

1 Introduction

In the past few decades there have been astonishing social gains for some poor groups in the world, but much weaker gains and even retrogression for others. Consider the following:

- In East Asia the numbers of people in poverty fell by half between the mid-1970s and the mid-1990s, and the proportion living on less than a dollar a day (at 1985 Purchasing Power Parity [PPP] exchange rates) fell from six out of ten to two out of ten people. In sub-Saharan Africa, there is simply not enough information to make even an empirically based statement along the same lines, but there is a high probability that both the proportion and the absolute numbers in poverty increased in this period. More recently, in all regions outside East Asia, the numbers of poor increased between 1987 and 1993.
- Infant mortality in 1970 was about the same – at 140 per thousand live births – in the three high-mortality regions of the Middle East and North Africa, South Asia and sub-Saharan Africa, but by 1995 had fallen, at very different rates, respectively to 54, 75 and 92 in these three regions.
- Almost everywhere primary and secondary school enrolment rates have steadily risen, even in periods of stagnation and decline. Sub-Saharan Africa is the exception, with the gross primary enrolment rate actually falling from 80% in 1980 to 72% in 1993.

The Development Assistance Committee of the Organization for Economic Co-operation and

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Are Poverty and Social Goals for the 21st Century Attainable?

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Development (OECD) has set goals for future social progress, reflecting the priorities established by the international community in recent years. We shall refer to them as the 'Strategy 21' goals. The core goals are as follows:²

Economic well-being

- The proportion of people living in extreme poverty in developing countries should be reduced by at least one half by 2015.

Social development

- There should be universal primary enrolment in all countries by 2015.
- Progress toward gender equality and the empowerment of women should be demonstrated by eliminating gender disparity in primary and secondary education by 2005.
- The death rate for infants and children under the age of five years should be reduced in each developing country by two thirds of the 1990 level by 2015. The rate of maternal mortality should be reduced by three fourths during the same period.
- Access should be available through the primary health care system to reproductive health services for all individuals of appropriate ages, including safe and reliable family planning methods, as soon as possible and no later than the year 2015.

Environmental sustainability and regeneration

- There should be a current national Strategy for Sustainable Development in the process of implementation in every country by 2005, so as to ensure that current trends in the loss of environmental resources are effectively reversed at both global and national levels by 2015.

Will these goals be achieved? What is the role of overall economic growth, policy choices and institutional factors in determining this? These are immensely complicated questions. In this article we explore some of the quantitative dimensions of the

task of reaching two important goals: reducing by half the incidence of extreme poverty and by two thirds the rate of child mortality, both by 2015. We find that the evidence is mixed. Recent history and predicted growth imply that many countries will indeed halve their poverty rates by 2015. But many will not – including most of the countries in sub-Saharan Africa. The goal for child mortality is found to be even less attainable. We conclude that for both goals to be substantially achieved, considerably more effort is needed today in improved economic management, and in increased public and private efforts to improve the social conditions of the population at large.

The article is organised as follows. First, we outline the nature and (multiple) dimensions of poverty in the developing world today. Second, we explore the required growth to achieve poverty reduction targets, under alternative assumptions for the distribution of income or consumption. Third, we look at the relationship between incomes and social indicators, focusing especially on child mortality. And fourth, we discuss the advantages and disadvantages of an approach that emphasises government spending targets on social spending, as a means of reaching targets for outcomes.

2 Poverty and Inequality: Dimensions and Trends

In the early 1990s some 30% of the developing world lived on less than one dollar a day (in 1985 Purchasing Power Parity terms). The bulk of these people were in South and East Asia, the two most populous regions of the world. But sub-Saharan Africa and South Asia have the greatest incidence of poverty. Both have about two fifths of their population living on less than a dollar a day, and both have large poverty 'gaps' – the average distance between consumption by the poor and the poverty line, expressed as a percentage of the poverty line (Table 1).

The number of people living in extreme poverty has increased in the developing world (Table 1). East Asia, however, is a notable exception. Its success in reducing poverty has been dramatic, and has continued into the mid-1990s (Ahuja *et al.*,

² OECD Development Assistance Committee (1996: pp. 9–11).

Table 1: Population living on less than one dollar a day in developing economies, 1987 and 1993

Region	Millions		Share of population (%)		Poverty gap (%)
	1987	1993	1987	1993	1993
East Asia and Pacific	464.0	445.8	28.8	26.0	7.8
Europe and Central Asia	2.2	14.5	0.6	3.5	1.1
Latin America and Caribbean	91.2	109.6	22.0	23.5	9.1
Middle East and North Africa	10.3	10.7	4.7	4.1	0.6
South Asia	479.9	514.7	45.4	43.1	12.6
Sub-Saharan Africa	179.6	218.6	38.5	39.1	15.3
Total	1,227.2	1,313.9	30.1	29.4	9.2

Source: World Bank 1996

1997). The proportion of the population living on less than a dollar a day fell from 60% in the mid-1970s to only 20% in the mid-1990s, with a sharp fall between 1993 and 1995, notably in China. The numbers of the poor in East Asia fell from over 700 million to less than 350 million over just two decades. Such a reduction in absolute poverty must be unprecedented in history. Although recent events and financial turbulence have undoubtedly stalled progress in the region, they are unlikely to undo completely the substantial gains that have been achieved over recent decades.³

These figures on the extent of world poverty represent only a very partial account of poverty. Apart from issues of data quality and coverage, there are two features of the concept of poverty that need to be emphasised. First, poverty has to be related to societal norms of the levels of consumption, services and other features of living that are considered the minimum necessary for decent participation in society. Norms vary considerably across societies, and in particular tend to be higher, the greater the overall level of material well-being. In a recent analysis in Britain in which a poverty line was developed from surveying the views of individuals on what was necessary for normal living, 'necessities' included an inside toilet, a refrigerator, carpets, a washing-machine and insurance of home contents (Gordon and Pantazis 1997).

These would be considered features of affluence in most African and Asian societies.

'International' poverty lines, such as the commonly used 'dollar-a-day', are customarily used only to make *international comparisons or aggregations* of consumption-based poverty. Country analysis always makes use of poverty lines relevant to the country, and frequently uses a range of poverty lines to reflect the varying degrees of poverty – and a range of measures of the depth and severity of poverty. For middle-income countries poverty lines are frequently closer to about two dollars a day. If this is applied to the world's population, some 2.8 billion people lived in poverty in the early 1990s – including a majority of those in most of South Asia and sub-Saharan Africa.

Second, poverty has many dimensions. Inadequate consumption is a core dimension, but many other features can be important, including ill-health, illiteracy, lack of access to basic services, insecurity, powerlessness, social or physical isolation, and vulnerability to violence. We take measures of two of these dimensions – mortality and educational status – to illustrate the global situation (Table 2).

Mortality of children is particularly sensitive to overall well-being. There are vast differences across countries: on average 157 out of 1,000 children die in sub-Saharan Africa before the age of five (92

³ Recent estimates by Manuelyan and Walton (1998) suggest that Indonesia will be the hardest hit by the crisis, effectively losing a decade of progress in poverty reduction.

⁴ These and other data (unless otherwise referenced) come from World Bank (1997).

Table 2: Indicators of education and mortality

Region	GNP per capita capita	Secondary school enrolment (gross %)	Under-5 mortality rate (per 1,000 births)	Infant mortality rate (per 1,000 births)			
	1995	1993	1995	1970	1980	1990	1995
East Asia and Pacific	800	55	53	80	56	45	40
Europe and Central Asia	2,220	86	35	71	50	30	26
Latin America and Caribbean	3,320	51	47	85	62	43	37
Middle East and North Africa	1,780	59	72	137	99	62	54
South Asia	350	n.a.	116	140	122	90	75
Sub-Saharan Africa	490	24	157	138	115	99	92
High Income	24,930	97	9	26	13	8	7

Source: World Bank, 1997

before the age of one).⁴ In many African countries, including Angola, Guinea, Malawi, Rwanda, Sierra Leone, the under-five mortality rate exceeds 200. This compares with an under-five mortality of 53 in East Asia and nine in high income countries (six in Japan and Singapore, but 10 in the United States). If we take the high income mortality rate as an achievable benchmark, then some nine million children die each year before the age of five from avoidable deaths. Mortality is related to national income (this is further discussed later) but with regional and country-specific variations. As a general statement South and East Asia have relatively low mortality rates, and sub-Saharan Africa and the Middle East relatively high mortality rates for their levels of income (Figure 1). Over the past two and a half decades every region has experienced large

reductions in infant mortality, despite, in some cases, stagnant incomes. But the pace of decline has varied, with relatively rapid progress in East Asia, Latin America and the Middle East and North Africa, and slower gains in South Asia and (especially) sub-Saharan Africa.

Outside sub-Saharan Africa, the bulk of the developing world has now achieved close to universal primary education enrolment, though with significant drop-out rates even before completing primary school. Sub-Saharan Africa on average went backwards between 1980, when the gross primary enrolment rate was 80%, and 1993, when it had fallen to 72%. Most of the developing world has far from universal secondary enrolment (Table 2). As a consequence of past education, many adults in the

Figure 1: Regional under-5 mortality by GNP per capita (US \$)

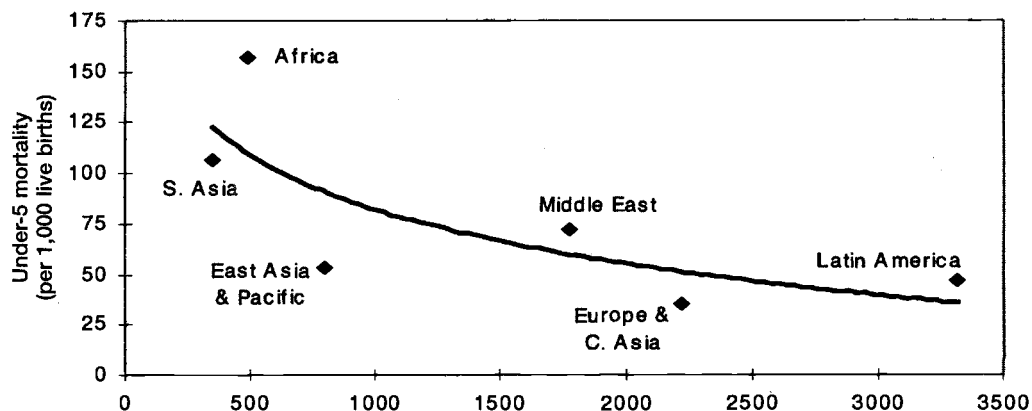


Table 3: Inequality in various regions in the 1990s (average Gini coefficient)

Region	Index of inequality
Eastern Europe	28.94
South Asia	31.88
High income countries	33.75
East Asia and the Pacific	38.09
Middle East and North Africa	38.03
Sub-Saharan Africa	46.95
Latin America and the Caribbean	49.31

Source: Deininger and Squire 1996

developing world have little or no education: some 25% of those in South Asia and sub-Saharan Africa have had no schooling, over 75% at most only some primary. But there are even larger differences in the dynamics, with many East Asian and Latin American countries in the middle of a swift, upward transformation in the educational structure of the adult population, owing to past schooling efforts. This will have an important influence on other social goals, such as child mortality, and on the capacity of economies to move into more sophisticated patterns of production of goods and services.

Inequality between and within societies is both an influence on poverty and, for many, a concern in its own right. With the major exception of East Asia, differences between nations have been rising over the long term. By one estimate the ratio of income per person between the richest and poorest country has increased from 11 in 1870 to 38 in 1960 and to 52 in 1985 (Pritchett 1997). This is associated with huge differences between groups. The ratio of wage earnings of engineers in Frankfurt, Germany were 56 times those of female unskilled textile workers in Nairobi in 1994 – after allowing for differences in purchasing power (World Bank 1995). And even unskilled textile workers in Nairobi were almost certainly living in households significantly above the poverty line – in 1992 the 42% of Kenyans estimated to be living below the national poverty line were mostly dependent on rural or urban informal sources of livelihood.

Inequality within societies is both lower and more stable over time than international inequality, but

concerns over inequality are clearly on the agenda in many countries in the late 1990s. There are major differences in the degree of inequality between countries. In South Africa, the top 10% of households account for almost 50% of total household consumption spending, while the bottom 10% accounts for just over 1%. By contrast, in Hungary the top 10% of households account for 23% of total spending, and the bottom 10% for 4% of the total. On the basis of one commonly used index of overall inequality – the Gini coefficient – Eastern European, high income and South Asian countries are relatively equal, while Latin American and sub-Saharan African countries are relatively unequal (though with wide variations within sub-Saharan Africa); East Asia and the Middle East fall in between (Table 3).

Are countries becoming more unequal? In general the distribution of income (or spending) changes slowly. Brazil has been extraordinarily unequal for decades; India and Indonesia are relatively equal and have experienced little change in the overall distribution of consumption across households – most groups have gained from overall growth roughly in proportion to their initial share in the national pie. While there have been shifts in inequality in some countries, it is hard to discern an overall pattern to changes. But there are some changes occurring that are of particular interest. In rich countries the rise in earnings' inequality in a few countries, including the United States, the United Kingdom and New Zealand, has been a major source of debate, though there is little sign of widening inequality in most other countries.⁵ In

⁵ Organization for Economic Co-operation and Development (1997), *Employment Outlook*.

Eastern Europe and the former Soviet Union some countries are experiencing rises in income differences from initially low levels. There are strikingly large increases in the case of Russia. In Latin America, Chile experienced worsening inequality in the 1970s, Mexico experienced widening income differences in the 1980s, and even Brazil suffered a further increase in inequality between 1980 and 1995. But perhaps of greatest interest are developments in East Asia, a region that has in the past been heralded as a model of growth with equity.⁶ In some economies, including China, Hong Kong, Malaysia and Thailand, there have been significant increases in inequality, especially in the past 10 or 15 years; in Malaysia's case this comes after a period of significantly falling inequality between 1973 and 1989. A full analysis of the causes of these changes has not yet been undertaken, but the current evidence indicates that it is associated with rising differences between high and low-skilled groups, between rural and urban areas, and between richer and poorer regions (Ahuja *et al.* 1997).

3 Growth Requirements for Future Poverty Reduction

What will be required to reduce poverty significantly in the future, and to achieve the goals set by Strategy 21? We explore in this section the relationship between future poverty declines, future economic growth and inequality. Income poverty outcomes are a function of the overall level of economic growth and the extent to which the poor participate in growth. In other words, forecasting poverty is a product of forecasting overall growth and changes in inequality. Both are hazardous undertakings. Growth forecasts are notoriously unreliable. And while there have been some recent changes in inequality that are of great interest, there is no basis for predicting any general rise or fall in inequality. In most communities the poor have participated in economic growth roughly in proportion to their initial share in national income or spending. Accordingly we adopt the following approach. First, we present estimates of the growth rate in average consumption per person that would be required to achieve the Strategy 21 goal. This exercise is done using two 'international' poverty lines of one and two dollars-a-day (in 1985 PPP terms) that span most national poverty lines

commonly used in low- and middle-income countries. This is achieved assuming no change in the distribution of expenditure or income. We then compare this with various economic growth forecasts. Finally, we explore the implications of rises or falls in inequality for a few countries, to illustrate the potential influence of this factor.

While the DAC '21st Century Initiative' speaks of halving the extreme poverty by 2015, it does not specify the base year. Assuming that the goal is to halve the 1990 incidence of extreme poverty, Strategy 21 is to be achieved over 25 years. Therefore, for each country, we estimate what is the required growth in consumption per capita to halve poverty over a 25-year period.⁷ The starting points for each country vary, since the surveys used to derive the base line were conducted at different points in time (though generally centering on 1990/91). This experiment is consistent with the spirit of the Strategy 21 poverty goal, even though the target date will not be 2015 for every country.

There is no simple relationship between per capita growth requirements, initial poverty and the pattern of income distribution. However, in general the higher the initial poverty rate and the greater the initial inequality, the higher will be the per capita growth required to cut poverty incidence in half over 25 years. Take two middle income countries: Brazil and Tunisia. Brazil is slightly richer but much more unequal. It would require a growth rate (in per capita consumption) of 2.5% per annum to reduce by half the proportion living on less than one dollar a day, and 3% for the proportion living below two dollars a day (Table 4). Tunisia is more equal and so has a lower initial poverty rate, and would require a much lower rate of per capita growth of 0.8 and 1.3% per annum respectively to achieve these targets. India, which is much poorer but more equal than Brazil, would require an annual per capita growth rate of 1.4% to reach the target at one dollar a day, but 5% at two dollars a day. Zambia, even poorer and more unequal than India, would require even higher growth rates.

If we compare these required growth rates with recent growth experience we get a generally pessimistic, but highly varied result across countries. In

⁶ See, for example, World Bank (1993).

⁷ This analysis is based on Ravallion and Chen (1998).

Table 4: Growth in per capita consumption required to halve poverty incidence over 25 years, selected countries

Country	Average spending per capita (1985 PPP \$)	Gini	Population under \$1/day (%)	Annual per capita growth required to halve poverty (%)	Population under \$2/day (%)	Annual per capita growth required to halve poverty (%)
Brazil	151	61.5	23.6	2.5	43.5	3.1
India	38	37.7	52.5	1.4	88.8	5.0
Tunisia	138	40.2	3.9	0.8	22.7	1.3
Zambia	16	46.2	84.6	4.9	98.1	7.1

Source: Ravallion and Chen 1998

Figure 4 the required growth in per capita consumption is plotted against recent historical growth during 1990–95 for all the countries for which we have satisfactory data. Those above the diagonal line had faster growth than required, those below slower. While some were growing much faster than the rate required to reach Strategy 21 goals (most East Asian countries), the majority were not growing fast enough, and many were experiencing negative per capita growth and consequently increases in poverty incidence.

At a poverty line of PPP\$1 per person per day, recent growth rates indicate that the Strategy 21 goal would indeed be met in the 'big three' Asian countries: China, India, and Indonesia (countries with the largest numbers in poverty). It would also be just within reach of Brazil (another country with large numbers in poverty), if recent growth is a guide to the future. From the perspective of the world's *population* in poverty, the Strategy 21 poverty reduction goal would certainly be achieved if future growth followed recent trends.

Figure 2: Average annual per capita private consumption growth (1990–95) and annual per capita growth required to halve poverty incidence (\$1/day) over 25-year period

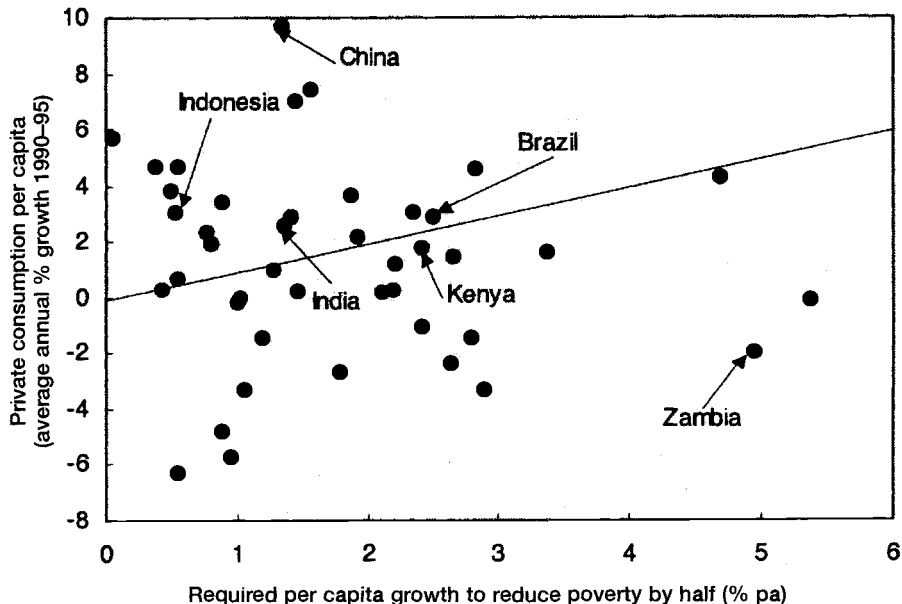


Table 5: Actual and projected regional per capita growth rates

Region	Per capita growth rate required to reduce poverty by half (%)		Real consumption per capita growth rate (%)	
	(\$1/day)	(\$2/day)	Actual 1991-95	Projected 1997-2000
East Asia	1.2	1.9	6.9	2.7
Europe and Central Asia	0.8	1.2	0.7	2.4
Latin America	1.8	2.7	2.0	1.9
Middle East and N. Africa	0.3	1.2	1.1	1.3
South Asia	1.3	4.5	1.9	3.5
Sub-Saharan Africa	1.9	3.3	-1.3	1.1

Source: Ravallion and Chen 1998; World Bank staff projections as of early 1998

But a different picture emerges if the concern is with the number of *countries* which achieve the goal. More than half the countries are shown (in Figure 2) to fall short of the goal at a poverty line of PPP\$1/day. The choice of poverty line, however, matters in assessing the achievement of the Strategy 21 poverty goal. At PPP\$2 per person per day past growth in India and Brazil is no longer sufficient to halve poverty over 25 years.⁸

In terms of regional averages the situation is particularly difficult in sub-Saharan Africa (Table 5), where the required growth is relatively high, and experience worse than elsewhere. Note that required growth rates in aggregate GDP are higher than in per capita consumption owing to population growth, and can be higher where investment rates need to be increased to achieve higher growth.⁹ All of these effects are particularly important for sub-Saharan Africa.

Taking growth in per capita incomes over the recent past, however, may not be a reliable guide to future prospects. For some countries recent growth rates will not be sustainable over the longer term, either because of favourable temporary shocks (improvement in terms of trade or external transfers), or because policies (such as fiscal and monetary policy) are not sustainable. For others, recent growth rates may be untypically low, because of unfavourable shocks, or the effects of policy transition. How can we best approximate the longer-run

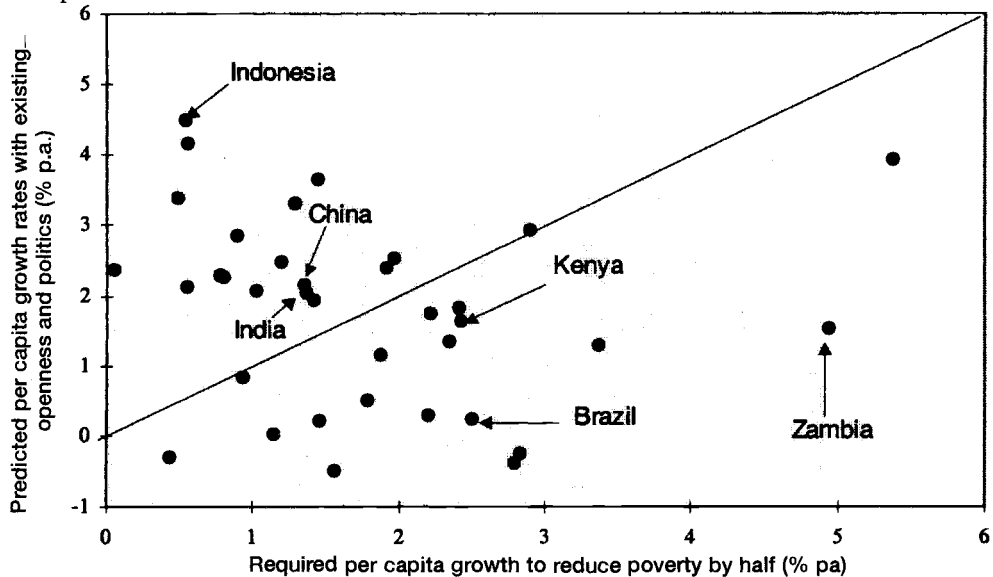
growth potential of these countries to make judgements about the attainability of Strategy 21? We base our growth predictions on those factors which past experience suggests are significantly related to economic growth. For this, we make use of a growing body of literature which seeks to explain economic growth using cross-section evidence. Typically, explanations for variations in real per capita income growth rates across countries are found largely in differences in the *initial conditions* and *policy choices* of countries. Those with more favorable initial conditions achieve higher growth rates. Are current 'initial' conditions and policy choices in the developing world conducive to accelerated growth, and to a large reduction in income poverty? While considerable caution is necessary in interpreting causative processes – and even more caution is needed in using these results for projections – they at least provide an illustration of how the future may look.

Our exploration of plausible per capita growth prospects of 36 developing countries for which data were available is based on the work by Barro (1991), and a more recent extension by Sachs and Warner (1995). The latter use a very simple classification of economies in terms of a 'good' and 'poor' economic policy stance and political conditions to 'explain' variations in per capita growth. The very simplicity of their approach is useful for the present purpose, that is, essentially illustrative. By taking *current* levels of the right-hand-side variables used

⁸ The Strategy 21 goal refers to 'extreme poverty', which suggests that the \$1 a day benchmark would be the more appropriate.

⁹ Investment rates would also have to increase if the balance of payments current account is unsustainably in deficit.

Figure 3: Required and predicted per capita growth under existing policies to reduce poverty by half (% p.a.)



by Sachs and Warner (including the dummy variable they used – 0 for good policy and 1 for bad policy), and applying them to the cross-section relationship they estimate, predicted values of GDP per capita growth can be generated for the period 1990–2015. Details of how these predictions were made are given in Demery and Walton (1998).

Figures 3 and 4 compare annual growth in real GDP per capita as predicted by the Sachs–Warner equation (assuming the latest available right-hand-side variables) with the growth rate (in real consumption per capita) required to halve poverty over 25 years. Figure 3 is based on the economic situation in each country which existed in 1990 (as reported in the Barro–Lee 1994 data base). This gives predicted per capita growth assuming a continuation of the existing economic policy stance. Under this scenario, only *half* of the 36 countries are predicted to achieve the growth required for the Strategy 21 poverty goal. This would be an overestimate if real consumption growth lags behind real GDP growth (which will occur if investment ratios must rise in order to raise growth rates or restore

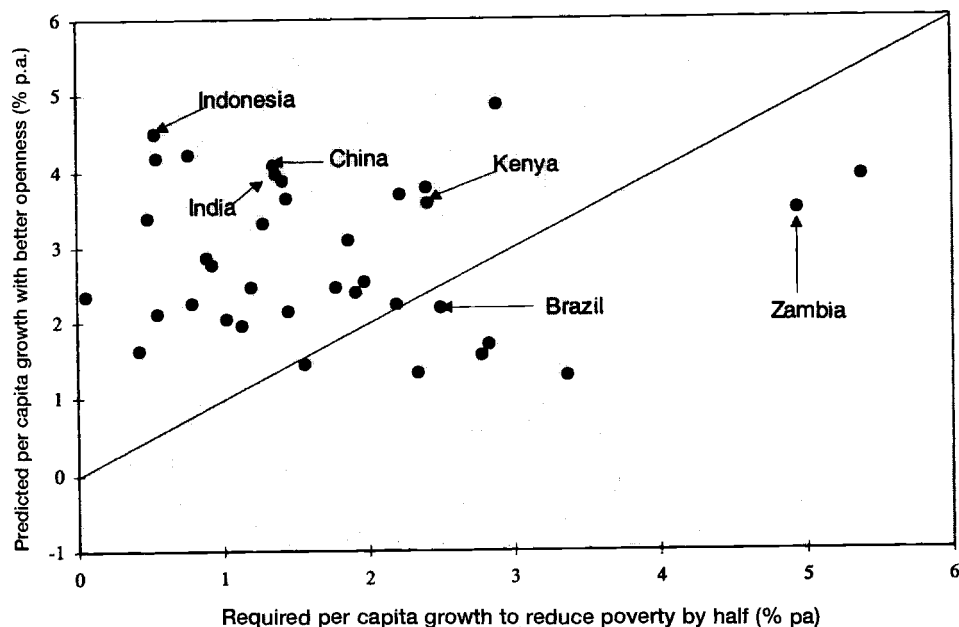
external balances). Note, the ‘big three’ of Asia (China, India and Indonesia)¹⁰ are predicted to grow sufficiently to achieve the Strategy 21 poverty goal, but Brazil is now shown as unlikely to do so.

Figure 4 then assumes that governments improve economic policies during the projection period (essentially switching the policy variable from ‘poor’ to ‘good’ for all countries). Under this assumption, as many as 28 of the 36 countries are now predicted to meet the target. Interestingly, these include a number of African countries (such as Kenya, Tanzania and Zimbabwe). The message is clear. Whether or not poverty incidence will be halved by 2015 depends in part on how well economies are managed. The evidence from the cross-country regressions is that improved economic policy enhances growth prospects and the attainability of Strategy 21 goals. Interestingly enough, only three (out of 16) countries identified in the Barro and Lee 1994 data base as having ‘good’ economic policies are predicted not to grow sufficiently quickly to halve the incidence of poverty. Only four of the 20 countries characterised by ‘bad’ policies are pre-

¹⁰ The recent financial crisis in Indonesia might call into question its ability to halve the incidence in poverty. From a 1995 base, per capita consumption needs to grow at just 0.5% per annum to reduce poverty incidence by a half 25 years later. Whether this modest

goal can be achieved depends on how sharp and long the current recession becomes. Certainly recent losses have been massive (Manuelyan and Walton 1998). But the growth fundamentals continue to hold promise for the future.

Figure 4: Required and predicted per capita growth with improved policies to reduce poverty by half (% p.a.)



dicted to achieve the Strategy 21 goal. Some countries (including, significantly, Brazil and a number of African countries – for example, Uganda and Zambia – where poverty is particularly severe) would not reach the target even if they enjoyed the average effects of ‘good’ policies, either because of disadvantageous initial conditions or high required per capita growth (Table 6).

The predicted growth scenarios therefore suggest that under existing policies, the Strategy 21 goal will be reached in countries representing 86% of the world’s population. If policies are improved, this figure increases to only just over 90%. Of course, the increase in the number of countries achieving the goal is much greater (from 18 to 28).

These predictions are only as robust as the underlying regression model. They are conditioned on a host of factors: on income distributions remaining unchanged; on an unchanging investment to GDP ratio; on the parameters estimated by Sachs and Warner being stable over time. No single equation will be able to capture the complex interactions involved in determining growth outcomes in the variety of countries we have covered. But the experiment is a worthwhile one. It gives some order of magnitude on the effect of good policies in enhancing growth, and in making the Strategy 21 poverty reduction goal that much easier to attain.

So far all the predictions have assumed that income distributions will not change over the prediction

Table 6: Countries that reach the poverty reduction goal under different scenarios

Countries that reach target on:	Average per capita growth rate			Population (millions)	Countries (number)
	Required	Lower	Higher		
Existing policies	1.14	2.74	3.28	2,743	18
Improved policies	1.68	0.79	2.73	186	10
Neither	3.21	0.90	2.12	231	8

Source: Authors’ calculations

Table 7: Effects of change in inequality on required growth rates to halve poverty over 25 years

Country	No change			Change in inequality to			
	Gini	Required per capita growth rate		Level prevailing in:	Gini	Required per capita growth rate	
		\$1/day	\$2/day			\$1/day	\$2/day
China	41.5	1.4	1.9	Malaysia	48.4	1.8	2.8
India	33.8	1.4	5.0	Ecuador	46.6	2.4	4.1
Nigeria	45.0	2.2	3.0	South Africa	58.4	2.5	4.0
Brazil	61.5	2.5	3.1	Colombia	51.3	1.4	2.2
South Africa	58.4	1.4	2.7	Thailand	46.2	0.3	1.5

Source: Ravallion and Chen 1998

period. While distributions tend to be stable, when they do shift this can have significant effects on poverty. In the late 1980s, China was growing fast with little or no effects on poverty, owing to rises in inequality. To explore the consequences of changes, we report in Table 7 the results of an exercise that assumes the distribution of a few countries' shifts to the pattern observed in other countries.¹¹ (This is preferable to making arbitrary changes in the pattern of income distribution.) If China experienced a further increase in inequality to the level and structure prevailing in Malaysia (in 1989), the required per capita growth rate to reduce poverty by half would rise by almost half a percentage point at one dollar a day, and almost one percentage point at two dollars a day. A similar result is found for Nigeria, if it were to become as unequal as South Africa. The fact that the relationship is not simple is illustrated by exploring the effects of India becoming as unequal as Ecuador: this would require a faster growth rate at one dollar a day, but actually slower at two dollars a day. Finally, we explore the benefits of reduced inequality in two of the most unequal countries in the world: Brazil and South Africa, assuming the degree of inequality shifted to that prevailing in Colombia and Thailand respectively (both also quite unequal, but much less so). In both cases the required growth rate in consumption per head is significantly reduced (Table 7).

These results clearly show that both growth and distribution matter for the pace of poverty decline, and for the achievability of the Strategy 21 goals for poverty reduction. Policies to support efficient

redistribution are clearly of great interest – along with policies that promote growth – but are relatively poorly understood. Strategies that involve priority to rural development, integration of lagging regions, inclusive education systems, rapid growth in labour demand, and relatively pro-poor overall tax and spending structures will all tend to support redistribution (and growth), but there is much more work to be done in this area.

4 Social Goals and Income Growth

The core social targets relate to mortality, education and gender gaps in school enrolments. Achieving these targets is an important end in itself. The capacity to live a healthy life and to read and write represents an enhancement of human capabilities, while eliminating differences in education between men and women improves social justice (though it may sometimes be in conflict with cultural norms). There are also two-way relationships between human capabilities and social and economic change. Economic advance can cause social progress, notably through increased public and private spending out of rising income on factors that improve social conditions. Better health and education can also raise productivity. Finally, there are important inter-relationships between social conditions: most importantly better education for women has a powerful influence on improving child health and reducing fertility, independent of income (Caldwell 1986).

¹¹ These results come from Ravallion and Chen (1998).

Because of the inter-relationship between social and economic advance, it is important to explore the links between the various targets. We undertake an exploratory exercise on this with respect to *child mortality*, though a similar approach could be applied to other social targets. The target for child mortality is for a two-thirds reduction by 2015 (relative to 1990 levels). Mortality rates are country-wide averages, and the mortality of the poor (in terms of consumption) is systematically higher than the average; i.e. poverty and mortality, as well as other social indicators, are significantly related to each other within countries. However, under most conditions, reductions in overall mortality are highly correlated with reductions in mortality among the poor.

To explore the future we use the following results from analysis of the past:

- There is a well-established relationship between GDP per capita and infant and child mortality, with an elasticity of about 0.6 from cross-sectional results and from analysis of very long time series (Filmer and Pritchett 1997; Pritchett 1997). Shorter time series' results find lower elasticities: Pritchett and Summers (1996) obtain an elasticity of about 0.2 of infant mortality with respect to income for five-year periods, rising to about 0.4 for periods of three decades (with little evidence that the elasticity is different for different initial starting points of mortality and incomes).
- Other development-related factors also affect mortality, with greater female education lowering child mortality, and more unequal income distribution – whether a country is predominantly Muslim – and greater ethnolinguistic fractionalisation, tending to raise child mortality (Filmer and Pritchett 1997).¹²
- Mortality has been steadily improving in all countries, even after controlling for incomes and education, and there is some evidence that this has accelerated since 1960 to a rate of about 1.5% per annum (Pritchett 1997).

The results of a simple, illustrative projection exercise are shown in Figure 5. The top line gives the 1995 under-five child mortality rate for a number of countries, ranked in order of rising mortality. The bottom line gives the Strategy 21 goal for 2015 (of a two-thirds reduction from the 1990 levels). We then project the levels of child mortality for the countries in a series of steps. First we project the effects of the underlying trend reduction of mortality of 1.5% per annum before accounting for income or other effects. This is assumed to be the same for all countries, since there does not appear to be evidence of systematic differences in this trend in the recent past. We then introduce the additional effects of the projected rise in female education, using the coefficient from the cross-sectional analysis in Filmer and Pritchett (1997). Other variables, such as inequality, are assumed not to change or influence the pace of change in this projection. As it happens, the incremental effect of rising female education on the projected country average is small – an issue that differs from some of the micro results, that will require further exploration. This net result of both the time trend and increased female education (implicitly assuming zero growth in per capita income) is shown in the second line from the top. This gives the first result:

- on the basis of the past underlying trend and projected rises in education (but before per capita income growth) child mortality will fall significantly, but only to a level of about double that of the Strategy 21 goal by 2015.¹³

Next we add in the effects of the growth in per capita income, using the medium-term elasticity of 0.4 and the two growth scenarios developed in the previous section. These are shown in the final two lines of Figure 5. Note that in some cases the mortality rate under the lower-growth scenario is actually higher than under the simple trend projection, owing to negative projected real per capita income growth under this scenario. This gives the second result:

- growing incomes are a significant source of mortality decline, over and above the trend

¹² Anand and Ravallion (1993) conclude that only the incomes of the poor have a significant effect on infant and mortality.

¹³ This is an unweighted average of child mortality rate in the projections and the Strategy 21 goal.

Under-5 mortality (per 1,000 births)

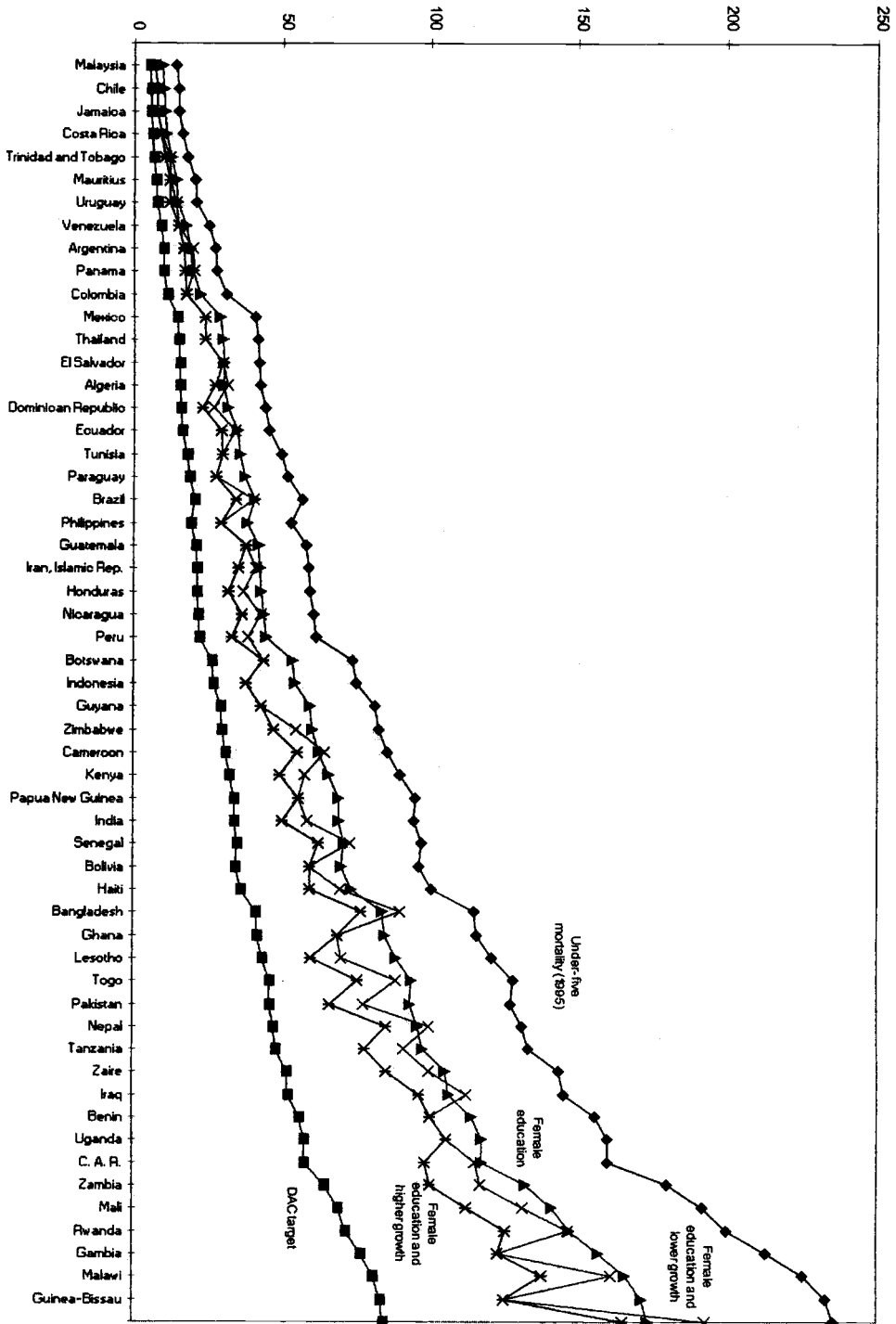


Figure 5: Actual, targeted and projected (2015) under-5 mortality

Table 8: Under-5 mortality rates: actual and projected under alternative scenarios

Country	Under-5 mortality 1995	Strategy 21 Goal	Projected under-5 mortality in 2015 (per 1,000 live births)			Ratio to Strategy 21 goal (%)		
			Time trend plus effect of increased female education	Lower-income growth scenario	Higher-income growth scenario	Time trend plus effect of increased female education	Lower-income growth scenario	Higher-income growth scenario
Brazil	57	20	41	40	34	101	97	68
India	95	34	69	59	50	103	72	47
Indonesia	75	27	54	38	38	102	40	40
Kenya	90	32	66	58	49	103	78	52
Zambia	180	65	132	117	100	105	81	55

growth and effects of rising female education; but even under the higher growth scenario, projected mortality in 2015 is, on average, over 60% above the Strategy 21 goal.

Specific results for selected countries are shown in Table 8. For the countries shown, the time trend (plus increased female education) reduces the child mortality rate to a level that is about 100% higher than the Strategy 21 goal. Further reductions occur under the alternative growth scenarios: for the higher growth case this ranges from reducing to a level of 68% above the Strategy 21 goal for Brazil, to 40% above for Indonesia.

These scenarios are illustrative of what might occur based on past experience. They do not make any specific assumptions on actions, but they do implicitly capture the effects of underlying changes, in public and private action, that lie behind both the time trend and income effects in the past. While they are the product of a very simple aggregate projection methodology, they do at least illustrate the scale of the overall task, that there is a lot we do not know about aggregate changes (caught in the time trend) and the importance of income growth for mortality. This initial exercise suggests that achieving the Strategy 21 goals for child mortality would either require significantly faster income growth, or actions that would cause an independent acceleration of the pace of mortality improvement. We turn next to the issue of direct public action.

5 Public Action and Public Spending to Reach the Social Goals

What can governments and donors do to help reach the social targets? Public spending is centre stage in the 20/20 initiative, for example, which proposes that at least 20% of government spending and donor support should go to basic services (such as primary health, primary education, clean water). Part of the answer is that both public and private actions are hidden behind the projection. Rising incomes underpin increased public and private spending on education and health. Increased education for women increases household investments in children. But there is surely a case for increased discretionary spending by governments (and donors). While most practitioners believe this, the evidence is more ambiguous: the nature of public (and societal) action can make a major difference to social outcomes; but the answer does not lie in increased spending alone. Improving the policy and institutional framework for social service delivery and use is often of equal or greater importance.

Two types of evidence, again focusing on health, frame the issue. First, despite the robust overall relationship between incomes and health, there are some societies that have experienced unusually good or poor outcomes for their level of income. For example, China, Jamaica, Sri Lanka, Costa Rica and Kerala State in India are all frequently cited as having unusually low mortality rates for their income levels (see, for example, Dreze and Sen 1996, World Bank 1990). Indeed, the mortality of African-Americans in the US is comparable with that of Chinese and Keralans, despite hugely higher

mean incomes. This is clear evidence for the effectiveness of different societies in improving social outcomes through public or private behaviour at very different income levels. And since average mortality rates would be expected to be particularly sensitive to those of the poor, the average results also suggest much better outcomes for the poor.

Second, however, there is mixed (cross-section) evidence that *public spending* on overall health or on primary health services is associated with better health outcomes. On the one hand, some studies find evidence of a positive association between public spending on health and better health outcomes (Anand and Ravallion 1993), and that outcomes for the poor are also favourably affected (Bidani and Ravallion 1997). On the other hand, Filmer and Pritchett (1997) find that incomes alone 'explain' 84% of mortality differences between countries; incomes plus a set of socioeconomic variables 'explain' 95%; while differences in public spending alone explain only an additional 0.15%. The socioeconomic variables include female education (which reduces child mortality), inequality, ethno-linguistic fractionalisation, and whether a country is predominantly Muslim (all of which increase mortality). The differences in these empirical results are likely to be due to the inclusion of this set of socioeconomic variables in Filmer and Pritchett, and their exclusion in Anand/Ravallion and Bidani/Ravallion. Once these factors are included, the statistical role of public spending appears to be weak.

A good outcome is frequently associated with favourable conditions with respect to the other socioeconomic variables: China has high female education, low inequality, and low ethno-linguistic diversity. There remain significant good and bad outcomes, even after controlling for all these variables, but there is no clear relationship with public spending on health. Indeed the average spending of the top ten performers (after controlling for incomes and socio-economic variables) at 2.0% of GDP, is very similar to that of the worst ten performers, at 1.8% of GDP. Brazil has an unusually high child mortality for its income level, at 83 per thousand, and spends 3% of GDP of public money on health. Sri Lanka has an unusually good outcome of 35 per thousand and spends just 1.7% of GDP. There is wide variation amongst good and bad performers.

The result that public spending is a poor predictor of good health is a common one (see Musgrove 1996). Is it because governments have failed to heed the advice of advocates of primary health care, and redistribute resources to preventive and basic curative services? This is probably true in some cases. And it is a standard result of analyses of the distributional incidence of services that public spending on the primary health services (e.g. rural clinics) and primary schooling, are much more equally distributed than those on secondary and tertiary services, that are characteristically skewed to better off households. But unfortunately there is little evidence that increased spending on primary health, or proximity to basic health services is associated with better health outcomes (Filmer, Hammer and Pritchett 1997).

How can this be interpreted? There are indeed wide differences in the efficacy of public action. But these are only weakly, if at all, associated with different levels or patterns of public spending. Much more important is the effectiveness of public – and private – actions. Kerala has highly effective public action with public services that have significant benefits for the poor, combined with effective household action. High levels of education, especially of women, have direct impacts on household behaviour, and are probably associated with more effective community and state action. Uttar Pradesh has public services of very low quality with little impact on the poor, exacerbated by low levels of education, in part a product of weak action in the education sector (Drèze and Sen 1996). Ceará, in northeast Brazil, that generally has a dismal child mortality record, succeeded in bringing about a sharp reduction in mortality through a highly effective campaign (Tendler and Freedheim 1994).

The issue of the effectiveness of public services is also shown in the behaviour of the poor. For both health and education, the poor will bypass low quality public services and pay for higher quality. This is common in the health sector (Filmer, Hammer and Pritchett 1997). And the poor will respond to reforms that raise quality (Alderman and Lavy 1996). One study of primary (largely curative) health service reforms that introduced changes raising quality and user charges, found that it was the poor that had the largest response in increased use of services (Litvack and Bodart 1993). This is in spite of the fact that it is well-established that the poor are more price sensitive

because of the lower incomes: the increase in price was more than offset by the improvement in quality.

What this implies is that an over-preoccupation with public spending can be misleading. There is some, if limited, evidence that public spending on basic education and health is good for the poor and, as noted, most incidence studies find that spending on primary schools and primary health facilities are much more pro-poor (though rarely fully egalitarian) than spending at secondary and tertiary levels (that can be very regressive). But this will often be of second-order importance to institutional and policy reforms to increase the overall effectiveness and coverage of services. How to do that is a highly complex question, and will vary greatly from society to society. In particular some have the overall societal conditions that generate highly effective public services, while others do not. Nevertheless, at the risk of over-simplification a few points can be made:

- It makes eminent sense to finance basic education and those health activities that the private sector would under-provide (for example, vector control and infectious diseases, that tend to hit the poor disproportionately).
- In both education and health there is a case for allowing multiple providers, whether from the private sector or NGOs.
- In both, there is a case for increasing the influence of parents, communities or individuals who use the services, for example, through giving parents a greater say in spending choices and hiring decisions (as is occurring, for example, in parts of Pakistan).
- In many areas, it is important to develop mechanisms for participatory design and monitoring, as well as objective mechanisms for assessing the actual impact of interventions on poor households that will allow the continual re-design of activities.

6 Conclusion

This article has explored the attainability of the poverty and social goals in the OECD's Shaping the 21st Century. The answer as to whether these goals can be achieved is, not surprisingly, 'It depends.'

But evidence from the past provides guidance on the way in which it depends. The principal results were as follows:

- Reaching the goal of halving poverty incidence by 2015 depends on the initial poverty level, the initial distribution of income and changes in distribution over time. Even with distributionally neutral growth, there are wide variations in per capita growth rates required to reach the target – in general the more initially unequal, and the higher the poverty incidence, the higher the required growth.
- If countries grow at rates prevailing in the early 1990s, or if we project performance on the basis of current policy and structural conditions, many will not achieve the poverty reduction goal; and if there are increases in inequality the situation is likely to be made worse.
- If, however, poor-performing countries were to achieve the overall policy and institutional performance of fast-growing countries, then the majority are predicted to achieve the required growth.
- The achievement of social goals is intimately linked with poverty goals – there is evidence of two-way causation between incomes and social outcomes and from social conditions to income growth; however, even with high growth, past levels of progress would lead to child mortality rates still substantially above the Strategy 21 goal for 2015.
- Incomes and other socioeconomic factors – notably women's education – are generally much more important than public spending in explaining differences in mortality; in both education and health, variations in outcomes are more importantly explained by differences in the efficacy of public action than in levels of public spending. In addition to ensuring that sufficient budgetary provision is made for good quality basic services, increasing attention must be paid to other critical factors which govern outcomes. It will often be as important (if not more so) to focus on the policy and institutional reforms necessary for well-functioning social sectors.

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