

6. Promoting equity through service delivery

Summary

- Education and good health are important intrinsically (as components in the definition of a good standard of living) and instrumentally, in facilitating economic development. For individuals, households and nations, there are strong connections between (i) human development (or human capital) in the form of knowledge, skills and health; and (ii) economic development, in terms of opportunities, incomes, living standards and growth.
- These causal relationships are two-way: skills and health affect income and consumption, which in turn affect access to education and healthcare. Such mutually-reinforcing ties can work in either poverty-reducing or poverty-creating, poverty-perpetuating directions. A virtuous spiral occurs when healthy, educated individuals are better able to secure good jobs or succeed in profitable self-employment; higher, more stable incomes in turn enable them to live better, save and, in turn, invest in nutrition, healthcare and their children's education.
- Many households, however, become caught in a downward spiral into poverty. Low and variable income and a hand-to-mouth existence make it more likely that the poor will become ill (incurring extra costs, debts, and possible loss of productive assets); and less likely that their children will be able to build up the skills and knowledge they need to diversify into new activities or obtain higher wages in non-agricultural employment.
- Given that skills, knowledge and health are critical determinants of individual opportunities, policies that shape equality or inequality in delivery of basic services (schooling, healthcare, water and sanitation) obviously play a major role in shaping the degree of equality or inequality of economic opportunity within society.
- Despite recent gains, pronounced inequalities still exist in educational opportunities and outcomes. The strong two-way relationship between education and living standards emerges from both the CSES 2004 and qualitative research: this link is critical in explaining how inequality of opportunity, and poverty / wealth outcomes, are now reproduced from one generation to the next.
- Poor households that depend on hard physical labor and lack adequate access to food or clean water are more likely to fall ill and less able to afford early, effective treatment. Ill health in turn creates or reinforces poverty: the poor depend more than most on manual labor, and the illness of an economically active household member implies reduced production and income as well as increased costs when treatment is finally sought. The economic impact of illness includes the distress sale of productive assets (e.g. land) and / or taking on interest-bearing debts.
- It is clearly a disadvantage for poor individuals and families that, because they suffer unnecessary ill health and cannot obtain an education that would enable them to make use of their innate talents, they have limited opportunity to participate in productive and profitable economic activity. However, it is also a problem for the economy as a whole. An uneducated workforce vulnerable to ill health is not productive or competitive. Cambodia is seeking to make the transition from a dualistic economy (in which narrow sub-sectors of manufacturing and services—i.e. garments and tourism—coexist with a large mass of subsistence-focused small farmers) to a diversified, robust, modern economy. To achieve this transformation, it will need to dramatically improve the health and education of the population.

Human development, equity and growth

Human development—taken to mean, broadly, good outcomes in education and health—has both an intrinsic and an instrumental value (Anand and Sen 1994; Sen 1999). Philosophically, education and health are generally seen as desirable as ends in their own right and important components in any definition of a good standard of living. The case is clearest with regard to health—no-one would choose to suffer ill health, disability or early death when these can be avoided—but most people accept that education expands an individual’s ability to participate in society and enjoy a broader range of experiences.

Equally, however, good outcomes in education and health are a means to an end: they constitute human capital, improving the contribution of labor to productivity and economic growth. The knowledge and skills that are conferred by education (starting with literacy and numeracy) set a child up for greater or lesser opportunities in the labor market in adulthood. Meanwhile, there is a well-known mutually-reinforcing relationship between poverty and illness which makes the poor more likely to fall ill, less likely to be able to manage the economic consequences of that illness, and more likely to become further impoverished as a result. These interactions between human development and household wealth reproduce from one generation to the next: particularly striking is the influence that the level of education of a mother appears to have on her child’s chances of staying healthy, receiving an education, and accessing opportunities. In Cambodia, this link between parents’ socio-economic status and the unequal health and education of their children is particularly acute because households account for an unusually high proportion of total spending on health and education.

Defining equity in human development: service delivery and outcomes

In looking at the concept of equity in human development, it helps to distinguish between (i) equity in *access to social services*, in which different groups enjoy the same levels of access, utilization and financing of education and healthcare services; and (ii) equity in *human development outcomes* themselves, defined as the absence of systematic and potentially remediable differences in health or education across population groups (men and women, rich and poor, urban and rural, and so on).

This distinction has implications for policy responses to problems of equity in human development. Whereas equity in outcomes is a multi-factorial issue, the various dimensions of equity in access to services can be addressed through reform and development of service delivery systems.

Health and wealth

Good health status is an important component of development, firstly as an end in its own right. Enjoying good health and avoiding unnecessary pain and suffering is an intrinsic element in defining an individual’s quality of life. As such, equity in health, defined as equality of health achievements (and corresponding capabilities and freedoms) is central to concepts of social justice. In many countries, this is seen as sufficient justification for a wide range of social policies designed to ensure equality of access to

essential preventative and curative healthcare (Sen 2002). This view of the intrinsic value of health, and the corresponding obligations of governments to ensure provision of health services to their citizens, is reflected in concepts of rights to health, and in the inclusion of health targets in the MDGs and national development strategies.

However, good health is also critically important in shaping individual and household opportunities and welfare; and, by extension, as a factor enabling or constraining a nation's economic development. A healthy population is more productive than one that suffers from high rates of preventative illness, unnecessary expenditure on low-quality healthcare, and early death. Healthy children learn better and have better future earning potential in adulthood; amongst adults, days lost to disease result in reduced earnings and diversion of scarce income to healthcare. In Cambodia, as in many societies in which there is limited protection against catastrophic out-of-pocket costs to treat illness, people often find themselves in trap in which poor health makes it difficult to escape poverty, and poverty makes it difficult to obtain the diet and services required to improve health.

Internationally, for many years the focus of health policy debates has been on improving overall efficiency and achieving aggregate targets. Recently, however, attention is once again returning to health equity as an objective of health system reforms, recognizing that targets couched in terms of improving averages may mask increasing divergence between the outcomes of the rich and poor. This concern with equity reflects increasing recognition of important intr-sectoral links between health, education and monetary (consumption, income or asset) aspects of wellbeing and development. Cambodia has in many ways been a leader in policy experiments (for example, health equity funds and the contracting out of service delivery) that are consciously designed to achieve equity as well as efficiency objectives.

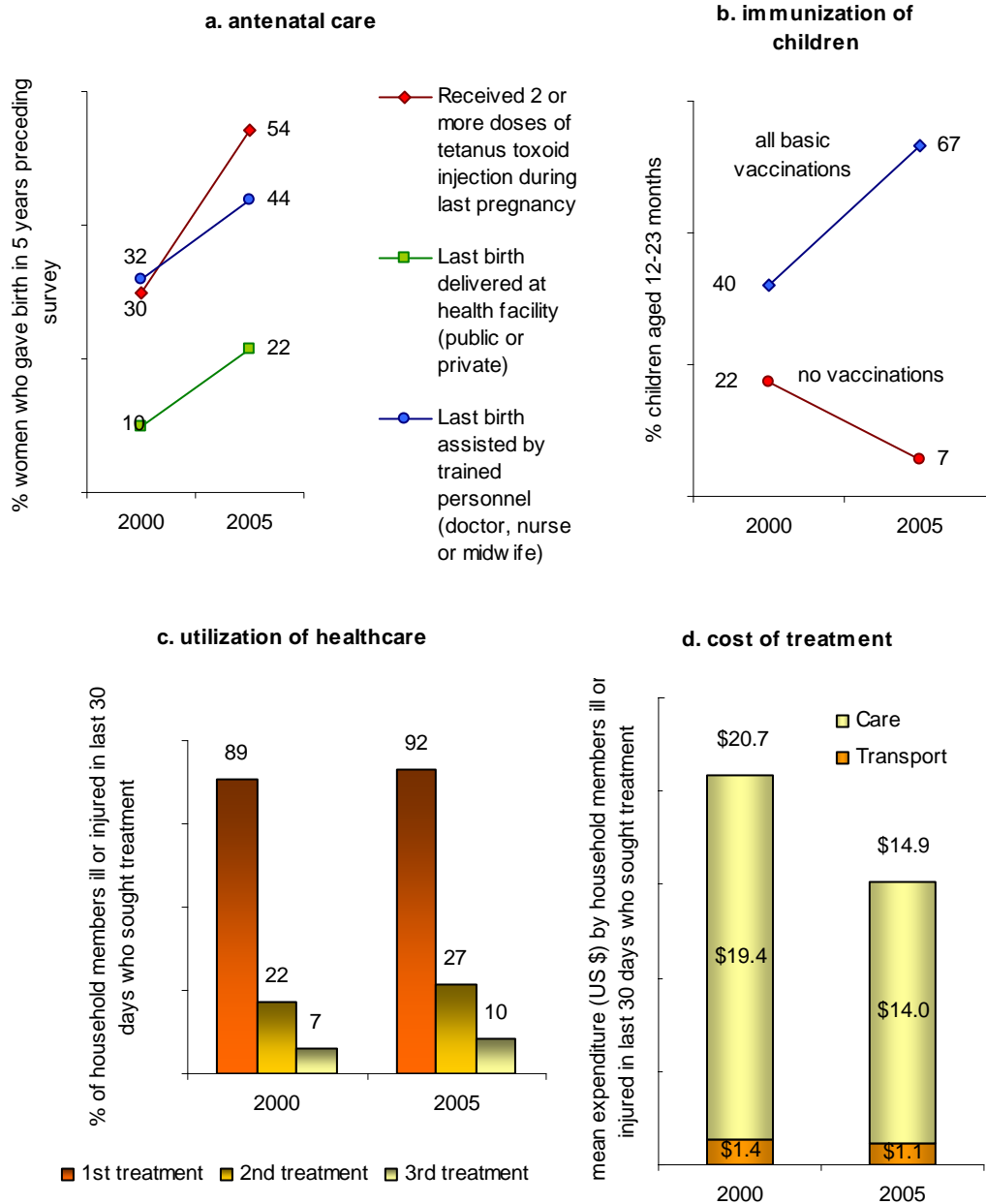
Health outcomes are poor, but improving

The health status of Cambodians remains far below that of their more prosperous neighbors in Thailand, Malaysia, Vietnam or Indonesia. However, when data from the 2005 Cambodia Demographic and Health Survey (CDHS) is compared to data from the 2000 CHDS, it is clear that considerable progress has been made over a five-year span (Figure 6.1). Contact with professional healthcare services during pregnancy and childbirth has expanded dramatically. Far more children now receive the full set of basic vaccinations by the time they are two years old¹. Willingness to seek treatment when ill or injured seems to have risen modestly; and, as importantly, the cost of healthcare (average spend over last 30 days by those seeking treatment) has fallen by a quarter.

The health practices of households have also improved over the last five years, particularly with regard to early childhood feeding practices (most notably in the importance attached to breastfeeding). Three in four babies aged less than two months are now exclusively breastfed, compared to just one in six in 2000. This has almost certainly contributed to the fall in child malnutrition and rise in child survival. However, malnutrition rates increase once solid and semisolid foods are introduced at six months of age, probably due to poor feeding practices and childhood illnesses.

¹ The diseases covered by basic vaccinations are TB (one BCG injection); diphtheria, whooping cough and tetanus (three PT injections); polio (three injections); and measles.

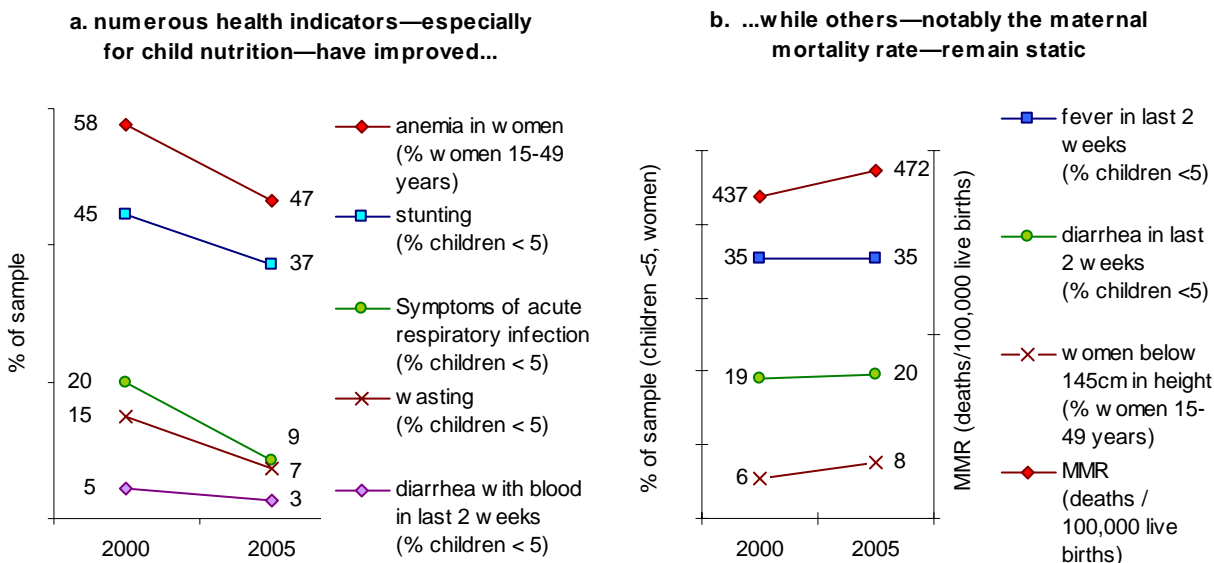
Figure 6.1 Availability and use of healthcare have both expanded significantly



Source: CDHS 2000, 2005

Reflecting these improvements in service delivery (and in average incomes, which have expanded food security and access to care), a number of health and nutrition indicators have shown rapid gains, including child nutrition (see Box 6.2 for definitions), anemia amongst women, and rates of some of the commoner childhood illnesses (Figure 6.2, Box 6.1).

Figure 6.2 While some health outcomes have improved, others have not



Source: CDHS 2000 (pp. 117, 155, 158, 174, 177, 181); CDHS 2005 (pp. 120, 156, 158, 159, 168, 185)

Box 6.1: Rural healthcare has improved in many respects

Health conditions in this village have improved over the past ten years...The number of patients has decreased and TB is almost forgotten due to vaccination programs and training provided since 1993. Villagers now have access to the health centre in Kampong Preah Commune [2km away] and to private doctors in the village...In 1993, hospitals were very far from the village. (Battambang, MOPS)

People in the village have had health education about sanitation and clean drinking water. Moreover, children under 5 years of age have been immunized against diseases and pregnant women have also been given injections and education about how to take care of their babies. These services are provided by the health centre staff every month, and they have also educated local midwives to send women to hospital immediately when they have problems during delivery. (Female-headed household, Kompong Cham province, PPA)

Source: CDRI 2007a, 2007b, forthcoming.

Box 6.2 Technical note on selected health indicators

Stunting. Below-average height-for-age reflects growth defects due to cumulative effects of long-term chronic malnutrition (inadequate calorie intake) and recurrent and chronic childhood illness.

Wasting. Wasting or markedly below average weight-for-height is a measure of acute current malnutrition, reflecting the inability of a child to obtain adequate nutrition in the period preceding the survey, due to inadequate calories and/or a recent episode of illness resulting in weight loss.

Underweight. Low weight-for-age (WFA) is a composite indicator reflecting both chronic and acute malnutrition: underweight children are stunted, or wasted, or both.

Maternal mortality ratio (MMR). The MMR is derived by dividing age-standardized maternal mortality rates (maternal deaths per woman per year aged 15-49) by the age-standardized general fertility rate (annual births per thousand women aged 15-49). In the CDHS, this rate is calculated for the period 0-6 years before the survey (i.e., for 1999-2005).

Finally, there has been remarkable success in reversing the rise in HIV/AIDS. There is a good consensus that HIV incidence is now at or below one percent. Transmission through high-risk behavior has been tackled with considerable success: a new challenge is to address transmission from husband to wife (now the major mode of transmission) and from mothers to children (responsible for one third of new infections). Cambodia has also achieved considerable success with ARV treatment, and has committed to expanding this provision, including to HIV-positive pregnant women.

Other health outcomes, however, remain stubbornly bad (Figure 6.2 above). Rates of fever and diarrhea amongst children under five years have not changed; the proportion of women under 145 cm tall (an indicator of poor nutrition during childhood and adolescence, and a risk factor in giving birth) appears to have gone up.

Most notably, there appears to have been no improvement in the maternal mortality ratio (MMR)². This is out of line with improvements in other indices (e.g. falling fertility; rising proportions of deliveries that occur in health facilities or with the help of trained personnel; and the increase in antenatal visits), all of which imply that maternal deaths *should* be declining. This disjuncture may be partly due to the limits of the measure. As the MMR averages results over the preceding seven years, it is not very sensitive to change: it takes several years of safer births to shift the MMR.

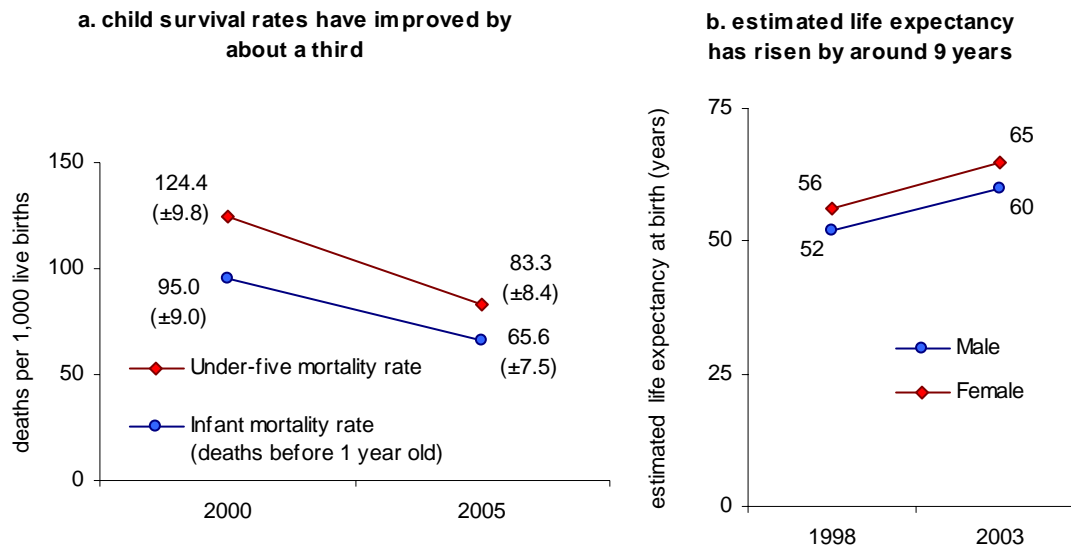
Nonetheless, it seems safe to say that, at the very least, MMR has not registered the kind of improvement seen in other indicators, and that this remains a problem and priority for the Ministry of Health. The lack of change seen to date is partly because achieving safe pregnancy and childbirth depends, to a greater extent than is the case for other aggregate health indicators, on the quality dimension of health services. To reduce the MMR significantly requires that complications are appropriately diagnosed and treated; which, in turn, depends on staff skills, diagnostic tools and treatment possibilities, and a properly functioning referral system.

Dramatic improvement *has* however occurred in other aspects of mortality. Since 2000, infant mortality rates (IMR) and under-five mortality rates (U5MR) have fallen by about a third. Although the methodology is problematic given the large gaps in the demographic data, careful analysis of the 2004 Cambodia Inter-Censal Population Survey (CIPS) suggests that life expectancy at birth has risen dramatically (Figure 6.3).

However, there are sizeable inequalities in health care and outcomes

Within the overall picture of low-but-improving health outcomes, there exist very substantial differences between different groups in Cambodian society in terms of access to services (water, sanitation and health care) and resulting health status. Individuals who are poor or born of mothers with little or no education are far more likely to be ill, and to die before their fifth birthday. There are also pronounced geographical differences in the patterns of illness and death, not only between the rural and urban populations, but also between Provinces.

² The slight deterioration in MMR—from 437 to 472 deaths per 100,000 live births—is not statistically significant: the margin of error is quite large (± 134 in 2005).

Figure 6.3 Children born now are more likely to live to adulthood and middle age

Source: CDHS 2000 and 2005; CIPS 2005.

Geographical inequalities remain considerable

Differences in health performance between urban and rural populations, and between Provinces, remain large, particularly for reproductive health (Table 6.1). Above- and below-average provincial health performance recorded in the CDHS 2005 correlate fairly well if not perfectly with living standards and proportion of the population living over the poverty line (as measured in the CSES 2004). Phnom Penh, with a poverty headcount far below the national average and a much greater density of both public and private healthcare facilities, shows clearly superior performance on almost all indicators. The coastal provinces and municipalities (Kompong Som, Kampot and Kep), however, do rather less well than might be expected for their (fairly good) poverty status, perhaps because of Koh Kong's weak spatial integration with the rest of Cambodia.

There is some variation between health status and living standards at the bottom end of the ranking, too. Amongst the provinces for which statistically significant CSES 2004 poverty estimates are available, the poorest (Kompong Speu) has, as would be expected, the worst outcomes in terms of child survival rates, female anemia, and babies delivered outside a facility or without trained assistance³. However, the third-poorest province—Siem Reap—registers rates of health-seeking behavior, unmet need for family planning, vaccination, and child malnutrition significantly worse than those in Kompong Speu. Poor female educational status may be part of the explanation for Siem Reap's worse-than-expected performance.

³ The worst health outcomes are found in the upland north-eastern provinces (Mondulkiri and Rattanakiri), where terrain and low population density result in poor physical access, exacerbated by low education and language barriers for the indigenous ethnic minority groups here. These provinces are known to be extremely poor but the absolute numbers are very small, making it impossible to produce statistically reliable poverty estimates.

Table 6.1 Health outcomes in rich provinces and municipalities are often twice as good as those in poor areas

a. use of services and child health

Province / Municipality	Health service utilization**	Child health			
		IMR	U5MR	Vaccination coverage ¹	stunting (moderate or severe)
Phnom Penh (richest)	96	42	52	81	27
Kandal (second richest)	94	85	101	79	37
Sihanoukville / Koh Kong (third richest)*	95	88	104	65	53
Siem Reap (third poorest)	82	67	94	43	73
Kompong Thom (second poorest)	87	87	106	55	53
Kompong Speu (poorest)	90	107	122	81	43
Mondolkiri / Rattankiri	76	122	165	35	84
Rural	91	92	111	66	52
Urban	94	65	76	69	40
Total	92	66	83	67	50
Ratio, Phnom Penh (richest) to Kompong Speu (poorest)	1.1	0.4	0.4	1.0	0.6

Notes: *CSES aggregates Sihanoukville, Kep and Koh Kong; CDHS aggregates Sihanoukville and Koh Kong, linking Kep with Kampot

** % of individuals ill or injured in last 30 days who sought treatment

¹ % of children 12-23 months with all basic childhood vaccinations

b. female nutritional status and reproductive health

Province / Municipality	Female malnutrition		Reproductive health		
	anemia in women	unmet need for family planning	births at a facility	ANC from trained staff ["]	delivery assisted by trained staff ["]
Phnom Penh (richest)	29	16	78	85	86
Kandal (second richest)	46	23	37	78	74
Sihanoukville / Koh Kong (third richest)*	46	20	29	58	57
Siem Reap (third poorest)	56	30	20	69	29
Kompong Thom (second poorest)	57	19	9	59	25
Kompong Speu (poorest)	58	24	9	59	23
Mondolkiri / Rattankiri	43	29	9	28	14
Rural	48	26	17	68	39
Urban	38	22	50	79	70
Total	47	25	22	69	44
Ratio, Phnom Penh to Kompong Speu	0.5	0.7	8.7	1.4	3.8

Notes: *CSES aggregates Sihanoukville, Kep and Koh Kong; CDHS aggregates Sihanoukville and Koh Kong, linking Kep with Kampot

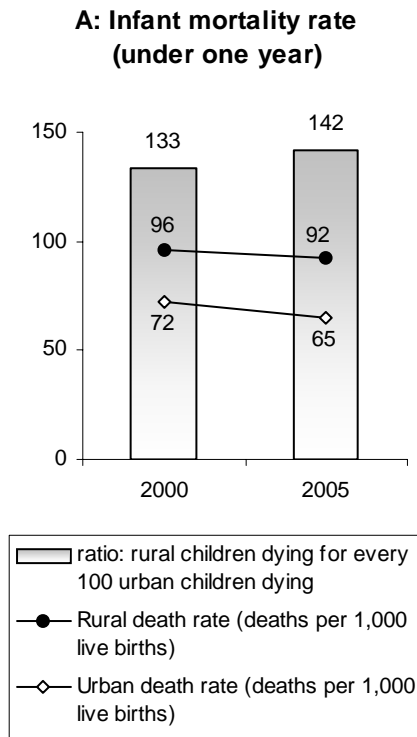
["] doctor, nurse or midwife

Source: CDHS 2005; province wealth definitions from CSES 2004, analyzed in Knowles 2005a p. 41

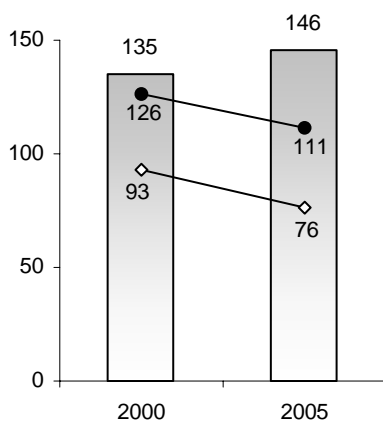
...but most are closing over time

In most key measures, comparison of the 2000 and 2005 CDHS surveys suggests that geographical inequalities in health outcomes have become less pronounced over time. This finding is interesting as a proxy for trends in wealth-based health inequalities: as it is not possible to disaggregate trends by wealth quintile (as this disaggregation was not

Figure 6.4 Faster gains from a better base in urban areas are widening existing inequalities



B: Under-five mortality rate



Source: CDHS 2000 p. 125; CDHS 2005 p. 126

applied in the 2000 CDHS), some sense of trends in wealth-based inequalities can be obtained from comparison of spatial data. Thus for example, the gap between the best and worst performing provinces in terms of child survival has narrowed as poorer, remoter provinces have caught up with the gains made earlier in urban areas and more accessible lowland parts of the countryside: Mondolkiri and Rattanakiri posted 40 percent and 39 percent declines in infant and child mortality respectively, while indicators held steady in Phnom Penh. While Pursat experienced the second highest rate of all early childhood mortality indicators in 2000, the CDHS 2005 shows that, although still relatively high, infant and under-five mortality rates have fallen markedly (by more than a third)⁴. Kompong Thom, where infant and under-five mortality both rose between 2000 and 2005 (from 65 to 87 and from 99 to 106 respectively), was perhaps a case of health indicators coming into line with consumption poverty (Kompong Thom is the second poorest of those provinces for which estimates are available).

The picture of narrowing inequalities is not, however, universal. Inequalities in child survival between the rural and urban populations are widening as improvements occur in both, but occur more rapidly—and starting from a much better initial level—in the urban centers (Figure 6.4). The very poor Kompong Speu and Preah Vihear / Stung Treng experienced an increase in under-five deaths (from 90 to 122 and from 120 to 146).

Inequalities in wealth give rise to inequalities in health

The poor are more likely fall ill

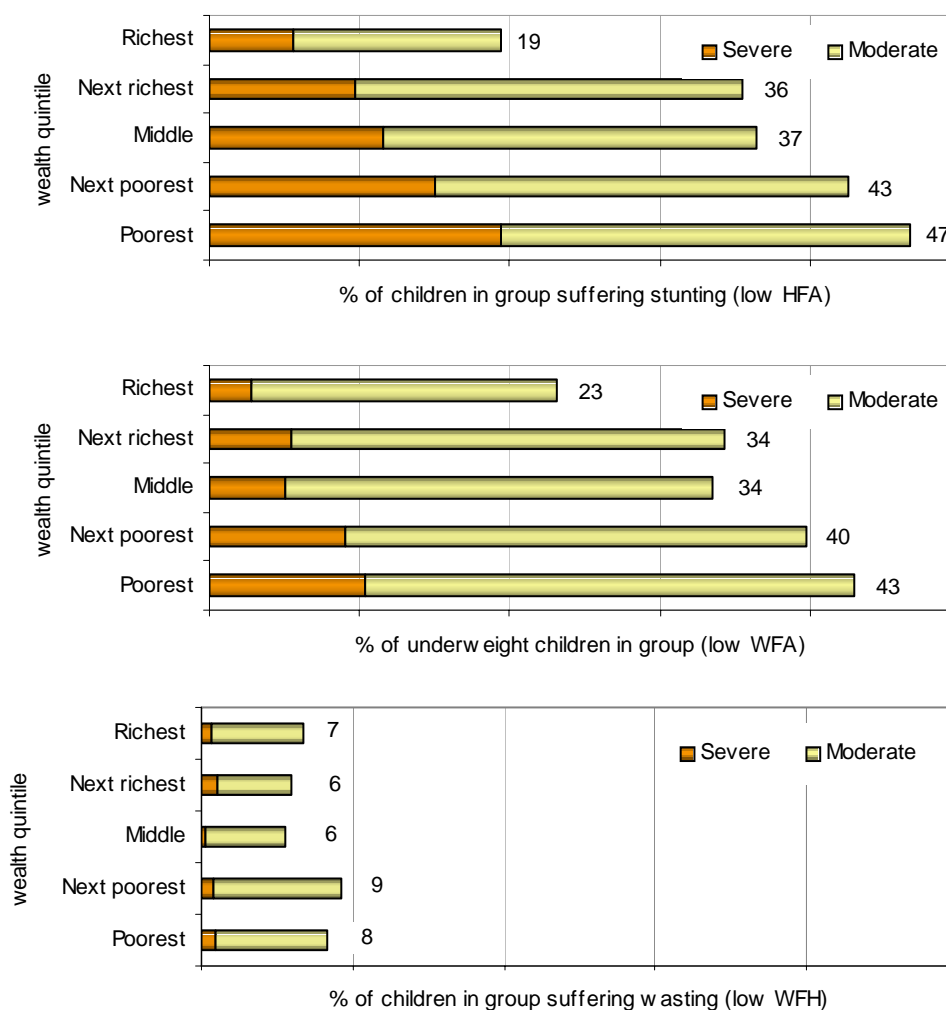
Central to the poverty trap is a causal relationship between consumption poverty and poor health. The poor are more likely than the rich to suffer injury or illness for a variety of reasons, including poor nutrition; inadequate access to clean water and sanitation;

⁴ Changes in the way provinces were aggregated between CDHS 2000 and CDHS 2005 may give an under-estimate of 2005 ratios.

hazardous occupations; low rates of contact with preventative health services; and, in some cases, lesser knowledge about good health practice.

To begin with, the poor consume less food than other groups. In 2004, 20 percent of the Cambodian population lived below the food poverty line: by definition, this bottom quintile consumed less than the daily 2,100 calories per capita taken to define the minimum intake required for healthy nutrition. This shows up in the rates of child malnutrition. Almost half of all children from the poorest quintile, and 43 percent of children from the second-poorest quintile, showed signs of moderate or severe chronic malnutrition in the form of stunting (Figure 6.5). Poverty significantly increases the risk of malnutrition; and malnutrition significantly increases vulnerability to illness⁵.

Figure 6.5: Child malnutrition amongst the poor is roughly twice that of the rich

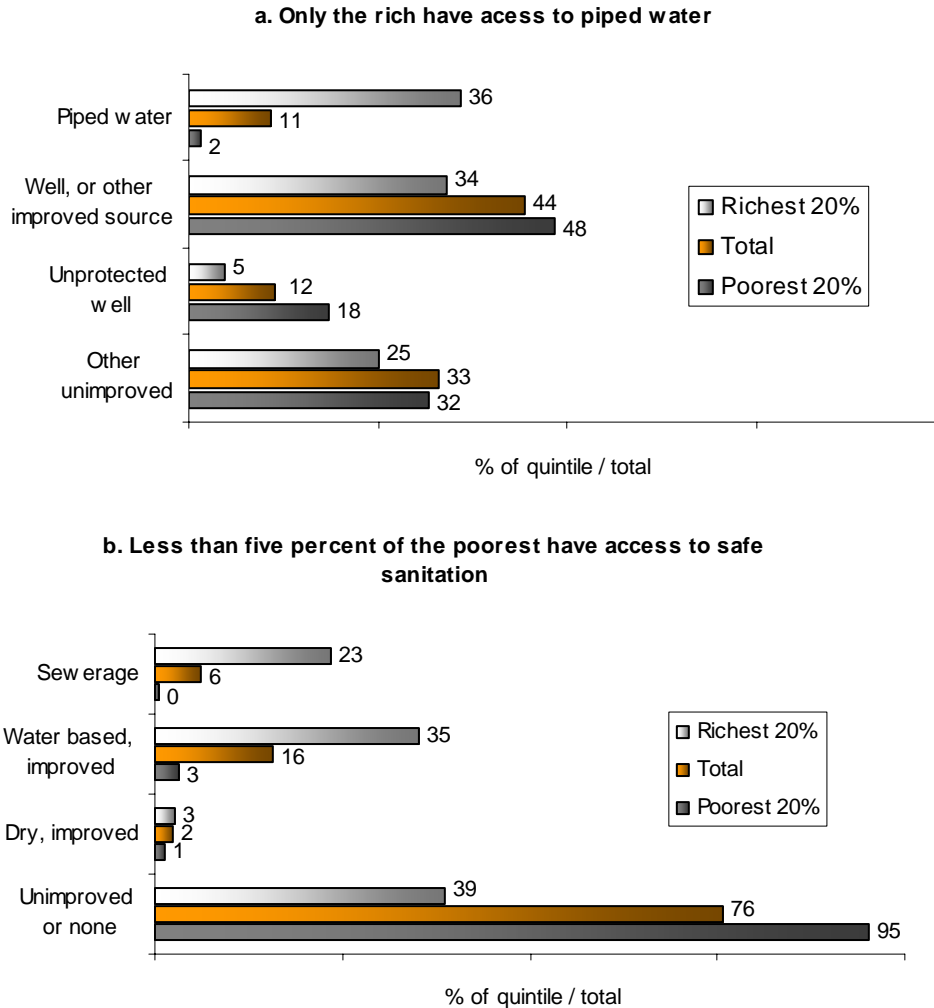


Source: CDHS 2005 p. 168

⁵ CDHS 2005 suggests a stronger correlation between living standards and malnutrition than did the 2004 CSES (World Bank 2006 pp. 113-115). As there are reasons to believe that the CDHS recorded anthropometric data more accurately, these are used in this report.

However, anthropometric measures of malnutrition such as stunting and wasting are not only an outcome of inadequate calorie intake that makes children vulnerable to illness: they are also themselves a reflection of the effects of chronic or recurrent childhood illnesses such as diarrhea. To a degree, then, malnutrition rates among the children of poor families reflect not only that poor children suffer from inadequate quantity and quality of food, but also the fact that they are much less likely to have access to clean water and sanitation (Figure 6.6).

Figure 6.6: The poor are at far greater risk of water-related disease

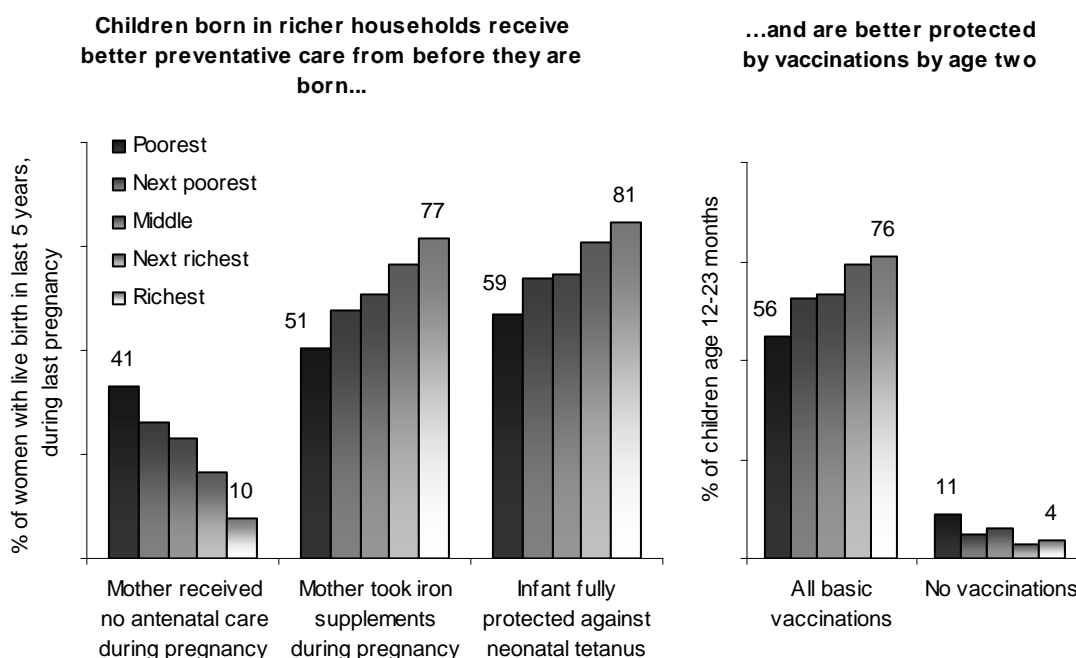


Unclean water and unsafe disposal of excrement makes children (and adults) much more vulnerable to disease, most notably water-borne illnesses (infectious diarrhea, intestinal parasites and hepatitis) but also respiratory and skin infections. (Extending the perspective slightly, the lack of “appropriate” water supply also tends to increase the risk of malaria and dengue: water stored in open wells or unsealed jars increases the breeding grounds for mosquitoes.)

Occupational differences between poor and non-poor also have health implications. The poor work hard in physical jobs involving greater risk of accidents and exposure to certain forms of disease. A significant proportion of the rural poor work in peripheral, forested areas where the risk of malaria is endemic (see Box 6.5 below).

The poor have less contact with preventative health services that might protect them against common illnesses. The best measure of this is probably that of antenatal care and vaccination rates amongst children (Figure 6.7). Note that these particular forms of preventative healthcare are in fact likely to underestimate access to other health services given that these services are provided free, cost is not likely to be a major barrier, but remoteness is.

Figure 6.7 Children from rich families are significantly more likely to be covered by preventative health services



Source: CDHS 2005.

Finally, the poor are distinguished from the rich in certain aspects of knowledge, attitudes and behavior with regard to health. On some issues—for example, regarding the cause and prevention of HIV/AIDS transmission—the differences are relatively small (and, when it comes to behavior, wealthier males are actually *more* likely to engage in commercial sex). Broadly speaking, however, wealthier and more educated groups in Cambodian society have (as would be expected) better knowledge of the causes of ill-health, and are more likely to reflect this knowledge in their behavior, than are the less educated poor. One key behavioral factor predisposing poor families to illness relates to household hygiene practices (Figure 6.8). Whereas *epidemics* of diarrheal diseases are clearly related to unclean drinking water, the transmission route of *endemic* diarrheal diseases (particularly in poor communities) may depend heavily on domestic hygiene, and particularly washing of food and hands (see Box 6.3).

Box 6.3 Sanitation and hygiene may be as important as drinking water quality

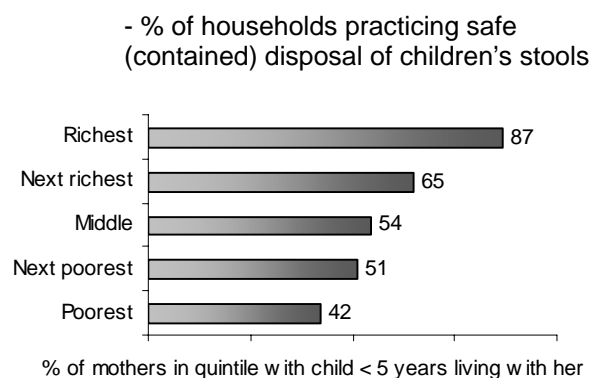
The second edition of *Disease Control Priorities in Developing Countries* (2006) notes five types of evidence to support the view that most endemic diarrheal disease is transmitted by water-washed routes and is not waterborne:

- *Negative health impact studies.* Esrey and Habicht (1985) and Esrey *et al* (1991) cite studies in which better water quality has not had a significant effect on diarrheal disease incidence.
- *Food microbiology.* Studies of the microbiology of foods in developing countries – particularly the weaning foods fed to children in the age group most susceptible to diarrheal disease – have shown such food to be far more heavily contaminated with fecal bacteria than is drinking water (Lanata 2003), even when the water is stored in open pots.
- *Seasonality of diarrhea.* In countries with a seasonal range in temperature, bacterial diarrheas peak in the warm season (and viral diarrheas in winter). This suggests that bacterial pathogens show environmental regrowth at some stage in their transmission route, implying that they have a nutritional substrate. Water is thus a less likely vehicle than food.
- *Fly-control studies.* Trials in rural Asia and Africa have shown that fly control can reduce diarrheal disease incidence by 23 percent (Chavasse and others 1999).
- *Hand-washing studies.* A recent review of the effect of handwashing with soap has shown that this simple measure is associated with a reduction of 43 percent in diarrheal disease and 48 percent in diarrheas with the more life-threatening etiologies (Curtis and Cairncross 2003).

These five types of evidence suggest that it is not drinking water quality but domestic hygiene—particularly washing food and hands—that is the principal determinant of endemic diarrheal disease rates. Tackling these channels of disease transmission requires (i) access to a sufficient quantity of water; (ii) access to a toilet or latrine; and (iii) good household hygiene behavior, influenced by health education.

Source: Cairncross and Valdmanis (2006) *Water Supply, Sanitation and Hygiene Promotion* pp. 777-778 in Jamison *et al* (2006) *Disease control priorities in developing countries: Second edition*

Figure 6.8: The rich practice better household hygiene than the poor



Notes: - safe ("contained") disposal of children's stools is taken to encompass the answers "Child used toilet or latrine"; "Put/rinsed into toilet or latrine"; or "Buried".

- Wealth quintiles based on factor analysis of asset data

Source: CDHS 2005 p. 164.

There is also a significant difference with regard to smoking. The CSES 2004 found that smoking is more prevalent in rural areas; and lower in urban areas, among richer, more educated groups. (It is also an overwhelmingly male habit: 42 percent of men were daily smokers compared to 4 percent numbers of women.) As demographic and epidemiologic transition proceeds in Cambodia, smoking-related non-communicable diseases (NCDs) are likely to increase among the poor (World Bank 2006). Significantly, the proportion of household consumption diverted

for tobacco consumption is twice as high in the poorest 20 percent of households as the richest 20 percent. Amongst the poorest quintile, the amount spent on tobacco was higher than on health care (8.7 percent compared to 6.6 percent).

All of these factors associated with poverty—food insecurity and malnutrition, livelihoods which entail higher risk of accident or injury, significantly lower access to clean water and safe sanitation, and lack of knowledge about the health risks of smoking or unhygienic sanitary practices—make it much more likely that the poor will fall ill and need medical treatment. Proving this association with simple questions about the incidence of ill-health, however, is harder than might initially be assumed: analyzing the answers to such questions, as often used in large multi-purpose household surveys, often implies that the rich suffer worse health than the poor (Box 6.4).

Box 6.4 Poverty and illness in the CSES

Proving a statistical association between income/consumption poverty and poor health on the basis of self-reported health status is often difficult. In most low-income countries, household surveys find, counter-intuitively, that richer and/or better-educated individuals have *more* health problems than do poorer/less educated individuals. This pattern seems to be borne out in Cambodia: although slightly more rich than poor report their long-term health as good for their age (which is to be expected), the rich also report more recent illness (20 percent of the richest quintile report a health problem over the four weeks preceding the survey, compared to 15 percent of the poorest quintile). This over-reporting of illness-in-general by richer groups is usually explained by (i) the likelihood that the rich and better educated are more likely to identify poor health as a problem, rather than accept it as an inevitable feature of their daily life; and (ii) the possibility that more frequent contact with health providers (76 obtained treatment for a health problem in the last four weeks, compared to 56 percent of the poorest) make rich and/or educated individuals more aware of health problems (Strauss and Thomas 1998).

Source: Knowles 2005b pp. 83-4.

That the rich suffer more illness than the poor is hard to believe. Firstly, there are strong *a priori* reasons to assume that the poor are more vulnerable to illness, for all the reasons given above (poorer access to clean water and sanitation, lower rates of vaccination, malnutrition, etc.).

Secondly, accounts and explanations from qualitative research strongly support the logical case that the poor, not the rich, are more vulnerable to disease and accidents (Box 6.5). To a significant degree, the explanations provided match those of researchers and health specialists: the poor experience worse health because they do not eat enough

Box 6.5 Rural Cambodians perceive, and have explanations for, worse health outcomes amongst poor households

The PPA in particular found that some common illness (notably malaria, dengue and typhoid) are closely associated with poverty and the poor):

The rich are rarely sick because they have enough food to eat and stay in good health... they complete a lot of non-physical tasks and send their children to school for better education.. (female youth, Dang Kda, Kampong Thom, MOPS)

Unlike the rich, the poor work hard in hazardous and tough environments, do not have enough food to eat and so frequently fall sick. (FGG, Krasaing, Battambang: MOPS)

All the poor and destitute villagers get malaria because they are bitten by daikol mosquitoes when they go to the forest to find firewood and wild fruit or when they go fishing. They also drink unboiled water which flows down from the mountain. (Mixed FGD in Khla Kropeau, Pursat, PPA)

Source: CDRI 2007a, 2007b (forthcoming)

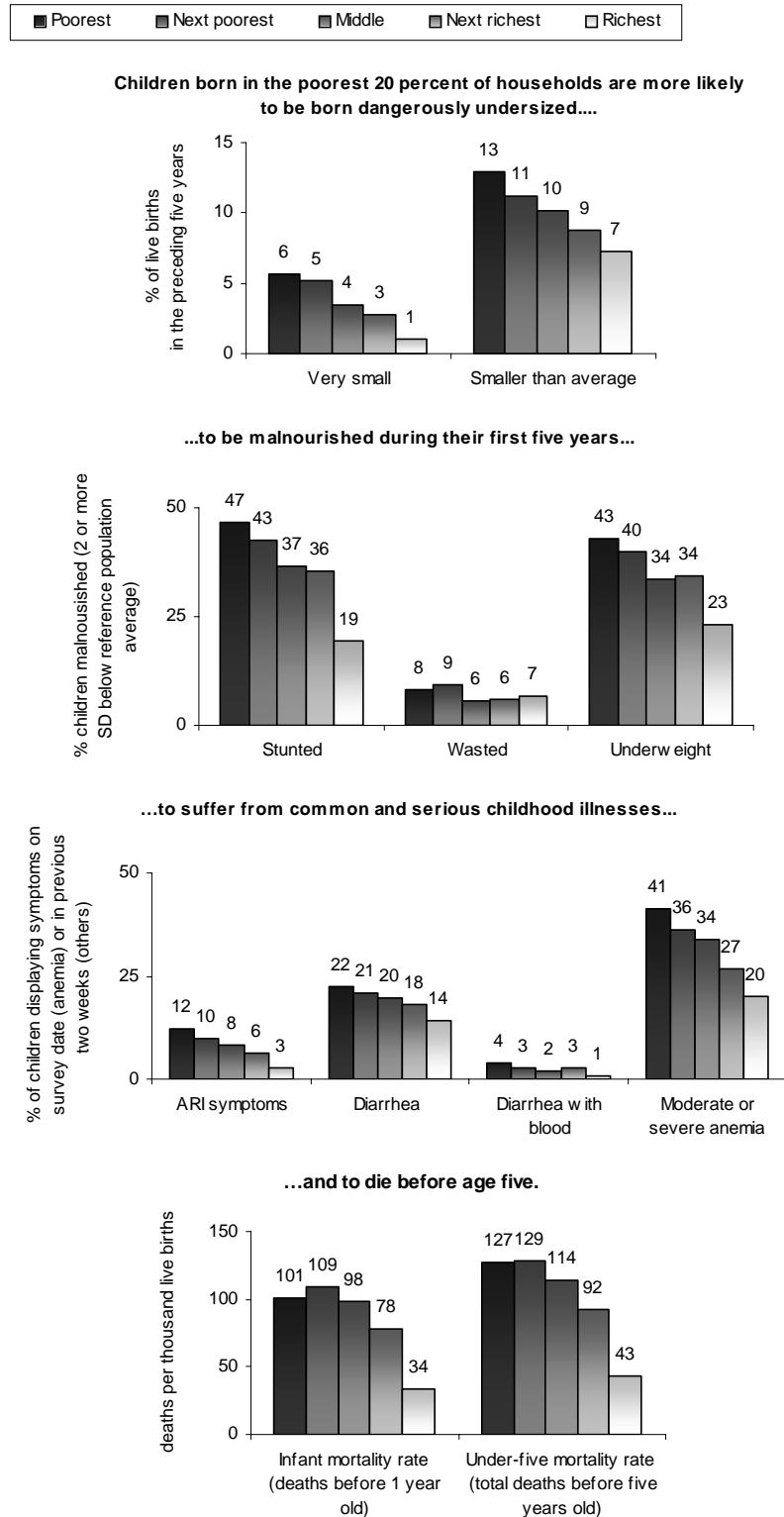
and because they work at physically strenuous tasks in locations characterized by endemic disease risk.

Finally, examining CDHS data on the reporting of symptoms of common childhood ailments such as diarrhea and acute respiratory infection and recordable health outcomes shows that, as expected, the poor suffer more than the rich (Figure 6.9).

To begin with, children born into the bottom two quintiles are somewhat more likely to be born underweight (less than 2.5 kg) and considerably more likely to be reported as undersized. Small and/or underweight status at birth is a major determinant of infant and child health and mortality: in the CDHS, children who were reported as having been “very small” or “smaller than average” were three times as likely to die within the first month, and 70 percent more likely to die before their first birthday (NIPH *et al* 2006 p. 127).

Amongst children in the bottom two wealth quintiles, the combined

Figure 6.9: From birth onwards, poor children suffer significantly worse health outcomes—including survival rates



Source: CDHS 2005 pp. 126, 152, 156, 158, 159, 167, 179

effects of higher incidence of low weight or size at birth, less good initial breastfeeding, less good infant and young child feeding practices, poorer household water supply and sanitation and lower rates of immunization results in much higher incidence of malnutrition and childhood illnesses, relative to the children of rich households (NIPH *et al* 2006 pp. 169-70; 154; 176-7; Rosenboom *et al* p. 14). Children from the poorest quintile are 60 percent more likely to have diarrhea; four times more likely to show symptoms of acute respiratory infection (ARI); and over five times as likely to suffer from bloody diarrhea (a symptom of potentially very serious intestinal problems). In terms of nutrition, the children of the poorest quintile are 2.4 times more likely to suffer from chronic malnutrition (stunted height); and twice as likely to have moderate or severe anemia (iron deficiency).

Critically, mal-nutrition and illness reinforce each other. Inadequate quantity and quality of food intake makes a child more vulnerable to illnesses, many of which (e.g. diarrheal diseases or TB) in turn impede nutrition uptake, resulting in more pronounced malnutrition, and increased susceptibility to disease. The net outcome is, not surprisingly, much higher death rates amongst the children of poor parents compared to those whose parents are rich. This relationship between parental wealth and the prospects of a baby surviving are very pronounced: compared to a child born into the richest quintile, a child born into the lowest quintile is three times as likely to die before either age one or age five.

If poverty-induced illness and malnutrition interact to perpetuate each other within the life of an individual child, the interaction of mother's living standards and health, weight and size of children at birth, vulnerability to childhood disease, and childhood malnutrition explain how living standards and physical health interact to transmit ill-health (and poverty) from one generation to the next. As noted above, children with low birthweights are more likely to suffer childhood diseases, which further stunt growth; when small, unhealthy girls grow up into under-sized mothers, they are more likely to give birth to low birth-weight children, perpetuating the cycle. For this reason it often takes several generations of improved nutrition and healthcare to achieve significant improvement in birthweights and subsequent growth from childhood into adulthood.

When ill, the poor are less able—and thus less likely—to obtain treatment

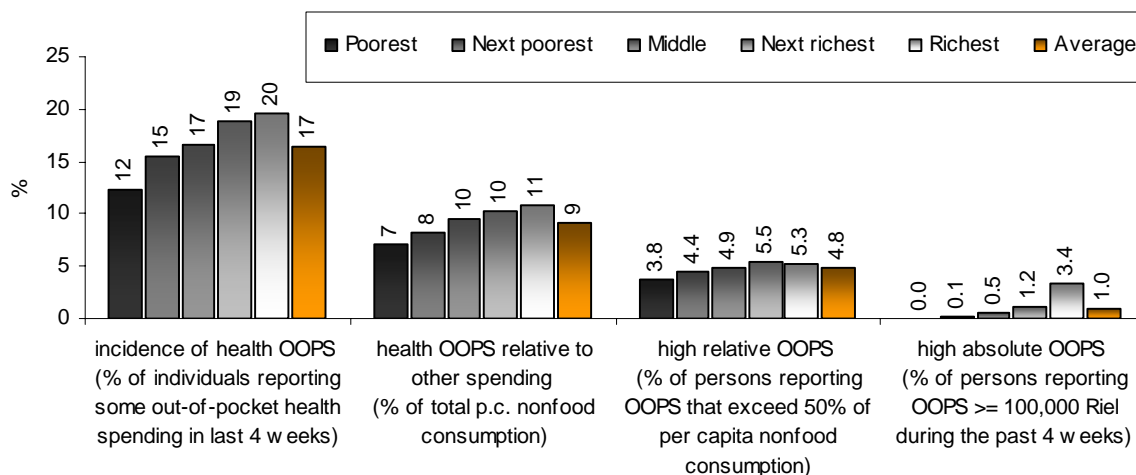
If the poor are more likely to fall ill, they are also less able to obtain access to quality treatment. The main reason is the most obvious: the poor are less able to afford the costs of medical treatment. However, other factors, including distance from facilities and indirect costs of seeking treatment (i.e. the opportunity costs for the time of the patient and carers) also militate against the poor obtaining access to good-quality curative services.

Public expenditure on health care is not notably pro-poor. The 2006 health sector public expenditure review report concluded that although only 32 percent of total public health expenditures are spent on providing basic health services at health centre (HC) and referral hospital (RH) level. Partially offsetting this bias towards central and tertiary spending, the allocation of the HC and RH budget *does* correlate broadly with geographical distribution of poverty.

More importantly, however, the total level of public financing for health is simply too low. Given this, the impact of the pro-poor pattern in the allocation of primary (HC and RH) healthcare in tackling inequities in health and health utilization is not clear. In 2006, the total budget allocation to health was 6.9 percent of planned Government expenditures. Although budget allocations have risen in absolute terms over time, they are still very low (US\$4 per capita per annum in 2006), and have declined somewhat as a share of Government public expenditures in recent years. Poor execution of the health budget has been problematic for many years and has exacerbated difficulties in using public spending to improve access to health for the poor. However, budget execution has recently started to improve. Whereas in 2004 only 83 percent of the operating budget was disbursed by the end of the calendar year, this increased to 91 percent in 2006.

Given the low level of public financing of health services, the cost of health care in Cambodia falls primarily upon the patient, and is relatively expensive. This is true of public health services as well as private care: because the public health service is desperately under-funded, obtaining service requires patients to pay high fees at the point of service. Two recent large-scale national sample surveys—namely the 2004 CSES and the 2005 CDHS—both measured out-of-pocket spending (OOPS) on health⁶. The CSES estimates that out-of-pocket spending for health care amount to US\$15.48 per capita per annum; the CDHS comes to a higher estimate (US\$ 24.9). This might be explained by differences in how the surveys collected data; and / or by an increase in health utilization driven by falling unit costs (see Figure 6.1d above).

Figure 6.10 Frequency and size of out-of-pocket spending on health, 2004



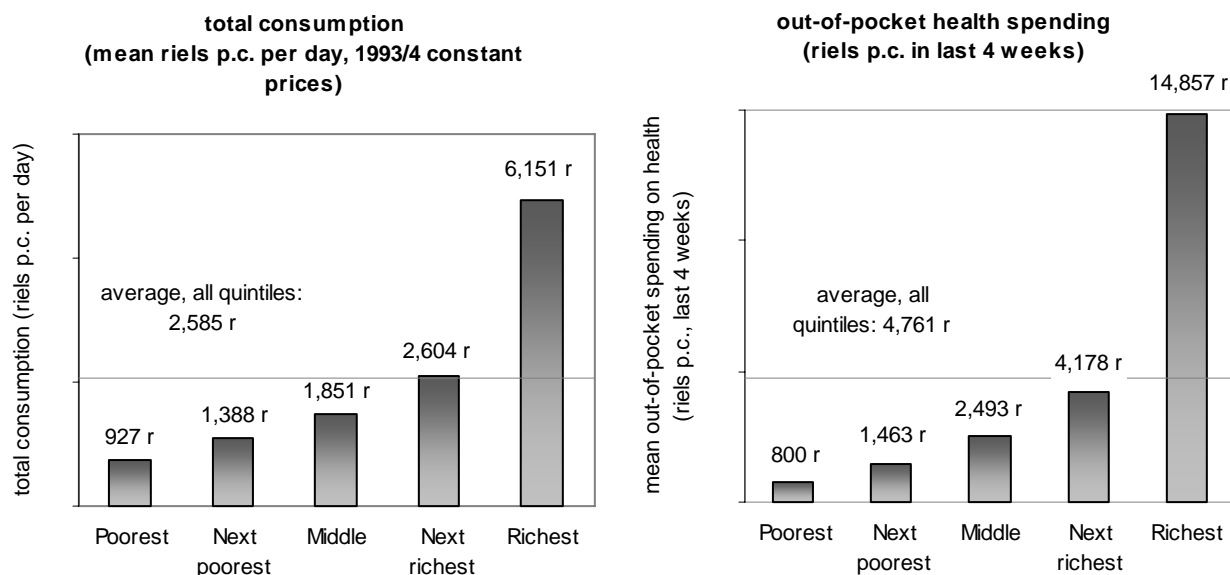
Source: CSES 2004 analyzed by Knowles 2005.

⁶ At present, disaggregation of health spending by wealth is only possible using the CSES dataset. Although a number of indicators from the CDHS *have* been broken down by wealth quintile (defined in this case by an asset index), this has not yet been done for household spending on health. As such, investigation of differences in health spending by wealth quintiles, and what this might say about the equality of access to health services, will be based on the CSES data. However, for other lines of analysis—e.g. by rural-urban split, or by Province—CDHS data will be used, as it often contains additional valuable detail.

As Figure 6.10 illustrates, about one in five households surveyed in the 2004 CSES had incurred out-of-pocket spending (OOPS) in the four weeks preceding the survey interview. As expected, the incidence of recent spending on health was lower amongst the poorest quintile (12 percent) than the richest (20 percent). Interestingly, the size of out-of-pocket health expenditures by wealthier quintiles (amongst those who reported spending) was higher not only in absolute terms but also relative to their total spending, suggesting that healthcare (i) remains an important priority as households obtain more disposable income and (ii) constitutes a significant expense for all groups.

Indeed, the richest quintile spends a striking amount, in both absolute terms and relative to the spending by other groups (Figure 6.11). Mean OOPS amongst the richest is almost 19 times that of the poorest quintile; over three times the mean for the population as whole; and 3.6 times higher than mean spending amongst the second-richest quintile. To put it in context, however, this sudden jump in average spending between the bottom four quintiles and the top (richest) quintile simply mirrors the distribution of living standards themselves (as measured by total per capita consumption).

Figure 6.11 The richest quintile spends far more on healthcare than do other groups: but this reflects a similar gap in overall living standards



Source: CSES 2004 analyzed in Knowles 2005.

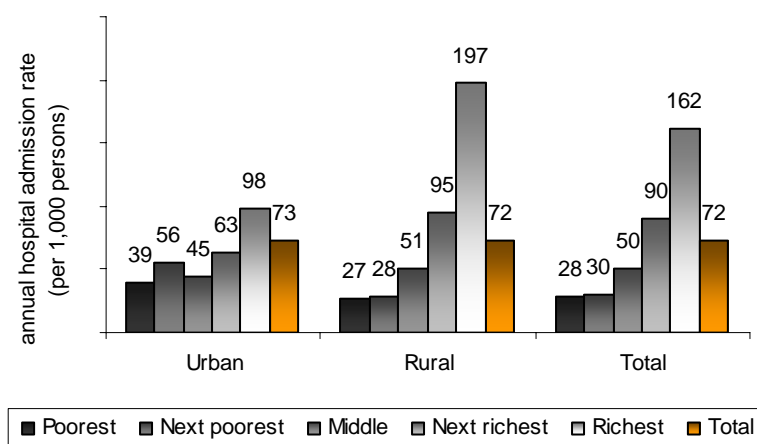
These high point-of-service costs help to explain the 16 percentage point gap between the poor and the rich in seeking treatment for injury or illness (Table 6.2). They also help to explain the dramatic difference in rates of hospitalization (Figure 6.12), which is typically far more expensive than outpatient treatment.

However, these estimates of out-of-pocket spending also suggest that health spending by households, while very high, has fallen by a third over five years: the 2000 DHS reported mean out-of-pocket health expenditure over the last 30 days at US\$24 per capita (NIPH *et al* 2005 p. 37). The fall has come mainly in rural areas (down from US\$20 in

Table 6.2 There is a large gap between the poor and the rich in rates of health service utilization

Quintile	% of person reported ill or in need of health care in last 4 weeks who sought care		
	Urban	Rural	Total
Poorest	59	59	59
Next poorest	63	62	62
Middle	60	64	64
Next richest	70	69	69
Richest	81	72	75
Total	73	65	66

Source: CSES 2004 (15-month sample), analyzed in Knowles 2006 p. 62.

Figure 6.12 There are substantial wealth-based differences in use of hospital treatment

Source: CSES 2004 (15-month sample), analyzed in Knowles 2005 p. 69.

2000 to US\$14 in 2005), while costs in urban areas have fallen only slightly (from US\$26 to \$24: the decline came mainly from a fall in transport costs, with treatment costs static). This implies an encouraging improvement in the affordability of rural health care, probably reflecting the combined effects of improvements in rural roads, improved coverage by and reduced costs of public health facilities⁷, and perhaps also increased number of private providers and better availability of medicine (Box 6.6), reducing average transport costs and exerting some downward competitive pressure on prices.

Box 6.6 Private providers have helped to expand access to modern healthcare

Although not without problems (e.g. over- or mis-prescription of medicines), the spread of private providers has also played an important role in expanding access to modern healthcare.

We can say that health and treatment services have improved over the past ten years... The reason is that we now have medicines available... if we have some money we can buy them. Ten years ago, we had neither medical practitioners nor hospitals. At that time we had to spend our rice or gold in exchange for treatment or medicines... Now we have medical practitioners providing services in the village. These changes happened since the second national election. (FGD amongst those who had moved out of poverty, Krasaing Village, Battambang: MOPS)

Source: CDRI 2007b (forthcoming)

⁷ In 2005, public sector treatment (\$15.5 over last 30 days) was cheaper than private sector (\$18.6): this is a reverse of the situation in 2000 (\$31 and \$29, respectively).

Previously, out-of-pocket spending was estimated to account for 86 percent of total per capita health expenditure: in the light of recent findings, this may have fallen to about 50 percent. This fall in cost—plus rising average household income and per capita consumption—helps explain the rising trend in health utilization: in 2005, 92 percent of those ill or injured over the last 30 days sought treatment, continuing a gradual upward trend (from 86 percent in 1998 and 89 percent in 2000: NIPH *et al* 2006 p. 32).

Financial barriers to the poor are reinforced by the association between poverty and remoteness, which contributes to lower-than average contact rates between the poor and preventative health services, and adds transport costs to the costs of seeking care. Since the mid-1990s, the Government has attempted to ensure geographical equity in the allocation of health services through the Health Coverage Plan (HCP). This attempts to ensure that there is one health centre to serve every 10,000 people; and one Operational District (OD) with a Referral Hospital (RH) for every 100,000 people⁸. Although significant progress has been made towards implementing the HCP, spatial inequalities remain (Table 6.3), in part because of residual difficulties in expanding coverage to low-density remote rural areas; and in part because between-OD differences in rates of natural increase and internal migration have changed the distribution of the population, with the result that some ODs now contain more than 100,000, while others contain less.

Table 6.3 The poor have to travel considerably further to obtain healthcare
- mean distance (km) to nearest health provider, by consumption quintile

Provider	Per capita consumption quintile					Total
	Poorest	Next poorest	Middle	Next richest	Richest	
Public						
Health center	7.6	6.8	7.0	5.8	6.0	6.6
Referral/district hospital	15.9	14.0	12.8	11.8	9.2	12.8
Provincial hospital	41.8	40.3	37.5	34.6	26.0	36.0
National hospital	149.5	129.9	122.7	105.0	87.3	118.9
Private						
Private hospital	93.4	73.5	64.7	56.3	41.6	65.9
Private clinic	17.1	14.1	12.6	11.6	7.6	12.6
Doctor	18.6	15.5	14.5	11.9	7.6	13.6
Nurse	7.6	6.7	5.7	5.2	3.5	5.8
Trained midwife	6.7	6.4	5.7	5.4	3.6	5.6
Dedicated drug shop	14.5	11.9	10.0	8.6	5.3	10.1
Other shop selling drugs	7.4	6.3	5.5	5.0	3.2	5.5
Traditional birth attendant	1.1	1.5	1.8	2.1	3.4	2.0
Kru Khmer	2.4	2.9	2.9	3.4	3.6	3.0
Other traditional healer	4.4	5.7	5.8	7.2	5.5	5.7

Source: CSES 2004 (15-month sample), analyzed in Knowles 2006 p. 71-2.

The most significant form of spatial inequality may now lie at the fine-grained level, beyond (or below) the remit of the HCP, in regard to how near or far households live with regard to their nearest health center. The Ministry of Health Public Expenditure Tracking Survey (PETS) concluded that health centers provided effective services to the 57% of the catchment population living within a 4.5 km radius of a health center. Beyond this, however, utilization rates drop dramatically (World Bank and RGC 2007 forthcoming pp.

⁸ As of 2005, there were 966 health centers and 69 hospitals (MoH 2006 p. 1).

100-102). Given that the poor are more likely to live beyond this 4.5 km watershed, they are less likely to enjoy benefits from services delivered through the centers. The CSES seems to confirm this, finding that the poor are more likely to live in villages where distance rather than the cost of treatment is seen as a key barrier to healthcare (World Bank 2006 pp. 125-6).

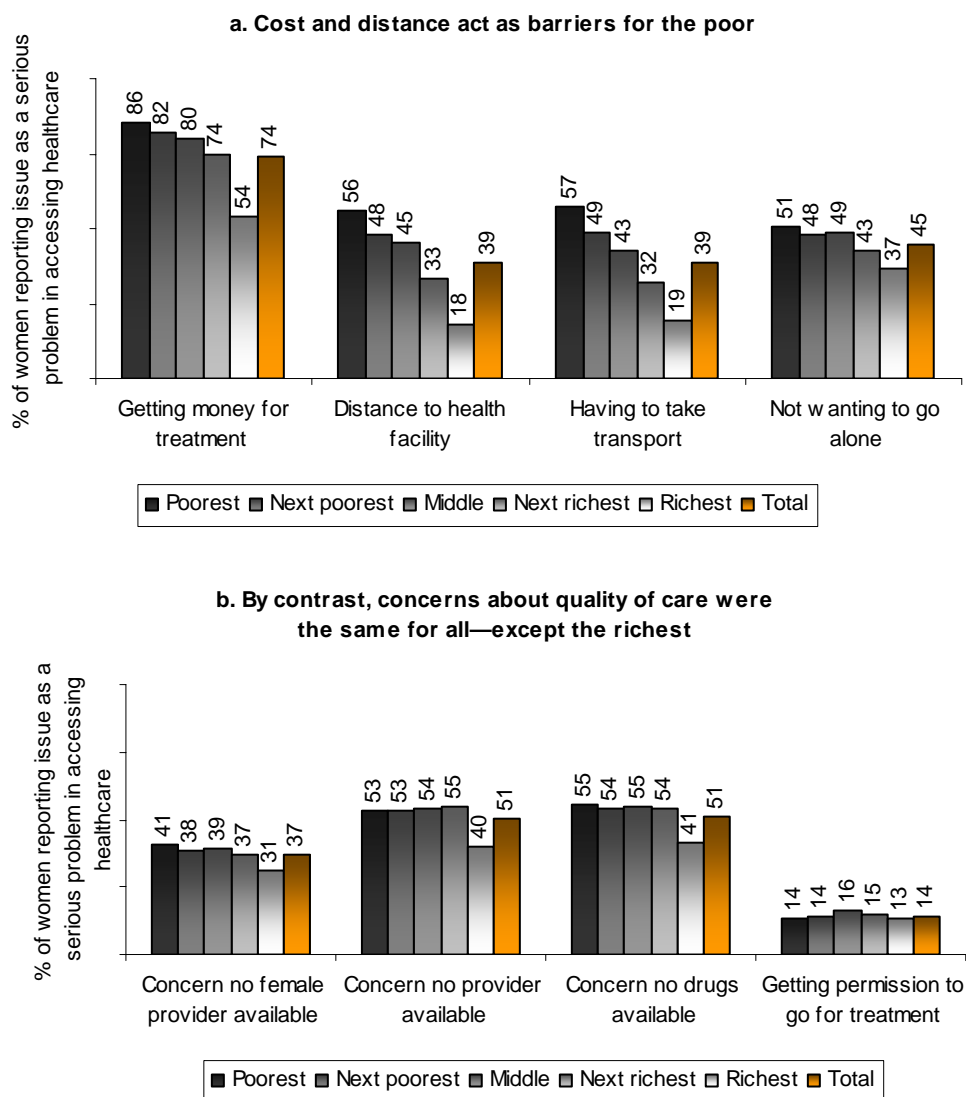
It is hard to obtain an easy measure of *quality* of care, but an effort to cross-match CSES data with data from the MoH database of public health facilities suggests that poor groups in Cambodian society also enjoy considerably more limited quality of public health care provision, as measured by the availability of health professionals and some specialist services (Table 6.4).

Table 6.4 There are notable inequalities in the quality of public healthcare

Quality indicator	Poorest	Richest	Average	Ratio, richest to poorest
Health Center (HC)				
Total staff per facility	8	13	9	1.6
Number of regular staff per facility	6	11	8	1.7
% facilities with at least one medical doctor	5	25	11	5.0
Number of midwives per facility	2	3	2	1.6
Number of beds per facility	4	5	4	1.1
Referral Hospital (RH)				
Total number of staff	106	137	111	1.3
Number of regular staff	85	118	92	1.4
Number of doctors	12	20	14	1.7
Number of midwives	13	18	14	1.4
% hospitals providing endoscopy services	11	42	20	3.7

Source: CSES 2004 (15-month sample, population weighted) and December 2003 database of health facilities compiled by MOH and NIS; analyzed in Knowles 2005 p. 77.

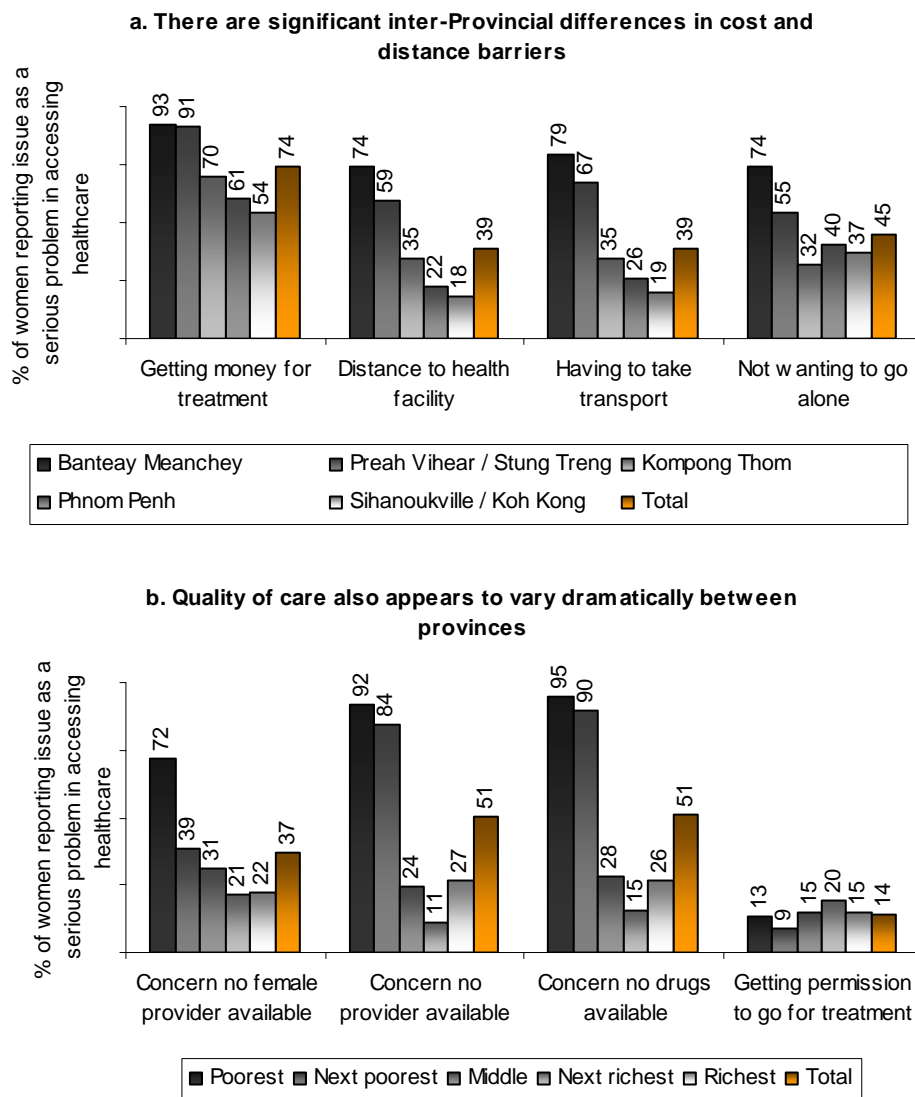
In terms of perceptions, the CDHS confirms that both cost and distance are (i) seen as serious problems by all groups but (ii) seen as particularly severe by the poor. By contrast, there was much less inter-quintile variation in those reporting quality of care issues as a problem: the level of concern about the lack of skilled staff or drugs was similarly high across all wealth groups, with the exception of the richest, who expressed significantly less (though still considerable) concern (Figure 6.13). This probably reflects confidence in their ability to deploy their much higher level of health spending to obtain access to providers and drugs.

Figure 6.13 For the poor, cost and distance are the main barriers to healthcare

Source: CDHS 2005, analyzed in NIPH et al 2006 p. 149.

Strikingly, there are significant variations between Provinces in both cost and distance *and* quality concerns as problems obtaining access to healthcare: Banteay Meanchey, Preah Vihear and Stung Treng all register very poor ratings across all indicators (Figure 6.14).

To summarize: at first sight, it appears that the burden of OOPS is lower among the poor than the rich. However, this is most likely because the poor simply do not use health services: and if they do, they use lower cost and lower quality services. As a result of various barriers to healthcare, the poor either live with illness (reducing their productivity and making full recovery less likely); or seek treatment late, at which stage it is more expensive and less likely to work (Box 6.7).

Figure 6.14 There are pronounced spatial variations in barriers to healthcare

Source: CDHS 2005, analyzed in NIPH et al 2006 p. 149.

Box 6.7: The poor often delay using public services until problems are serious

Distance, expense, and the perception of low-quality care (especially for poorer patients) deter the poor from seeking treatment at a public health facility. Very poor families will seek to live with a minor illness; those with some money to spend will first seek to cure a minor illness with low-cost traditional medicines or medicines bought from a pharmacy. For more serious conditions, those who can afford to tend to turn first to private providers who are seen to offer closer, more convenient, and often better care, and who will often extend treatment on credit (unlike most public facilities). This option is sometimes chosen even by poorer families because private providers are more numerous and closer, so saving on the cost and time of travelling to the facility: average transport cost per treatment for private sector care was \$0.89, compared to \$2.36 for public sector care. Often, it is only when a patient deteriorates to a critical condition that they are taken to a public health centre or referral hospital.

Source: NIPH et al 2006 p. 37, CDRI 2007a, 2007b (forthcoming)

...and less able to absorb the economic impact of illness

If poverty increases the likelihood of falling ill, ill health (and its inadequate treatment) in turn undermines livelihoods and creates or reinforces poverty. Ill health may throw a household into poverty by simultaneously affecting both the expenditure *and* the income sides of the household economy. It is obviously hard for poor households to meet high out-of-pocket health costs with the limited money available to them. However, the poor also depend more than the non-poor on unskilled manual labor to meet daily needs for food production or income: so, on the income side, the illness of an economically active member of the household (which in poor households encompasses not just adults but also older children) implies reduced production and income as well as increased outgoings.

In the absence of instruments which would enable the poor to manage the sudden imbalance of spending and income, illness in turn leads on many occasions to coping strategies that enable the poor to get through the current crisis at the expense of long-term prospects for escaping poverty. In rough order in which they are adopted, these immiserating coping strategies include:

- running down savings, which reduces capacity to later invest in improvements in productivity (e.g. tools or livestock), livelihood diversification, health (e.g. better housing or water and sanitation) or education (children's schooling);
- cutting back on current consumption (including consumption of items needed to sustain or improve productivity in the short or long term, such as food, children's education, or fuel);
- mortgaging or selling (typically at distress prices) productive assets such as land or animals, reducing the long-term potential for poor households to work their way out of poverty;
- pulling children out of school to help out in the home or earning income (thus reducing their employment prospects and earning potential as adults, reducing their odds of escaping and staying out of poverty);
- taking on interest-bearing debts (with future repayments amounting to a non-productive expenditure and a drag on consumption); and / or
- engaging in marginal livelihood or income-earning activities—such as working in dangerous areas or jobs, theft, prostitution, or illegal cross-border migration—that entail high risk of one or more serious consequences for long-term household survival

Box 6.8 Despite formalization of user fees and (limited) introduction of fee exemptions, cost remains a barrier to care

The poor have to bring along with them money to show the nurse or doctor so that they will give us medical treatment; otherwise, they will not take care of us. (FGD among women, Kompong Thkoul village, Pursat province: PPA)

Whoever we go to, we have to pay for the services: without money the patient will just be waiting to die... For instance, they provide us with good care only when we give 20,000-30,000 riels to each nurse or other medical staff. Normally they avoid us after three days when we run out of money. FGD, Kampong Thnoat village, Kampot Province: MOPS.

Source: CDRI 2007a, 2007b (forthcoming)

(due to illegality; risk of illness, injury or death; or moral stigma and resulting erosion of social capital).

Not all of these channels are equally amenable to investigation. However, there are encouraging signs with regard to bullets 1, 3 and 5 in the list above. The use of short-term financing strategies that increase the risk of long-term poverty seems to be declining as average incomes and spending power rise and health costs decline, increasing the affordability of healthcare. The 2000 and 2005 CDHS surveys asked about the source of money used to meet health costs over the last 30 days (Table 6.5). The answers suggest that significantly more are now able to finance health care from immediately available resources without running down savings or assets, or borrowing at interest.

Table 6.5 Increasingly, Cambodians can obtain healthcare without needing to resort to measures which cause them to fall into, or remain in, poverty

Year	Wages / pocket money	Gift from relative / friend	Savings	Borrowed (no interest)	Borrowed (with interest)	Sold assets
2000	16	na	54	9	11	6
2005	45	6	30	6	7	3
Change	+30		-24	-3	-4	-3

Source: NIS *et al* 2000 p. 39; NIPH *et al* 2006 p. 39.

Note: The category "Gift from relative / friend" was introduced in the 2005 survey but not present in 2000. It seems likely that those who would have provided this answer in 2000 would probably have had their answers recorded under "borrowed (no interest)" or "other".

It is likely that higher living standards and more disposable income have played a role in reducing the need for high-risk strategies for household financing of healthcare costs. However, RGC policy of the last few years seems also to have played a part, in correcting a shortcoming of earlier policy that limited access for the poor. The earlier policy involved the introduction of formal user fees for public health services, in an attempt to enhance staff motivation through fee-financed increments on their basic salary; suppress widespread (unpredictable and often high) unofficial fees; improve transparency and quality of care; and improve access to public health services for the majority of the population. Policies to identify and exempt the poor were meant to ensure that user fees did not exclude poor patients. However, a study to evaluate the impact of user fees (Wilkinson *et al* 2001) revealed that user fees in referral and national hospitals *did* in fact act as a barrier to the poor; and paying for health care, particularly secondary or tertiary care, was still a major cause of destitution among the poorest. The study concluded that hospital exemption schemes failed to protect the poor because of an intrinsic conflict between a viable exemption scheme and a viable salary incentive scheme.

To correct this problem, the last 5 years have seen a significant rise in the number of facilities that operate health equity funds (HEF). These funds pay user fees to health care providers on behalf of the poor: in other words, they make it possible to exempt the poor from the user fees normally charged by facilities, without reducing the income received by the facilities, which would create incentives for facilities to avoid treating the poor and/or provide the fee-exempt poor with sub-standard care (Box 6.9). They appear to have had considerable success in reducing financial barriers for the poor, increasing use of services and reducing costs.

Box 6.9 Funding public health and protecting the poor: user fees and equity funds

Health user fee schemes introduced under the framework of the 1996 National Health Financing Charter sought to increase operating finance available to facilities and get rid of widespread informal fees. Although successful in many respects, they were found to act as a barrier to the poor. Innovative health equity funds appear to have had considerable success in addressing this problem. Under these arrangements, facilities are compensated from the fund for providing fee exemptions to poor patients. These schemes have typically involved contracts at the Operational District (OD) level between an INGO or donor, who provides the fund, and an NGO or community organization which manages it, identifying poor patients according to agreed criteria (Conway and Crossland 2002) and reimbursing the hospital management for the fees waived in treating these individuals. As of January 2006 22 HEF projects were in operation, covering 21 of the country's 76 ODs, falling in 14 of the 24 provinces and municipalities.

Evaluations suggest considerable positive impact. A review of the Soknikum OD in Siem Reap found that the HEF (which compensated patients for travel costs as well as paying fee exemptions) effectively removed financial constraints to treatment for the poor, increased admissions, was cost-effective, displayed minimal leakage to the non-poor, and contributed to poverty reduction (Hardeman et al 2001 and 2004, cited in Annear, Wilkinson, Bigdeli and Lo 2006). Evidence from Kirivong OD in Takeo suggests that HEFs can change health-seeking behavior, encouraging the poor to seek treatment at public health facilities rather than private practitioners (which provide services which are often either poor quality and / or expensive). A recent study on improving access to health care for the poor concluded that the incidence of health related debt was 3.4 times less in a squatter community with an Equity Fund than in a community without.

Several issues remain. Maintaining the purchaser-provider split (essential to the HEF approach) and pre-identifying the poor through some form of census of the catchment population (which is preferable to attempting to identify the poor when they present for treatment) result in administrative costs accounting for a significant proportion of the total fund budget. Overall, however, HEFs appear to protect the poor at relatively low cost. Total monthly subsidies to beneficiaries amount to US\$200-300 at the health center level, and US\$ 3-6,000 at referral hospitals. A pre-identification census exercise may cost around US\$7,500. Reduced overheads may be possible if pre-identification of the poor occurs as part of a shared, multi-sectoral targeting exercise (currently at the pilot stage).

The number of HEFs is set to rise to 31 schemes in 29 ODs in 16 provinces, at which point they will cover about one-third of the Cambodian population. Under the 2003 RGC Strategic Framework for Equity Funds and the National Equity Fund Implementation and Monitoring Framework, MoH will take a more central role in setting HEF policy: to date, equity fund pilots have shown considerable variation, being implemented by a wide range of donor, INGOs, local NGOs and other administrators. Over time, it is hoped to link equity funds to community-based insurance schemes, which serve primarily to prevent the not-so-poor from falling into poverty under the impact of health costs.

Sources: Annear, Wilkinson, Men and van Pelt 2006a, b; Annear, Wilkinson, Bigdeli and Lo 2006; <http://www.sky-cambodia.org/>

Despite progress, the healthcare cost-poverty link is still clearly strong: a third of health episodes will lead to reduced savings or borrowing on interest. There is also a significant urban-rural gap in households' ability to meet health expenditures. While 61 percent of urban respondents were able to meet health costs from wages or "pocket money", this figure fell to 43 percent for those living in the countryside.

Conversely, proportionately more rural households had to dip into savings (32 percent compared to 21 percent in urban areas), borrow with interest (8 percent compared to 5 percent) or sell assets (3 percent compared to 1 percent) in order to cover health costs.

Although weakening, the link between poverty-exacerbated ill health, high healthcare costs, and indebtedness remain significant. The frequency with which illness leads to permanent debt and/or sale of assets is confirmed in qualitative research (Box 6.10).

The 2004 CSES found that illness and injury rank fourth amongst the most common reasons for taking out a loan (13 percent of all loans). The burden of health-related indebtedness is, unsurprisingly, higher among the poor (accounting for 11 percent of the value of all outstanding loans, compared to 6.5 percent amongst the richest). In a recent study, illness was the number one reason for land sales (see Box 6.11)⁹.

Reproductive and maternal healthcare is improving but outcomes remain poor

Reproductive and maternal health issues have been RGC priorities for some time: targets

Box 6.10 Healthcare-induced debt and land loss remain serious problems

Sometimes when we are seriously sick, we have to take out a loan at very high interest. If we borrow 10,000 riels, we must pay 1,000 riels interest every month. (FGD of poor women, Kompong Our village, Kompong Chhnang Province: PPA)

It is harder and harder for us because our income is just enough for buying rice. Whenever any family member falls sick, mostly we go into debt or have to mortgage or sell our land. After recovering, we then become workers in the village or have nothing to rely on any more." (FGD amongst those who have fallen into poverty, Khsach Chi Ros Village, Kampong Thom Province: MOPS)

Source: CDRI 2007a, 2007b (forthcoming)

Box 6.11 Poor households lack the resources to cope with health shocks

Results from surveys in two villages south of Phnom Penh suggest that while both crop failures and illnesses are entailing similar magnitudes of economic damage (averaging a few hundred thousand Riels), households find it harder to cope with illness. The negative consequences from health shocks are more damaging to both immediate and long-run livelihood as they require an immediate lump-sum of money for urgent treatment. Because most households do not have savings (and rural credit markets do not operate well), households are often forced to resort to distress sale of productive assets (including land) and/or enter long-term debt, reducing their future income streams and increasing their non-consumption expenditures, respectively. This broadly confirms the findings of earlier Oxfam studies which found that half of all distress sales, or around 40 percent of cases of once-landowning families losing land, involved health crises.

Sources: Yagura 2005; Biddulph 2004; Ballard and So 2004.

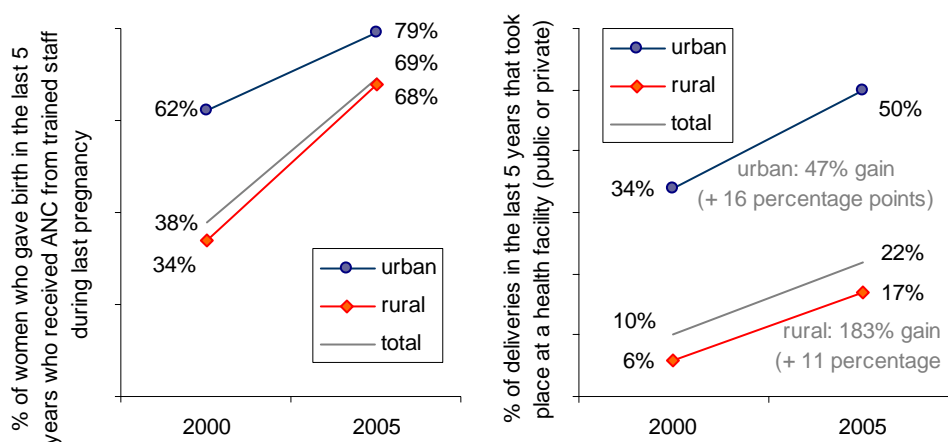
⁹ While this report focuses on how mutually-reinforcing inequalities keep the poor poor (and hold back their potential to contribute to economic development), it is important to acknowledge that the effects of ill health can be serious even for the non-poor. In the absence of working insurance markets, only the very richest can be considered immune from the economic consequences of serious illness or injury. In the CSES 2004, the 10 percent of population who reporting health status as bad or very bad accounted for 63 percent of total health OOPS.

have been incorporated in the Cambodian Millennium Development Goals (CMDGs), the Health Sector Strategic Plan, and the 2006-2010 National Strategic Development Plan (NSDP), amongst others. A range of initiatives have resulted in significant improvements in relevant service delivery outcomes, which are reflected in change in intermediate outcomes such as the fertility rate.

Although it is not possible to disaggregate trends in contact with antenatal care on the basis of wealth (as the 2000 CDHS data has never been subjected to the kind of wealth analysis seen in the 2005 CDHS), it is possible to disaggregate improvements in terms of differences between trends for rural and urban women. This would suggest a mixed picture regarding equity in service delivery. In terms of antenatal care, there is some narrowing of inequalities: although coverage is still significantly better for urban women, improvements have been faster in rural areas, and the urban-to-rural ratios are shrinking, in some cases significantly (Figure 6.15a).

Figure 6.15 Access to care during pregnancy and delivery vary greatly between rural and urban populations

- a. there has been dramatic improvement in access to antenatal care, particularly in rural areas
- b. However, despite rapid improvement, rural women are still far less likely to give birth in a health facility



Source: CDHS 2005 pp. 138, 144

Regarding safe deliveries, however, a lot depends on perspective. Although the rate of improvement has been faster in proportionate terms in rural areas and rural:urban ratios have come down, in urban areas a similar magnitude of change in percentage point terms (from an already much higher base) means that absolute gaps (percentage point difference between rural and urban rates) are widening over time (Figure 6.15 b). Urban women are still almost three times as likely to give birth in a health facility; and almost twice as likely to be attended by trained health staff. Inequalities are more pronounced between wealth quintiles than between urban and rural populations (Table 6.6).

Table 6.6 Rural-urban inequalities in maternal and reproductive healthcare are declining; wealth-based inequalities remain considerable

Key indicators	measure	ratio in 2005	
		urban : rural	richest quintile : poorest quintile
▪ currently using a modern method of contraception	% of all currently married women	1.1	1.5
▪ unmet need for family planning	% of all currently married women	0.8	0.5
▪ received antenatal care from trained health staff during last pregnancy	% of all women who had a live birth in last 5 years	1.2	1.6
▪ received at least 2 antenatal care visits during last pregnancy	% of all women who had a live birth in last 5 years	1.2	na
▪ suffer anemia (mild, moderate or severe)	% of women age 15-49 years	0.8	0.6
▪ delivered baby with assistance of trained health staff (doctor, nurse or midwife)	% of all deliveries in last 5 years	1.8	4.3
▪ delivered baby at health facility (public or private)	% of all deliveries in last 5 years	2.9	10.4

Source: CDHS 2005 pp. 83, 112, 138-9, 144-5, 188

Despite Government efforts and progress in service delivery and intermediate indicators (the fertility rate), there has not yet been a measurable change in the maternal mortality ratio (MMR), which remains very high (472 per 100,000 live births) and unchanged since 2000. In part, this reflects the limitations of the MMR as a measure (see discussion earlier in this chapter). In part, however, it does suggest that there is a real lag, and some bottlenecks, between service delivery gains and corresponding improvements in terms of safer motherhood. Bringing down the MMR will require concerted effort to improve the functioning of basic health services as an integrated system: in particular, it will require further improving the proportion of deliveries that occur in health facilities and with trained staff, and strengthening the referral system to ensure that women with difficult deliveries are transferred to accessible hospitals. Increasing the number, quality and motivation of public health staff, and ensuring the more equitable geographical distribution of fully-staffed facilities, will take time. In the medium term, improvements are also likely to be affected by improved rural roads that reduce the time and cost to reach health centers or transfer from health centers to referral hospitals. The MMR will also be positively influenced by better nutrition and, in the long run, by improved levels of female education.

Health equity and economic development

As mentioned before, there is a strong intrinsic case for pursuing equity in health. Avoiding easily preventable illness and death is seen by most people as central to what constitutes a good life. By extension, that children who through no fault of their own are born into poverty are *not* able to avoid easily-preventable illness and death, and as a result are unfairly disadvantaged throughout their lives, is clearly inequitable, and provides a clear justification for Government intervention.

Ill health, the labor market, and dependency

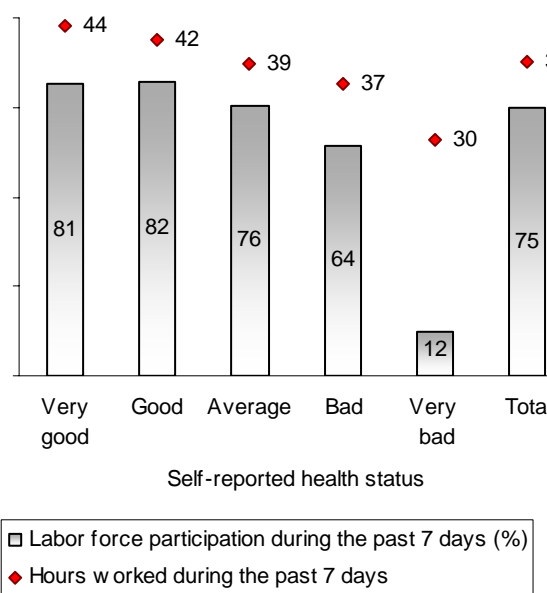
However, there is also an instrumental, economic rationale for public action to expand the coverage and quality of health services and break down the mutually-reinforcing association between ill health and poverty. This instrumental case hinges on the effect of widespread preventable illness (and high cost and inefficient health services) on national productivity. As would be expected, there is a clear correlation between health status and labor market participation (Figure 6.16).

If a large proportion of the population is ill at any given point in time, this reduces the supply of labor and effectively increases the dependency burden, as the healthy (or less ill) need to support a relatively large number of sick family members. Household incomes cannot be converted into productivity-enhancing investments in land, agricultural inputs, tools, transport or children's education, but are diverted into paying for expensive (and often ineffective) medical treatments, with very little positive multiplier effect on the rest of the economy.

Schooling and skills are affected by health status

High rates of preventable illness also have knock-on effects on the level of skills available in the Cambodian economy, and consequent effects on future labor productivity and international competitiveness. Illness may affect schooling directly, when children who would otherwise receive an education are too ill to attend school (or too ill to learn effectively when they are physically present in school). Ill health may also affect schooling indirectly. As described above, a common household response to the illness of any household member is to withdraw children from school: this may be because high out-of-pocket health spending makes it impossible to sustain spending on schooling-related costs, and/or because health costs, possibly exacerbated by a drop in household food production or income when an economically active adult falls ill, make it necessary for children to be put to work earning income or helping out with agriculture or other subsistence activities. The preceding chapter on education demonstrates clearly that schooling has high returns to the individual in terms of increased earnings: children who drop out of school (because of illness or any other reason) have much less opportunity to achieve success in household enterprises, or secure a wage-paying job. At the national level, the aggregate effect is to keep Cambodia trapped at the level of unskilled or semi-skilled labor with low value-added.

Figure 6.16 Ill health reduces labor force participation



Source: CSES 2004 (15-month sample), analyzed in Knowles 2005 pp. 92-3

Poor health can give rise to disability and impaired opportunity

Estimates of the disability rate in Cambodia vary depending on definition (both by the enumerator and by the respondent). CSES 2004 found 4.7 percent of surveyed individuals reporting one or more disabilities, while the CDHS 2005 found 2.2 percent reporting according to the more restrictive category of “physical impairment”. The most commonly reported form of disability was visual (31 percent of all disabilities), followed by impaired mobility (24 percent) and hearing (15 percent).

Disability and health exist in a complex relationship with each other, and with other processes and outcomes, including education (see previous chapter). People with disabilities face complex barriers to equality of opportunity and outcome. These barriers include socially-constructed attitudinal barriers (discrimination and social exclusion) as well as potential roadblocks associated with the physical and/or mental impairment itself. Environmental or contextual accommodations are required to allow full participation. These may include products and technology (e.g. wheelchairs or Braille books); adaptations to the physical environment (e.g. for accessibility); special types of support (e.g. job coaching); and targeted policies and services (e.g. school policies accompanied by training to teachers in the use of sign language). Unfortunately, many of these needed contextual enablers are lacking in Cambodia. While a disabled individual in a comfortably well-off household (particularly in urban areas) may be able to overcome barriers through private spending, poor families (and particularly poor rural families) are much less able to overcome these impairments. Without the adequate provision of necessary accommodations, this vulnerable population becomes opportunity-deprived, and the net result is exclusion from many forms of participation in work and community life.

Disability may be either a cause or an effect of other aspects of individual or household circumstances. While some disabilities are congenital and others relate to accidents or violence, the CSES 2004 (asking about total disabilities) and CDHS 2005 (asking about individuals with a physical impairment) produce similar estimates (roughly one-third) of disabilities originating directly from health status, and thus potentially dependent upon healthcare (Box 6.12). Healthcare and health status may also account for a significant proportion of impairments arising from difficult deliveries (as small and malnourished mothers with low rates of antenatal care and limited access to facilities may result in preventable impairments incurred during pregnancy or childbirth); and some portion of the disabilities attributed to “old age”. A survey by Handicap International Belgium found disease identified as the causal factor in the development of childhood disability in 46 percent of cases (VanLeit 2007).

This suggests that poor healthcare (inadequate coverage of preventative care and poor access to and quality of treatment for illness and injury) may contribute to the development of many disabilities which might otherwise be avoided. Conversely, this also implies that improvements in healthcare¹⁰ plus targeted policies to allow for the

¹⁰ Improvements that would reduce the incidence or severity of disabilities include preventative care (antenatal care, safe delivery, postnatal care; further improvements in vaccination); environmental improvements and practices (e.g. improved water supply and sanitation; bed

participation of disabled individuals in schooling and workplaces could reduce the incidence of disability and the unproductive economic costs it entails.

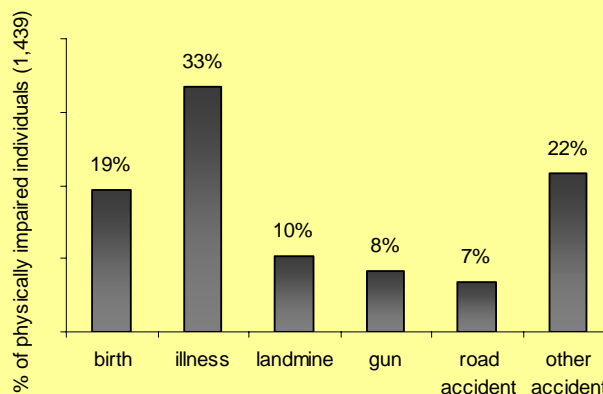
Disability rates appear not to vary much by per capita consumption, although the causes show some differences: old age is a more important cause of disability for wealthier quintiles (who live longer), as are traffic accidents; while congenital causes, mine or unexploded ordnance (UXO) injury, malnutrition, and difficult delivery are all more common among the poorest quintile than among the richest. There are some gender differences, too: women report slightly more disabilities, with old age, disease, malnutrition, difficult deliveries and domestic violence more important for women than men, and accident and war-related injuries a more important cause among men.

Early childhood development can help tackle inter-generational transmission of inequality

There is clear evidence that the major damage caused by malnutrition takes place in the womb and in the first two years of life; that this damage is irreversible; that it has consequences for cognitive and physical capacity (which in turn reduce productivity, slow economic growth and perpetuate poverty). It is also clear that malnutrition passes from generation to generation, since stunted mothers are more likely to give birth to underweight children.

Box 6.12 Around a third of all disabilities originate in poor health

a. "illness" is the single largest cause of physical impairment



Source: CDHS 2005 p. 30

b. disease, malnutrition and fever account for a third of total disabilities

Cause of disability	% of reported disabilities
old age	27%
disease	26%
congenital	9%
accident ¹	7%
fever	6%
violence ²	4%
mine / UXO	3%
malnutrition	2%
difficult delivery	1%
bad luck	1%
mental trauma	1%

Source: CSES 2004, analyzed in Knowles 2005b p. 8.

Notes: ¹ "Accident" includes (in order of significance) traffic accident, work accident, chemical accident and burns

² "violence" includes (in order of significance) war injuries, domestic violence, violent attack, torture, suicide attempt and rape

8 percent due to "other" causes; cause "not known" for 5 percent.

nets); and improvements in the accessibility and affordability of timely, good quality treatment of illness and accidents.

Internationally, several studies have documented a strong correlation between adult height and earnings. Malnourished and sick children are more likely to reach adulthood with reduced height. There is also evidence that the health and nutritional status of children are linked with educational attainment, both in terms of cognitive capability and school attendance. The effect on adult earnings and productivity is estimated at 10 percent for stunting and 4 percent for childhood anemia. Estimates of these losses to the economy are estimated at 2-3 percent of GDP in low income countries (ADB 2001).

It has been estimated in one recent international study that the present value (using a discount rate of 5 percent) of the benefits of shifting one child at age 3 from malnourished to normal nutritional status is US\$514 (Behrman, Alderman and Hoddinott 2004 cited in Knowles 2005.). If this estimate (or anything close to it) is accepted, the potential benefits from interventions designed to reduce Cambodia's currently very high rates of child malnutrition are about US\$84 million annually or about US\$6.50 per capita per annum¹¹.

The macroeconomics of investments in water supply and sanitation

A global study by WHO concludes there are potentially substantial benefits from investment in rural water supply and sanitation. The regional estimate¹² of the cost benefit ratio (for urban and rural combined) for water supply alone is estimated at 8.17. For water supply and sanitation combined it is 11.04. This means that for every dollar invested, the economic benefit would be \$8 and \$11 respectively. Even the most pessimistic estimate of high costs and low benefits showed a positive cost-benefit ratio of 1.21 and 2.21 respectively. The results show that the benefits from every \$1 invested in sanitation would be \$23.48 (using mid-level values), with a range from \$11.09 in a pessimistic scenario to \$58.75 in an optimistic scenario. The economic benefits usually accrue as the result of avoiding costs (e.g. for health care, missed work) and gaining time. Specific economic benefits associated with improved health arising from improved water supply, sanitation and hygiene are summarized below.

Table 6.7 Improved water and sanitation has multiple positive effects

Beneficiary	Direct economic benefits of avoiding diarrhoeal disease	Indirect economic benefits related to health improvement	Non-health benefits related to better water and sanitation
Health sector	<ul style="list-style-type: none"> ▪ Less expenditure on treatment of diarrhoeal disease 	<ul style="list-style-type: none"> ▪ Value of less health workers falling sick with diarrhea 	<ul style="list-style-type: none"> ▪ More efficiently managed water resources and effects on vector bionomics
Patients	<ul style="list-style-type: none"> ▪ Less expenditure on treatment of diarrhoeal disease; less related costs ▪ Less expenditure on transport in seeking treatment ▪ Less time lost seeking care 	<ul style="list-style-type: none"> ▪ Value of avoided days lost at work or at school ▪ Value of avoided time lost of parent/caretaker of sick children ▪ Value of loss of death avoided 	<ul style="list-style-type: none"> ▪ More efficiently managed water resources and effects on vector bionomics

Source: Hutton and Haller, 2004.

¹¹ The CSES suggests there were 277,000 children aged three in 2004. Multiplying this by the percentage of children age 3 that are estimated to be moderately stunted and the estimated potential benefits per malnourished child of US\$514 yields the estimate cited in the text.

¹² The World Bank Water and Sanitation Program is currently financing an "Economics of Sanitation Initiative" in Cambodia. Country specific figures will be available later in 2007.

Educational equity and inter-generational mobility

This section examines the distribution of educational opportunities and outcomes in Cambodia and the relationship between education and living standards. Given the advantages conferred by education, it seems there is a strong case for ensuring equal access to schooling, on both social grounds (fairness) and aggregate economic grounds (transforming innate talents into skilled labor). While education indicators are poor, trends have been positive (rising averages and shrinking inequalities between rich and poor, men and women, and rural and urban areas). Nonetheless, a combination of monetary and non-monetary barriers continue to reproduce pronounced inequities between children in terms of access to education and the opportunities that come with it.

The returns to education: schooling and economic opportunity

The amount and quality of education that an individual receives is a critical influence upon his or her opportunities in life (e.g. securing good employment, or succeeding in a family business). Statistical analysis confirms that higher levels of education are clearly associated with higher average incomes and higher standards of living (see Figure 6.17). An educated individual will also be better informed about how public services work, and how to obtain useful assistance from the Government. Cambodians, including most poor Cambodians, clearly recognize this (see Box 6.13).

Box 6.13 Preference or constrained choice: do the poor value education?

Two different qualitative research projects by CDRI suggest somewhat different pictures of demand for education amongst the poor. The 2005 PPA carried quotes a young girl:

My mother asked me, 'what is the use of your going to school, if we don't have anything to eat and life is so difficult?' (poor and destitute FGD, Battambang)

The PPA concludes that

While the rich and medium families see education as the means for children to have a better future, the poor and destitute do not see that investing in education will provide opportunities to move out of poverty.

The MOPS research, however, gives a different picture, with clear recognition of the role of education in giving young people a chance to go further than their parents:

Education is the most important asset of people in this world. Being well educated, someone can find a good job with a high standard of living. With good education, s/he can manage to have a better life or be able to set a clear goal. ..For example, a literate woman is able to find a good job at the garment factory now. Those who have no education cannot find such fortune and become mobile laborers, a more risky life. (Female youth group, Kampong Speu).

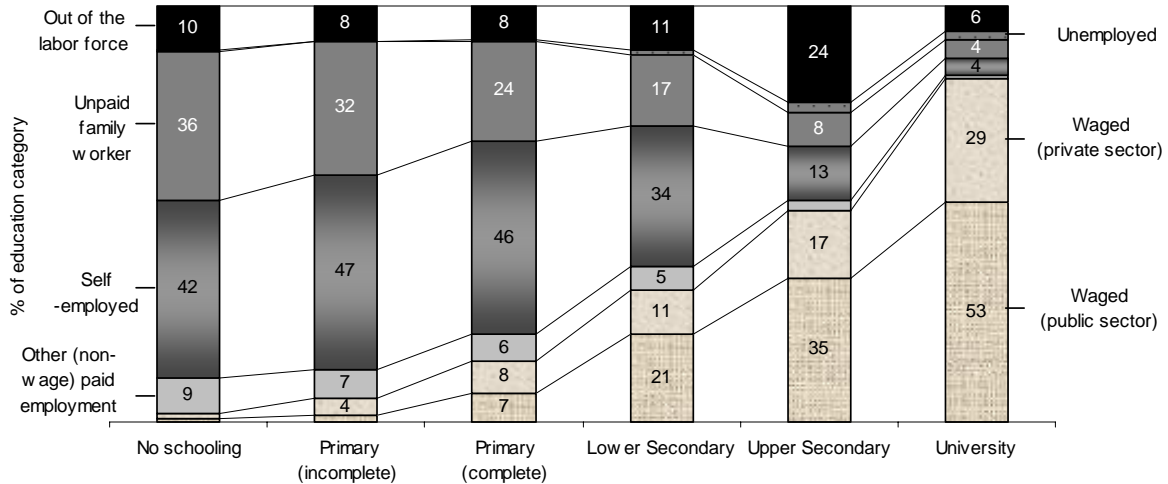
Young men recognized that their better-educated peers had better prospects than them:

School is very important as it is a place where people get some knowledge and train themselves for a better life....Those people who are educated can make money more easily and do non-manual jobs... Some people of our age who finished high school can seek work in Phnom Penh while we cannot. (male youth group, Kompong Thom)

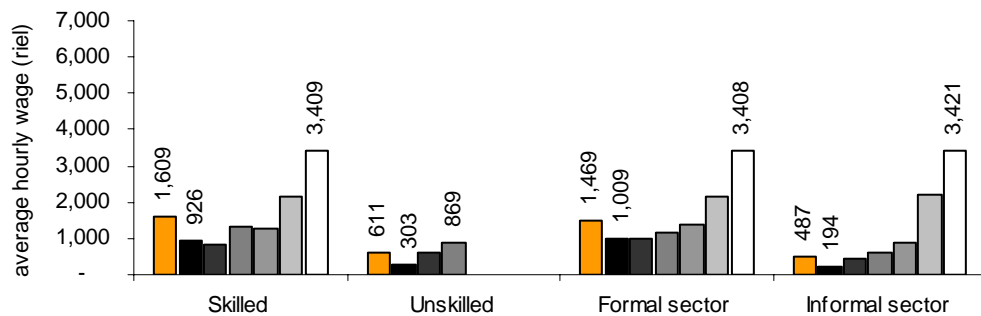
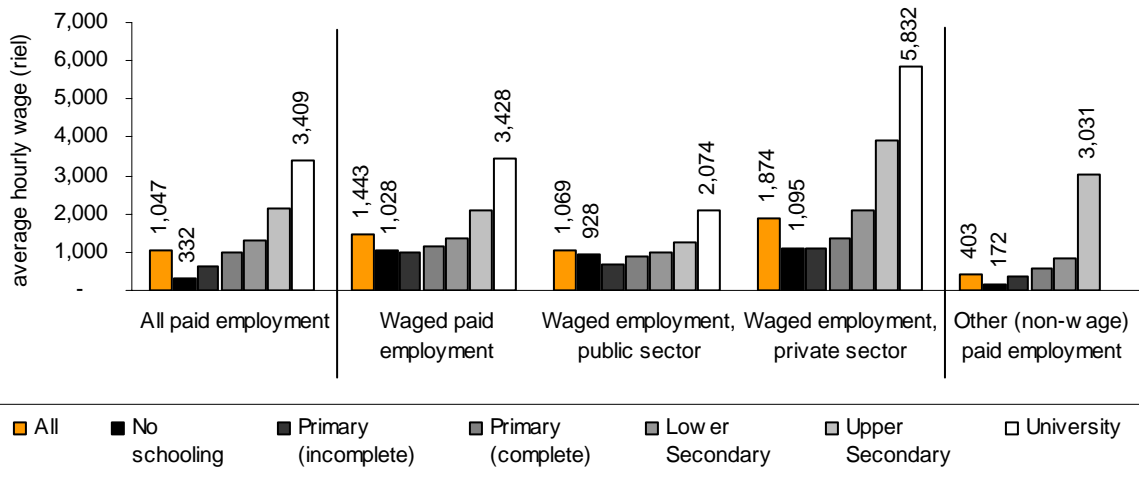
Source: CDRI 2007a, 2007b (forthcoming)

Figure 6.17 There is a strong association between educational achievement and the quality of employment and income

a. more educated individuals are much more likely to obtain paid employment



b. ...and, within any given category of paid employment, to receive higher pay



Source: CSES 2004, analyzed in Sakellariou 2007.

There are some exceptions. In remote, poorly connected rural areas, there may be no significant alternatives to basic, subsistence-oriented livelihood strategies based on low-input farming and common property resources. In such communities, where children are likely to end up in farming occupations regardless of the schooling they complete, there is little economic incentive for investing in education: when parents and children perceive this to be the case, there is, unsurprisingly, low demand for schooling (Bredenberg 2003, cited in World Bank 2005 p. 68). However, as the rural road network expands, these peripheral rural areas will gradually open up to new opportunities, either *in situ* or through out-migration, increasing the potential value of education.

Figure 6.17 highlights the implications of increasing levels of educational attainment for labor market activity status, type, and sector of employment for adults (aged 22-65 years). Higher education qualifications constitute a passport to employment in the higher paying wage employment sector; conversely, low education essentially prohibits access to higher-paying formal / waged employment (Sakellariou 2007 pp. 13-17)¹³. Only 2 percent of workers with no schooling and under 6 percent of workers with incomplete primary education are employed for wages (two-thirds of them in the private sector): by contrast, 52 and 82 percent of workers with upper secondary and university education work for wages (two-thirds in the public sector).

Figure 6.17-b illustrates how differences in education translate into differences in earnings from paid employment *within* various types and sectors of employment. Working for wages in the private sector is the most rewarding labor market activity, with an average hourly wage of 1,874 riels (much higher than the average 1,047 riels for paid employees as a whole). However, there are considerable differences in pay amongst private sector waged employees: those with upper secondary education enjoy wages 3.6 times higher than those with no education, and those with a university education earn rates 5.3 times what those with no education earn. Wages in the public sector are much more compressed (Table 6.8).

Table 6.8 Wage rate differentials in paid employment

Category of labor market activity	% of working age population	ratio of average hourly wages	
		no education : upper secondary	no education : university
a. Waged	11	2.1	3.3
- Waged, public sector	6	1.4	2.2
- Waged, private sector	5	3.6	5.3
b. Other (non-wage) paid employment	7	17.6	na*
All paid employment	18	6.5	10.3

Source: CSES 2004, analyzed in Sakellariou 2007.

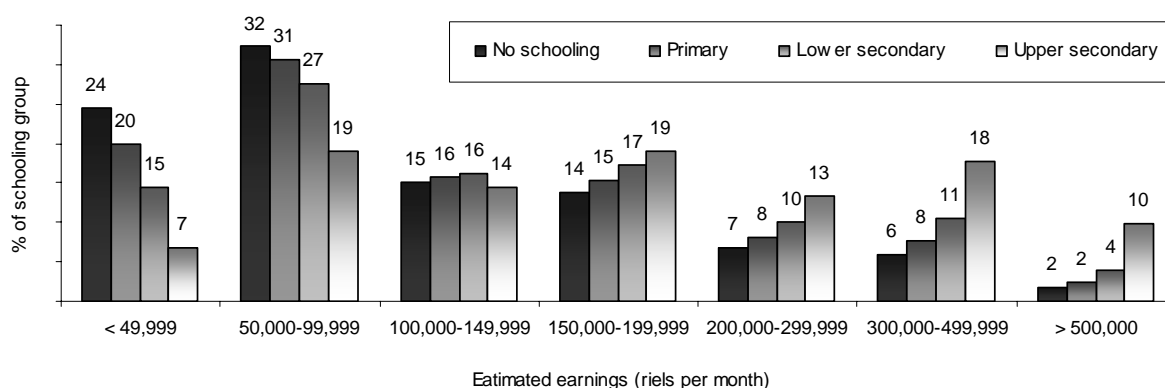
More sophisticated multivariate analysis of the returns to education in waged employment (which, it should be remembered, accounts for only 11 percent of the labor

¹³ The largest employment category is informal self-employment, followed by unpaid family work. Only 18 percent of the labor force is in paid employment; only 11 percent earn regular wages.

force) yields somewhat complex findings, with average returns to schooling diverging considerably depending on individual characteristics. The distribution of wages appears to reflect an interaction between education and ability, which results in different average returns to education at different levels of wage and education, and depending on sex (Sakellariou 2007 pp. 22-35).

Similar education-based differentials exist between the earnings of self-employed individuals, who account for 43 percent of the labor force (Figure 6.18). Those earning between 100,000 and 149,999 riels (c. \$25-37.50) per month appear to be equally likely to have no education, primary, lower secondary or upper secondary education. Those earning wages below 100,000 riels (\$25) per month, however, are significantly more likely to have no education or only primary education; and those earning wages in bands above 150,000 riels (\$37.50) per month are more likely than not to have a secondary education (Ridao-Cano 2004; World Bank 2006).

Figure 6.18 Average earnings amongst the self-employed appear to reflect educational attainment



Source: CLFS 2001, analyzed in Ridao-Cano 2004 p. 33.

Given the apparent importance of education in shaping an individual's chances in life, ensuring equality of access to education is fundamental to ensuring equality of opportunity in society. Increasing the level of educated individuals in society also enables Cambodia to compete in a global economy for investments which require skilled workers: thus, broadening access to quality education, and ensuring that those who get education are those who can make best use of it, contribute significantly to the efficiency and diversity of the economy and to the long-term sustainability of economic growth. It is in the national interest that children with innate abilities can obtain the education that enables them to make use of these abilities to generate wealth, regardless of the circumstances into which they were born.

The goal, then, is a Cambodian education system that will enable all children equal access to schooling and will enable them to acquire as little or as much education as their innate talents and preferences dictate, regardless of their sex, where they live, or the wealth or poverty of their parents. This is, essentially, the policy position of the Royal Government of Cambodia (see Box 6.14). Cambodia has made significant progress

towards this goal in recent years. Despite this progress, however, the level of inequality in access to education services (schooling) and education outcomes (such as literacy)—and the effect of these inequalities in terms of the perpetuation of wealth differences and the below-potential performance of the economy—remain very pronounced. A number of key challenges remain in Cambodia's progress towards realizing the objective of quality basic education for all.

Box 6.14 Since 1993, the Government has been committed to equity in education

The 1993 Constitution of Cambodia notes that it is obligation of the state to provide nine years of free and compulsory education to all its citizens, an obligation affirmed by the Royal Government of Cambodia when it ratified the Convention on the Right of the Child and signed the Education for All Framework for Action. In 2003, the Government adopted the Education For All (EFA) National Plan for 2003 -2015, the fundamental thrust of which is to ensure that all Cambodia's children and youth have equal access to formal and non-formal education, independent of economic status, gender, geography, physical disability and ethnicity.

Average educational status is low, but improving

Standard educational attainment indicators for Cambodia are among the lowest in the world. Amongst its neighbors, only Lao PDR has higher rates of illiteracy; and only China has a higher share of the adult population with no schooling. Repetition and dropout rates in primary school remain very high. The inefficiency of the Cambodian education system represents a significant burden: the public and private cost of education that reduces the private and social returns to schooling and thus economic growth.

Nonetheless, remarkable progress has been made in recent years. In 2003/04, the number of pupils aged from 3 to 5 has increased by 11 percent and pupils aged over 5 increased by 20 percent. Primary school enrolment has grown significantly, with the majority of growth being in rural areas and an 8% growth in female net enrolment. Enrolment at the lower secondary education level have also increased significantly, reflecting in part the expansion in the number of secondary schools, mainly in previously un-served rural and remote communes (Quinio 2005).

Equality in access to primary education is improving

As a result of expanding coverage, equality in access to education is improving as increasing numbers of girls and children of rural and/or poor families are drawn into the school system.

Table 6.9 There has been a dramatic expansion in basic education in recent years

Performance indicator	2000	2004	change
Pre-schools	952	1,275	34%
Lower secondary schools	511	688	35%
Classes	1,628	2,249	38%
Primary enrolment (millions)	2.4	2.7	14%
Primary enrolment in remote areas	54,000	81,000	50%
Primary net enrolment rate (NER)	84%	90%	7%
Lower secondary enrolments	284,000	460,000	62%

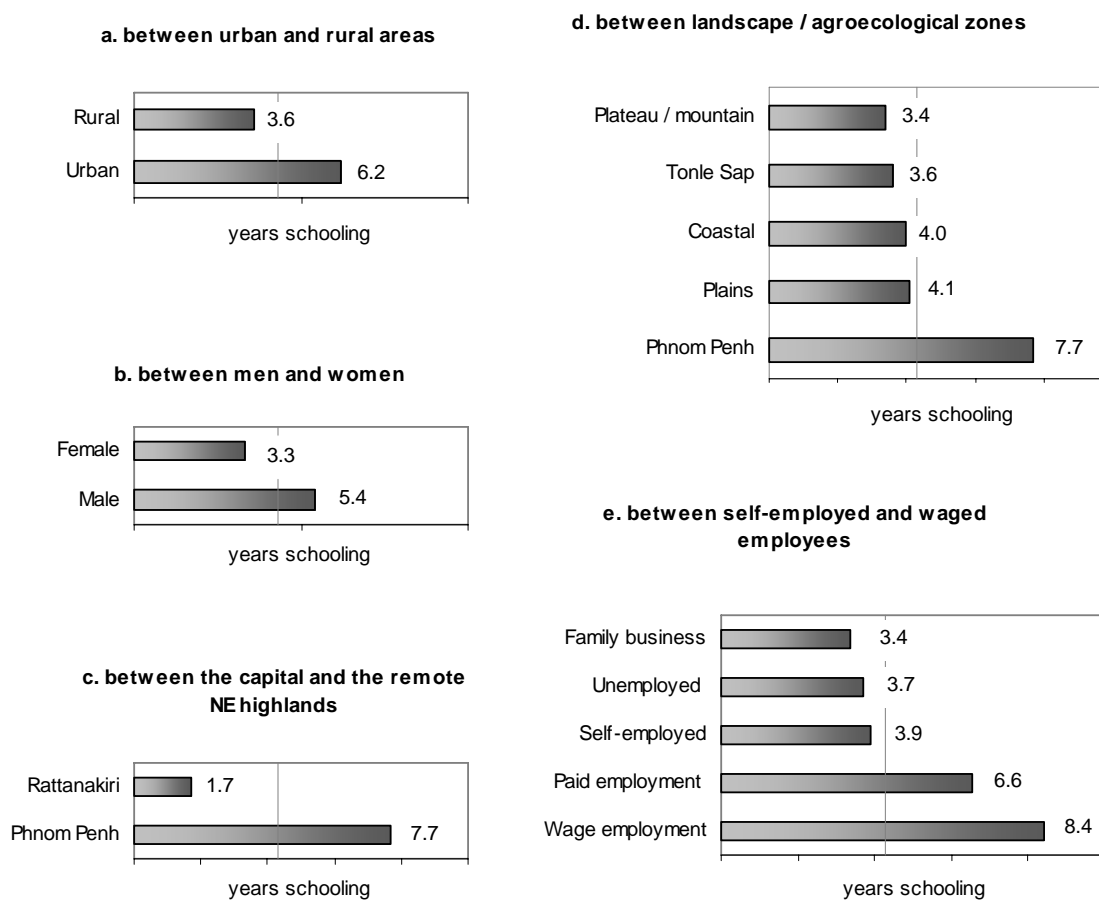
Source: Sakellariou 2007 citing Quinio 2005.

Although there continue to be large inequalities in outcomes (notably literacy) between men and women, rich and poor, and rural and urban populations, these group averages mask considerable progress in recent years. Despite problems with dropout, repetition and quality of teaching, greater equality in access to primary education is starting to result in closing gaps in education outcomes. This progress emerges when we look at the variation in literacy rates amongst the younger age groups which have more recently passed through the (improving) education system. Amongst these age groups, literacy rates are higher across the board, and the inequalities by sex, location or socio-economic status are shrinking rapidly (Figure 6.20).

In many aspects, however, inequality remains pronounced

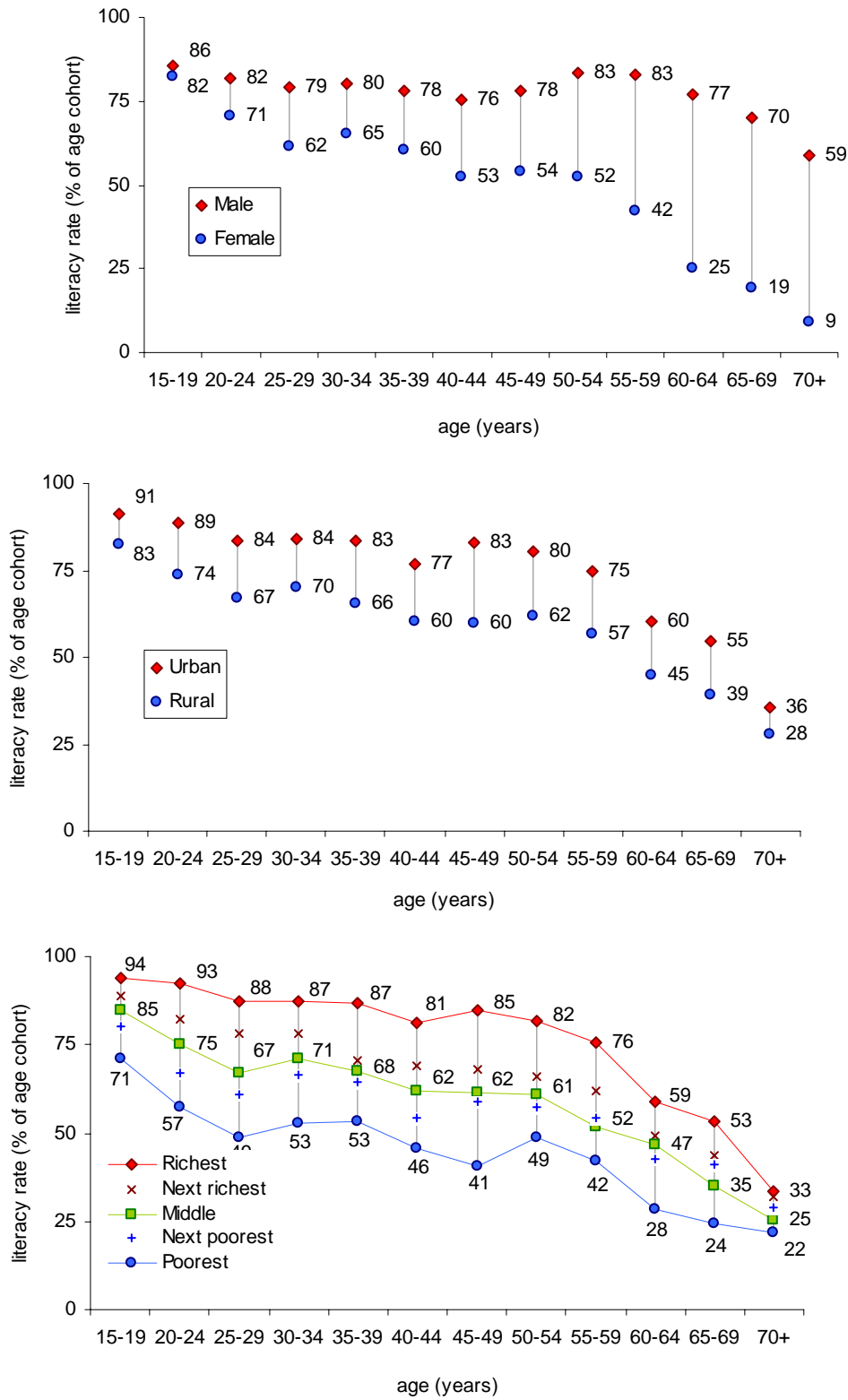
Despite the slow but consistent progress towards increasing participation of poor children, the level of inequality in the distribution of education in Cambodia remains one of the highest in the Southeast Asian region (Holsinger et al 2004). There are large and statistically significant differences in average years of schooling completed by sex, employment type, and various types of geographical difference (Figure 6.19, Table 6.10).

Figure 6.19 Although shrinking over time, educational inequalities remain large



Source: SES 2004, analyzed in Sakellariou 2007

Figure 6.20 Increasing equality in primary enrolment is closing gaps in literacy rates amongst the younger generation



Source: CSES 2004.

Table 6.10 Dimensions of inequality in education

Ratio of average years schooling for:	ratio
urban : rural	1.72
Phnom Penh : plateau / mountain Provinces	2.26
Phnom Penh : Rattanakiri	4.53
men : women	1.64
family business : wage employment	2.50

Source: CSES 2004 analyzed in Sakellariou 2007

The Tonle Sap PPA concluded that three main factors determined the level of education received by children. These were (i) family financial status; (ii) the educational background of the parents; and (iii) the distance from home to school. It also noted that girls

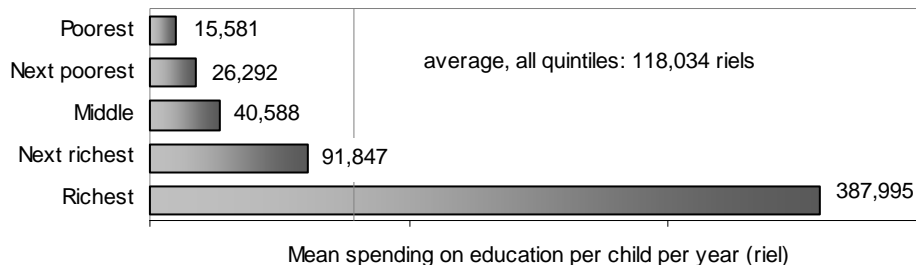
are much more likely to drop out of school at an early stage. Investigation of the data from CSES and CDHS confirms the importance of these four factors and the implication that the children of poor families—families with limited finances, low level of parental education, and/or living in remoter areas—are likely to complete far fewer years of education than their richer contemporaries; while girls remain disadvantaged in education relative to boys.

Reflecting these various barriers to access, inequalities in participation and completion rates feed through into educational outcomes (or individual capabilities). Although closing over time, considerable inequalities remain between the average literacy rates of men and women (20 percentage points), rural and urban populations (16 percentage points) and the richest and poorest quintiles (31 percentage points).

Inequalities in access to education reflect inequalities in wealth

Education costs money, and part of the costs of education must be met by the household. Poor parents are less able to afford this money and so their children are less likely to obtain either the quantity or quality of education available to the children of richer parents. While this is the case in any country, Cambodia is unusual in the proportion of total education costs that must be borne by households. (The same point is made above with regard to out-of-pocket spending on health.) In the late 1990s, households and communities in Cambodia were providing an estimated 59 per cent of the total resources for primary schooling, even in the public system: the Government provided an estimated 12.5 percent, while the balance (28.5 percent) was met by politicians, NGOs and external agencies (Bray 1999). The proportion of costs met by households is thus very large, and considerably larger than in most countries. This has implications for urban/rural and socioeconomic inequalities in Cambodia.

These *direct costs* of education have clearly come down in recent years. From 2000, the enrolment fee for primary education was abolished: focus group discussions suggest that this was a major factor in increasing primary enrolment amongst poorer groups (CDRI 2007b, forthcoming). Nonetheless, there are extremely striking wealth-based differences in the amount spent on education per child enrolled in school. In the 2004 CSES, per child household education expenditures amongst the richest 20 percent of households was found to be 25 *times* greater than in the poorest 20 percent of households (Figure 6.21).

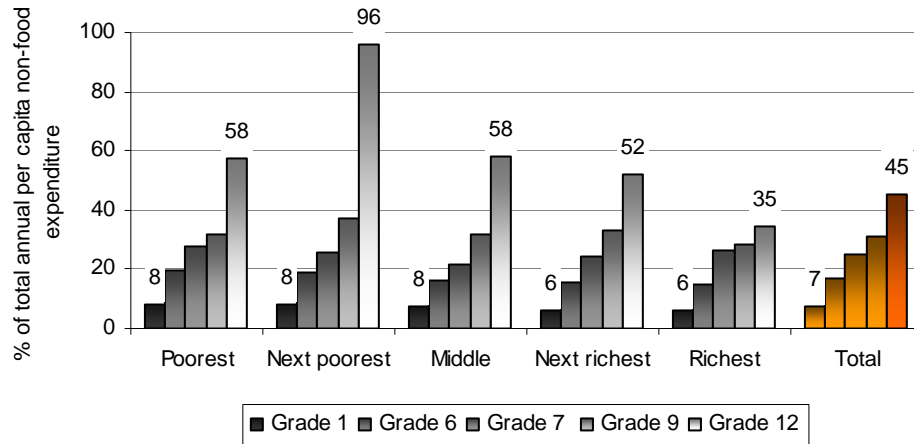
Figure 6.21 The richest parents outspend the poorest parents by a factor of 25

Source: CSES 2004, analyzed in Knowles 2006 p. 82.

This gulf in spending represents the cumulative effect of a number of phenomena, including not only that the rich spend more on like-for-like education (e.g. the rich will spend more on a year of primary education than will the poor) but also that the rich are more likely to educate their children through to lower and then secondary school, and the annual costs of schooling rise with each of these transitions (i.e. it costs considerably more to put a child through a year of secondary school than it does to put a child through a year of primary school).

Nonetheless, these figures are telling as a summary measure of the much greater capacity of rich parents to invest in the education of their children. As with household out-of-pocket spending on health, Figure 6.22 reveals that the increase in household spending on education does not increase in a smooth linear fashion but in a series of increasingly big steps (the richest spending on average four times as much as the next richest). And, as with health spending, it seems that the very large gap between the bottom four quintiles, on the one hand, and the top quintile, on the other, broadly reflects the distribution of wealth (measured as total consumption per capita per day). That the richest can spend so much more on their children's education reflects in part that they have so much more to spend, with levels of total consumption over twice that of the next richest quintile.

The underlying gap between the living standards and disposable incomes of the richest quintile and those of the remaining four quintiles helps explain why, even with significantly higher absolute spending, the relative burden of educating children is *less* for rich households. As a proportion of their much higher total non-food consumption, the rich spend less on education (per child) than do the poor. While the relative burden of schooling is roughly similar for the richest and poorest households at Grade 1 (8 percent and 6 percent of total non-food consumption, respectively), it is significantly harder for poor households to meet the costs of schooling to higher levels. Those few households from the poorest quintile who educate their children to Grade 12 pay on average 58 percent of their annual per capita non-food consumption for this year: the comparable figure for the richest quintile would be just 35 percent.

Figure 6.22 Richer parents find it can afford (much higher) education spending

Source: CSES 2004, analyzed in Ragatz 2005 p. 26.

However, *indirect costs* remain a significant burden for poor households. Indirect costs (such as foregone earnings) constitute a heavy burden for some households, particularly the poorest, and can be a significant determinant of whether or not a child attends school. As in other low-income south-east Asian nations, child labor in is common (seen in 23 percent of households) and begins at an early age. In both rural and urban settings, poor families often rely heavily on their children to help with a variety of tasks (generally household-based) essential to the wellbeing of the family (Box 6.15).

Box 6.15 For poor households, demands on children's time is a key reason for over-age enrolment or dropout

Because we are poor, our children quit school at an early age or after only one or two years in order to help their parents earn a living. Unfortunately, they cannot go as far as the rich do in obtaining skills to earn a living. Because we are trapped in illiteracy, we have poor knowledge and are without ideas, remaining short-sighted and powerless. (Kompong Thom: MOPS)

Source: CDRI 2007b (forthcoming)

These forms of child labor include both income-earning or subsistence-oriented productive or trading activities, and household reproductive tasks (caring for younger siblings, cooking, cleaning, carrying water, etc.)—much of which, of course, is necessitated in order to free up both parents for economic activity, including in some cases long absences from the home in pursuit of income opportunities elsewhere in Cambodia or in Thailand. The CLS in 2001 found that children contributed on average 28 percent of total household labor income¹⁴.

For many Cambodian children, work and school attendance are largely substitutes for one another, with this trade-off becoming more pronounced as children get older. The burden of housework and productive work is a particular problem for rural children,

¹⁴ This figure coincides remarkably with the estimates of their contribution to household income provided by youths, both male and female, in MOPS focus group discussions.

children of families in the poorest quintile, and girls. From age 12 onwards, household work is significantly more likely to interfere with girls' education than boys. Children who work more than 14 hours a week—who are more likely to be poor, rural, and female—start to fall behind in grade attainment compared to their peers who only attend school. This difference is insignificant at age ten, but pronounced amongst 17-year olds (Ragatz 2005, p. 25-6). The high proportion of children reported to both attend school and work suggests that the household need for child labor not only contributes to outright dropout from school, but will also make it hard to increase the currently very short school day. Direct and indirect household costs reinforce each other to produce a critical barrier for the poor in upper primary and lower secondary schooling (Bray and Bunly 2005).

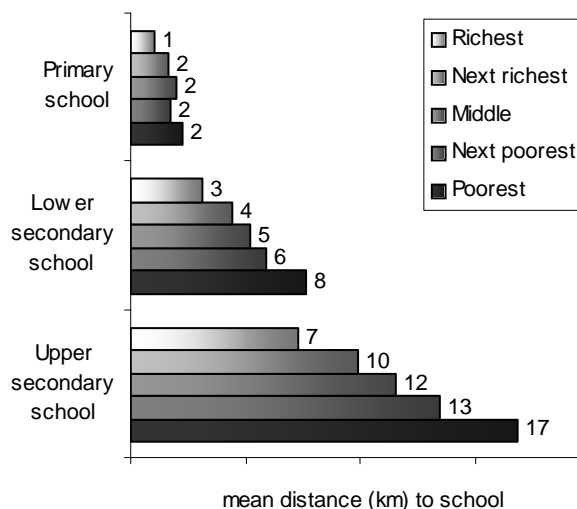
Distance to school may also be a barrier to education for the poor: although at present less important than other barriers, it may become more pressing as a binding constraint on expanding access to secondary education. The poor are more likely than the rich to live in remote parts of the country, with lower population densities and fewer schools. However, the rapid pace of school construction since the mid-1990s has significantly increased the number of primary schools. As a result, roughly 50 percent of Cambodians live in a village (or urban equivalent) that has its own primary school; and the average distance to the nearest primary school (assuming a distance of zero for those households with a school in their own village) is under two kilometers (Figure 6.23). Neither figure varies much between the richest and the poorest households: both are equally likely to live in a village with its own primary school, and the difference between rich and poor in terms of average distance to school (2.25 km compared to 1.66 km) is not a serious barrier. (The upland north-east may be an exception, and may provide one—though maybe not the most important—explanation for the low educational attainment of the indigenous ethnic minority groups living in this region: see Box 6.16).

Among the general population there *is* however significant inequality in physical access to lower and upper secondary schools, with the children of the poorest families needing to travel considerably further than the children of richer parents.

Disability and access to education

Disability often acts as a severe limitation on the educational opportunities available to children and, thus, on their employment and incomes opportunities.

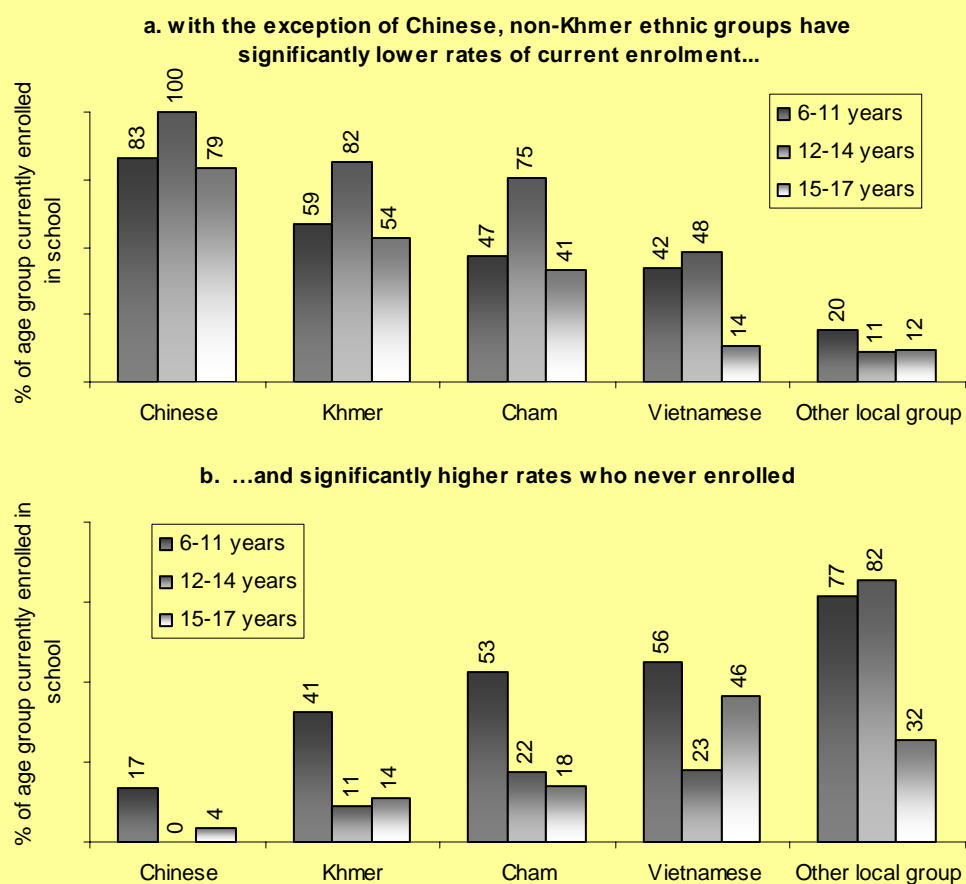
Figure 6.23 Distance is not now a major constraint to primary education—but is likely to act as barrier to secondary education for the poor



Source: CSES 2004, analyzed in Knowles 2006 p. 74

Box 6.16 Inter-ethnic inequalities in education

The Cham, indigenous ethnic minorities and ethnic Vietnamese, Lao and Chinese groups, which collectively make up 4 percent of the Cambodian population, have very different rates of participation in the education system. The educational performance of these different groups broadly reflects the relative wealth of these groups, with one notable exception. The Chinese have enrolment rates higher than that of the Khmer majority, corresponding with their higher-than-average living standards (56 percent of the Chinese population fall into the richest quintile of the CSES sample); the Cham, whose living standards are very close to those of the Khmer, have rates lower than but similar to those of the Khmer; and the indigenous ethnic minorities, who are significantly poorer than the Khmer (60 percent are in the lowest two consumption quintiles), have the worst enrolment and drop-out rates of all. The group that does not fit this correlation between overall living standards and education is the Vietnamese, who have living standards slightly above those of the Khmers (58 percent fall in the top two consumption quintiles, compared to 40 percent of Khmer) but notably poorer school enrolment.



Poor educational outcomes of the indigenous and Vietnamese minorities reflect, to varying degrees, the effects of remoteness; low population density; the lack of a fixed abode; language barriers and the lack of ethnic minority teachers; and social and political marginalization. Of the local indigenous minority populations, 27 percent live in Mondulhiri, 26 percent in Preah Vihear, and 13 percent in Kampong Speu; the Vietnamese tend to live in Phnom Penh, Kampong Chhnang and Preah Vihear (43, 20 and 10 percent respectively).

Source: CSES 2004, analyzed in Ragatz 2005 pp. 10-12; Phnom Penh Post July 14-27 2006.

The CSES 2004 finds adults with disabilities have much lower average rates of educational attainment. Rates of low or no schooling are particularly high amongst individuals with problems in vision, hearing and speaking, suggesting that relatively low-cost interventions could eliminate a significant proportion of impairment-related educational under-achievement

A survey of households with disabled children in Siem Reap and Takeo Provinces conducted by Handicap International Belgium found that 45 percent of school-aged children with disabilities never attended school, and most of those who did attend dropped out at very early grade levels. Reasons given for non-attendance included problems with transportation to school; lack of special equipment to overcome learning impairment; expenses associated with attending school; problems with teachers who did not have training or experience in teaching a child with disabilities; health concerns; and discrimination on the part of teachers or other children.

Inequalities in education perpetuate themselves across generations

If education is associated with wealth, and parents' wealth is associated with their children's educational achievement, it is not surprising that parents' education is itself a good predictor of the education of their children. Just as poor women who are undernourished and undersized tend to give birth to small babies who are more likely to be ill and more likely to grow into undersized adults, so too parents' educational status is passed on to their children, with obvious implications for equality of opportunity. In this case, however, it appears that it is the father's level of educational attainment that is the stronger influence on their children—albeit with some exceptions (Figure 6.24).

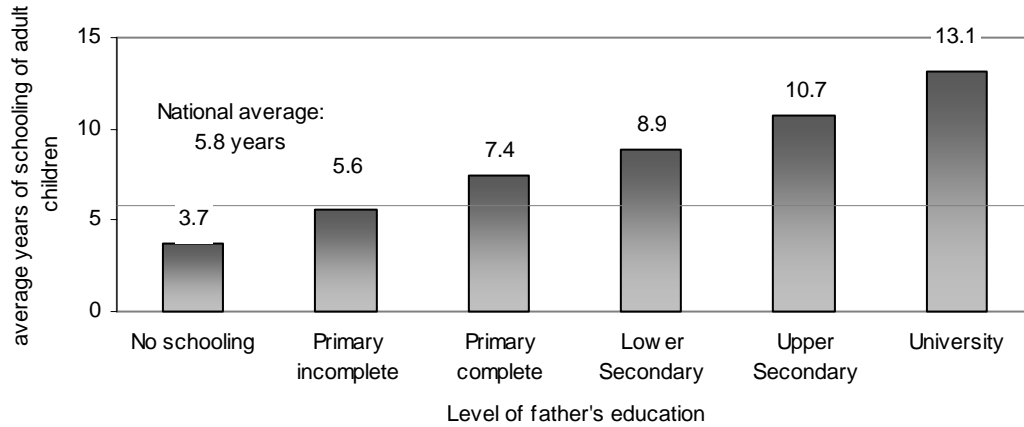
Female education has cross-sectoral and intergenerational effects

Improving education affects household welfare through a number of channels other than employment and wages. In particular, there is a strong argument that there is a strong correlation between the level of education of a mother and improved childhood health. As described in the previous section, the children of poor families are born at a severe disadvantage to their richer peers in terms of access to healthcare and probability of poor health outcomes. However, there are also strong suggestions that a woman's education is a major determinant of both child and maternal health outcomes.

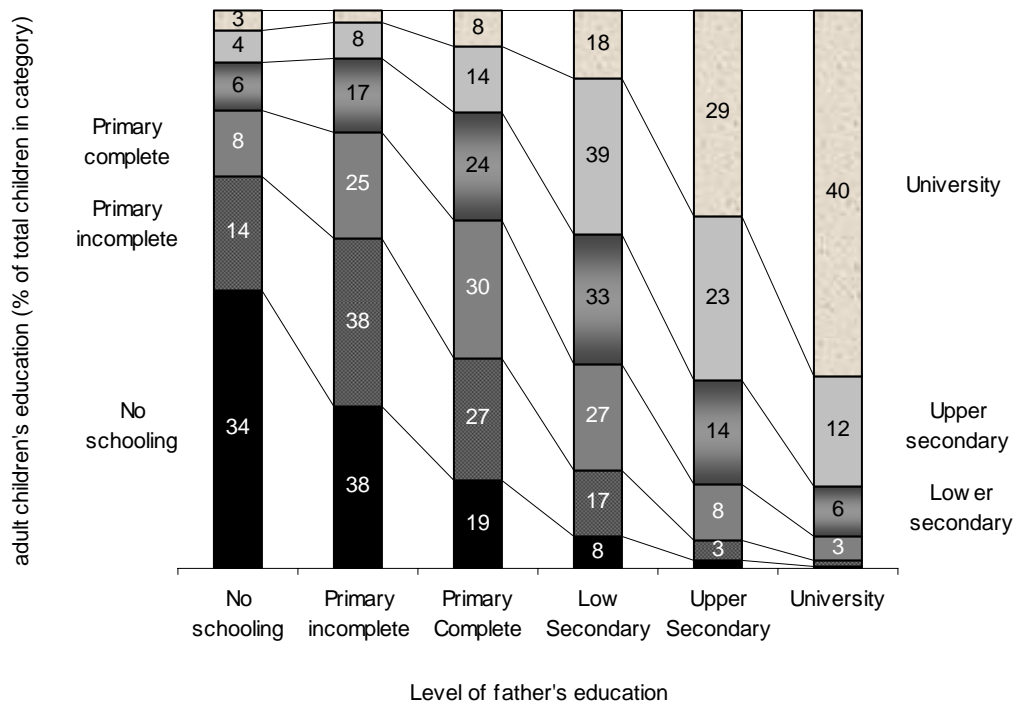
The advantages of children with educated mothers start even before birth. Nearly half (46 percent) of all uneducated women who have given birth during the last five years went through their last pregnancy without any contact with an antenatal care (ANC) provider; the comparable figure among women with secondary education is a fifth of that rate (9 percent).

Figure 6.24 Parents' education appears to be a strong influence upon a child's educational achievements

a. the level of education achieved by fathers shapes the years of schooling achieved by children...



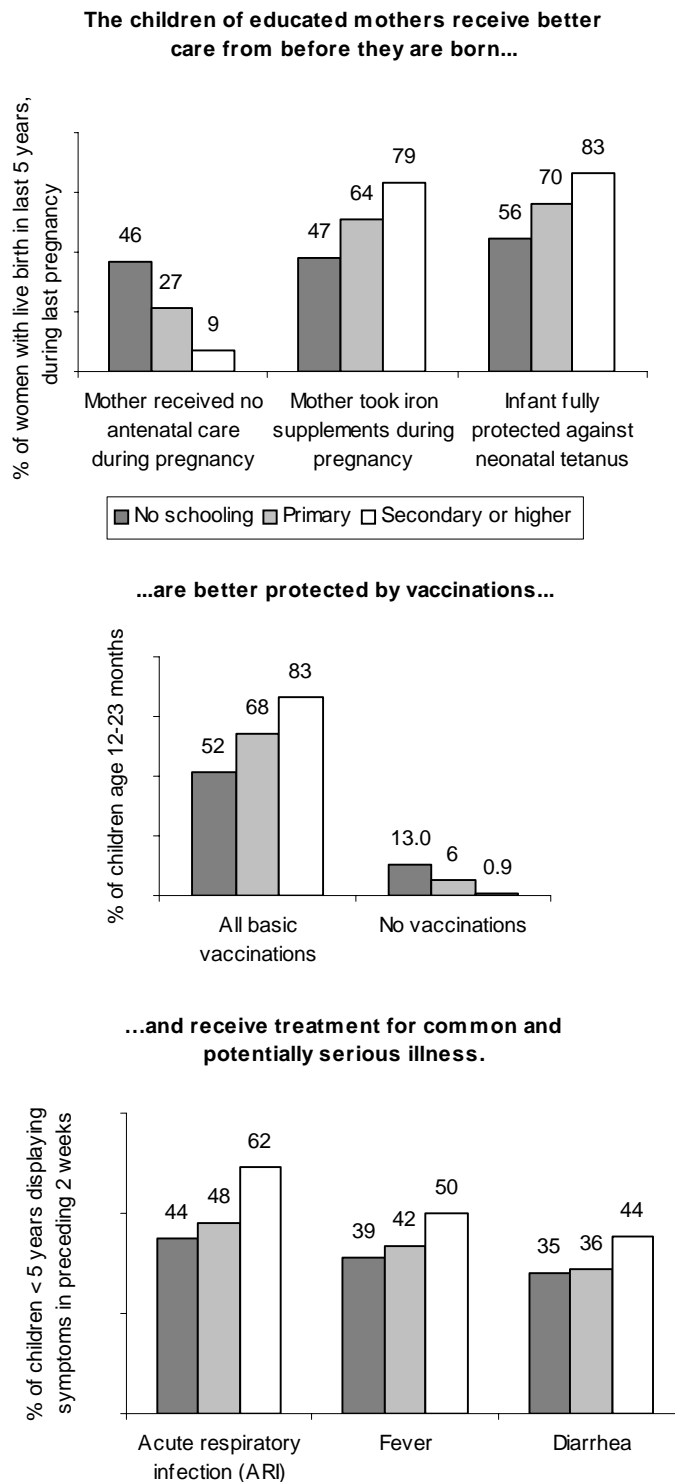
b. ...and the level of education completed by children



Source: CSES 2004, analyzed in Sakellariou 2007 p. 6.

This difference in contact with health services is reflected in the likelihood of the unborn child receiving important aspects of antenatal care. The child of a mother who has completed secondary education is almost 50 percent more likely to be protected against neonatal tetanus, and 66 percent more likely to have benefited from his or her mother taking iron supplements during pregnancy, than the child of a woman with no

Figure 6.25: A mother's education influences a child's chances of obtaining health care, from conception onwards



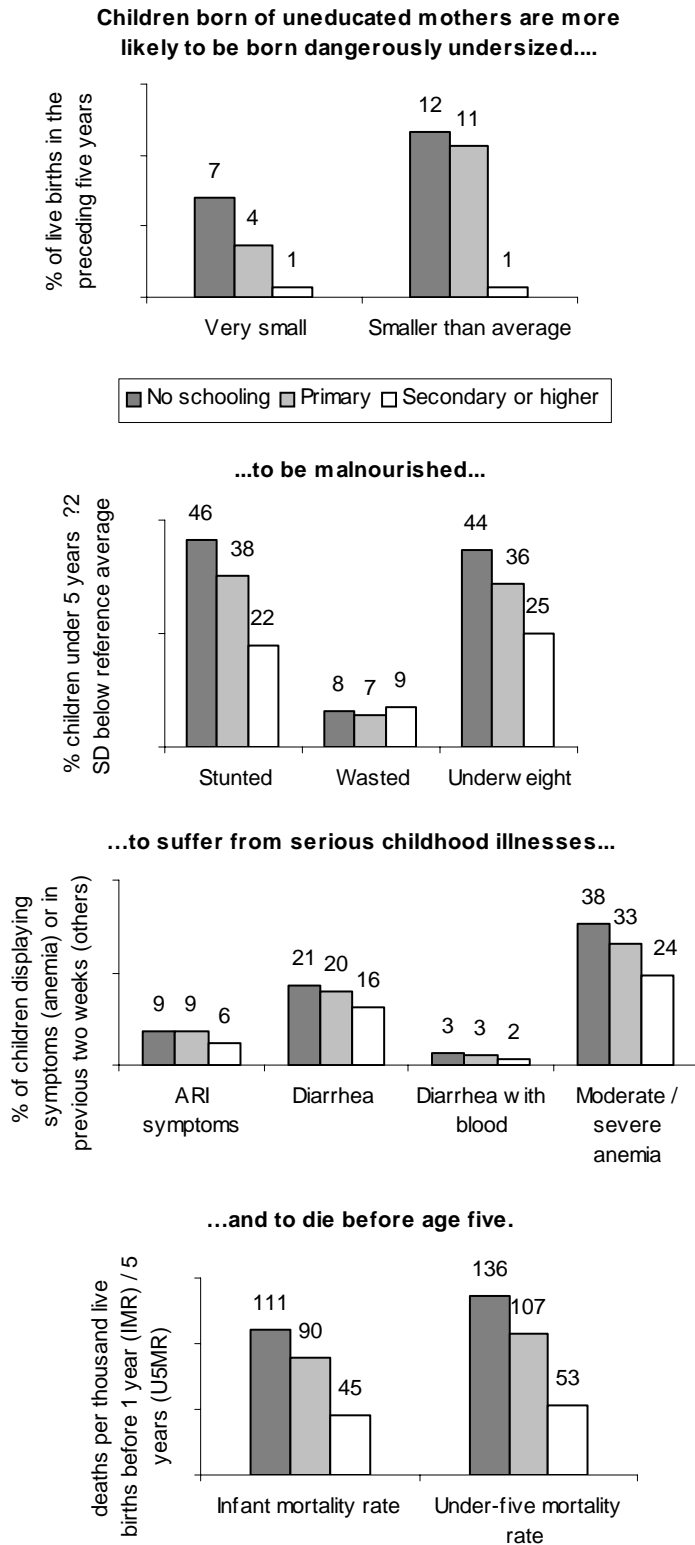
Source: CDHS 2005 pp. 138, 140, 142, 154, 160

education (Figure 6.25). The child of an educated woman thus enters the world with a head start in protection against one of the major causes of neonatal deaths; and in the micronutrients required for healthy growth over the first six months of his or her life.

Women with secondary education are three times more likely to deliver a baby with a trained health professional; and five times more likely to deliver at a health facility. Both factors make childbirth much safer, for both the mother and her child.

These inequalities in access to basic healthcare are compounded during a child's first year of life. Once again, maternal education appears to be an important influence. Although very few Cambodian children—seven percent—now have *no* vaccinations, this rate varies considerably between those children whose mothers have a secondary education (one percent) and those who have no education (13 percent). A baby whose mother has a secondary education is 60 percent more likely to receive all of the basic vaccinations to protect her or him against common, and dangerous, childhood diseases, relative to the child of a woman with no education.

Figure 6.26 A mother's education strongly shapes her children's health outcomes



Source: CDHS 2005 pp. 123, 152, 156, 159, 167, 179

The better standard of healthcare enjoyed by children of educated mothers extends from preventative services to curative care. Compared to mothers with no education, mothers with a secondary education are 25-40 percent more likely to seek treatment for their children when they display symptoms of acute respiratory infection (ARI), fever or diarrhea.

As Figure 6.26 shows, the disadvantages faced by the children of uneducated mothers in terms of unequal access to and use of basic health services feed through into health outcomes. When compared to the child of a woman who has completed secondary education, the child of an uneducated mother is ten times more likely to be born very small; twice as likely to suffer from chronic malnutrition in their first five years, resulting in stunted growth; one-and-a-half times as likely to suffer from an acute respiratory infection or anemia; and twice as likely to suffer from bloody diarrhea. Reflecting these health problems, the child of the uneducated mother is two-and-a-half times more likely than the child of the educated mother to die before reaching his or her fifth birthday.

Policy recommendations

Health policy needs to prioritize equity objectives

Equity goals need to be a more explicit objective of health sector reforms. (Health equity—or “improving access and coverage for the poor”—is included in the current policy framework, but as one among three elements in the strategy of “improving service delivery”, which is in turn one among the 8 priority (and 20 total) strategy strategies that comprise the Health Strategic Plan (HSP) 2003-7.)

This will require some changes to the ways in which health sector outcomes are monitored. At present, monitoring concentrates mainly on aggregate indicators. More disaggregation—by location, by sex, and by consumption or wealth status if possible—would ensure that policy-makers and planners have the information needed to formulate and revise policies designed to achieve health equity. Data on inter-Provincial differences are already available in the health information system, and should be used to direct programs and resources to lagging areas.

Increased attention should be paid to disability prevention, both in the health care system and in other sectors. A functioning primary care system that meets the needs of pregnant women, provides fast, inexpensive care for basic childhood illness, and screens for children with early developmental problems could go far to prevent avoidable disability and the socio-economic costs (to individuals, households and communities) that this entails (VanLeit 2007; Knowles 2004). More ambitiously, the Government should seek to provide people with disabilities with special equipment and training that allows participation in daily activities at home and in the workplace. Glasses, canes for the blind, sign language and wheelchairs can make a profound difference in terms of allowing increased activity and function.

Cambodia already has good insights into policy innovations that promote health equity (along with other health goals). Health equity funds have proved effective in reducing the financial barriers to the poor (see above). Contracting out arrangements for the management of District-level services has also proved to have a positive impact on equity, with health utilization increasing faster amongst the bottom rather than the top half of the wealth ranking (see Box 6.17). Both experiments are now being expanded: this can be expected to have a positive impact on health outcomes for the poor.

Over the long term, investments in water and sanitation and child health (encompassing antenatal care and nutrition, safe delivery, and early childhood healthcare and nutrition) can have a profound effect on the learning capacity of school-age children and health, productivity and earnings as adults (Knowles 2004).

Finally, more needs to be done to build on what is known about critical cross-sectoral linkages (in one or in some cases both directions) between health and other development outcomes (for example, better roads, civil service reform, female education, rising household consumption, or water and sanitation). These linkages are important firstly as factors facilitating or constraining the achievement of health sector goals (suggesting that MoH and its partners should, at a minimum, advocate for progress in areas of public action that have a bearing on progress in health).

Box 6.17 Government-NGO partnerships have reduced out-of-pocket costs for the poor and delivered improvements in health equity

In 1998 the MoH, with support from ADB, began an experiment in public-private partnerships for the delivery of basic health services at the Operation District (OD) level. Contracts to manage service delivery in five districts were awarded to NGOs on the basis of international competitive tendering. Prior to the start of the contracts, a baseline household survey was conducted in nine districts. Data on eight asset and housing quality variables was coded and analyzed using principal components analysis to construct a wealth index and ranking of households.

Each of the nine districts was then randomly assigned to one of three categories. Two districts were *contracted out*, giving the NGO complete line management responsibility, including powers to hire, fire and set wages, procure and distribute drugs and supplies, and organize and staff facilities. Three others were *contracted in*: in this case, the NGO worked within the normal MoH systems to strengthen district management, were not able to hire and fire, and received drugs and supplies through normal MoH channels. The remaining four districts served as a *control*, being managed as normal by an MoH District Health Management Team. Precisely defined and objectively verifiable performance indicators were defined and targets set: one of these related to equity, defined in terms of delivering services to the poorest half of the population.

Two-and-a-half years after the baseline, a second survey was conducted to assess performance of the three models. All districts were found to have achieved considerable progress, reflecting national reforms in the public health system. Contracted out districts clearly performed best, including on the equity goal: concentration indices for each of the target services established (and probit regression confirmed) that contracted out districts had achieved most in changing an initial pattern of service delivery that favored the non-poor to one that was more equitable or positively pro-poor. The 2001 survey also found large declines in average out-of-pocket health spending amongst the poorest half of the population in contracted-out districts. With donor support, the Government has now expanded contracting-out to cover 10 percent of all Cambodians.

Source: Schwartz and Bhushan 2004; Keller and Schwartz 2001.

Exploring these cross-sectoral links is also important in making the case that investments in healthcare promote other aspects of economic and social development. This latter argument is particularly important with regard to large and unpredictable out-of-pocket health care costs for serious injury or illness. Improvements in health service provision and financing could make a major contribution to social protection by (i) protecting against such shocks and (ii) providing affordable and effective treatment when these shocks do occur.

Education sector strategy needs to consolidate gains at the primary level, and extend them to higher levels

To build on the equity gains already achieved in primary education, the Education Sector Plan needs to continue to tackle both supply- and demand-side bottlenecks in the education system.

On the supply side (which is particularly important at the primary level), progress entails sustaining the stock of school buildings (upgrading the remaining primary schools that are incomplete, lacking such facilities as toilets, drinking water or libraries; and building more lower secondary schools) and improving the quality of education and learning. Improving the quality of teaching, especially in poorer and under-served areas,

calls for better training that is more directly relevant and better prepares teachers for classroom teaching¹⁵. As in health, achieving significant improvements in teacher performance will also depend in the long term upon a substantial across-the-board improvement in salaries, combined with improved human resource management and rewards for good performance. Pre-school early childhood education may also have a significant role to play in reducing over-age enrollment and better preparing children for school, so reducing drop-out rates. Finally, focus on including children with disabilities in school. This means in particular that schools must be physically accessible for children with mobility impairments (as most newly-built schools are, but many older ones are not); and that attention is paid to special needs of children with visual, hearing and speaking impairments, particularly when low-cost responses would have a considerable impact.

Demand-side interventions become increasingly important from upper primary through secondary levels, as families are under increasing pressure to take older children out of school to help with livelihood or income-generating activities. Suitable approaches would include expanding the national scholarship scheme, which targets poor families with cash or in-kind benefits conditional on children's attendance at lower secondary school (grades 7-9). The other main issue with regard to demand-side constraints is the persistence of informal fees levied by teachers in grades 1-9. Eliminating these, however, will require fundamental reform of teachers' salaries and benefits (and better performance management).

Finally, there are a number of education system reforms which would help to facilitate improvement in aggregate and equity outcomes. Apart from a service-wide rise and merit-based differentiation in salaries, there is a need to build Government capacity to conduct rigorous impact evaluation of different initiatives, and so identify priorities and sequences of policy and program responses to critical binding constraints to further improvement.

¹⁵ In the Educational Quality Improvement Program (EQIP), of a variety of interventions put on trial in Takeo, Kampot and Kandal, money invested in teacher development was found to have the greatest payoff in terms of student retention and promotion and learning outcomes (World Bank 2005 p. 4).