support the notion that education increases worker productivity.

Several other observations appear to militate against the screening view. For example, educated farmers produce greater output than uneducated ones (see, for example, Jamison and Lau, 1982) so the idea that education enhances productivity does not depend on the use of wages as a measure of productivity. Second, employers pay educated workers more than uneducated workers even after long tenure, that is, even after they have had an opportunity to observe their workers’ true ability and productivity. Finally, the most telling evidence in favour of the human capital explanation of education is that there are substantial returns to education in the informal and self-employed sectors in many countries (Psacharopoulos and Woodhall, 1985), sectors where there is little or no possibility of credentialism.

Taken together, the evidence points strongly in the direction of a human capital interpretation. While it is acknowledged that in certain sectors credentialism may still hold, such as within public sectors in some developing countries where there is bureaucratic pay setting, there is now a good degree of consensus that, in general, education does significantly improve people’s productivity, and this is the efficiency or productivity-based justification for the importance of education.

◆ Comparative Advantage and Human Resources

The importance of human resources as an explanation of trade patterns and comparative advantage is well established in the international trade and development literature. The neo-Heckscher-Ohlin (H-O) model isolates relative factor endowments between countries as the crucial determinant of trade patterns and comparative advantage, and predicts that countries will tend to specialize in the production and export of goods that use relatively intensively their abundant factors of production. Thus, a country with a large factor endowment of skilled labour will have a comparative advantage in the production and export of skill-intensive goods. In general, developed countries specialize in exports requiring more advanced skills while developing countries specialize in exports requiring less specialized skills.¹⁸ Several simplifying assumptions are necessary to prove the neo-H-O theorem, which is often presented in a simple framework (i.e., two factors of production, two commodities and two countries); these include identical technologies, perfect competition, homogeneous products, no factor intensity reversals and no transport costs. The neo-H-O theorem can be stated in a commodity version (examining commodity trade and listing commodities as skill-intensive or otherwise) or a factor content version (examining the skill content of exports and imports).

A vast literature exists on empirical tests of the neo-H-O model for developed countries.¹⁹ While econometric tests of the neo-H-O theory in its commodity version have produced good results, the skill measures used by many studies have been fairly broad. Measures used to capture variations in skill levels — such as average wages or the number of years in formal education — do not sufficiently capture crucial aspects of skill formation. In particular, these measures do not (i) reflect the important aspect of on-the-job training; (ii) distinguish between different types of skills necessary to create competitive advantages in different industries (marketing, engineering, managerial and shop floor); and (iii) distinguish even more finely between different types of engineering skills required. Some studies have used the proportion in the labour force of scientific and technical personnel to capture skill levels. But even this measure may be too general to illustrate which technical skills have been significant and whether they are acquired by formal or on-the-job training.

Several empirical applications of the neo-H-O model have been conducted to explain export performance in developing countries. The findings of two of the most interesting cross-country studies can be summarized as follows. One of the earliest studies, a cross-section test of the neo-H-O model (Helleiner, 1976) regressed developed country imports from developing countries as a group on several determinants — including total factor intensity (value added per employee), capital intensity (non-wage value added per employee), and human capital intensity (wages per employee). It found that the human capital intensity variable was significant and negative in sign but neither the total capital intensity nor the physical capital intensity variables were significant. The second study examined the determinants of export performance of 10 Asian and Latin American developing countries with developed countries and found some support for the neo-H-O theory (Amsden, 1980). It found that human capital or skill intensity (average wages and the proportion of technical employees in the labour force) had a significant negative effect on the propensity to export, but that physical capital (capital stock per worker) was not significant for most developing countries. Thus, cross-country studies found support for the neo-H-O theory.

Other empirical applications were conducted on individual developing countries in East Asia and Africa. One study attempted to examine the role of skills in explaining comparative advantage in the Republic of Korea (Petri, 1988). It included the proportion of scientists and engineers in each industry to represent skill intensity as one of the determinants of Korea's revealed comparative advantage across industries. With skill intensity turning up significant and negative in sign, the study concluded that the results provided some evidence in favour of the neo-H-O theory of trade.

Another test of the neo-H-O theory for Singapore also lent some support to the theory (Tan, 1992). Using panel data, it regressed indices of industry-level revealed comparative advantage on capital intensity (capital stock per worker), human capital intensity (capitalized value of average less unskilled wage) and skill intensity (share of the labour force in professional and technical jobs). It found that the human capital variable turned up a negative sign and was significant but that the physical capital and skill intensity variables were not significant.

Finally, Lall et al. analysed the determinants of Kenya and Tanzania's export performance with OECD countries and African countries and considered skill

intensity among other influences (1987). In cross-section regressions, skill intensity (average wage) was found to have a significant negative effect on industry-level revealed comparative advantage, while capital intensity (capital stock per employee) was only significant in a few cases. The study concluded that Kenya and Tanzania's trade with OECD countries was less skill-intensive than their exports to African countries. Thus, the individual country studies also found support for the neo-H-O theory.

The success of cross-country and single country studies encouraged researchers to become more innovative in their empirical tests of the neo-H-O theory. In an interesting new development, a few studies have begun to explore how international comparative advantage is manifested at the firm level in developing countries. A study explaining export performance of Indian firms in 13 industries found that the proxy for skills (the share of high income employees in the wage bill) was significant with a positive sign in four industries (Kumar and Siddharthan, 1993). Meanwhile, the proxy for capital intensity (gross fixed assets to sales ratio) was significant with a negative sign in six industries. More recently, a study of leading Sri Lankan firms in the garments and engineering industries found that the proxies for skills (the average wage and the share of quality control manpower in total employment) were both significant with a positive sign (Wignaraja, 1997). However, the proxy for capital intensity (fixed assets per employee) was not significant. The two firm-level studies concluded that their results provided support for the neo-H-O theory.

To explain the positive signs on their skill variables, these studies argue that the neo-H-O variables can be firm-specific, determining not only which countries are likely to enjoy a comparative advantage in international markets but also which firms can exploit that comparative advantage better than others. Firms within the same industry can be expected to have differential access to factor markets, different rates of skill creation, different information about final markets and different entrepreneurial and organizational capabilities. Consequently, comparative advantage in terms of skills, technology, scale economies is not likely to be shared equally by all firms constituting the exporting industry. One cannot, of course, deny the importance of country-specific and industry-specific advantages, which are available to all firms equally. But some advantages will be firm-specific, since certain managerial, organizational and other skills will be peculiar to each enterprise, as will production methods, technologies and know-how based on experience.

The bulk of research conducted to date highlights the importance of human resources as a determinant of the trade patterns of developing countries but it has not attempted to disaggregate human resources by gender. Case studies of Asian developing countries undertaken since the early 1980s have suggested that educated female workers have played an important role in the growth of manufactured exports from developing countries.²⁰ These studies typically suggest that female workers are less unionized, more disciplined and willing to work longer hours than men. In another bold development, a recent study attempts to test the link between gender and exports within a cross-country test of a neo-H-O model of international trade (Berge and Wood, 1997). To capture the influence of gender on export composition, the study includes a gender-gap measure (i.e., the share of female school years in a country's total school years) along with other independent variables in the regressions. Contrary to expectations, however, the gender-gap variable is not significant. Thus, the study fails to find statistical support for the

view that manufactured exports from developing countries depend more on the education of women than of men.

This result does not cast doubt on the significance of the case study evidence on Asia. Instead, it highlights a weakness in the cross-country regression method employed: the variable used may not be an appropriate proxy to capture gender differences in education levels of export workers in developing countries. The gender-gap variable only captures the gender differences in education levels in the *country*, and not those of workers in exports. It is possible that the proportion of total female school years in total school years may be high, but that the numbers of such workers in exports may be low, and therefore a variable of the kind used will turn up as statistically insignificant. Industry and firm-level studies might provide more revealing data for future statistical analysis of the influence of gender on exports. In this regard, a study of enterprise performance in Swaziland, Botswana, Malawi and Zimbabwe sheds some preliminary light on the issue (McPherson, 1995). It found that female-run enterprises were at a disadvantage in terms of survival relative to enterprises with male owners in Malawi and Zimbabwe. However, the lack of data (on variables like education level and previous work experience of the entrepreneur) did not permit an analysis of why this might be.

The formulation of the neo-H-O model represents an impressive intellectual achievement. Its rich, formal structure has made it a useful instrument for investigating a number of theoretical questions and the source of hypotheses for empirical testing. The general findings for developing countries are that human capital or skills exercise a significant negative effect on the export performance of developing countries whereas physical capital has a negligible effect — that is, deficiencies in human resources are a greater obstacle to exporting than capital shortage. The weakness of the framework lies in the stringent nature of its assumptions, which have excluded consideration of other sources of comparative advantage. Subsequent research based on the “new” theories of international trade has explored the effects of other influences on the trade patterns of developing countries, including technology, economies of scale, product differentiation, intra-industry trade and imperfect competition.

What does the neo-H-O model imply for human resource policy? The theory’s main conclusion for developing countries, with a scarcity of skills, is that they should specialize in the production of goods requiring less specialized skills and exchange them for more specialized skill imports from developed countries. The dynamic version of this approach is often expressed in the form of Balassa’s “stages of comparative advantage” argument (Balassa, 1977). This argument suggests that the comparative advantage of developing countries will change under the impetus of physical capital and skill accumulation. The skill accumulation process in developing countries is assumed to take place automatically with the passage of time. Market failures in skill accumulation in developing countries are typically downplayed and there is little scope for policies to promote investment in skills or human capital. The neo-H-O model provides the theoretical foundations for the “neo-classical” or “neo-liberal” approach to economic policy in developing countries, which recommends outward-orientation and market-determined resource allocation in the economy. The policy implications of this approach for human development will be discussed in the section III.

◆ Industrial Productivity and Human Resources

The literature on trade and comparative advantage discussed above was mainly concerned with explaining the influence of human resources on trade patterns. One of the cornerstones of the neo-H-O model is the assumption that technological knowledge is instantaneously and costlessly available to all firms within countries. Limited attention has been paid in the trade theory literature to investigating the validity of this assumption. Where it has, the focus has been on attempting to estimate total factor productivity growth at the national level in developing countries. However, a new literature relying on production theory and employing primary data collected from manufacturing enterprises in developing countries has provided a number of insights into the nature of static productivity differences among enterprises and their determinants.

A large literature exists on total factor productivity (TFP) growth in developing countries. Following the literature on productivity growth in developed countries, the literature on developing countries has relied heavily on growth accounting to derive estimates of TFP. This method involves estimating the contribution that capital and labour make to growth. TFP, the residual from such an exercise, captures the efficiency with which inputs are used. There is considerable variation between studies in data sources, statistical method applied and time periods covered. Despite these shortcomings, the literature indicates that TFP growth rates have differed considerably across developing regions since the 1960s. A common finding is that East Asian economies have recorded the highest TFP growth rates during the period (1960-1987). South Asian economies come second, followed by Latin America economies.²¹ Most unfortunately, African economies record the worst TFP growth performance of all the developing regions. While there is broad agreement in the literature on the regional trends in TFP growth (TFPG), far less agreement has been reached on its determinants. The bulk of the literature to date has focused on the effects of trade orientation on TFPG. A prominent view suggests that outward-oriented trade régimes are associated with more rapid TFPG than inward-oriented régimes (World Bank, 1991; 1993a). According to this view, outward-orientation is expected to generate faster growth of productivity as a result of better access to technologies, increased learning-by-doing because of more rapid output growth, competitive pressures to cut cost and improve quality, and the realization of economies of scale. However, the empirical evidence on this question is mixed (see Pack, 1988; Helleiner, 1994). Thus, there is no clear confirmation of the hypothesis that outward-oriented economies are likely to be characterized by more rapid TFPG.

It is increasingly acknowledged that education of the labour force has made an important contribution to TFPG. A recent study has drawn attention to the fact that the high level of education played a crucial role in the industrial transformation of East Asia (World Bank, 1993a). This evidence is not confined to East Asia. Another recent study of Brazil found that one additional year of average education per person of the labour force increases real output by approximately 20 per cent (see Lau et al., 1993).

In a new development, several authors have attempted to estimate Farrell frontier production functions for a single homogeneous industry in a developing country. According to this procedure, an envelope of isoquants for the industry is constructed from a sample of firms where the industry production function is conceptually a frontier of potential attainment for given input combinations.²² This gives a “best practice” isoquant, which can be estimated using statistical techniques or non-linear programming. Amongst other things, this framework is extremely

useful in indicating the variation in realized productivity compared to best practice (i.e., technical efficiency). Micro-productivity studies of this type have highlighted the extent of static productivity differences between firms in many developing countries.²³ As an authoritative survey argues,

most estimates of frontier production functions reveal very large intra-industry divergences within a given country in TFP among constituent firms as well as typically low average productivity relative to best practice firms (Pack, 1988:363).

What accounts for the static productivity differences in developing countries? An early study on Ghana used a range of variables — including the age of the firm, education levels of the workers and experience of the entrepreneur — to account for productivity differences (Page, 1980). Interestingly, only the education levels of the workers turn up as statistically significant. More recently, a study on India used several independent variables — including firm size, energy consumption and worker skills — to explain productivity differences across factories (Ghosh and Neogi, 1993). Again, only the worker skill variable is statistically significant. Thus, these studies confirm the hypothesis that worker education is an important determinant of industrial productivity.

Other studies have focused more on managerial skills rather than worker skills to explain productivity differences. A study on Kenya and the Philippines suggests that the major cause of low productivity in factories in both countries is too large a diversification of products and, consequently, short production runs (Pack, 1987). It goes on to suggest that in many factories inadequate management skills also contribute to low productivity compared to international best practice. A similar finding was reported in a cross-country study of productivity in several African countries. The study concluded as follows:

it seems that technical performance is mostly affected by the quality of management in charge of decision making, and to a lesser degree, by the size of the enterprise itself (Abdouli, 1989)

Finally, the hypothesis that management education and training are important determinants of deviations from best practice also receives some support in a study of Pakistan (Nabi, 1988).

◆ Industrial Technological Capability and Human Resources

In the light of the evidence discussed above that the learning process is prolonged, costly, risky and unpredictable, the H-O assumption about technology has been increasingly questioned. In recent years, economists have increasingly recognized that an essential ingredient in competitive advantage of nations is the ability of firms to become technically efficient.²⁴ According to recent research, the process of mastering technology is neither passive nor costless: differences in the efficiency with which mastery is achieved are themselves a major source of differences in comparative advantage between countries. Accomplishing mastery of a new technology requires a firm to make new investments including in-house training, external training, hiring, engineering, and research and development. Furthermore, the markets in which capability development takes place are often imperfect,

fragmented or missing. There are at least four kinds of market failure associated with the learning process of a manufacturing firm: capital market imperfections, exceptional risk aversion and uncertainty, externalities in the process of investments in human capital (or knowledge) and externalities between vertically linked activities. These failures can lead firms to under-invest in their own technological development. Thus, the nature of technological mastery itself can provide a case for human resource and other policies to facilitate the realization of comparative advantage.

Case studies on technological capabilities in developing countries provide insights on technological change at the enterprise level and effective human resource policies. A few of the main studies are reviewed below.

Rapid export growth rates and sustained industrial upgrading following the adoption of export-oriented trade policies in the Republic of Korea in the early 1960s have attracted considerable academic interest. The country's manufactured exports were US\$ 89 billion by 1994 (up from US\$ 91 million in 1965). The bulk of its manufactured exports consist of high skill items such as machinery, electronics, motor vehicles and ships rather than low skill items such as textiles and garments. Several studies have emphasized abundant technological capabilities as a crucial factor behind South Korea's export success.²⁵ They argue that the creation of new technological capabilities to absorb and develop imported technology is a major reason why the Korean manufacturing sector has managed to move into the complex end of the technological scale and has responded well to the improved incentive structure. They also suggest that the creation of technological capabilities, while strongly influenced by competitive pressures generated by the incentive structure, also required public action to provide supportive technology institutions and ample supplies of skilled and technical manpower.

Some studies argue that South Korea has systematically increased its spending on education since 1945 to create a solid human capital endowment for its industrial take-off (Enos, 1991; Lall, 1992). As early as the mid-1960s, it had almost achieved universal primary enrolment and over two-thirds of the age group were enrolled in secondary education. Between 1965 and 1990, the country made great strides in secondary and tertiary enrolments. Today, South Korea is on the threshold of universal secondary enrolment and about a third of the relevant age group are enrolled in tertiary education. A high proportion of its tertiary enrolment consists of engineers and technicians, the skill base most relevant for high-skill exports.

A remarkable feature of the South Korean experience is the presence of a "crowding in effect" whereby greater public expenditures in education and training seemed to attract private expenditure of similar magnitudes. A study of small and medium Korean light engineering firms, for example, estimates that the average share of engineers in total employment, 8.6 per cent in 1993, was nearly four times that of other developing countries (see below) (Yun, 1994). It also estimated that the same firms sent an average of 29 per cent of their employees on training courses in the same year. These findings are not exceptional by Korean standards: a study of large Korean heavy engineering firms, estimated that the sample sent an average of 42 per cent of their employees on external training courses in 1984 (Amsden, 1989). The study went on to point out that of greater interest than the quantity of training is the curriculum. The aim is to instil in all workers a general knowledge of the firm's operations and operating principles, supplemented by

building in-depth specialized skills. Both studies suggest that the “crowding in effect” was engineered through policy measures, including tax breaks for training, subsidized overseas travel for training, low interest credit for training and the creation of specialized training institutions.

Other studies have examined the lacklustre export performance of South Asian and African countries that have adopted export-oriented trade policies in an effort to emulate Korea’s export success. A recent study shows that Sri Lanka, for example, was able to enter manufactured exports, based on a strong showing in garments and jewellery, after the shift to an export-oriented trade policy in 1977 (Wignaraja, 1997). About 80 per cent of the country’s US\$ 2.4-billion worth of manufactured exports in 1994 consist of garments and jewellery. Unlike South Korea, however, there has been little upgrading and diversification from this simple base. The study attributes Sri Lanka’s successful entry into low skill exports to an improved environment for foreign investment combined with a ready supply of secondary educated labour (75 per cent of the relevant age group are enrolled in secondary education) and the establishment of a garment training institute (see Appendix). At the same time, it argues that the lack of technological capabilities prevented the Sri Lankan manufacturing sector from upgrading. It attributes the country’s technological weaknesses to the lack of high level-technical manpower and in-firm training required to facilitate shifts in comparative advantage. The Sri Lankan survey of light engineering firms by Wignaraja (1997) showed that the average share of engineers (1.6 per cent in 1988) was well below Korean levels. It also estimated that these firms only sent an average 2 per cent of their employees on external training courses. The Sri Lankan experience highlights the importance of secondary education, tertiary technical education and enterprise training for sustained export growth and diversification.

African developing countries have recorded even weaker manufactured export performances than Sri Lanka following the adoption of export-oriented trade policies. A recent study showed that Ghana’s manufactured exports only increased from US\$ 3.5 million to 14.7 million between 1986 and 1991 (Lall et al., 1994). Ghana’s leading performers, wood and aluminium products, are natural resource items with a long presence in international markets. Unlike Sri Lanka, the country has been unable to enter the production of simple low skill manufactured exports like garments. In their firm-level survey, the authors found: (i) that Ghana’s technological capabilities were very low by world standards; and (ii) that shortages in important operating capabilities (like quality control, equipment maintenance, and inventory control and productivity improvement) lay behind the manufacturing sector’s lack of international competitiveness. The firm-level survey also revealed very low levels of technical manpower and enterprise training — the employment of engineers in Ghanaian engineering firms is under 1 per cent of total employment and the proportion of employees sent on external training was only 0.3 per cent.

In a study of Kenya, it was found that the country’s manufactured exports reached US\$ 179 million in 1993 after a decade of export-oriented policies (Teitel, 1993). The bulk of these exports consisted of processed primary products rather than garments. The Kenyan study reported very low levels of technological capabilities, technical manpower and training in its survey of Kenyan firms. Several firms claimed that they provided on-the-job training for workers, but most were vague on the exact nature and duration of such training. Another study of Kenyan enterprises shed more light on the content of in-firm training (Wignaraja and Ikiara, forthcoming). It found that the bulk of employee training in firms still occurs

through the traditional apprenticeship system — it covered 16.9 per cent of garment employees in the sample and 16.9 per cent of engineering employees. In contrast, expenditure on formal training (0.13 per cent of sales in both industries) was very low in Kenyan firms compared to those in newly industrializing economies, which tend to spend 1-2 per cent of their sales revenue on training. This study also pointed to intra-firm differences in skills and training by ownership through a comparison of African and non-African owned firms. It was found that African-owned firms had entrepreneurs with less formal education than non-African firms, and that they devoted fewer resources to formal training than non-African firms.

A study on Tanzania has many similarities with the work on Ghana and Kenya (Deraniyagala and Semboja, forthcoming). The study pointed to weak technological capabilities as well as low levels of secondary education and enterprise training as the major factors behind the poor supply response of industry to export-oriented policies. Tanzania's secondary enrolment ratio (about 6 per cent of the relevant age group) is among the lowest in the developing world. In addition, training efforts in the garment industry were extremely limited, with no improvement after liberalization. None of the garment firms provided any external training to their work force. Only one garment firm had a production manager with formal qualifications in clothing technology.

Research on Zimbabwe suggests that it may be an exception to the general African experience (Latsch and Robinson, forthcoming). The country's manufactured exports grew with liberalization to reach US\$ 543 million in 1993, with useful performances in garments and engineering products. The study found relatively good technological capabilities by African standards, high levels of secondary education of the labour force (46 per cent of the relevant age group are enrolled in secondary education) and reasonable emphasis on enterprise training (3.9 per cent of employees in engineering firms were sent on external training in 1994). Nevertheless, the study also reported that the bulk of human capital and skill formation was concentrated in the larger, non-African enterprises and that little such effort was taking place in African SMEs.

A similar finding was reported by a study on skill levels in black businesses in South Africa (Riley, 1993). The study noted that the owners of micro-enterprises tended to be young (over one third are less than 35 years old) and had little formal education (30-40 per cent lacked basic literary skills). Few had work experience in the formal sector and thus had virtually no supervisory or managerial experience. There was also little formal employee training taking place in their enterprises.

In conclusion, good export performance in Korea since the adoption of export-oriented policies can be attributed in part to investments in technological capabilities, good human resource policies and emphasis on firm-level training. In contrast, relatively weak export performance in South Asian and African countries can be attributed to technological weaknesses stemming from inadequate policies to develop human resources at the national and enterprise levels.

◆ Agriculture and Human Development

A range of literature testifies to the importance of human development for agricultural productivity. A comparison of the Indian and Pakistan Punjab found that human and institutional factors explained most of the higher productivity in

the former (World Bank, 1983). A survey for Asia shows, over a wide range of situations, that increased farmer education leads to substantially increased physical crop yields per hectare (Tilak, 1993). The findings are particularly important because, as they often show results in physical terms when other inputs are held constant, they avoid many of the problems of estimating the benefits of education that arise in other fields. Farmers' education is mostly found to be beneficial when agriculture is modernizing and new inputs are coming into use (Jamison and Lau, 1982).

The precise significance of particular skills derived from education is also explored in the literature (in Cotlear, 1989, for example). These include both literacy and numeracy skills that permit the farmer to take advantage of new inputs, introduce new farm management schemes and benefit from agricultural extension — but also extend further, into attitudes towards and understanding of natural processes, causes of plant sickness and the like. In some studies a threshold of 4-7 years of education was found to be the minimum to have an effect. In India, secondary education or at least some education above upper primary was found to be strongly associated with the use of modern inputs.²⁶

A further set of studies show the importance of health and nutrition for agricultural productivity. These include such micro-nutrients as iron deficiency and others, as well as general protein-calorie nutrition.²⁷ In some parts of Africa, health conditions such as onchocerciasis and tryptosomiasis associated with rural disease vectors have, as noted above, a significant effect on land use.

Another important finding in the literature is the major role played by research and extension in productivity (Rosegrant and Evenson, 1992). Between 1956 and 1987, public research accounted for over 30 per cent of TFPG in South Asian agriculture, and extension for 25 per cent of that growth. TFPG growth, in turn, accounted for one third of total growth in crop output in the region. The estimated rate of return to investing in research was 63 per cent and to extension 52 per cent. This is part of the reason for the importance of farmer education, without which much of the research cannot be translated into practice. But it also points to the necessity for a strong educational effort to generate researchers and extension workers — which reinforces the point made elsewhere in this paper: there are highly significant needs for education beyond the primary level to which appropriate priority must be given.

◆ Services and Human Development

The idea that services are something that grow at a late stage of development is out of date. The service sector is very large in many developing countries today — in Brazil and Pakistan, to take two very different economies, it already constitutes 50 per cent of GDP according to World Bank indicators. Services are important both as an output — a source of incomes and employment — and as an input, a complement to other aspects of development.

This is particularly true for producer services and manufacturing development. Studies are beginning to suggest the importance of such services in the achievement of economies of scale and efficiency, with important consequences both for theory and policy.²⁸ Two notable examples of producer services that have received some attention in the literature are engineering services and software services. The contribution made by engineering service firms (ESFs) to the creation of indigenous technological capabilities in developing countries during technology

transfer has long been recognized in the literature on technology.²⁹ A cross-country study of several Asian countries shows that ESFs played a vital role of co-ordination and integration among the different actors in the design and implementation of turnkey investment projects (Brenner and Kurdoglu, 1988). In particular, ESFs seemed to have strengthened the technical information flows (on the technical characteristics of the package and local production and demand conditions) between the buyers and the sellers. The study concludes that in the absence of ESFs these turnkey projects might have been poorly implemented. Indeed, the lack of ESFs may be one of the factors behind the poor implementation record of investment projects in Africa.

Other studies have highlighted the role played by software and computers in the adoption of modern manufacturing methods in the Asian NIEs (see Gahan, 1990; Mitter, 1989; Kaplinsky, 1994). The evidence suggests that the effective utilization of flexible specialization, just-in-time and other organizational innovations in their manufacturing sectors were closely associated with changes in software and computing facilities. Again, the limited development of software services may inhibit the adoption of these modern manufacturing methods in parts of Africa and South Asia (excluding India).

Yet as far as developing countries are concerned, the service sector and its new potential functions have been very little researched; only trade in services (and to a lesser extent engineering services and software) has attracted some academic attention, stimulated by the GATT Round.³⁰ The service sector does not of course consist of human resources alone; but the role of human resources in services is a very major one. Policies towards the service sector and its training and other needs are thus very much a part of the modern concern with human development.

III. STRUCTURAL ADJUSTMENT

A large range of factors directly or indirectly governs what happens to human development besides specific human development policies. They include macro-economic policies and everything else that affects economic growth and distribution. These issues are not addressed here at length. Structural adjustment is, however, an aspect of that has to be brought into our analysis, since it has been a major experience for many countries, one which has, moreover, been accused of worsening the conditions for human development. In this connection, we address two main topics: what has happened to social expenditures under structural adjustment; and what has happened to real wages and poverty. (In the present paper, we do not distinguish between stabilization and adjustment; in a more extended treatment it would be important to separate the effects of macro-economic stabilization from those of economic reform.)

Before turning to these themes, it is important to note a debate in the literature on the relative roles of economic growth and direct intervention in human development. One of the *causes célèbres* of this debate has been the Sri Lankan experience, no doubt chosen because it has had exceptionally good social indicators for its income level, and also because it has been questioned whether Sri Lanka sacrificed economic growth to these achievements. One account claims that the *improvement* in living standards between 1960 and 1978 was *not* exceptional (Sri Lanka was already an outlier in 1960); but living standards improved just as much in a later period, with higher economic growth and policies more growth

oriented than welfare oriented (Bhalla and Glewwe, 1986). Other accounts differ, questioning (particularly for the early period of structural adjustment up to 1984) whether standards did rise, and arguing that the adjustment programme itself imposed unnecessary hardships (Jayawardena et al., 1987). A more balanced view suggests that “income growth, while important, is not the primary determinant of improvement in social indicators” (Aturapane et al., 1994:249); such improvement is strongly related to policies, a conclusion borne out by other studies (for example, Anand and Ravallion, 1993).

◆ **Social Expenditures under Structural Adjustment**

One of the accusations levelled against the World Bank and IMF has been that they have required countries to cut social expenditures, or at least that these budgets have declined as a result of structural adjustment. Of course the agencies would argue that they do no such thing. They claim that they advise countries to reduce fiscal deficits, but the choice of how to make the reductions is to a great extent left to governments of the adjusting countries. Further, since the fiscal deficits involved were often at unsustainable levels in advance of the adjustment experience, there arises the question of what would have happened in the absence of adjustment.

The first requirement of any attempt to settle these issues is some empirical evidence of what has actually happened. The record is in fact unclear, and where clear, far from uniform. One can only conclude from the literature that structural adjustment has been associated with cuts in social expenditures in some countries or time periods, and not in others; that where cuts have occurred, some countries have protected the poor from the severity of their effects, and others have not; and that such negative effects as there have been were more frequent in the early years of SAPs than they have been more recently.

Reviews of countries in Latin America and the Caribbean during the 1980s found public expenditures on health and the share of health in government expenditure fell in a majority of countries; the same was true of expenditures on education, though the record of the share of education in government expenditure was more mixed. Various indicators were used to assess the pro- or anti-poor character of the cuts: here the results were more mixed still. The share of preventive or community health services relative to curative care fell in some countries, not in others; nurse to doctor ratios fell more often than not. The share of primary education rose in a number of countries, was constant or fell in others (Stewart, 1992; World Bank, 1990).

Rather similar features have been found in Africa, though experience has varied even more considerably across countries and from period to period within countries. Many countries have attempted to maintain rising real expenditures on health and education; but have not managed to keep them rising faster than population growth. If anything, education has fared better than health in public expenditure terms. The extent to which the poor have been protected is very variable, when it can be assessed at all (Sahn, 1994), although there is some evidence of efforts to improve the allocation of expenditure in a pro-poor direction in more recent years (Jespersen, 1992).

The statistical evidence suggests improvements in both life-expectancy and infant mortality in virtually all sub-Saharan countries for the decade of the 1980s. Cuts in health budgets were frequently replaced by foreign assistance, and UNICEF

programmes are credited with a great deal of the improvement in child survival (see Pio, 1994, especially table 14.5). But too much satisfaction should not be taken in these figures; other adverse influences (as described below) may show up in less positive trends in the future.

In education, budgets held up rather better, but per capita expenditures frequently declined, giving rise to fears for the quality of education. Perhaps most disturbingly, primary enrolment ratios and the proportions completing primary school declined in approximately half of the sub-Saharan African countries.

A variety of lessons can be derived about policies that can help or hinder the effects of adjustment on poorer people. For example, various measures have been adopted in the allocation of expenditure, pricing and cost recovery, with varying results — these will be referred to in the policy section below. An important feature has been the conduct of policy dialogue, and its addressing of the issues in public expenditure. By placing social sector expenditures within a wide-ranging review of public expenditure as a whole, adjustment programmes have often led to improvements in budgetary processes and the likelihood of sustainability of expenditures; they have also permitted discussion of priorities within sectors to which governments may not have been much exposed previously. At the same time, if the protection of the poor under adjustment were not given priority in policy dialogue, the results could be adverse.

The World Bank and IMF did neglect the social impact of adjustment in the early years of SAPs, but became more sensitive to the issues over time, not least in response to such works as **Adjustment with a Human Face** and the UNDP's **Human Development Reports**.³¹ Some countries resisted the full force of World Bank/IMF prescriptions even in the earlier period and softened the effects on the poor; others resisted in the opposite direction in the later period, not heeding advice that would have helped the poor. It seems obvious that the results have depended both on the international agencies and on the countries and their governments.

◆ Wages, Employment and Poverty under Structural Adjustment

The results of studies that have looked at what happens to wages and poverty are also unclear and not uniform. There is certainly evidence of major declines in real wages in a number of “severely adjusting” countries, at the worst by as much as 50 per cent below earlier peak wages. But it is not usually clear whether previous levels of wages had been held artificially high by protection or institutional factors in labour markets, or whether jobs were being destroyed by structural reforms and trade liberalization, throwing large numbers of people onto labour markets. It seems likely, from this evidence at least, that unemployment in a number of countries has not been importantly caused by downward wage rigidity;³² in other countries, it is arguable that labour-market rigidities have been among the causes of unemployment and an impediment to reform; where the problem is pronounced, as in India, labour market regulations even act as a deterrent to hiring by firms.

An important distinction in the literature is whether or not adjustment is taking place in a stagnant, i.e., demand constrained, economy. If it is, falling wages will induce decreases in demand and employment; if it is a capital-shortage economy, falling real wages can raise profits and investment and promote employment.

Devaluation can take the place of wage flexibility even if there are wage rigidities in both tradeable and non-tradeable sectors, raising profitability in the tradeables sector and increasing employment in it. A further important factor is whether total factor productivity is rising or not; if it is, it facilitates labour reallocation.

Typically there has been a movement of labour into tradeables sectors, although, except in the most successful countries, it has commonly been into agriculture rather than manufacturing. Where GDP growth has been weak, it is commerce and services which have taken up the slack in employment.

Studies in individual countries reveal a variety of experiences. The adjustment programme in Argentina that began in 1991 has led to increased demand for skilled workers, and increasing dispersion of wage differentials by skill categories. This is a common consequence of reform in a more advanced economy, in particular where the pattern of demand favoured by reform both domestically and internationally emphasizes skill-intensive products. While there may be adverse short-term effects for the uneducated and unskilled, the incentives are put in place for the acquisition of schooling and skills, and also the prospects for growth in the economy at large. What happens to welfare overall will depend on the extent to which labour market regulation protecting vested interests at the expense of employment can be changed, and whether social sector institutions can be reformed to provide more benefits to the deprived (Pessino, 1995).

A study of Brazil provides an interesting contrast of an economy in need of reform. Prolonged inflation combined with adverse labour legislation and institutions has led to a situation in which employment has grown — but not “good” employment. Firms under inflation do not have incentives to engage workers with long-term contracts. Most employment growth is in the primary and service sectors, not in manufacturing. Workers do not have incentives to acquire skills under these circumstances; and educational differences have long been among the greatest factors in explaining wage differentials. Stabilization is needed to change the inflation-dominated behaviour of firms and labour markets; but it will not by itself achieve what is needed without simultaneous reforms of labour market institutions and the public educational sector. Brazil has perhaps the world’s most unequal economy for its level of income, and under existing conditions, inequality has been worsening (mainly by increases in the share of income going to the top 20 per cent, rather than by changes among the remaining 80 per cent) (Amadeo and Gonzaga, 1995).

Some interesting results were derived from a comparative study of seven countries by the OECD Development Centre (Bourguignon and Morrisson, 1992). Much depended on whether countries adjusted before or during a crisis, with the worst results occurring in the latter case. Employment and incomes in rural areas typically did not suffer, since reform mainly raised agricultural prices. But urban areas felt the brunt of demand contraction; and urban labour forces were growing fastest, at 4-5 per cent annually, under natural increase and migration. Of the countries studied, living conditions improved in Malaysia and Indonesia, and in rural Ghana and Morocco; they worsened in Ecuador, Chile (except for the highest and lowest income classes), and urban Morocco and Côte d’Ivoire. Poverty declined in Indonesia, Ghana, Malaysia and rural Morocco, was stable in the poorest regions of Côte d’Ivoire (the north and east), and rose in urban Côte d’Ivoire and in Chile and Ecuador. The study concluded that “the best way to

ensure that the poor do not suffer from adjustment is to adjust before a crisis” (Bourguignon and Morrisson, 1992:12).

This study did employ some counterfactual modelling. The findings were, in all cases, that adjustment produced a smaller fall in economic activity and a smaller increase in poverty than not adjusting. Ghana is a case in point: in the 1970s, before adjustment, Ghana had disastrous falls in per capita income, commercial crop production, exports and imports, and large declines in wages and agricultural incomes, with consequent increases in poverty. Had it adjusted earlier, it might have escaped some of its adverse experiences.

Interesting light of a comparative kind is shed on all the above adjustment issues by a study of India (Guhan and Nagaraj, 1995). The country suffered from clearly unsustainable levels of fiscal and foreign deficits resulting from lax (by previous standards) fiscal and monetary policies in the 1980s, coupled with some adverse international conditions. Stabilization was forced on the economy in 1991, and the opportunity was simultaneously taken to begin a process of reform, towards a more liberal economy. The programme was successful in reducing deficits, lowering the rate of inflation, and improving foreign exchange reserves. But the cost was a recession in the immediate post-stabilization period, which undoubtedly added considerably to unemployment. Because fiscal balance was approached by expenditure reduction rather than revenue increases, there were inevitable cuts in social programmes, though the impact of this on the poor is hard to estimate — the programmes were widely criticized in the past for their limited capacity to reach the poor in any case.

The study cited makes clear what efforts are required to improve employment and social programmes. There is still a great need for public investment in infrastructure, which has suffered under stabilization; and a need also to achieve high rates of growth — labour intensive growth in particular — if headway is to be made in reducing unemployment. This will require both pressing on with reforms in manufacturing and trade, but also increased attention to agriculture and the rural non-farm sector. As far as social programmes are concerned, many of those most important to the poor are the responsibility of state governments rather than the centre, and a conspicuous failure of the reforms has been to involve the states more comprehensively in the pursuit of growth and equity. The study is more critical of central government than of the international agencies for policy failings of omission and commission.

This cannot, however, be the last word here. India is much more the master of its own fate than many smaller countries, which are more dependent on the international agencies for funding and less able to resist their policy prescriptions. This is particularly true for the sub-Saharan African countries. Their plight was partly the result of failed policies, and partly of extremely difficult international conditions, especially in primary product markets. But adjustment programmes have been largely unsuccessful in achieving either growth or the protection of the poor. The agencies’ own assessments claim that adjusting countries are doing better than those which fail to adjust. Even if this claim were true — and it has been disputed — the countries are not for the most part doing *well*. The combination of a failure to cope with social aspects of adjustment in the early years, the imposition of very rapid stabilization with insufficient inflows of new finance, and some ill-judged policy initiatives — such as excessively rapid trade liberalization — have left these countries with a very difficult future. The

imperative remains to find better means to promote human development, whose long-term goals have too often been sacrificed to short-term expediency.

◆ Other Social Indicators

An interesting feature of many studies is that while on the whole expenditures relevant to the poor have declined, indicators of their status have mostly improved or not worsened. Thus very frequently while expenditures on health inputs have declined, infant or under-five mortality has improved. Some studies note increases in adult mortality in Africa, but these may be due to AIDS and other factors (Hill and Pebley, 1988; Kakwani et al., 1989). Experience of the extent of malnutrition has varied, with some declines and some increases. The few cases of increases may well be due more to rising food prices, either as a result of removal of subsidies under adjustment, or other factors influencing food availability, than to changes in health expenditures.

The evidence on educational outcomes is more varied: as well as declines in several countries, quite a few show rises in primary enrolment even under adverse trends in public expenditure. But these may be misleading. Enrolment figures are unreliable to begin with; and there have been increases in drop-out rates in some countries and worsening quality of education in others.

A variety of experience is found in school enrolment as a consequence of labour market effects. Modelling work for Côte d'Ivoire predicts an increase in enrolment under rising export crop prices. In Argentina in an earlier period, and in Costa Rica more recently, enrolment fell during periods of recession. In Bolivia, Costa Rica and Malaysia, the returns to education and work experience fell, and government wages fell (government in these countries is an important hirer of educated labour); these factors reduce the incentives for schooling. Recession conditions under adjustment have led in several countries to informalization and increased use of casual labour, decreases in worker benefits, and decreases in pay differentials related to skills, and possibly also to education (Horton et al., 1994; on Argentina, see World Bank, 1987). None of these findings result from any *counterfactual* investigation, i.e., they do not say whether what has happened would have been better or worse in the absence of adjustment.

Altogether it would be unwise to take comfort from the trends in indicators, even where they are improving. Health indicators react slowly to changes in many health inputs. Some of the improvements are due to *past* increases in female education; worsening female education now will be felt in adverse impacts on health in the future. Further, some health and education programmes have maintained recurrent expenditures at the expense of capital investments, again with adverse implications for the future. Other features that have led to improvements have been the (mainly UNICEF-led) extension of low-cost immunization and other health measures, which have had a beneficial impact on infant and child health, but which leave other health issues untouched; and an increased role for NGOs in the health field. For various reasons, NGO programmes, however valuable, are not a long-term substitute for well-funded and efficiently managed public health systems.

IV. FROM PRIORITIES TO POLICIES

It is evident from the above that a very large range of factors affect human development. What, then, are the steps involved in setting a human development strategy?

Priorities can be seen in two ways: as objectives in and of themselves; and as contributing to objectives. Welfare analysis in economics today has gone beyond income or the more detailed goals of the HDI. Income and the commodities or services that income purchases are instruments, not ends. Even satisfactory incomes, good health and education are not by themselves a guarantee of well-being. Rather, well-being today has to be seen in terms of what A.K. Sen has called “capabilities” or “freedoms”: the objective of human development is not the possession of wealth or the commodities and services which wealth commands, but rather the human capabilities which derive from being educated and healthy; and one can be educated, healthy and well-off but still be deprived of the appropriate conditions for enjoying these benefits, for developing and using one’s capacities on behalf of oneself and others (see, for example, Sen, 1993). These essentially political and social factors are part of the defining characteristics of well-being. To follow them would, however, take the analysis into realms beyond the scope of this paper. Instead, a more pragmatic approach is adopted.

It is assumed that satisfactory levels of income, education and health for all are the goals of development; but it is also known that these are aspects of human welfare that can contribute productively to the economy. So how can priorities best be determined?

Normally a goal is specified in terms of maximization: but it has to be maximization over time. There could be conflicts between current versus future provision. This could be spelled out formally, as has been done by Anand and Sen in their examination of environmental sustainability (1994). As they observe, weight must be given to current as well as future generations; the principal ground they offer for believing that widespread benefits now will not be at the expense of the availability of the same benefits to future generations is their instrumental value. As well as the humanitarian value of providing for the deprived, the human capital thus created will assist in raising incomes and the quality of life in future. Sustainability does not imply anything about the conservation of specific resources; it only requires that we leave to posterity a capacity to generate well-being no worse than that we enjoy ourselves. Physical and human capital may well be substitutes for environmental resources in that respect. (The argument has also to be made for economic sustainability, to which their model would apply with equal force. It is not clear, however, that there need be no trade-offs between the present and the future.)

◆ Rates of Return

A first approximation of desirable directions for policy is given by the findings of cost-benefit analysis (CBA). But the injunction to pursue well-targeted investments with the highest net benefits (Griffin and McKinley, 1994) does not take one very far. As was noted above, in addition to other shortcomings, the findings of CBA often indicate no more than the lower bound of benefits; and they normally ignore interactions among investments. Thus CBA estimates of returns to schooling only refer to wage benefits; they do not incorporate other “payoffs” such as improved health or lower fertility. Nor do they capture mutually beneficial effects between actions in health, family planning and education. Nevertheless, they should be a

first resort for strategy-formation, not least because they provide a test for the desirability of investment. (One finding in CBA is that returns to female schooling are often found to be higher than to male, while female schooling is lower than male; whether the returns *are* higher and if so what explains the paradox is something research has still to resolve (for one attempt, see Appleton et al., 1994). In other circumstances, especially when women face limited opportunities in labour markets, returns to female education may be lower than those to male.)

Full cost-benefit analysis is rarely possible in health; not only are the relationships between inputs and outputs uncertain, but the value of benefits is unusually hard to assess, whether it be lives saved or morbidity reduced. There are, however, techniques for assessing cost-effectiveness which can be utilized. One technique assesses health interventions in terms of “DALYs” (disability adjusted life-years) gained (World Bank, 1993b). Once again, the method as described is faulty in that it does not estimate interactions between interventions: improving water supply and sanitation and treating gastro-enteric disorders may be more cost-effective together than separately. As with CBA in education, the method may set a lower bound to effectiveness, and permit distinction between more and less effective interventions. Especially when these differences are very large — comparing, say, the cost and effect of treating leukaemia with that of vitamin A supplementation for blindness — the absence of measurement of interaction is not such a serious drawback. But there are other weaknesses of the DALY approach, particularly its failure to take account of distributional considerations (Anand and Hanson, 1995). As with CBA, it must be supplemented by other information.

In the cases of both health and education, these methods — for all their weaknesses — provide a useful check against other indicators of priorities to which appeal is often made, and may well produce counter-intuitive results. Even the goal of universality of provision, however laudable in itself, should not escape such scrutiny. It may be found that the cost of reaching certain groups in the population is extremely high relative to the benefits; given scarce resources, such information should at least be sought so that the economics of reaching the goal of universality can be assessed.

◆ Other Information

The contribution of human resources to growth, productivity and competitiveness has been described above. This information can also be used to guide social investments. Potential education and health interventions that will assist productivity gains can indicate where additional efforts are needed in the specific sectors discussed — manufacturing, agriculture and services. In the case of agriculture, such information is the only guide. In manufacturing and services, additional information is available. Constraints to further development have mainly to be identified by labour market signals — data on changes in wages and shortages of specific skills can often be found (a valuable source on these topics is Godfrey, 1996); rates of return to training are also sometimes available.

Gender-specific data are also important. Women are often found to dominate in certain occupations — for example in community and retail services (Joeques, 1987 gives some helpful indications of types of gender differentiation). In some countries their role in agriculture is often different from that of men, women being responsible for food crops, for example, and men for cash crops. Without such data, wrong inferences about education and training needs may well be drawn.

Studies of the efficiency of certain interventions which can show that they *pay for themselves* are another important source of information. For example, it has been found in studies of Brazil that improving the quality of primary education (mainly by increasing expenditure on inputs other than teachers, such as books and teaching materials) reduces drop-out and repeater rates to the point that the per-pupil cost of a given educational outcome — numbers of children completing primary schooling, for example — is actually reduced (Harbison and Hanushek, 1992). Female education has been found to reduce costs in health and other services through improvements in health in India and Pakistan (World Bank, 1995a); family planning programmes have also been found to pay for themselves in subsequent years in terms of reduced costs to health, education and other services.³³ These are forms of cost-benefit analysis, but not in the full sense of the term; they measure only government expenditures and related government savings. But they are nonetheless helpful, not least in persuading finance ministers that particular programmes can be afforded.

◆ Costs of Inaction

As well as the processes of priority determination already considered, useful information can be derived from the costs of inaction. In some sense these costs are simply the foregoing of the benefits already described. But there are additional considerations not so far alluded to; and some measurement of costs not incorporated in cost-benefit or other frameworks.

Plainly, if human development is not attended to, there will be a variety of consequences. Poverty will be perpetuated; population growth will continue unabated; environmental damage associated with both poverty and population growth will continue. The gains in productivity and competitiveness associated with human development will not accrue. But there are further consequences beyond the boundaries of the types of analysis considered hitherto.

Some of these lie in the realm of social stress or breakdown and associated political instability. Population growth under worsening or non-improving social conditions has been associated by some authors with social conflict, including violent disputes over common property and other environmental resources such as water or land. It has been claimed that the tragic violence in Rwanda in 1994, as well as its background in historical ethnic division, also had roots in colonial discrimination and failed development in the country.³⁴ Another phenomenon (with a partly measurable but so far unmeasured cost) is the increasing need for physical protection of middle- and upper-class residential areas and property: in some Brazilian cities, for example, the rich live in fortress communities protected by security guards within barbed-wire and walls, while the poorer areas have become lawless, in some cases governed by drug barons who are the only sources of social security for the poor. Street crime, including offences by and against minors, is a product of this type of urban misery.

The drug trade with all its attending human and economic cost is in part related to failed economic development: both the conditions which lead to drug use, and those which make rural communities dependent on crops that provide the basis for drug production. The complex interrelationships of drugs, crime and failed social and economic development (in both developing and industrial societies) are themselves a “nexus” that has been much studied. The drugs industry has become a

problem beyond the scope of economic development to counteract; aid is now going to governments to assist them against subversion by the industry, and to support enforcement, judicial and administrative systems. But social and economic distress in both developed and developing countries form the background of the narcotics business.

◆ Some Measures of the Cost of Neglect

A spectacular case of the cost of neglect was provided by the 1991 cholera epidemic in Peru. World Bank (1992) cites this somewhat extreme but easily repeatable case, estimating the losses of agricultural exports and tourism earnings in the first ten weeks of the epidemic at three times the entire amount invested by the country in water and sanitation during the whole of the 1980s. A similar estimate may one day be available for India, where losses of the same type were caused by a disease outbreak in 1994 announced as “pneumonic plague”, though later shown to have been a less terrifying disease. The outbreak could have been avoided by modest expenditures on urban sanitation.

Estimates have been made of the costs of unemployment. In industrialized countries there are direct costs of unemployment benefits, and further direct cost items. There are also indirect costs — crime in the United Kingdom, for example, has been found to increase with unemployment in recent times, as have divorce, illness (including mental illness) and homelessness. Because of the high earnings to be made, drug-dealing and the consequent spread of drug use can also be related to poverty and unemployment. Obviously other factors are involved: the depressions before the Second World War produced much higher levels of unemployment than contemporary recessions, without the generation of anti-social behaviour encountered today. Modern life has produced a more fragile social fabric, in which family and community protection of the poor and unemployed are less available, and the stigma and stress of poverty and unemployment — “relative deprivation” — are more acute.

We have observed that investment in human resources contributes to economic growth. There are also estimates of the cost to growth of failing to invest. Birdsall et al., for example, calculate an estimated relationship between education and growth cross-nationally, and then apply it to Pakistan. They find “a potential increase in current per capita income of 25 per cent had Pakistan had Indonesia’s 1960 primary enrolment rates, and a potential increase of 16 per cent had Pakistan sent as many girls as boys to school in 1960” (1992:30).

There is also increasing interest today in the relationship between inequality and growth. It can operate via influences on demand, influences on human capital formation, or influences on social and political stability and thereby on investment or effective government management. There is a degree of evidence for the contention that inequality is harmful to income growth and the growth of productivity.³⁵

This literature should be considered together with that on inequality and health: there is substantial evidence that inequality has a negative impact on health *even after allowing for* deprivation of specific physiological health “inputs” and the presence of deleterious health factors that may be suffered by those at the lower levels of the income distribution. In a famous study on British civil servants, differences in coronary heart disease were found throughout the distribution of

occupational grades — the higher the grade, the lower the incidence of heart disease (Marmot et al., 1978). The differentials remained even after controlling for the higher incidence of specific risk factors that were more common in the lower grades. Similar findings have been suggested about health and longevity nationally and cross-nationally among the OECD countries.³⁶ There may well be a link between inequality, health and economic growth: one study attributes “about 50 per cent” of British economic growth between 1970 and 1980 to “the increase in dietary energy available for work, and of the increased human efficiency in transforming dietary energy into work output”.³⁷ Historically, improving diet in both Britain and France in this period affected the lowest quintiles of the population in particular — in the eighteenth century a significant proportion had insufficient dietary energy to work, or to work more than a few hours a day.

Perhaps a summary indication of the cost of inaction in developing countries is the growth of emergency and humanitarian assistance in recent years. Bilateral aid for emergency relief and refugee assistance from members of the OECD Development Assistance Committee (DAC) rose from US\$ 1 billion in 1987 to US\$ 3.5 billion in 1994. Including emergency food aid and contributions for emergencies to multilateral agencies, total emergency aid was about US\$ 6 billion, or some 10 per cent of all aid in 1994. Aid for developing country refugees alone took US\$ 2.5 billion. While total Official Development Assistance (ODA) rose between 1987 and 1992, in 1993 it fell back to a level below that of 1991, but rose once more in 1994, to US\$ 59.2 billion. Total assistance for relief was just under 4 per cent of ODA in 1987; its rise to 10 per cent in 1994 thus removed 6 per cent of ODA from longer-term purposes (all aid figures from OECD, 1996).

Many of those in need of relief are victims of violence and ethnic conflict, but even this, as already noted, is not without a background in social development. Some are victims of economic conditions, especially famines; these too are related to civil disturbance as often as not. But the idea of prevention in humanitarian and emergency assistance is beginning to gain ground; where possible, it is likely to be less expensive than aid after the fact. Governments should take the same view.

◆ Supply, Demand and Quality

A key issue in the passage from priorities to policies is to think of demand as well as supply issues. The job of policy formation is far from complete if it stops at service provision. A wide range of evidence shows that even free services are often not taken up, especially by poor people, but even by the not-so-poor. For this reason, an important background to policy formation may be found in household surveys which bear on access to services. But other information, such as the extent of child labour, or the existence of types of discrimination in labour markets, can also be invaluable.

The most common reason for lack of uptake of free education is poverty: the opportunity cost to the household is too great — a child’s income from paid work, or the value of their household or farming tasks, cannot be given up to allow school attendance. Child labour is one common result, often extremely poorly remunerated and in unpleasant conditions which can threaten long-term health. Without policies to combat child labour *there is no point in talking about universal primary education*; it will just be an empty phrase. The policies, moreover, must not penalize the poor (see Bequele and Boyden, 1988).

A second key factor is the *quality* of services. If the education provided is of low quality, it will limit the incentive parents have to send their children to school — and the incentive for children to study. It has been found in India that quite poor parents will pay to send their children to private schools rather than make use of “free” public schools. The cost of education per pupil has been found to be higher in many public schools than in the private schools in the same area because the former have fewer pupils per teacher; and they have fewer pupils because they are of low-quality.³⁸ In this situation, there is no trade-off between quantity and quality: the quantity of school places actually taken up can only be increased by improving quality.

Third, there are a host of factors of a broadly social and cultural kind which limit access to school. These range from marriage customs to labour market discrimination. If custom prescribes that a girl, when married, lives with her husband’s family, her parents may believe that it is not worth educating her as the husband’s family will get the benefit. Education may enhance the value of a girl to her prospective husband; in some cultures it may decrease it. Cultural and religious factors may determine what kinds of school people of various persuasions may go to: mixed sexes may be ruled out, special facilities and timetables may be needed.

Labour market prospects are also important. Harijans in India, Indian peoples in Latin America, people of various religions or races or social groups in a range of countries, may face discrimination in the job market; if so, and if going to school is an economic sacrifice, the lack of reward will reduce the return to schooling. These are further important features of the demand for services.

Quality issues in health services have been less studied than in education, but may be similarly important. One area that has been studied is family planning services. Quality in family planning means offering a variety of contraceptive methods with appropriate medical back-up, in a context which is sensitive to clients’ needs (see references in Cassen and Bates, 1994). Where unwanted fertility is high (and about one birth in four in developing countries is unwanted) and family planning clinics are empty, it is often the quality of services which is at fault. Governments may, as in education, be wasting money by not spending enough — providing services which are underutilized because of their poor quality. Some of the pessimism about family planning in the 1970s and 1980s has been due to the poor quality of services leading to low uptake, rather than lack of interest among couples — even if demand rather than supply is the main problem.

This is true more generally of health services, which may deter patients because of low quality or absence of supplies. A number of other features affect demand, such as distance and costs of travel, waiting times, the opportunity cost of time to the patient. A measure of the inefficiency of services may be the extent of spending by the poor on private health provision. In India, over 70 per cent of spending on health is on private health, much of it spent by the poor (Berman, 1994). (Private health, too, is often of low quality.)

Both supply and demand are, therefore, important in health and education, and the quality of supply may be a significant factor in determining demand.

V. HUMAN DEVELOPMENT STRATEGIES

Any human development strategy must address both poverty and national development issues. As with the old “basic needs” debate, there are choices to be made between doing things now and being able to do more things later. In many areas there may be no conflict: some necessary actions both improve economic growth and national development, and redress poverty. But conflict can arise. There must be an adequate economic base for public social provision; otherwise what results from excessive provision is a premature welfare state. This is sustainability in the economic sense; there must also be environmental sustainability. And there must be income generation for the poor, as an essential part of any strategy.

Neither basic data nor knowledge of cause and effect are sufficient to determine allocations completely between human development and directly income-generating investments. There are, in any case, many binding constraints on the pace of human development investment even if finance were available; and many decisions to be made about priorities within human development. And income generation must often complement service provision. Nevertheless, much can be said of a general nature, even though programmes and priorities will be country specific and will require adaptation to the level of development and other country characteristics.

◆ Education

The World Bank’s 1980 **World Development Report** referred to the interactions among human resources as a “seamless web” — it was no doubt correct in the sense that every aspect contributes to every other. But this does not imply that there are no priorities, no points of entry. In fact, basic education must lie at the heart of any human development strategy. It is the point of entry. It is the foundation of everything else, the source of the most important externalities (health, fertility decline, increasing productivity); the study of interactions between human development inputs and outputs also suggests that education both produces some of the outputs of other sectors, and enhances the investments in those other sectors. Family planning may be the most cost-effective input for reducing fertility; but it is more likely to succeed among educated men and women. And the education network can be used as a delivery vehicle for the inputs and “messages” of other sectors.

It is worth recalling, also, that education has many other functions besides those that commonly fall within the purview of the development economist. Education is held to promote things as diverse as citizenship and social cohesion, crime reduction, consumer choice efficiency, marital choice efficiency, labour market search efficiency, knowledge production, savings, child quality, non-market individual productivity, etc.³⁹ It is also valued as a consumption good in its own right. Those who are denied basic education are likely to be cut off from much that society has to offer. And the intergenerational effects imply that failure to educate now increases the likelihood of children missing out later. Thus several of the “costs of inaction” referred to above find their remedy first and foremost in education.

The first priority of a human development strategy lies in primary education, increasing enrolments where they are low, and improving quality almost everywhere. Improving quality is essential in many countries for increasing enrolment, where families have insufficient incentives to send children to school;

this is especially true for female enrolment. It is essential for the duration of enrolment and reducing dropout rates. And it is essential for making possible the progress to secondary education and beyond. Furthermore, some of the externalities — fertility decline in particular — may only be captured at or after some threshold educational level has been reached.

This is not the same as saying that universal primary education (UPE) should everywhere be an immediate goal, even if it must be an ultimate one. Where resources are constrained — that is, almost always — choices may have to be made. The marginal peso or rupee may be better spent on quality than quantity, especially where, for example, it is expensive to bring sparse and scattered populations into the education network. But other constraints also affect such choices: the time path of teacher training may imply that UPE is reached more efficiently if other parts of the educational system are permitted to expand faster first.

Saying that improving the quality and the coverage of primary education must be the first priority of a human development strategy is far from saying that other parts of education, and other human development sectors, are to be neglected. Strengthening other dimensions of education is important for primary education, for equality, and for national economic goals.⁴⁰ Work in other human development sectors is also important both to education and beyond. But primary education has payoffs in other human development outputs, and is frequently complementary to other human development inputs. It is this fact that makes it central to strategy.

Improving primary education itself involves many choices: curriculum and language; teaching materials; teacher quality and training; improving access, especially for female pupils; where necessary, improving pupils' health and nutrition status; raising institutional and managerial capacity. The policy options have been the subject of much analysis, in particular by the World Bank (1989c, etc.). It is clearly wrong, as we have already noted, to regard improving quality as being normally "traded-off" with extending coverage. Very often they are necessary to each other. And — especially when it comes to the kinds of quality improvements necessary to draw more female children into schooling — the things that need doing often cost rather little.

Each country must have its own strategy for educational development. It will obviously vary depending on the educational levels already reached, and the stage of development and its requirements. World Bank (1988b) has a useful categorization of five classes of countries and the principal likely emphases of educational policy in each. They are the NICs and some high-income oil exporters; many middle income countries and the more industrialized low-income countries, which have already made substantial progress in basic education; countries with good industrial or export potential but less well-endowed educationally; and the poorer, still primarily agricultural countries. All but the first of these groups have major problems with improving either the quality or the coverage of primary education, or both. And all, without exception, require to varying degrees extension or improvement of secondary, tertiary and vocational education, and adult education. Even the poorest countries need more and better-qualified skilled manpower for manufacturing growth, for research and extension in agriculture, for administration and management, and for all the skill-demanding uses of new technology in production, information and finance. The more advanced the

country, the greater will its needs be in these latter areas. But they cannot be ignored anywhere.

Dealing with demand issues in education

Perhaps the most important “demand” issue in education is child labour. It mainly takes place in the small-scale and informal sector, often in occupations traditional to a family and either in or near the home. It has in most countries resisted legislation, and is hard to monitor because it takes place at so many sites. Trying to prevent it would, in any case, often penalize the poor. The most that legislation has usually done has been to prevent children from working in particularly hazardous occupations, and in the formal sector. Sometimes it has also been able to influence age of entry into work, conditions of work and remuneration — obviously, to the extent that these objectives can be achieved, they are worthwhile.

There are two main areas of policy: one is in education itself — studies have shown that lack of access to education (distant, unsuitable or malfunctioning schools), low quality education with high dropout rates, or in some settings, high costs of education, can all be factors leading to child labour.⁴¹ Flexible schooling hours, teaching adapted to children’s needs — especially non-academic curricula — mobile and other inventive forms of schooling have all been tried with positive effects. Second, parents’ incomes need to be enhanced so that they can afford to forgo the income or work that children provide. Community facilities can often assist families with some of the tasks (especially domestic and home-farm tasks) that keep children out of school.

There is no single recipe; families’ needs and the conditions of child-labour are highly specific to their settings. But a range of initiatives have been made by NGOs and by local communities, which can be reinforced and supported by governments. Governments obviously have the main role in attempting to enforce children’s rights and secure their welfare in the working situation to the extent that child labour is unavoidable.

Ideally, education should be made compulsory, and legislation to that effect enforced, at least up to completed primary education, and preferably beyond. But such legislation is hollow unless parents can afford to forgo their children’s work and pay the costs of their education, and education of adequate quality and proximity is available.

As noted earlier, some of the “demand” factors are social, cultural and religious. Dealing with these is often very difficult, but is sometimes possible at low cost. Making schools suitable for Muslim girls, for example, is not necessarily expensive. It has been found in some places that once this is done, girls even from quite poor families will attend.⁴² (Koranic schools in many countries are open to girls. In some countries there are government policies to encourage or assist such schools to teach secular as well as religious subjects. Success is variable.) The range of factors overall is quite considerable. For these purposes educational policy needs to be informed about access to, and determinants of, education — information which can be derived from household surveys and other sources.⁴³

As noted above and again here, the quality of education is crucial and is hard to separate from demand. The principal need in countries where primary education is of low quality is more non-teacher inputs: textbooks, writing materials,

blackboards, adequately furnished classrooms, etc. Much of the decline in per pupil educational expenditure associated with population growth has, in fact, fallen on these items; governments tend to protect teachers' employment (and that of educational bureaucrats) when budgets are under pressure.

But in some countries there are additional problems. In India, for example, a critical need is to monitor the performance of teachers in the public system: they frequently draw their salaries without turning up to teach, and have even been known to organize their pupils into labour gangs for hire instead of teaching them (Weiner, 1991). A new experiment, the District Primary Education Project, has conducted public hearings with thousands of parents, and devised means to involve communities in overseeing school performance (World Bank, 1995b). There are many roles for participatory and community action in education, as discussed.

It is hard to overemphasize the importance of the quality issue in education. A large proportion of the research on education is based on enrolment data, which are themselves dubious. For example, Indian enrolment figures suggest 98 per cent total enrolment (and 84 per cent female enrolment) for 1991 (World Bank, 1994:216). But the vastly more reliable National Sample Survey data for 1987 showed 57 per cent in total and 69 per cent of females were "never enrolled" in rural areas; the corresponding urban figures were 26 and 36 per cent respectively. (The total population is about 75 per cent rural, thus for rural and urban together just under 50 per cent were never enrolled.)⁴⁴ Yet rates of return, international comparisons, development indicators, and many other estimates in educational economics are based on enrolment figures. When, in addition, it is borne in mind that typically *no allowance is made for the quality of education*, it becomes clear that much that we think we know about education and development will have to be re-examined.

The quality issue is of critical importance for demand for schooling. A misleading picture is given by data that do not allow for quality. When the true reason why children are not in school is that schools are of insufficient quality to attract or keep them, the remedies for lack of education are quite different from those which would follow from believing more school places are what are needed.

Provision and financing: The public sector, the private sector, and the "third sector"

Many countries have gone through an acute fiscal squeeze in recent years; and many countries have major distributional distortions in educational expenditure. Any human development strategy is likely to make increasing budgetary demands, and call for reallocation of public expenditure. Foreign assistance can contribute to the necessary finance, but countries will still, in most cases, be faced with finding more resources *and* taking decisions in favour of the poor that may be resisted by those whose benefits will be reduced.

It must be said that the proportion of public expenditure devoted to education is not sacrosanct, and it may not always be possible to find the needed resources by reallocating within existing totals. But in a large range of countries, 35-50 per cent of the education budget is devoted to higher education, the beneficiaries of which represent a small fraction of the population, chiefly the children of better-off families who have been able to pass successfully through the earlier levels of education. Management in higher education is often highly inefficient, sometimes

resulting in costs per student being higher than in industrial countries. A combination of fee-charges and efficiency increases in higher education could often fund the bulk of expansion and improvement needed in the primary sector (for a general survey of many of the issues, see Jimenez, 1987).

Beyond these considerations, the main choices to be considered are between public and private financing; public and private provision (which is separable from financing); and choice of technology. There is a good deal of variety in country experience in all these areas. Particularly in recent years, there has been much experimentation with private financing and cost-recovery, private provision (including provision by non-governmental organizations) and low-cost educational technologies. The evaluations are far from being complete; but there is sufficient evidence that major contributions to efficiency and equity can be made both by private provision and by private financing, especially in secondary and tertiary education, and vocational training. Community and NGO action can also play a part in primary education, both in basic school and teacher provision, and in other inputs.

Among the most fruitful sources of educational reform is the use of private financing and cost recovery in post-primary education, which makes possible the redirection of public expenditure for primary education. Whether primary education itself should be subject to fees, other than means-tested fees charged to better-off parents, is a more difficult question. Certainly where there is a risk that fees might discourage access, the benefit of the doubt should weigh in favour of free provision. The externalities of primary education make it a natural candidate for public subsidy.

It has been suggested that cost recovery is not justified in either primary or secondary education: if one erects a means test or other device to exempt the poor, the cost of collecting fees is too high to make it worthwhile (Griffin and McKinley, 1994). But this is not true; some countries — for example, Kenya, — have managed to extend secondary education with considerable contributions from parents. If means testing and cost recovery are impracticable, education vouchers are another technique that can be tried. Schools charge fees, but (non-transferable) vouchers are given to poorer parents, which the school then collects for reimbursement by government (still other measures are also possible. See Jimenez, 1987). Failure to collect fees where practicable and equitable penalizes the poor: it either reduces the level of services provided, or subsidizes the better-off, or both. At the same time, care has to be taken that cost-recovery does not penalize the poor. Thus there is a presumption that primary education at least should normally be free — this does not require, though, that *provision* has to be by the public sector.

Private provision of educational facilities and educational inputs has great scope. It no longer is, and certainly should not be, the reflex in most countries that if something is needed in education, the public sector should provide it. From schools themselves, and ancillary items such as textbook production or school construction, there are valuable and cost-reducing opportunities for the private sector, for NGOs and for local community participation.

The evidence on low-cost learning technologies seems to be mixed. The varieties of distance-learning have promise, but not all promise has been fulfilled. In some subjects, such as mathematics and science, where needs are great and resources

scarce, and where long lead-times are required to increase supply, there may be little alternative, especially in poorer countries. Other cost-effective options include school facility standards, class size, economic use of facilities (double-shifting, etc.), reducing repetition and dropout rates (World Bank 1989c:192ff).

Lastly, as far as the public sector is concerned, there is an important role for institutional development in management and implementation of programmes. This too has been studied, and the findings need not be rehearsed here.⁴⁵

At first sight it may be thought that there is an impossible task of priority determination, even within education, let alone among all the human development sectors. There are, of course, choices to be made. But in reality, in any given country, there are a variety of constraints, from manpower to finance. The feasible options are far fewer than the imaginable options. Normally one is pushing out the boundaries at the margin. It is over the long run that major change is possible; then what is important is that the directions of change and the vision that informs a new emphasis on human resources have the right goals. Establishing those goals, and working out an efficient and practical path towards them, may be the most important step.

In this context, one should bear in mind an element referred to earlier: the importance of pre-school programmes. The research indicating their importance is not new; but following its implications is still a relative rarity in developing countries. If the research is correct — that much of human development is determined by the first four or five years of life — then if it is not attended to, many other social investments may be much reduced in their impact; and *per contra*, they will be enhanced if it is.

Education and training for manufacturing and competitiveness

It is remarkable how many books and articles on human development (including until recently all the UNDP's **Human Development Reports** and related work) ignore the role of training. It has been an essential part of the argument of the present paper that education and training for productivity are an integral part of human development (for a general survey, see Cassen and Mavrotas, 1996).

What policy implications for human resources can be drawn from the discussion earlier on technological capabilities? The evidence suggests that manufacturing in South Asia and Africa operates with relatively low levels of human capital and invests little in upgrading that capital. There are differences between firms, and education and training show up as important determinants of technological competence. The most striking feature of the findings on Sri Lanka, Ghana, Tanzania, Zimbabwe, South Africa and Kenya is the low overall levels of skill and competence in the manufacturing industry. The gaps in skills and training between non-African and African-owned firms is a particular cause for concern. This means that technological capabilities remain well below the levels needed for these countries to mount a sustained export push based on new manufactured products. This has important implications for the theme discussed here: the weak “supply response” of developing countries in Asia and Africa to policy reforms and import liberalization. There is a striking comparison with, say, Korea, which has very high levels of human resources, and invests heavily in upgrading them.

We need to examine the implications of this, not just from the view point of education policies but from that of industrial development and industrialization strategy. To some extent, the lagging competitiveness and dynamism of South Asian and African countries clearly reflects the weak base of technical, managerial and workforce skills.

The adoption of export-oriented trade policies does not address any of the skill shortages that may be affecting the efficiency of South Asian and African industry, yet many existing industries might become competitive if their human resources were improved. It is important to note that a certain amount of capability development has already taken place in many industrial activities; this is a valuable resource that should be conserved and built upon rather than dissipated by a shock therapy that leads to massive deindustrialization. Technological capabilities reside in groups of skilled and experienced persons rather than in individuals, and the destruction of enterprises means that the stock of accumulated knowledge is effectively destroyed even if the individuals concerned stay in the country. The design of policy reforms should therefore include education and training as an integral part of the reform process.⁴⁶

The provision of specialized training to industry is an important area of supply-side support in the process of structural adjustment. These services are weak in much of South Asia and Africa, and enterprises themselves (apart from the major multinationals) invest little in training their employees in modern technologies. In Africa there is a great shortage of experienced trainers to staff and manage industrial training systems, and this is the first bottleneck that governments should address in the context of adjustment. Policy reforms should pay explicit attention to the need for foreign trainers to teach local trainers in the most pressing skill needs of industry, and to the need to set up viable local training systems in the longer term. The problem, once more, is the shortage of human resources, and this has to be tackled at source.

Training policies need a broad and long-term perspective. They must also be evaluated in the light of the evidence on training determinants. They will differ considerably depending on the stage of development. And there is a close relationship with educational policies: some of the most difficult issues are resolving possible conflicts among priorities in education.

Improving responsiveness to demand

The first requirement is an accurate assessment of training needs. Many countries — not only developing ones — have long relied on manpower planning, but this has frequently resulted in large errors. The standard method has been to employ output forecasts and some form of input-output coefficients of skill requirements, matching these with state provision of training or inducements to individuals and training institutions to provide training. They have gone wrong, in part, because the manpower forecasts thus obtained have been highly inaccurate, sometimes because there is often little relation between education and training received and the jobs those trained actually go into.

The leading candidate to replace manpower planning is “labour market monitoring”. Tanzania’s experience affords an example. In the early stages of independence, the country relied on manpower requirements forecasting to guide its investment in post-primary education and training. Its policy makers were not

just motivated by egalitarian zeal; they were advised by the World Bank, in the light of forecast “requirements”, to favour primary over secondary education. The result was a shortage of educated and skilled personnel in a large number of fields over the 1980s (UNESCO, 1981 cited in Adams et al., 1992). In general, policies that facilitate short-term adjustment through labour market information, linkages between training institutions and employers as well as incentives to guide the size and the occupational content of training are likely to be much more effective, as has been discussed for Thailand, which has also encountered shortages in secondary education (Middleton et al., 1991). The movement of wages and employment offer a better guide to trends in the demand for skills.

One of the most striking examples has been provided by studies of Indonesia. Labour market signals produced quite different conclusions from manpower forecasting requirements, as indicated in a five-year planning exercise known as Repelita V (1989-1993). The manpower forecast projected a large shortage of primary education graduates, a small shortage of junior secondary graduates and a surplus of graduates above this level, particularly among senior general secondary graduates. However, labour market monitoring (which relied on social rates of return, unemployment for 26 to 35 year-olds, and median job search time) yielded a different picture: what was needed was a more balanced allocation of spending on primary, junior secondary and senior general secondary education. The manpower forecast failed to anticipate the strong demand for general secondary graduates (Adams et al., 1992).

The private sector has a key role to play in ensuring a relationship between government provided training and demand. Successful reforms of government training in recent years have usually included roles for private-sector representatives on boards of training institutions and policy-making bodies.

Links between education and training

There is a division of labour between the educational system, free-standing (government or private) training institutions, and training provided by firms. For a number of reasons, vocational training in schools is often not cost effective. Low rates of return have been found in most developing countries. It tends to be expensive when based on equipment, out of date, and the skills it teaches are often not what firms want.⁴⁷ On the whole, firms that train prefer well-educated school leavers who are adaptable and learn quickly.

This is not to say that there is no role for free-standing training institutions, which may enjoy economies of scale. These may teach relatively low-level skills, such as auto and appliance repair, metal and wood working, office functions and the like. Aid agencies have even experimented with mobile training workshops, teaching welding or simple mechanical skills. At the higher-tech end of the spectrum, there are clear roles for institutional training. A case in point is the Clothing Industry Training Institute in Sri Lanka; established with the help of German aid in 1984; it has brought modern management, supervisory, technical and productive skills to the garment industry, which has become a successful exporter (Lall and Wignaraja, 1992; also see the Appendix). Singapore’s Centre for Computer Studies is another example (Wong, 1992).⁴⁸

Most of the available studies suggest that *secondary* education is increasingly associated with training in manufacturing firms. In studies for Indonesia, Mexico

and Peru, which show a correlation of training with education, secondary education is commonly the most powerful correlate; it is often the minimal qualification for entry into training. In addition, a study for Zimbabwe showed craft apprenticeships to be more cost effective than school-based or pre-employment artisan training; but the apprentices were highly selected secondary school leavers, and worked with the biggest firms (which pay more) (Bennell, 1993). Production operators in most automated assembly plants need a minimum of secondary education to service and repair machinery, and provide feedback to engineers to make modifications and improvements. In a further study of Indonesia, the *only* post-employment training found to have significant positive benefits (measured by wage-differentials) was that offered to senior secondary-school graduates (Godfrey, 1993). There is also, obviously, a need for highly qualified technicians and engineers, varying with the technological level and extent of manufacturing — even the poorest countries need at least a modest layer of well-qualified people in “high-tech” occupations.

As noted above, however, the links with education are far from well understood. This is not only true of primary education, which was discussed; but with different levels of secondary education. The role of educational *quality* has also made little appearance in the “skills” literature, although, as the present paper notes, it is virtually always of great significance. Quality is so variable that much empirical study which simply correlates years of education with a variable of interest, or uses years of education as the basis of rate of return estimates, may be seriously flawed. There is also still considerable uncertainty about what, within education, are the important factors for productivity — the specific subjects and cognitive skills taught, or attitudes engendered towards work, co-operation. Altogether, with the exception of a few very detailed studies, we are a long way from knowledge with a desirable fineness of discrimination.

Information

An important part of policy must be to ensure a better flow of information to all parties about training. The Ghana study referred to earlier found firms quite lacking in knowledge about the training requirements of new technology, and other aspects of training (Lall et al., 1994). Firms in Malaysia attempted to introduce technology which their labour was not skilled enough to use efficiently (Lim and Toh, 1992). Even in the Netherlands, one of the countries with a successful training record by European standards, firms were found to know little about the costs and benefits of their own training schemes (De Koning, 1993).

But the information problem is not restricted to firms; potential trainees, parents, schools, training institutions all need information about changing labour-market conditions. Certification of training courses is part of the information problem. A training system producing qualifications needs accepted standards and controls — otherwise the informational value of any certificates provided will be minimal. (This has been a problem in India recently, where a host of private institutions have grown up to train information technology professionals. The government has been forced to step in and introduce standards, examinations, etc.)

All the evidence points to an important role for government as a provider of information — but not government alone. Representatives of the private sector are needed at various points in public training activities to ensure that the education and training system is responsive to current and future demands.

◆ Population, Health and Nutrition

Population

A great deal has been learned about the population issue in the last decade. The rhetoric of “time-bomb” and “crisis” has almost disappeared; more and more countries appreciate the need to limit population growth. At times, though, increased understanding of all the factors that contribute to slowing the growth of population, and of the time perspective in which they can be brought into being, has seemed to reduce the urgency of making an appropriate response. But the longer it is delayed, the harder it will be to cope with, and the harder it will be to make progress with all the human development sectors.

Of all the correlates of fertility decline other than family planning programmes, the most consistently significant is female education. In one recent study across districts in India, female education and labour force participation were the *only* variables that contributed significantly to fertility reductions (Murthi et al., 1995). If the educational priorities outlined above are followed, the most important of the contributory factors will be strengthened. The other main correlates — declining infant mortality, increasing modern-sector employment for women — are also in part a function of education, as the discussion of “interactions” implies. Income generation for the poor and for women is the one further important component — a subject we return to below.

Nevertheless, the provision of the means for family limitation remains crucial. When utilized, they are the most cost-effective way of reducing fertility — and maternal mortality. Indeed, those who claim social development is the key factor rather than family planning must ask themselves why death from septic abortion remains among the largest sources of adult female mortality in many countries. In a strategy for integrated human development, the questions about development versus contraception disappear. The rest of the strategy takes care of the correlates of fertility decline; population programmes can confine themselves to the supply of the means for family limitation and those aspects of demand which the “correlates” do not themselves cater for.

It is not necessary for this paper to detail what has been learned about family planning technology, service delivery and the requisite management information systems. There is a very substantial body of knowledge, and any country wishing to extend its family planning programme can fairly readily obtain the information and — to a considerable extent — required foreign assistance. A human development strategy should note that the financial magnitudes involved are not large, compared with other programmes. Even more than with education, the (non-financial) limits to the pace of programme expansion are likely to constrain the feasible choices in the near term within a narrow range; again what matters is setting the appropriate goals and paths towards them.

There *is* a demand problem. Many countries have still to satisfy existing demand — about one birth in four in developing countries is unwanted by the parents; but the experience of opening family planning clinics that attract few clients is also quite common. There is still high desired fertility in many countries, which will only diminish with social development. But the quality of services is often at fault; and in some cultures, there is a problem of differential male and female attitudes to

desired family size must be overcome. Beyond this, there is still an important role for the delivery of family planning “messages”, information and demand creation. It should also be borne in mind that carefully monitored “pilot” or “model” family planning clinics (or services in health clinics) are among the best research tools for discovering the attitudes in a given community towards contraception and its use.

Most of what has been said about financing and provision related to education above also applies to population work (especially private and NGO service provision, and the social marketing of contraceptives). And it applies equally to health and nutrition discussed below.

Health and nutrition

The greatest difficulties in priority determination in health and nutrition lie in the poorest countries, where malnutrition and infection are still responsible for a large share of child mortality, but neither causal attribution nor the effects of interventions are perfectly understood. In general, where cause of death information is deficient, it is hard to determine policy. The other difficult issue is achieving the appropriate balance in health between medical, curative services, and public health and preventive services, and related social and economic policies and programmes affecting incomes, employment, consumption and the environment.

Nevertheless, one is not working from a *tabula rasa*; countries have ongoing policies and programmes, and the question is more one of emphases and reforms. Given the need to ensure mutually reinforcing activities, there should be some benefit to be had from studying the effects of programmes that have already been tried. There is some experience of using schools as delivery vehicles for health and nutrition inputs and information — a natural way to go, but with possible dangers; past experiences should be assessed. Similarly, experience from efforts to combine work in different sectors — water supply, sanitation, food and nutrition, health — require evaluation.

As in education, health priorities vary with the level of development, not only in the evolution of health systems, but in the changing pattern of mortality and age-structure of the population. Even data needs are a function of the level of development; there is a particular problem in Africa, where data on causes of death and the incidence of disease are quite inadequate for the purposes of determining health priorities. Data deficiencies are only somewhat less severe in many other low-income countries. Some problems are common: the emphasis on curative services benefiting the less poor, rather than preventive ones helping the poor, is widespread; the need to cope with financing difficulties, and shift, where equitable, to private financing and cost-recovery equally so. New forms of provision, private and NGO, are being tried in many countries, as well as measures to increase the efficiency of the public sector. Despite the shortage of resources, a great deal can be done simply by reducing waste and mismanagement.

As with education, it is widely accepted in the literature that to reach the poor, emphasis has to be put on primary and preventive care as opposed to the higher levels of health services; but also, as with education, the balance of public health budgets in many developing countries is in the opposite direction. The distortion in health may be less regressive than in education, but it still exists very clearly. If policy were guided by the incidence of death and disease, and cost-effective measures were taken to remedy the most widespread problems, health services

would look very different. As the **World Development Report** put it, “Redirecting resources from interventions that have high costs per DALY gained to those that cost little could dramatically reduce the burden of disease without increasing expenditures”(World Bank, 1993b:8). The **Report** defined an essential package of clinical services with these characteristics, addressing five groups of interventions: pregnancy-related care; family planning services; tuberculosis control; control of sexually transmitted diseases (including AIDS); and care for the common serious illnesses of childhood (diarrhoea, respiratory infection, measles, malaria and acute malnutrition).

The full costs of such programmes in low income countries cannot typically be met by reallocation alone within existing health budgets; a combination of reallocation, increased government expenditure for health, donor support, and more user charges and health insurance are needed. Middle-income countries could meet most requirements by reallocation, although, as in education, that may be politically difficult. User charges that avoid hurting the poor have often failed to generate significant revenue; they are more useful for assisting such things as adequate pharmaceutical supplies in clinics. For these and other reasons, the WHO/UNICEF “Bamako Initiative” has promoted community financing systems with some success; under these, individuals pay modest fees to sustain local clinics and pharmacies.

As noted earlier, in many poor countries the majority of health expenditure even by poor people is on private care. This makes improvement of private health a priority. Measures needed include governmental registration, certification, regulation and monitoring of private health providers; schemes to finance and train private providers in case-finding and treatment of priority health problems (such as those addressed by the “essential package” above); and control of pharmaceutical supply and dispensing, as well as training and information on drug use for the population at large and private providers. Often, governmental capacity to achieve these aims will need to be strengthened.

Particularly for poorer countries, harnessing private providers to the prime tasks of the health system is an important supplement to public health. There is also a major role for NGOs. NGOs already provide a large share of clinical services in poor countries: as much as 30 per cent or more in some African countries, and 10 per cent in India and Indonesia (World Bank, 1993b:127). They have similar roles in family planning (Cassen and Bates, 1994:38-40; Fisher, 1993). They can supplement or substitute for the public sector; in some countries, NGO hospitals are already designated by government as district hospitals, and receive public financial support; they also perform a variety of more limited functions within health systems.

Nutrition work also has an important place in a human development strategy. Its role in improving productivity and educational performance has been noted. At least one author has concluded that nutritional investments have a *higher return for poor people than schooling*.⁴⁹ Food price policy and income generation are key parts of a human development strategy in this respect. But there is also a role for nutrition interventions. A great deal has been learned about what works and what does not, and will not be rehearsed here (Berg, 1987 provides a valuable summary). It is worth repeating, however, what was said earlier: increasing income (especially male income — see below) does not necessarily lead to improved nutrition. Where poverty is rife, there will always be a role for nutrition interventions, including

nutrition education. And the control and cure of diarrhoea and the improvement of water supply and sanitation are, as noted above, important aspects of programmes to improve nutrition.

Gender aspects

Obviously, if service delivery in human development sectors fails to reach women, many of the goals of a human development strategy will not be met. Many of the externalities of educational advance are specific to, or most strongly related to, women's education. The most widespread health problems at younger ages are specific to women and children. Even nutritional deficiencies in some countries are more common among female than male children, and there are particular problems among pregnant and lactating women.

Those concerned with the various themes of women in development complained in the past that the subject was "ghettoized" — that these themes were treated in separate sections of studies, reports or projects when they ought to run throughout the work in question. This is perhaps particularly true for a human development strategy — even in today's somewhat more enlightened climate of opinion, it would be a triumph in any country's human development strategy if a separate section on women in development were unnecessary.

Social sector budgets and cost recovery

An important conclusion from the discussion of structural adjustment is that, as far as possible, public social sector expenditures should be protected from retrenchment — and within those expenditures, those which benefit the poor in particular. The World Bank, at least, is now sensitive to these issues, and indeed takes advantage of policy dialogue to discuss distortions in social sector spending with governments; though whether stabilization and debt management packages organized by the IMF and the Bank are still excessively severe overall might be debated, especially in view of the rather modest results in many countries in terms of growth and investment levels.

Is there any guidance about overall budget setting? Griffin and McKinley (1994) have suggested a "model budget" with specific figures for proportions of government expenditure devoted to particular human development priorities. Apart from any usefulness this may have as a very broad indication of what might be appropriate, there is very little merit in such an approach. The same could be said of the "20/20" suggestion blessed by the 1995 World Summit for Social Development — that governments and donors should set targets of 20 per cent of public expenditure and of aid for social priorities. For a large variety of reasons, different countries will show very different results from the same proportions of public expenditure. The relative roles of public, private and NGO funding and provision differ widely from country to country. And the overall level of public expenditure will be highly significant, as well as the state of existing infrastructure and past capital spending.

While it would be desirable for donors to raise levels of support for human development, which has accounted for a very modest fraction of aid in the past, there is no particular virtue in the 20 per cent figure for them either. The chief virtue of switching aid into human development is that it is likely to be more

effective than some other forms of aid, provided it is made available for local and recurrent costs, which form the bulk of funding requirements.

Differences of opinion exist on the extent of ODA going to “human priority concerns”. The **Human Development Report** put the figure at 7 per cent of ODA (UNDP, 1993). But the DAC has claimed that UNDP’s calculation is faulty even on the basis of the specific expenditure headings commented on; exactly what should comprise human priority concerns is a further problem (the UNDP did not even include disaster or refugee relief). In the view of the authors of this paper, if aid succeeds in promoting growth that permits higher public social expenditures on social priorities and generates incomes for the poor, such aid is valuable for “human priority concerns”.

There is no substitute for governments’ building up human development strategies by careful consideration of the full range of information and objectives covered in this paper, determining which parts of which programmes are going to be funded and provided by public, private and NGO bodies, and costing programmes accordingly. It is probably an iterative process, examining what parts of existing programmes have to be continued, and what abandoned; what new initiatives are necessary; what funds are or might be made available from domestic and foreign sources.

An important note of caution must be entered on the subject of cost recovery. Different agencies are involved in different programmes; some watch has to be kept on overall effects. There may be a multiple impact if simultaneously food prices rise, subsidies on farm inputs fall, taxes are increased, and cost recovery is implemented in health and education. If, at the same time, livelihoods are threatened by retrenchment measures, the burdens inflicted could be overwhelming. Protecting the poor and enhancing their access to services and livelihoods must be kept at the forefront at all times.

Income generation

It has been noted at various points that it would be an error to address poverty issues by concentrating on human development service delivery — as has been all too frequently the case with poverty-oriented aid — without paying attention to income generation.

The same point must be made emphatically about human development service delivery itself. There is ample evidence that supply of human resource inputs is only part of the strategy. Where incomes are falling, the demand for services may fall; individuals need resources to be able to make use of services (and not just to pay any charges which may be levied) and to attend to their own needs.

It is also true that other aspects of human development — and the role of women in particular — have to be related to income generation. The functioning of labour markets, access to credit, the distribution of assets, economic growth itself and the pattern of growth and employment are all related to a human development strategy. Thinking about poverty and about human development must go hand-in-hand. Of course, human development is not only about the poor, even if much of service delivery has to be organized bearing them particularly in mind. It also contributes to income generation, raising the productivity of the poor and the non-poor, and thus to economic growth.

Paul Streeten devotes the first half of his **Strategies for Human Development** to “Jobs and Livelihood”, encompassing a wide range of measures for promoting employment. These include means to strengthen the role of small-scale enterprise and the informal sector, and labour utilization in agriculture (Streeten, 1994). Institution building, making product and labour markets work, and reducing inequities in a variety of areas — from credit to land distribution — are all important parts of a strategy.

In addition, a variety of studies emphasize the importance of *women’s* incomes for a range of human development goals (see Buvinic and Lycette, 1988). Mothers’ incomes in several countries have been found to have an effect on children’s health and nutrition several times greater than fathers’ incomes.

Capturing the interactions

How does one reconcile the need to capture the interactions between various human development inputs and outputs with the knowledge (derived from integrated rural development projects — IRDPs — and other experience) that this is exceptionally difficult to do? There are three possible responses: one (also derived from IRDPs in later models) is to design programmes in which the individual components make sense on their own, and do not require dovetailing with each other to be effective. They can still be encouraged to occur in time to enhance one another. The second is to reassert the primacy of education among the human development sectors, since it delivers at least in part the outputs of all of them, whereas they contribute to, but do not deliver it. The third — which should definitely be pursued — is to study such attempts as there have been to integrate human development activities, such as school nutrition or health programmes, or education/health/family planning links, as already suggested above.

Some needs are in any case cross-sectoral, notably the “early childhood care and development” priority identified above. This requires a package of measures in health, nutrition and education, which can be (and have been) delivered in a variety of ways, stressing public, NGO and/or community roles, and ranging from direct supply of services to raising public awareness and educating care-givers (see M.E. Young, 1994).

Other methods include integrating services with particularly strong complementarity, such as combining health and nutrition programmes designed for children with schooling programmes; and maternal health and family planning programmes with female education and income-earning opportunities for women. Multi-sectoral approaches have been employed in a number of countries (World Bank, 1995a).

The politics of human development

Many of the policies implied by the analysis in this paper are not technocratic but highly political. In particular, the reallocation of social sector expenditures to change the beneficiaries from the better to the worse off may be resisted by the better off. There is a wide variety of experience to draw on, and great differences from one setting to another.⁵⁰ Changes benefiting the poor may not be resisted by others: they may be seen as being in the common interest or in the interest of specific sections of the better off. Thus everyone is made better off by the control

of communicable diseases and similar health measures; or business will see it as in its own interest to have a better educated and healthier work force.

Where subsidized goods and services have been available to better off communities over a long period, it may be hard to withdraw them, or at least withdraw them suddenly. It may be easier to increase benefits to the poor than reduce them to the rich. Covering the poor *alone* may often be a politically difficult strategy.⁵¹ Targeting has similar properties, in terms of economic rather than political costs: the narrower the targeting, very often, the more expensive the programme. It may cost less to include some of the less poor than to try to exclude them from benefits. (There are also some means of relatively inexpensive targeting, e.g. what is sometimes called “self-targeting”: subsidies of goods or programmes of interest only to the poor, such as certain types of foodgrains, or public works schemes. The latter, while employing only the poor if, for example, wages are kept low, can bring benefits to others and thus be supported by them politically.⁵²)

It would be wrong to give the impression that help for the poor is always resisted. India, for example, has long had a range of impressive legislation for programmes on behalf of the poor, and has recently added to it a social security system producing modest benefits to widows, the elderly, the chronically sick and the disabled.⁵³ Despite a social system generally favouring the rich, the democratic government has found it possible to legislate in favour of the poor — and possibly to win votes by doing so. More generally, it may be difficult to anticipate what will and will not be politically possible: there are numerous examples of success and failure. Successes have often come from NGO initiatives, broadened and supported by government; well intentioned initiatives have often fallen foul of local interest groups, especially in rural areas (see Streeten, 1994).

It is possible that aid can help by subtle or less subtle pressure as well as financial support. The role of structural adjustment in bringing forward debate on social sector allocations has already been noted. The Social Action programme in Pakistan, for example, a country with a poor record in human development, might well never have begun at all without donor pressure and assistance, despite willing support for such action within parts of the Pakistani civil service. Lessons have also been learned in Latin America about political means to engender support for human development.⁵⁴

The “third sector” and civil society

Much recent thinking about and experience of social development goes beyond government and private sector roles. NGOs and community action have a great deal to contribute to the goals of human development, and fostering them has to be part of any strategy for the purpose. The themes of decentralization and participation are of course also important. Decentralization does not mean simply a shift to lower levels of government — this may sometimes be a retrogressive step, where — as is often the case — local élites can dominate local institutions, and may have to be prevented by central government (if that government is more progressive than local forces) from derailing social programmes. But decentralization that creates participation, empowers local communities and people, and permits them to play a part in designing their own programmes can have powerful effects in harnessing community action for the common good. Where this can be achieved, resource problems can often be overcome. The idea of social “safety nets” has been criticized by some authors as reflecting too passive an

approach. Certainly the example of China and other socialist countries has shown some of the positive things that can be accomplished by collective action. Today examples are growing of comparable accomplishments by more voluntary means.

This paper has not pursued wider features of civil society: the various roles of human and civil rights, freedom of information, and all the components of good governance, have not been brought in to the picture. This is not because their value is underestimated. The literature is full of examples, one of the best known being the contribution of a free press in limiting famines (Drèze and Sen, 1989). Furthermore, while brain drain is usually attributed to economic causes, the role of civil rights should be more widely acknowledged — many professionals leave their countries not because they can earn more abroad, but because political conditions do not permit them to work at home.⁵⁵ How people can influence their societies to pay adequate attention to human development, and what the international community can do to help them, are major subjects in themselves. Civil society is the friend of human development, and a full treatment of subject would accord it a central place.

◆ Appendix: The Clothing Industry Training Institute in Sri Lanka

In response to a severe shortage of skilled labour in the garment industry, the government of Sri Lanka established the Clothing Industry Training Institute (CITI), under the Ministry of Handlooms and Textile Industries, in 1984. The total project cost was US\$ 1.5 million (with funding from the World Bank) and consultants from the United Kingdom were involved in setting up and conducting training courses, and in counterpart training. After three years, the foreign consultants left and a dynamic Sri Lankan director took over. From 100 per cent government financing at the beginning, the CITI currently covers 60 per cent of its own financing from earnings, and it is keen to become financially fully self-supporting. However, the Ministry of Handlooms and Textile Industries, fearing a loss of control, seems reluctant to allow the CITI to do so. The CITI employs 27 staff. Of 16 faculty members, one holds a Masters of Science in textile technology from abroad, seven hold technical degrees/diplomas and seven are experienced garment workers.⁵⁶

The CITI conducts 26 different training courses for workers and managers on various aspects of clothing production, design, supervision and management. It offers the only diploma in clothing manufacturing in Sri Lanka, a comprehensive certificate in sewing machine maintenance and a host of short courses (including tailor-made training courses for specific firms). These include:

1. A *diploma in clothing manufacture*, which lasts 18 months and offers management training for clothing executives. The minimum entry requirement is three A levels. Fourteen people were enrolled in 1994. The curriculum covers pattern construction, manufacture, industrial engineering, production management, total quality management and accounting.
2. A *sewing machine mechanics course*, which lasts 12 months and leads to the National Apprentice and Industrial Training Authority Certificate. The minimum entry requirement is 6 O levels. Eleven people were enrolled in 1994.
3. A *production supervisors training course*, which lasts 3 weeks and covers management, method study, line balancing, quality control and recruitment. Experience in the industry is required and 60 people completed this training in 1994.
4. A *pattern cutting, grading and styling development course*, which lasts 6 weeks and provides instruction in methods to develop garment styles from block patterns. The minimum entry requirement is 6 O levels (including mathematics); 91 people participated in 1994.
5. A *course on quality control for the sewing industry*, which takes place over 2 weeks, to develop skills in quality control and inspection. Production experience is required and 81 people participated in 1994.
6. A *sewing machine operator course*, intended for inexperienced persons, which lasts 4 weeks. In 1994, 70 people took the course.

7. The *tailor-made training courses* for firms cover advanced sewing techniques, quality control and cutting. In 1994, five such courses were conducted.
8. In 1995, the CITI began a quarterly one-day workshop on *productivity improvement* for supervisors and workers.

The numbers trained at CITI have increased from 500-700 a year in 1984-1987 to 1,325 in 1995, for a total of 13,170 (1984-1995), due a rise in demand for specialized training in clothing manufacturing. The number of courses provided by CITI has increased from 40 per year in 1984-1987 to 80 in 1995, for a total of 640 (1984-1995). It also hosted 75 seminars for visiting speakers; undertook 50 in-house training consultancy projects for clothing firms; organized two major international exhibitions of new equipment and product designs in Colombo, and published a quarterly journal during the same period. It has a library containing books, journals and videos on garment production. Finally, the CITI provides other technical services for garment firms, including cutting and pattern grading to customers specifications, lay planning to ensure economical use of raw materials, pressing tests, valuation reports and computerized production analysis to ensure efficient plant management. In 1989, the CITI won a Presidential Merit Award for services provided to the clothing industry.

The CITI is well placed to undertake the crucial function of training specialized manpower for the clothing industry in Sri Lanka. In the 12 years it has existed, it has established a strong standing in the garment industry and demands for its training services are growing. It is the main institution used for specialized training by both local and foreign firms and has made a significant contribution to the acquisition of technological capabilities and competitiveness through improvements in sewing machine operator skills, maintenance of equipment, total quality management, industrial engineering, styling development, production supervision and management skills. More recently, it has attempted to boost firm-level productivity by undertaking the workshop for workers and supervisors.

Several shortcomings, however, constrain the CITI from playing a more active role in the garment industry. It is too small, and is therefore unable to meet the growing demand for its services. The site it is on has no space for expansion. It is held back by too much bureaucratic control in its day-to-day operations, yet it could become totally self-financing by “corporatizing” its operations. It suffers from a high turnover of its senior faculty but is unable to compete with private garment firms that poach trained manpower.⁵⁷ Finally, it needs a fully equipped design centre to encourage the creation of an independent design capability in the garment industry and support to move into upmarket garments (Wignaraja, 1997).

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◆ Notes

¹ Easterly et al. (1993) have extended these models by introducing the “technology adoption” hypothesis. The main assumption is that the economy does not create new goods, it simply adopts goods and technology produced elsewhere. However, this adoption process is costly since it requires skilled labour to use new technologies. For some critical comments on the new growth theory and its relation to policy, see van der Hoeven (1995b).

² See also Lau et al. (1993) for some cross-section estimates in Brazilian states. They find a strong positive relationship between education and growth, but indicate several future lines of enquiry which would help to understand the relationship better.

³ The World Bank’s “East Asian Miracle” study emphasizes the role of human resources in these economies’ success (World Bank, 1993a); Dertouzos et al. (1989) analyse US failings in this regard.

⁴ The curve relating life expectancy and per capita income also shifts upwards over time, presumably as a result of medical advances (see Preston, 1980).

⁵ A good illustration can be found in UNDP (1994), Figure 1.1 “Similar incomes, different human development”, p. 16. The figures used there are for 1991/92 (see Table 1.1, p. 15).

⁶ For further details on these topics, see Lloyd (1994).

⁷ This is independent of an observed simultaneous effect, that there may be an association of high fertility with high child mortality: so-called “replacement fertility”, children born to replace ones who have died, has been measured. But the physiological causes of the association of short birth spacing and young maternal age with child mortality are established.

⁸ “Unwanted fertility” is measured in fertility surveys. For a description of the technique, see Bongaarts (1990); and for a critique, see Dixon-Mueller and Germain (1992).

⁹ See Kelley (1994). The finding is not worth all that much, as the author himself observes — no such relationship was found for the 1960s or the 1970s, casting doubt on its meaning in the 1980s. The finding for the 1980s is, however, robust, and it is not explained by low income growth in Africa (which may be due to other factors) or by any terms of trade effect on income growth internationally.

¹⁰ An excellent general survey is Hobcraft (1993). It attests to the link, but does not find clear evidence for the mechanism.

¹¹ A broad critique of the conventional findings on rates of return, especially those promulgated by the World Bank, is Bennell (1994).

¹² Many of the externalities one would want to explore are discussed in Haveman and Wolfe (1984).

¹³ The World Bank (1993a) finds that primary education made larger contributions to growth than did secondary, even in some of the East Asian “miracle” countries, although in some cases this may be due to underinvestment in secondary education, as in Thailand.

¹⁴ Singapore is an example of excellent performance in this respect; see Magaziner (1987).

¹⁵ Many studies emphasize the crucial role of household capacity. See Chen (1988); Caldwell (1986).

¹⁶ Alderman and Garcia (1994). The finding that food deficiency is by no means the common explanation for malnutrition is widespread; even where food availability is adequate, infection and disease can severely reduce its contribution to physical development. For a detailed discussion of the relations between income and nutrition, see Payne and Lipton (1994), especially pp. 96 ff.

¹⁷ These are also sometimes referred to as the signalling hypothesis or as sheepskin effects.

¹⁸ Countries with near-identical factor endowments will have little basis for trade with each other (excepting border trade resulting from transport cost advantages). Thus, developing countries, with scarcity of skills, will not trade amongst themselves. Included among the developing countries, however, are a group of newly industrializing economies (NIEs) with

a larger volume of manufactured exports than other developing countries. The NIEs may be taken to have relatively larger skill endowments than other developing countries, so their exports to other developing countries are expected to be more skill-intensive than their exports to developed countries.

¹⁹ See Webster (1993) for a survey of recent literature and a test for the United Kingdom.

²⁰ Recent studies on the subject include Mitter (1989); Wignaraja and Fernando (1991).

²¹ See, for instance, Chenery, Robinson and Syrquin (1986); World Bank (1991, 1993a); Helleiner (1994).

²² See Pack (1988) for a lucid discussion of frontier production functions.

²³ See, for instance, Page (1980), Pack (1987), Nabi (1988), Abdouli (1989) and Ghosh and Neogi (1993).

²⁴ The literature on technological capabilities in developing countries includes Fransman and King (1984), Dahlman et al. (1987), Katz (1987), Lall (1987, 1992), Enos (1991) and Wignaraja (1997).

²⁵ See, for instance, Westphal et al. (1985); Amsden (1989); Lall (1992); Enos (1991); Yun (1994).

²⁶ See studies cited in Tilak (1989b:192). For further detail on Pakistan, see Azhar (1991). Similar findings are found for Africa, e.g. by Durojaye and Olanloye (1992) for Nigeria, or Thirtle et al. (1993) for Zimbabwe (concentrating on research and extension).

²⁷ Behrman (1993); Behrman and Deolalikar (1989); Strauss (1984).

²⁸ For a suggestive developed country analysis see François (1990).

²⁹ One of the earliest studies on engineering services in developing countries is Roberts (1973). More recent work includes Chudnovsky, Nagao and Jacobsson (1983) and Brenner and Kurdoglu (1988).

³⁰ For a partial exception, see Hindley (1991) — but it concentrates mostly on trade issues.

³¹ Cornia et al. (1987). This is the conclusion reached by Bourguignon and Morrisson (1992). For the most recent assessment, see Stewart (1995).

³² Horton et al. (1994). For further discussion, and examples of more countries where wages fell and poverty rose under structural adjustment, see Van der Hoeven (1995a).

³³ See, for example, Gupta and Talwar (1992); Scott and Kocher (1992); Tarvid et al. (1992).

³⁴ The Belgian and German colonial authorities “turned the Tutsi-Hutu relationship into a class system. The minority Tutsi were given privileges and Western-style education, while the Hutu, usually farmers, were given nothing”. The Belgians introduced identity cards, which are still in use and have served to assist discrimination. Little has been done in the post-colonial period to alter these social biases (Duval Smith, 1994).

³⁵ Alesina and Perotti (1994); Persson and Tabellini (1994). (These studies and those cited by them are not all supportive of measures to improve the distribution of income, as some only show a relation between *initial* conditions of distribution and subsequent effects.)

³⁶ See a number of papers in the Fall 1994 issue of **Daedalus**, entitled “Health and Wealth”.

³⁷ R. Fogel, NBER Working Paper No. 4638, cited in Rosenberg (1994).

³⁸ Kingdon (1994). Teachers’ salaries are over 95 per cent of school costs in many public schools (which gives some idea of the dearth of spending on non-teacher inputs); and unions in the public system are stronger, and therefore public school teachers are paid more than private, while their teaching is worse.

³⁹ Haveman and Wolfe (1984). This paper has even attempted to measure the value of some of these effects, though with limited results.

⁴⁰ See the important arguments in Knight and Sabot (1986), who compare educational policy in Tanzania and Kenya; Tanzania's underemphasis of secondary education is shown to have been at variance with both efficiency and equity.

⁴¹ See chapters by Abdalla (Egypt) and Kanbargi (India) in Bequele and Boyden (1988).

⁴² Alderman et al. (1991). "The gender gaps in school enrolments and in cognitive achievements are large in rural Pakistan. Our findings suggest that, contrary to conventional wisdom, these gaps are, at present, substantially due to gender differences in school supply" (p. 26).

⁴³ For some studies on female education, see Bustillo (1989), El-Sanabary (1989); Hyde (1989); Khan (1989); Tilak (1989a).

⁴⁴ Reported in Minhas (1992). (Census data also indicate only a little more than half the primary school-age population actually to be in school.) The proportions never enrolled, both urban and rural, are of course much higher for the poorer deciles of the population. Close to 80 per cent of all urban children aged 6-14 "not currently enrolled" belonged to the poorest 40 per cent of the population; the proportions for rural India were lower, indicating that a significant proportion of the not-so-poor in rural areas receive no education.

⁴⁵ Steedman (1989); World Bank (1988b, 1989a, b, c, d, e).

⁴⁶ For further insights on links between education and training and appropriate policies, see Godfrey (1996) and van der Hoeven (1995b).

⁴⁷ Middleton et al. (1993). Vocational education in developed countries is a different story, though its success varies from country to country.

⁴⁸ Industrial countries have been able to make use of "group" training schemes to encourage training in small firms. Group training for small firms can take the form of a group training association. The aim is to make available the same range and quality of training advice that a large firm would expect to get from its own training department. Involved firms can benefit in a number of ways: (i) advice and assistance in the identification of occupational training needs; (ii) design of appropriate training programmes; (iii) participation in specialized programmes arranged for the group in local technical institutions; and (iv) continuous evaluation of training performance within individual firms (Greig, 1989). This form of training provision has been standard practice in developed countries for a number of years (the United Kingdom for example) but not (as far as is known) in developing ones, for reasons apparently related to practical implementation difficulties, high transport costs, communication problems, etc.

⁴⁹ Behrman (1993). This finding is typically in circumstances such as those of traditional agriculture where technology is not changing, or among the very poor. It may correspond to Fogel's findings about the importance of nutrition in economic growth in nineteenth and early twentieth century England referred to above (see note 37).

⁵⁰ A brief review with valuable references is provided by Streeten (1994), especially Part 2, "The Political Economy of Reform".

⁵¹ Nelson (1989); for some similar analysis of industrial countries, see Goodin and le Grand (1987).

⁵² The Employment Guarantee Scheme in Maharashtra (India) has a low wage which only the very poor would accept; and it produces public works of interest to better-off farmers, reduces rural migration to Bombay, and stabilizes the rural labour force. See Streeten (1994).

⁵³ This was pioneered in Tamil Nadu as a scheme devised by Professor S. Guhan of the Madras Institute of Development Studies, and was legislated nationally in the 1995 Budget.

⁵⁴ See, for example, Angell and Graham (1995). Birdsall and James (1993) provide a wider perspective.

⁵⁵ A case came to one of the present authors' attention not very long ago: perfectly competent Zambian officials were dismissed from the Zambian central bank because they

expressed disagreement with official policies — and the Bank of England received a request for technical assistance, which would just have replaced them. It would be useful to know how much technical co-operation has this kind of background.

⁵⁶ The CITI faculty members without technical degrees each had about 12 years of production experience in garments.

⁵⁷ Unlike many other public technology institutions, the CITI has attempted to retain its staff by encouraging them to supplement their income through consultancy work. The staff are paid a monthly salary and retain 25 per cent of their consultancy fees and a daily subsistence allowance. A top CITI faculty member's gross pay is about US\$ 230 per month (US\$ 150 salary and US\$ 80 consultancy fees), while a middle-level manager in a garment factory earns US\$ 500 a month. On top of this, the manager would get various bonuses and possibly a company car or motor bike.