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Poverty and Health

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Poverty and Health

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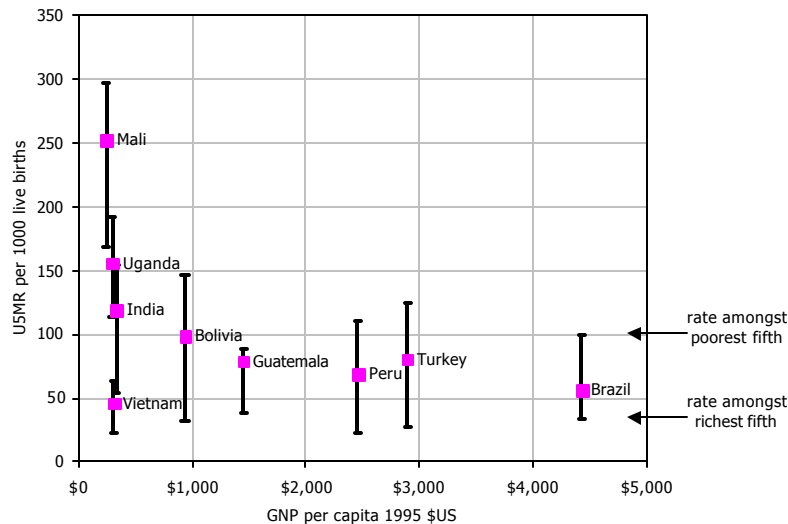
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1. INTRODUCTION

1. *Poor people have worse health ...* The gaps in health outcomes between the low and middle-income countries (LMICs) and the high-income countries (HICs) are staggering. For example, in several sub-Saharan African countries, as many as 200 out of every 1000 children born will die before their fifth birthday; in Sweden, by contrast, the under-five mortality rate is currently only 5 per 1000 live births. This tendency is shown in Figure 1, where the population under-five mortality rate (indicated by the marker) is usually higher in poorer countries. There are, as Figure 1 makes clear, exceptions to this rule. Vietnam, for example, is very much poorer than Peru and Turkey, and yet has a lower under-five mortality rate. Evidently, at the national level, there is more to high child mortality than low income and poverty [1]. But the vertical bars in Figure 1 show another important fact that has provided the impetus behind much of the recent debate on poverty and health, namely that poorer people—however affluent or poor their country—tend to have worse health than better-off people. Thus, for example, children in the poorest fifth of the population in Bolivia have an under-five mortality rate of over 150, while those in the richest fifth have a rate of 32. But again, the picture is not clear-cut: the gaps in survival prospects between poor and better-off children vary from one country to the next. Vietnam, for example, not only has a low national average child mortality rate, especially given its income, but it also has a small gap in survival prospects between poor and better-off children.

Figure 1: Under-five mortality: gaps between and within countries



Source: Data from [2] and [3].

2. *... but agencies and donors are committed to improving it.* Against this background of large but varying inter-country and intra-country gaps in health outcomes between the poor and better-off, it is reassuring that so much attention is now being devoted in the international development community to improving the health of the world's poor. Key international organisations in the health field—including the World

Bank [4] and the World Health Organisation [5]—now have the improvement of the health outcomes of the world’s poor as their primary objective, as have several bilateral donors, including, for example, the British government’s Department for International Development [6].

3. *Ill health is a dimension of poverty.* The growing interest within the international development community in improving the health of the world’s poor reflects the ever broader interpretation being given to the term “poverty”. This, in turn, reflects trends within the academic literature [7] and the increasing tendency of aid agencies and non-governmental organisations to define their goals in terms of poverty-reduction. This is much in evidence in the World Bank’s own work. Poverty-reduction was adopted during the 1990s as the overriding mission of the organisation, and especially following the publication of the latest World Development Report [8] has been interpreted broadly in multidimensional terms. Key amongst these dimensions of poverty are health levels and the *risk* of ill health. One important implication of this shift to multidimensionality is that raising the incomes of the poor may not be enough to reduce “poverty” if it does not guarantee that the health of the poor is also improved. But the increasing focus on the health of the world’s poor also reflects a growing consensus that inequalities in health outcomes between rich and poor are unjust—whether they be between the people of Sierra Leone and Sweden, or between poor Bolivians and better-off Bolivians [9]. Closing inter-country and intra-country gaps between the poor and better off, by securing greater proportional improvements amongst poorer groups, is not simply a poverty issue—it is also a question of social justice and equity. Indeed, it is this, rather than the emphasis on poverty-reduction, that has kept the debate on socio-economic inequalities in health so buoyant in many of the HICs.

4. *Ill health generates poverty.* There is another dimension to the equity and health debate that also links up with poverty. This too will be familiar to those who have studied the European literature, and it too has surfaced in the recent debates in the international development community. It stems from the fact that we do not just desire good health for itself. It is not simply, as Aristotelians put it, that good health allows us to flourish as human beings [10]. Health matters too because it is an asset—we require it when we are learning at school, and when we are working. For the poor, it is a crucial asset, for they often have very few others. An illness or death in the household, or excessively high fertility, can have a substantial impact on household income [11, 12] and can, in the extreme, make the difference to a household being above the poverty line and being below it [13]. And of course it is not just the loss of income associated with poor health—it is also the often-substantial financial costs of the medical treatment necessary to restore health. This aspect of the health-poverty nexus came out dramatically in the poignant anecdotes in the World Bank’s *Voices of the Poor* consultation exercise [14]. A young Vietnamese man, for example, recounted there how, as a result of the large expenses he had incurred in obtaining medical treatment for his daughter, his family had gone from being one of the richest in his village to one of the poorest.

5. *Financial protection is a health policy goal.* Health matters, then, for a family’s income, and the impoverishment associated with illness is an integral part of the poverty-

reduction agenda. But, like socio-economic inequalities in health, it goes beyond poverty-reduction—it too is widely perceived as inequitable and unjust. Indeed, many in the HICs consider it inequitable if payments for health care are so concentrated amongst the poorer members of society that income inequality is higher “after” health care payments than it is “before”, even if payments for health care did not drive anyone into poverty. This less extreme view is often encountered in the European writings on equity in health financing. These writings often go even further and argue that the payments towards any protection system should also be progressive, or at the minimum proportional—that is, households should pay for protection against out-of-pocket payments at least in proportion to their ability to pay. These two requirements—that out-of-pocket payments should not exacerbate income inequality or at least should not drive households into poverty, and that payments for protection should be at least in proportion to ability to pay—are not just the exhortations of academics. They are perceived by the OECD as underpinning many of the European countries’ health policies [15]. And they have been championed by the World Health Organisation in its latest World Health Report [16].

6. *Scope of the paper.* This paper provides an overview of the research to date on these two aspects of equity, poverty and health—inequalities in health that are to the disadvantage of the poor, and the impoverishment and income redistribution associated with out-of-pocket payments for health care. The paper does not address the broader issue of the impoverishment associated with the loss of income through ill health. The reason is not that the issue is unimportant—indeed, lost income is probably a larger cause of impoverishment than out-of-pocket payments for health services [17]. Rather, the reason is that the issue presents two sets of policy issues, one of which is already covered by the paper, namely how to prevent poor people falling ill in the first place, but the other of which takes us outside the remit of health policy as currently interpreted, namely to devise schemes to protect people from income losses during periods of illness. The paper covers the issue of measurement—both of health gaps and impoverishment—and presents some empirical findings on both. But it devotes most of its attention to the questions of how to explain these findings and how to design policies to improve matters.

2. HEALTH INEQUALITIES: DO THEY MATTER?

INEQUALITIES AND INJUSTICE

7. *Health, or health of the poor?* Much of the literature to date on equity and poverty aspects of health has focused on the inequalities in health outcomes *between the poor and better-off*. There is, however, an alternative approach which says that health is a dimension of poverty or well-being in its own right, and that the focus should be on improving health outcomes amongst people in bad health, irrespective of their income. Concerns about equity and justice ought, it might be argued, be more appropriately tackled either by undertaking to reduce health inequalities across people (whatever their income), or by undertaking to focus on those whose health is worst (irrespective of whether they are poor or rich in an income sense). This argument has been made recently

by Gakidou et al. [18], who have argued that whilst health inequalities matter, what matters is the level of inequality between individuals however poor or rich they happen to be. This view is not, in fact, inconsistent with the view expressed in the World Bank's recent World Development Report [8], which argues that because poverty is multidimensional, people can be “poor” simply by virtue of suffering from bad health, whether or not they happen to be badly off in income terms.

8. *Some health inequalities are more unfair than others.* An argument *against* the view that all health inequalities are equally bad or equally unjust was mounted some years ago by Le Grand [19] and echoed recently by Alleyne et al. [20] Le Grand argues that inequalities in health are not automatically unjust. They are unjust insofar as they reflect differences in the constraints that people face, but are not unjust if they are the result of people making different choices under the same constraints. What this suggests is that unless the poor systematically value health less than the better-off (and if they do, this is accepted by society at large as “fair”), inequalities in health between the poor and better-off can reasonably be labelled as unjust. By contrast, inequalities in health in general may be due not only to inequalities in constraints but also to differences in the value people place on their health but also to differences in good fortune.

9. *The multiple deprivations of the poor.* Income and assets are, of course, two reasons why constraints differ between the poor and better-off. But there are others. Poor and better-off households may also incur different costs when trying to restore and maintain their health. Health facilities in the developing world vary hugely in their quality. Some have medicines and drugs in stock, are run by well-trained, civil and motivated staff, are well maintained and are easily accessible. But many are not. They are often dilapidated and inaccessible, rarely have medicines in stock, and are run by poorly trained and rude medical staff, who frequently fail to turn up to work because they are too busy running their private practice (often selling drugs “borrowed” from their public facility). What emerges from the Bank's *Voices of the Poor* consultative exercise [21], as well as from quantitative studies, is that it is precisely the people who are materially disadvantaged who have to struggle with poor quality and inaccessible health facilities and many other factors that tighten even further the constraints facing a poor household. What this suggests is that the inequity of health inequalities between the poor and the better-off are likely to stem not simply from the income gaps between them but also from the gaps in the effective “prices” they face when maintaining and improving their health.

THE AVERAGE MATTERS TOO

10. *Inequalities aren't everything.* This is not to say that *only* inequalities between the poor and better-off matter and that policy should be directed *only* at trying to reduce health inequalities between poor and rich. That would imply a complete unwillingness to tradeoff the overall average level of health against the level of inequality—a position that is unlikely to command the support of any right-minded policymaker. It would, for example, imply rejecting all inequality-increasing policies however small the rise in inequality and however large the rise in the overall average level of health. Rather the concern seems to be to ensure that in domestic and international policymaking, a greater

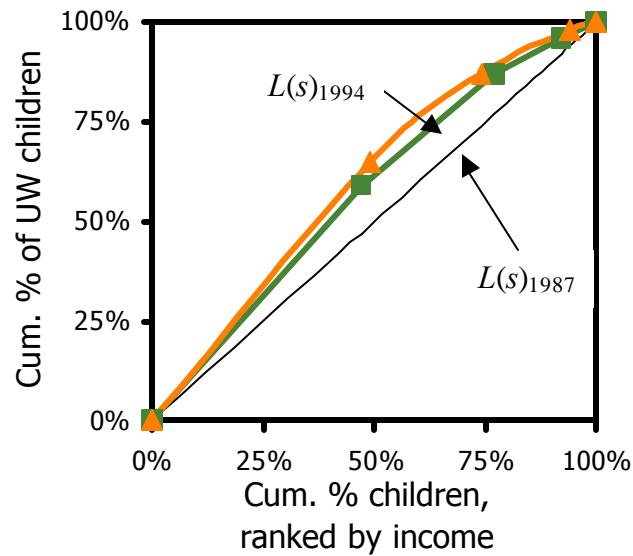
weight should be accorded to the health of the poor than to the health of the better-off when choosing between alternative policies. This means taking into account not just the average health improvement associated with a particular policy but also the degree to which health improvements are proportionately larger for the poor than for the better-off. This begs, of course, the obvious question, namely: how much higher one should weight the health improvements of the poor than those of the better-off? We return to this issue below after considering first the measurement of health inequalities.

3. MEASURING HEALTH INEQUALITIES

THE CONCENTRATION CURVE AND CONCENTRATION INDEX

11. *Why measure inequality?* A useful starting point is the measurement of health inequalities between poor and better-off people. Such a measure is useful for a number of exercises—monitoring trends over time; evaluating the effects of policies; and benchmarking (comparing inequalities across similar countries).
12. *Ceara: a case study.* A specific example may help to motivate the discussion. In 1987, the local government in Ceara, Brazil, introduced an ambitious maternal and child health (MCH) program, which has been credited with the substantial improvements in MCH outcomes over the period 1987-94 [22]. One issue that arises, but which has until recently been left uninvestigated, is whether the program led to a narrowing of the inequality in MCH outcomes between the poor and better-off [23]. Or, to put it another way: did the poor experience proportionately larger improvements in their health than the better-off?
13. *Concentration curves.* The curve labeled $L(s)_{1987}$ in Figure 2 plots the cumulative proportion of children aged under five (ranked by their household income, beginning with the least advantaged) against the cumulative proportion of under-weight children in 1987. The markers on the curve corresponded to the four income groups underlying the data—the poorest group thus accounts for a full 50% of children in the Ceara sample. This ensures that the sizes of the groups being compared are taken into account. The curve, known as a *concentration curve* [24], lies above the diagonal (or line of equality), indicating that in 1987 inequalities in malnutrition favored better-off children in Ceara—the poorest 50% of children accounted for well over 50% of all malnourished children. Such inequalities are termed *pro-rich*. Had $L(s)$ lay below the diagonal, inequalities would have been *pro-poor*. The further $L(s)$ lies from the diagonal, the greater the degree of inequality in malnutrition across income groups. The curve labeled $L(s)_{1994}$ is the corresponding curve for 1994. This lies everywhere further from the diagonal than the curve for 1987. The curve for 1987 is said to *dominate* that for 1994, and it can be concluded that there was unambiguously less inequality across income groups in malnutrition in Ceara *prior* to the MCH program than there was after it had been in operation for seven years. The reduction in average levels of malnutrition appears to have achieved at the expense of a widening in the gaps in malnutrition between the poor and better-off children.

Figure 2: Malnutrition concentration curves, Ceara, Brazil
 (Source: author's calculations based on data from [23])



14. *The concentration index.* In the Ceara case, the comparison is straightforward—inequality in 1994 was unambiguously higher than in 1987. Things become less straightforward when concentration curves cross, and when a large number of comparisons are being made, as might be the case in an international comparative study. In such cases, inequality can be measured by the *concentration index*, denoted below by C and defined as twice the area between $L(s)$ and the diagonal. C takes a value of zero when $L(s)$ coincides with the diagonal and is negative (positive) when $L(s)$ lies above (below) the diagonal. C can be computed in a number of ways, and standard errors can be computed enabling tests of significance to be performed—for example, on comparisons over time, or between countries [25]. In the case of Ceara, the value of C for 1987 is -0.1444 , while the value for 1994 is -0.1854 . Thus the indices confirm both pro-rich inequalities in each year and higher pro-rich inequalities in 1994 than in 1987.

DEMOGRAPHIC FACTORS AND UNAVOIDABLE INEQUALITIES

15. *Demographics as confounders.* Comparing $L(s)$ to the diagonal presupposes that all inequalities in ill health across income groups can be eliminated. This would be unrealistic if the groups varied in their average age. In the Ceara example above, this was not a major issue, since the children spanned only five years of age. But in the context of adult mortality or adult morbidity, it may well be an issue. It would certainly be unreasonable, for example, to suppose that a person of 85 could be made as healthy as a 20-year old. If older people are concentrated amongst the lower income groups, $L(s)$ will lie above the diagonal simply because of (a) the link between age and ill-health and (b) the association between age and rank in the income distribution. For policy purposes, one might want to take (a) and (b) as given, and view such effects as confounders.

16. *Confounders, inequality and standardisation.* These effects can be eliminated through application of standard epidemiological standardisation methods [25]. One possibility is the *direct method* of standardisation. This involves applying the age-sex-specific average ill health rates of each income group to the age and gender structure of the population. In effect, the procedure “corrects” differences in morbidity or mortality rates across income groups for demographic differences across them. It does this by assuming that all groups have the same demographic composition, namely the demographic composition of the population as a whole. A directly standardised concentration curve can then be constructed, and the appropriate measure of inequality, denoted below by C^+ , is twice the area between it and the diagonal. The alternative method is the *indirect standardisation*. This involves replacing person i 's degree of ill health by the degree of ill health suffered *on average* by persons of the same age and gender as person i . In effect, the procedure “corrects” differences in morbidity rates for demographic differences by assuming that everyone in a given demographic category has the same morbidity rate, namely the morbidity rate of the population for the demographic group in question. The corresponding concentration curve indicates the distribution of ill health across the income distribution that could feasibly be attained given the covariance between income and demographic factors. If the more disadvantaged members of society are in the demographic groups that are most prone to ill health, the indirectly standardised concentration curve will lie above the diagonal, indicating that it is unreasonable to suppose that $L(s)$ could ever be brought down as far as the diagonal. An alternative measure of avoidable inequalities in health is thus twice the area between the actual concentration curve and the indirectly standardised curve, denoted below by I^* .

4. EVIDENCE ON HEALTH INEQUALITIES

HEALTH INEQUALITIES IN INDUSTRIALISED COUNTRIES

17. *Occupational and educational health inequalities in the OECD.* There is a long tradition of research in Europe on socio-economic inequalities in health. As early as the first half of the 19th century, occupation was added to the death certificate in Britain. Tabulations of mortality rates by occupational group, along with commentaries, became a regular feature of the government's annual mortality reports [26]. Many other industrialised countries now have data on mortality and morbidity by occupational group or educational group, either from vital statistics systems or from longitudinal studies [27]. As a result, a large number of studies have been undertaken, many of which are comparative in nature [28, 29].

18. *Poor-nonpoor inequalities in health in the OECD.* There are fewer data in industrialised countries on inequalities in health by *income*, but there are some. Van Doorslaer et al. [30] compare inequalities in self-assessed health (SAH) in nine OECD countries, again using the index C^+ . Their results are based on responses to a question asking “How do you rate your health?”, which they cardinalise by assuming that underlying the responses is an underlying latent ill-health variable with a standard lognormal distribution [31]. The study finds significant pro-rich inequalities in all nine

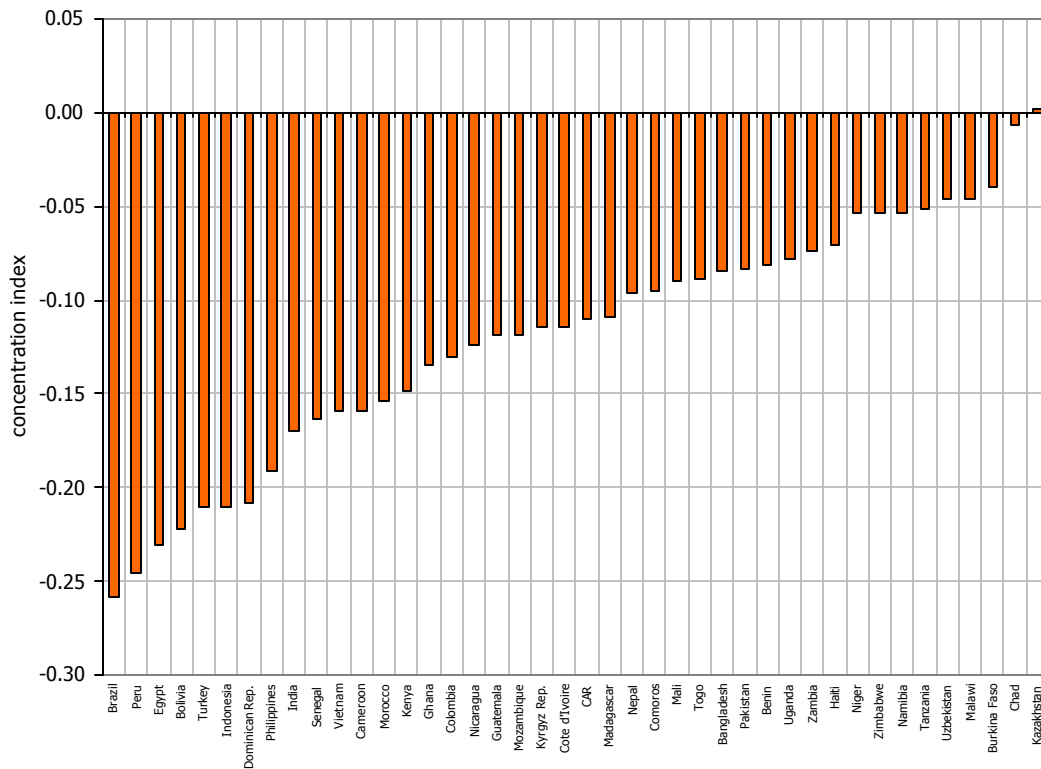
countries, and finds that the UK and US have significantly higher inequalities than the other countries studied. The study finds that there are no significant differences in health inequalities amongst the mainland European countries.

HEALTH INEQUALITIES IN LMICs: CHILDREN

19. *Child health inequalities by consumption.* There is far less material on socio-economic inequalities in health outcomes for LMICs. But this is changing, especially for child health outcomes. Wagstaff [32] reports inequalities in infant and under-five mortality by household consumption for nine LMICs using data from the Living Standards Measurement Study (LSMS), and Wagstaff and Watanabe [33] also use LSMS data to examine inequalities in child malnutrition across consumption groups for twenty or so LMICs.

20. *Child health inequalities by wealth indices.* Many countries do not have an LSMS. An alternative in such cases is the Demographic and Health Survey (DHS), though for most countries this does not contain data on household income or consumption. Filmer and Pritchett [34], however, in their analysis of inequalities in educational attainment and enrolment, derive a wealth index for DHS households, by applying principal component analysis to information on housing characteristics (e.g. the material from which the roof and floor are made) and household durables (e.g. whether the house has a refrigerator). This method has been employed with DHS data by Bonilla-Chacin and Hammer [35] to explore inequalities by wealth in infant and under-five mortality. But the most comprehensive study to date in this genre is that of Gwatkin et al. [2], who present data on inequalities in infant and under-five mortality, malnutrition, and the incidence of diarrhoea and ARI. Figure 3 shows inequalities in under-five mortality for 44 LMICs. What the results show, unsurprisingly, is the tendency—throughout the developing world—of poor children to suffer higher rates of mortality than better-off children. What they also show—and this is more surprising—is that countries vary markedly in the gaps in health outcomes between poor and the better-off children. Kazakhstan, for example, has virtually no poor-nonpoor inequality in under-five mortality, whilst in Brazil the gap is very large.

Figure 3: Inequalities in under-five mortality
(Source: Gwatkin et al. [2])



HEALTH INEQUALITIES IN LMICS: ADULTS

21. *Mortality inequalities in LMICs.* While the evidence for LMICs on socio-economic inequalities in child health outcomes is growing apace, there is still relatively little evidence on inequalities amongst adults. In the case of mortality, the problem appears to be a lack of data. Not many LMICs record a measure of socio-economic status on the death certificate, and there are relatively few surveys that are large enough to allow socio-economic inequalities in adult mortality to be measured. There are exceptions, however. Kunst [27], for example, examines inequalities in adult mortality across occupational and educational groups in the Czech republic, Estonia, and Hungary. In its volume *Confronting AIDS: Public Priorities in a Global Epidemic*, the World Bank [11] analyses inequalities by education in the risk of death from AIDS in Tanzania. It finds different patterns for men and women, and in neither case is there a monotonic gradient.

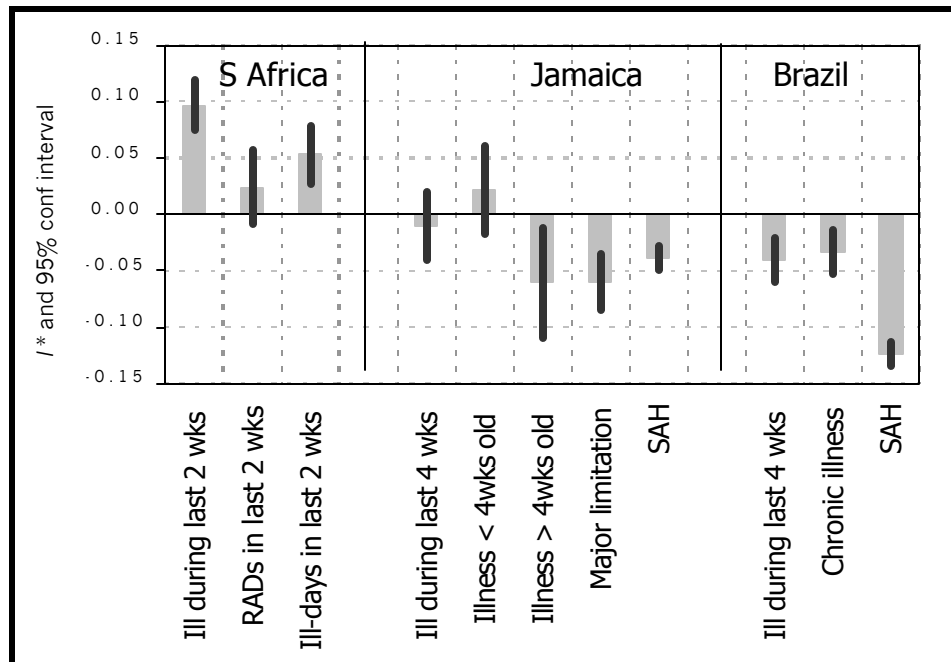
22. *Morbidity inequalities—but are they meaningful?* Information on inequalities in mortality is still fairly rare. Non-fatal information on adult health is more readily available. However, the data are often considered to be unreliable. For example, Baker and van der Gaag [36] find that in Ghana, Jamaica, Peru and Bolivia (but not in Cote d'Ivoire), the better off were *more* likely than the poor to report themselves as ill. These results—and other similar results—are based, however, on responses to a question

inquiring whether the respondent had been ill in the two (or four) weeks prior to the interview. This measure is highly subject to transitory factors, and tends to display very little gradient with income or any other measure of socio-economic status in the industrialised countries either [37].

23. *More useful data on morbidity inequalities.* Measures such as chronic illness, disability and self-assessed health provide a more useful insight into inequalities in adult health in industrialised and developing countries alike. Figure 4 illustrates this for three developing countries using the inequality index I^* . In South Africa, I^* is positive and significantly different from zero for the presence of illness and the number of illness days in the last two weeks, indicating significant inequalities in favour of the poor. In Jamaica and Brazil, by contrast, there are inequalities in illness during the last four weeks to the *disadvantage* of the poor, but only in Brazil are they significant. By contrast, the longer-term illness indicators (long-standing illness and the presence of a major limitation) and the SAH indicator all point to significant inequalities to the disadvantage of the poor in Jamaica, while in Brazil, inequalities in SAH are substantially to the disadvantage of the poor, and significantly so. The message seems to be that assessing inequalities in adult health is possible in LMICs providing meaningful health indicators are employed.

Figure 4: Inequalities in adult health

(Source: author's calculations from LSMS data)



TRENDS IN HEALTH INEQUALITIES

24. *Trends in the OECD.* A number of studies have looked at trends in health inequalities across occupational classes [38, 39] or education groups [40]. Studies of

trends focussing on gaps between the poor and better-off are fewer. Propper et al. [41] examine trends in inequalities in various measures of ill-health across income groups in Britain, using the index C^+ above. They conclude that inequalities in health in Britain disfavour the poor, and that—for most indicators—these inequalities increased over the periods 1974-82 and 1982-85, but then fell over the period 1985-87.

25. *Trends in the developing world.* Stecklov et al. [42] explore trends in inequalities in child mortality in Uganda: they find a small but insignificant decrease in the concentration index (i.e. an increase in the degree of concentration of child deaths amongst the poor). Data on malnutrition from Vietnam show an increased concentration of malnutrition amongst the worse-off—for example, the incidence of underweight halved in the top quintile between 1993 and 1998, but fell by only 28% in the bottom quintile [43]. Vega et al. [44] analyze inequalities in life expectancy by education in Chile for the years 1986, 1991 and 1995. They find relatively small pro-rich inequalities in each year (the largest value of the concentration index for their data is 0.017) and small increases over the period studied.

5. INEQUALITIES AND AVERAGES—*BOTH* MATTER

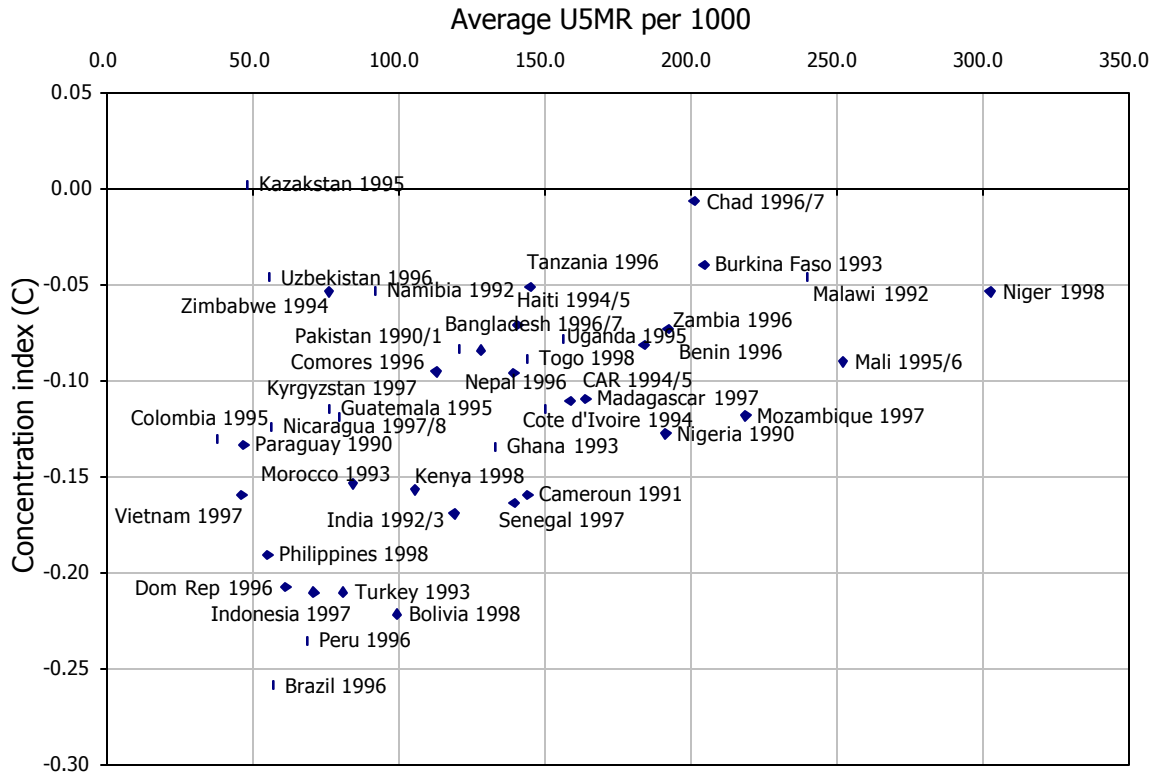
26. *The population average matters too.* In much of the literature on health inequalities, the reader is left with the impression that the inequality between the poor and better-off is the only thing that matters. As argued above, however, most policymakers are likely to be willing to trade off increases in inequality against improvements in the overall average level of health. In Vietnam, for example, the increase in inequality was accompanied by a reduction in the average level of malnutrition over the period in question. Are such tradeoffs commonplace? And what can be said about how to trade off averages against inequalities?

ARE TRADEOFFS COMMON?

27. *Tradeoffs across countries.* For the most part, at least amongst LMICs, it is the countries with the lowest average rates of under-five mortality and malnutrition that have the largest gaps between poor and nonpoor children. This is evident in Figure 5.

Figure 5: Levels and inequalities in under-five mortality

(Source: Gwatkin et al. [2])



28. *Tradeoffs over time.* In all three of the LMIC studies of trends cited above, worsening inequalities were accompanied by improvements in the population average. For example, the increased inequality in malnutrition in Vietnam came about because although all five income quintiles saw a reduction in malnutrition, the largest proportional reductions were amongst the better-off.

ARE TRADEOFFS INEVITABLE?

29. *Income, income inequality and health inequality.* It is not obvious why there should be a tradeoff between overall averages and inequalities. Contoyannis and Forster [45] provide some theoretical results that shed some light on the issue. Suppose, as seems to be the case, that the relationship between health and income is concave—i.e. subject to diminishing returns. Then, as Contoyannis and Forster show, low levels of income inequality will, ceteris paribus, be associated with high average levels of health but with small inequalities in health. If it is also the case that the elasticity of health with respect to income decreases as income rises, then it follows too that high per capita incomes will also be associated, ceteris paribus, with high average levels of health but *small* inequalities in health. Insofar as per capita income and income inequality are negatively correlated, no tradeoff will be observed between average health and health

inequality. Rather, the beneficial effects of high per capita income (on both the average level of health and health inequality) will be reinforced by the beneficial effects of low income inequality (on both the average level of health and health inequality). But neither should there be a tradeoff if per capita income and income inequality are *positively* associated. In this case, a high per capita income will make for a high average level of health and a low level of health inequality. But these effects will be offset by the fact that the high income inequality with which the high per capita income is associated will make for a low average level of health and a high level of health inequality. The tradeoff is therefore not simply a case of the countries in the bottom left corner of Figure 5 being high-income high-inequality countries and the countries at the top right being low-income low-inequality countries.

30. *Policies that affect the health-income relationship.* There is a result, however, in the Contoyannis-Forster paper that may explain the association, namely that policies that make the health-income relationship more elastic will tend to raise both average health *and* the level of health inequality. This would imply that what the countries in the bottom left hand corners of Figure 5 have in common is a highly elastic relationship between health and income. The countries in the top right hand corner, by contrast, have in common a highly *inelastic* relationship between health and income. Of course, this simply pushes the analysis back a stage, since it begs the question of what makes for a high or low income elasticity of health.

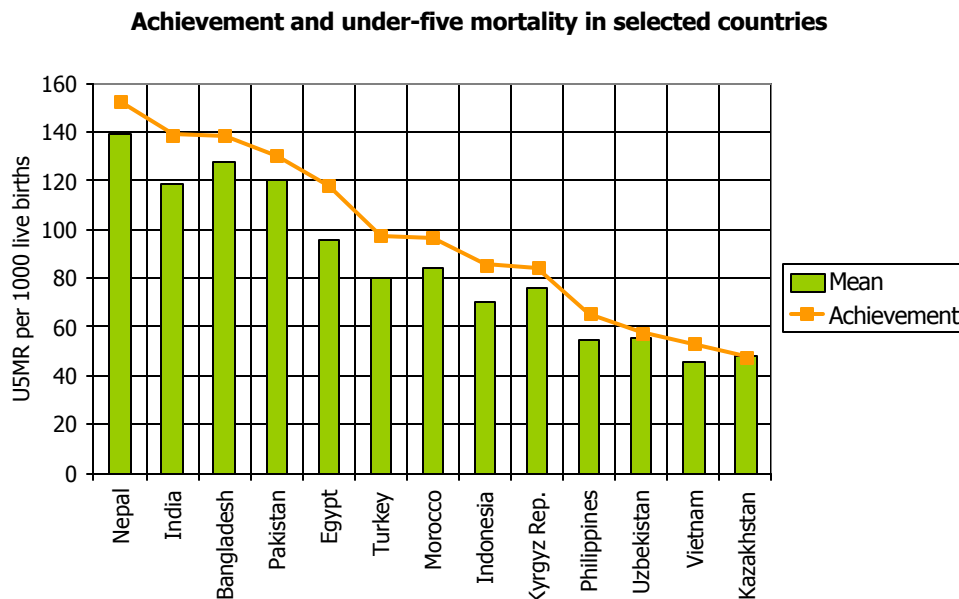
CAPTURING TRADEOFFS THROUGH ACHIEVEMENT INDICES

31. *Achievement—health for everyone, not just the better-off.* Whatever the inevitability of a tradeoff between levels and inequalities between the poor and better-off, the issue clearly arises as to how these might be traded off against one another. The question is, in effect, the question posed earlier, namely: how much higher one should weight the health improvements of the poor than those of the better-off? One approach [33, 46] is to think of the problem as one of constructing a distributionally-sensitive measure of population health. The mean is clearly not appropriate, since it weights everyone's health equally, irrespective of how poor they are. One possible set of weights is the person's rank in the income distribution, or some simple function of it. One such scheme is to assign the poorest person a weight of 2 and then let the weight decline by $2/N$ (where N is the sample size) for each one-person step up the income distribution. Adopting this set of weights produces a distributionally-sensitive measure of population health, or an *achievement index*, that is simply equal to the mean level of health of the population times the complement of the concentration index. A policy that resulted in the same proportional improvement in everyone's health would raise the value of the distributionally-sensitive measure of population health, while a policy that led to the same increase in the mean but a larger (smaller) proportional improvement in the health of the poor would produce a larger (smaller) increase in it.

32. *Achievement in Asia and the Middle East—child mortality.* Figure 6 illustrates the idea in the case of under-five mortality. As has been seen, countries vary both in their average under-five mortality rate and in the degree of inequality in health between the poor and better-off. For example, India has a lower under-five mortality rate than

Bangladesh (119 compared to 128 per 1000), but the inequality between the poor and the better-off is higher in India [2]. A country's achievement index captures both these considerations. Higher mortality rates amongst the poor push the achievement index (or, more correctly in this case, the dis-achievement index) above the sample mortality rate. The bigger the inequality, the greater the proportional "wedge" between achievement and the sample mean. India's concentration index for under-five mortality is -0.169 , so that its achievement index for under-five mortality is 117% of 119, or 139 per 1000. By contrast, Bangladesh's concentration index is only -0.084 , so its achievement index is 108% of 128, or 139 per 1000—the same as India's, despite its higher average rate.

Figure 6: Example of achievement indices for under-five mortality



Source: based on tabulations in Gwatkin et al. (2000) from DHS surveys various years 1990-98

33. *Achievement, inequality and inequality aversion.* This formulation of the achievement index hinges, of course, on the particular set of weights chosen. It embodies the weights implied by the concentration index itself. But it and the concentration index can be generalised by introducing a parameter indicating the degree of aversion to inequalities in health between the poor and the better-off [47]. If one proceeds along these lines, the distributionally-sensitive measure of population health, or achievement index, becomes the mean times the complement of the so-called generalised concentration index. The more averse the policymaker is to health inequalities between the poor and better-off, or equivalently the bigger the weight the policymaker wanted to attach to the health of the poor, the more the distributionally-sensitive measure of population health focuses on the health of the poor. In the extreme, the distributionally-sensitive measure of population health reduces simply to the health of the poor, or the poorest group. But this would clearly be a very extreme position to take.

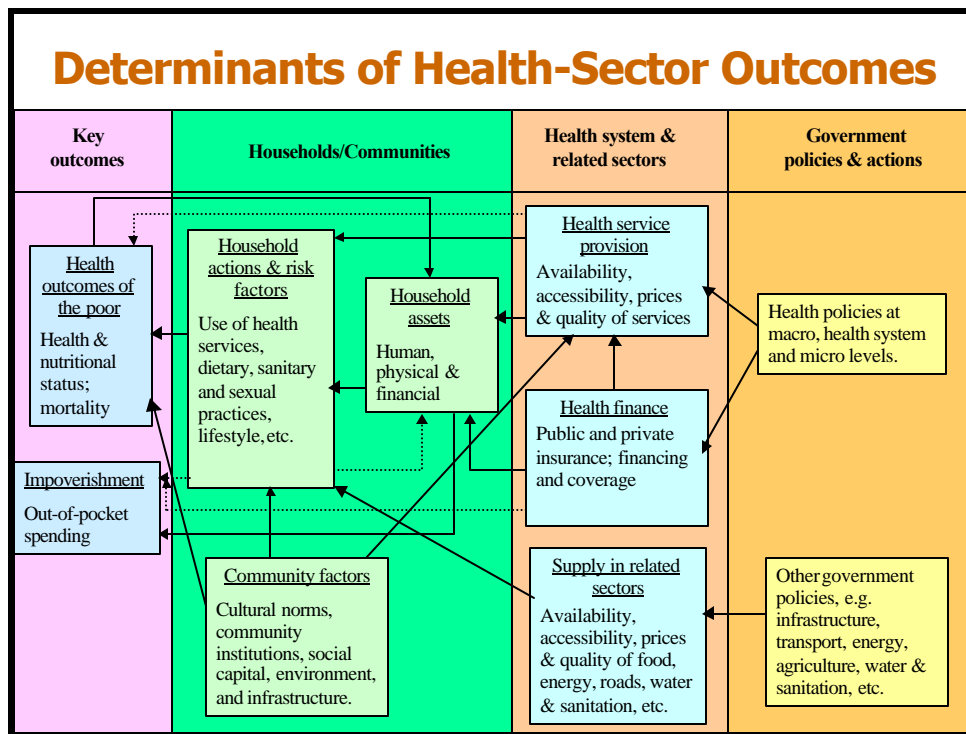
6. WHAT CAUSES HEALTH INEQUALITIES?

34. *A pattern to explain....* The results in section 2 suggest the existence in industrialised and LMICs of inequalities in health to the disadvantage of the poor, not just in childhood but also in adulthood. The results in section 3 suggest that in some countries at least health care payments may be associated with a negative impact on the income distribution and with greater levels of income poverty.

A FRAMEWORK

35. *... and a framework with which to do it.* Figure 7 from [48] sketches out an approach for conceptualising the various routes by which health outcomes are determined and by which the impoverishment associated with use of health services comes about. It thus provides a framework for understanding health inequalities between the poor and better-off.

Figure 7: A conceptual framework for linking government policies to health-sector outcomes



36. *Proximate determinants and health inputs...* A variety of factors at the household and community levels have a direct influence on individual health outcomes. These are sometimes known as the proximate determinants of health [49] and are known in the economics literature as health inputs [50]. In the context of child health, these factors would include the use of appropriate preventive and curative health services, feeding and sanitary practices, maternal factors (such as the mother's age at the child's birth and the

number of children she has given birth to), and the care and stimulation given to the child. In the context of adult health, health service utilisation is important, as is diet, lifestyle (including cigarette and alcohol consumption), and so on. At the community level, the factors having a direct influence on health include the environment (water and sanitation conditions in the area surrounding the household's home, air quality, etc.), ecology, and geography.

37. ... *vary across households*. The proximate determinants of health are not a fixture—they vary widely across households. For example, households vary in their use of curative and preventive services, their dietary and sanitary practices, when to have children and how many to have, and how much care and stimulation to give to their children. The first avenue to explore in seeking to understand the causes of inequalities in health outcomes is therefore to focus on the proximate determinants of health, or the health inputs. The key questions in the present context include: How far do the poor have worse proximate determinants than the better off? And, are the proximate determinants for which the inequalities are widest those that matter most for health? This issue is explored in section 5.

38. *Underlying determinants of health...* Answers to these questions provide only a partial answer to the question “Why do health inequalities exist?”. Suppose it is indeed the case that, for example, there are large gaps between poor and better-off households in certain key health inputs, such as immunisation in the case of child health. This begs the question: Why? The framework in Figure 7 shows the proximate determinants of health as being influenced by three sets of factors—sometimes known as the socioeconomic or underlying determinants of health [49, 51, 52]. The household's resources are one set of influences—these include not just their financial income and assets, but other physical assets (such as land, animals, etc.), as well as human “assets” in the form of knowledge, literacy, and education. It is not just the levels of these variables, but also their distribution within the household—especially the distribution between men and women. Households will also be influenced by the prices, quality, accessibility and availability of health services locally, as well as by the prices, availability and quality of other factors that impact on health outcomes, such as food, transport, and so on. Finally, households will be influenced by a variety of community-level factors. One example is the environment—good sanitary practices are harder if the water and sanitation conditions in the community are poor. Another is the ecology and geography of the neighborhood—getting to a health center is harder if the roads are impassible during the rainy season. Also important potentially are less tangible factors such as the culture and values shared by the local community, as reflected in its social capital [53, 54].

39. ... *also vary across households*. These socioeconomic or underlying determinants of health—like the proximate determinants of health—vary from one household to the next. The second investigative avenue to explore in seeking to understand the causes of health inequalities is therefore to focus on the socioeconomic or underlying determinants of health. The key questions here include: How far do the poor have worse underlying determinants than the better-off? And, are the underlying determinants for which the inequalities are widest those that matter most for health? This issue is explored in section 6.

40. *But why?* Although this question gets us further towards understanding the causes of health inequalities than simply looking at proximate determinants, it does not get to the root causes of health inequalities. Like the proximate determinants of health, the underlying determinants are not fixed. Suppose it turns out that a major reason for the inequalities in child survival between poor and better-off children is that poor children live in areas where the health facilities rarely have any drugs in stock. This begs the question: Why? Is it because of lack of resources? If so, is this because public expenditure levels are too low? Or because expenditures are biased away from the areas where poor people live? Or is it due to corruption on the part of health workers? There are many ways that policy—whether in the health sector or more generally—can influence the socioeconomic or underlying determinants of health. A third level of investigation, therefore, would be to focus on the impacts of policy and of the other factors that affect the underlying determinants. These factors—which are, in effect, the root causes of health inequalities—are explored in section 7.

THE PROXIMATE CAUSES OF HEALTH INEQUALITIES

What are the proximate determinants of health?

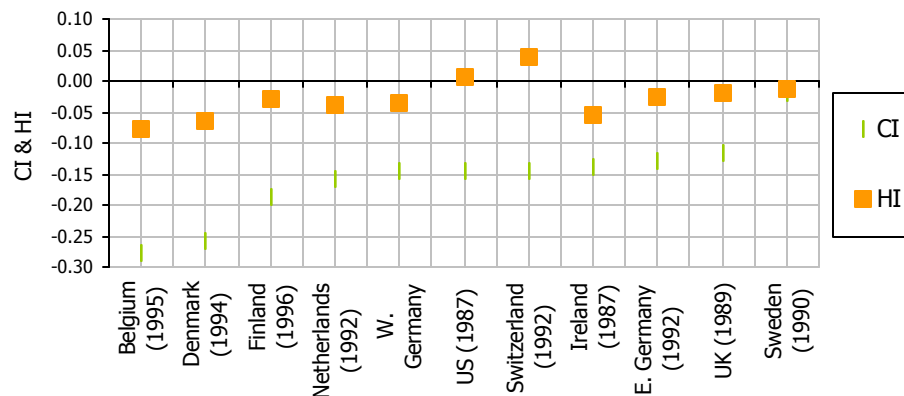
41. *The aetiology of ill health.* There is now extensive evidence from the medical and health sciences on the factors that contribute directly to good health in childhood and adulthood. For example, for the five medical conditions responsible for most of the mortality and morbidity amongst children in the developing world, there is broad consensus on which preventive and curative health services are appropriate, as well as which dietary and sanitary practices are appropriate [55]. There is also good scientific evidence on the behaviours and risk factors associated with adult morbidity and mortality—both for communicable diseases, including HIV/AIDS, and non-communicable diseases, such as cancer and heart disease. This evidence has been reviewed elsewhere [48].

The distribution of health service utilisation

42. *The HICs get health care to the poor* There is a tendency for the lower income groups in several OECD countries to use health services more than the better off [56, 57]. Figure 8 shows the concentration indices for overall utilisation. This includes primary care visits, hospital outpatient visits and hospital inpatient days, each weighted by the unit cost of the public sector. The indices are negative in all countries, so it is apparently not the case that it is under-utilisation by the poor per se that is a major factor in health inequalities in many of these countries. Having said this, there is the issue of whether the poor use services sufficiently more than the better off, given their apparently greater medical needs. Utilisation may be unequally distributed in favour of the poor, but it still may be inequitably distributed in the sense that there is unequal treatment for equal need (horizontal inequity) in favour of the better off. One way of trying to capture this is to compare the degree of inequality in utilisation with the degree of inequality in medical need. If C_M is the concentration index for utilisation, and C_N the index for medical need, an obvious measure of inequity is $HI=C_M-C_N$ [58, 59]. These indices are also shown in

Figure 8. The assumption here is that “need” can be measured by the utilisation that one would expect for a particular individual, given his or her age, gender and health status. The picture for inequity is thus rather different from that of utilisation—although the HICs manage to get health services to the poor reasonably well, in most cases this simply reflects the greater needs of the poor, rather than discrimination in their favour. Furthermore, in two countries—Switzerland and the United States—the poor do not apparently receive sufficiently more services to compensate for their greater medical needs.

Figure 8: Inequalities and inequities in health service utilisation in HICs
(Source: [57])



43. ... *but the LMICs don't*. The picture is far bleaker in the LMICs. A number of so-called benefit-incidence studies have been undertaken of health services [60-64]. These start by examining the distribution across income quintiles or deciles of utilisation of different types of public health facilities—primary care facilities, and hospital outpatient and inpatient facilities. The quintile averages are then multiplied by the public subsidy per unit of utilisation for the facility-type in question. This indicates, for each quintile, the amount of subsidy received through utilisation of the particular facility-type. By summing across all facility-types, one obtains—for each quintile—the overall average amount of public subsidy received through public expenditure on health services. Since each quintile is assumed to receive the same subsidy per unit of utilisation, the subsidy shares for each facility-type simply reflect the utilisation differences across quintiles. Thus the fact that in these studies the poor typically receive much less hospital subsidy than the better off simply reflects the fact that they use hospital services—especially inpatient care—less than the better off. By contrast, the gap between the poor and the better off in their use of primary care services is typically less marked. Both these patterns are shown in Figure 9, which shows the concentration indices for primary and hospital care for a number of countries. The overall subsidy distribution invariably favors the better off—often markedly so (see Figure 10). This reflects the heavy bias

towards hospital spending in LMICs and the large pro-rich inequality in the utilisation of these services.

Figure 9: Benefit incidence of public spending on primary care and hospital care
(Source: based on distributions given in Filmer et al. [62])

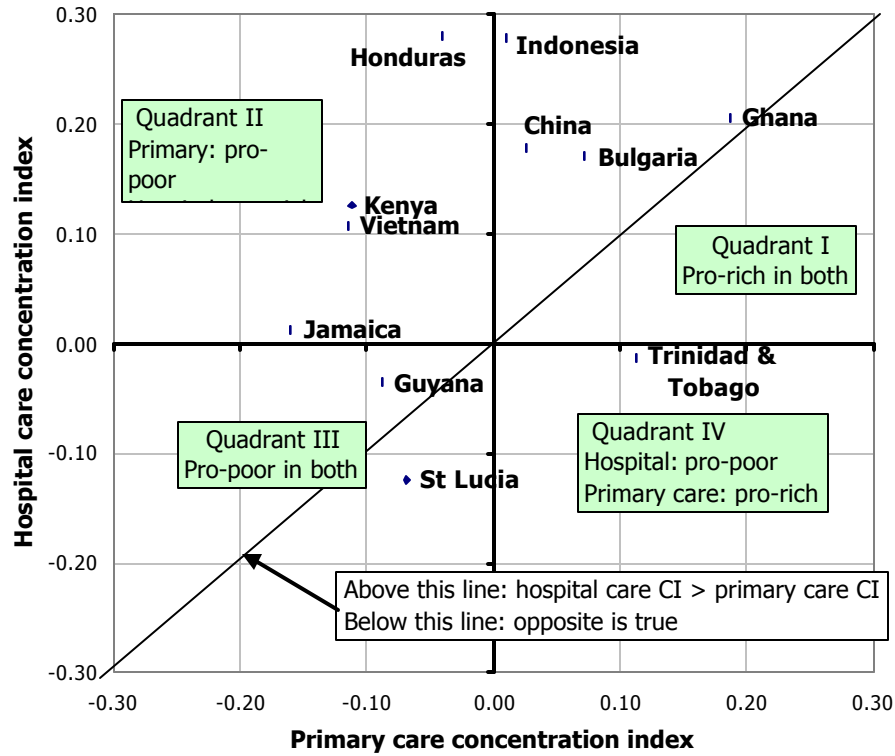
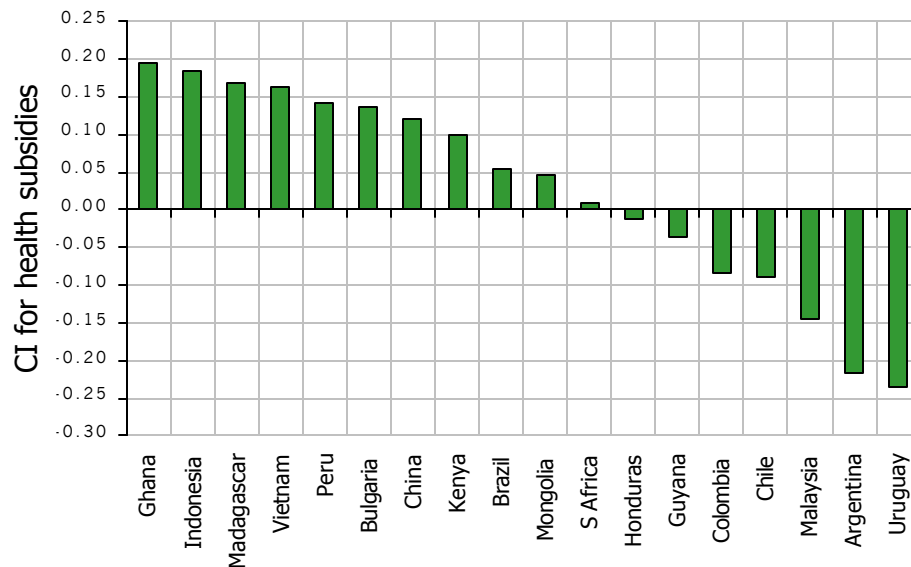


Figure 10: Benefit incidence of overall public spending on health services
(Source: based on distributions given in Filmer et al. [62])



44. *Child health services don't reach the poor in LMICs.* In contrast, to the HICs, therefore, it does appear to be the case that inequalities in health outcomes may well be—at least partly—a reflection of the failure of health care services to reach the poor. This is reinforced by the findings from the study of Gwatkin et al. [2], which finds large differences in the usage of maternal and child health services. Figures 11 and 12 show some of these results. The pro-rich bias in immunisation coverage in several of the countries is striking. From an equity standpoint, the appropriate benchmark for immunisation coverage is, presumably, equality. By contrast, ORT use ought presumably to be distributed unequally in favour of poor children if they have a higher incidence of diarrhoea. Figure 12 shows that it is indeed the case that diarrhoea is concentrated amongst poor children—the concentration index is invariably negative. Despite this, many countries only manage to achieve a relatively small pro-poor bias in ORT use (the concentration index for ORT is usually larger than the concentration index for diarrhoea) and in some, ORT usage is actually higher amongst better-off children even though diarrhoea is more common amongst poor children.

Figure 11: Level and inequality in immunisation coverage in selected LMICs
(Source: [2])

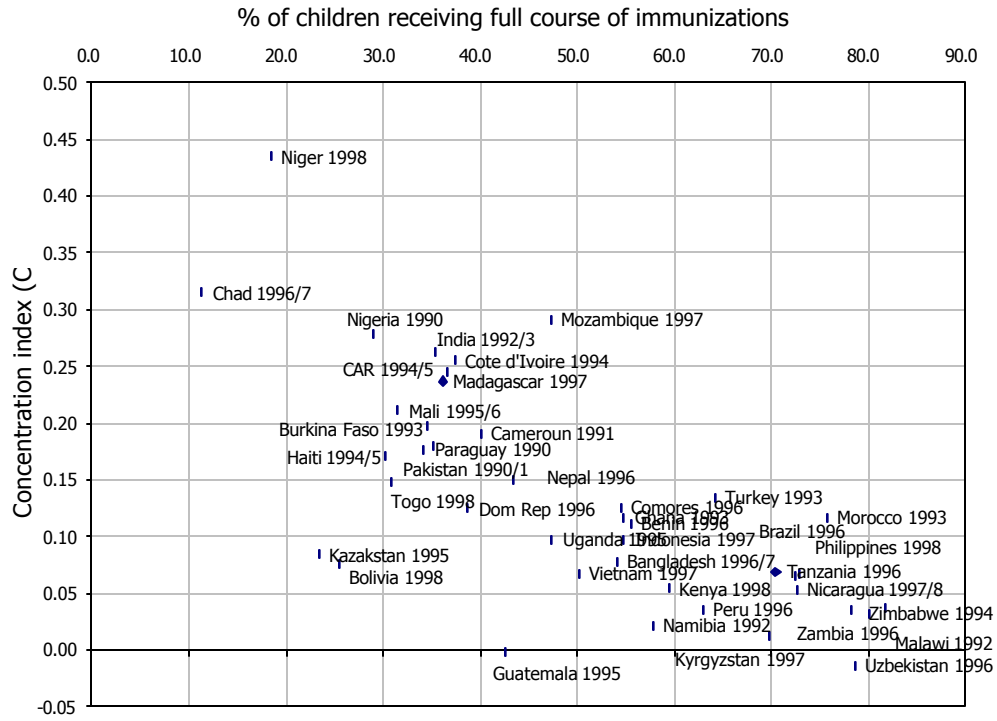
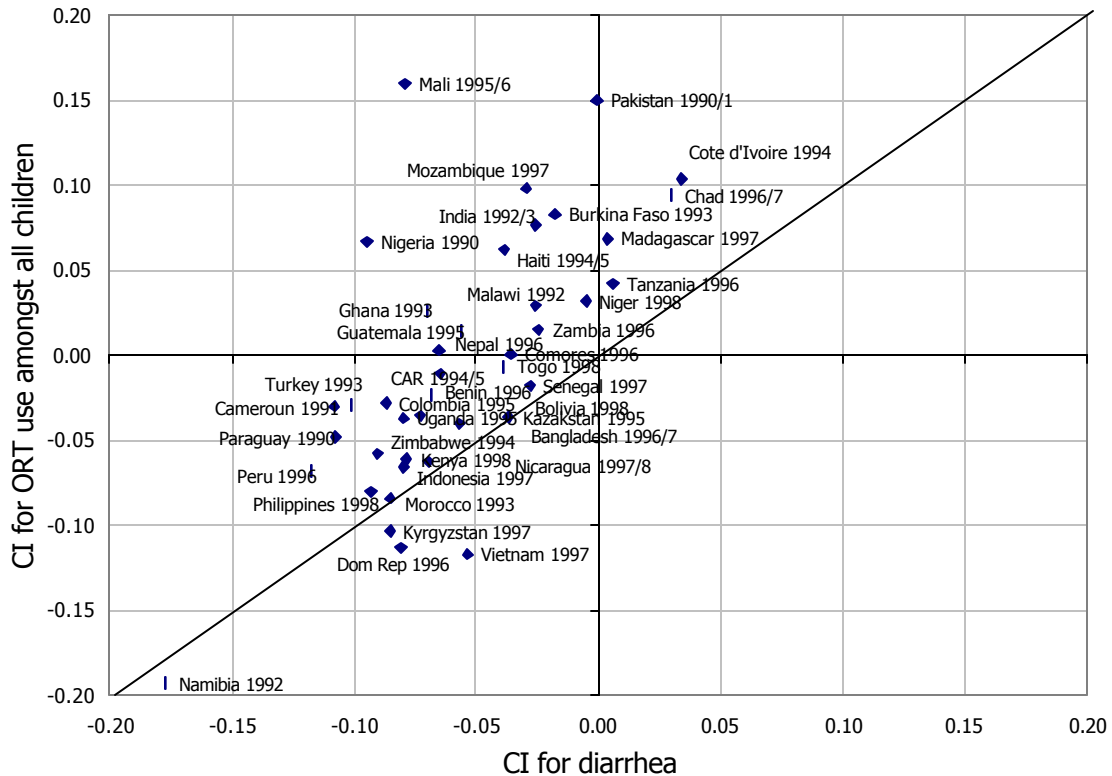


Figure 12: Inequality in diarrhoea incidence and use of ORT in selected LMICs
(Source: [2])



The distribution of the other proximate determinants of health

45. *What of the non-medical determinants?* Relatively little seems to have been written on socioeconomic differences in the other (i.e. non-medical) proximate determinants of health. Kunst [27] notes the higher levels of alcohol consumption amongst the lower socioeconomic groups in Finland and France, and in several eastern European countries. He also notes a tendency for smoking and poor diet to be concentrated amongst the lower socioeconomic groups in northern Europe and the US, but not in France and southern Europe. Marmot and Mustard [65] note that amongst blacks in South Africa, smoking is positively associated with socioeconomic status, whilst amongst whites the opposite is true.

Explaining inequalities in health through inequalities in proximate determinants

46. *Inequalities in determinants matter, but so does their impact.* Suppose that a particular proximate determinant of health—say, utilisation of hospital services—is highly concentrated amongst the better-off. This does not necessarily mean that it is this inequality that is primarily responsible for the inequality in health outcomes. The contribution to inequality in health of a particular proximate determinant depends in part on its distribution across socioeconomic groups, but in part too on its impact on health. If

hospital services do not have an especially strong impact on health, then the fact that they are unequally distributed in favour of the better off may not matter much when it comes to explaining health inequalities between the poor and better off.

47. *How far do inequalities in different proximate determinants matter?* Relatively little work has been undertaken trying to assess the relative contribution of the various inequalities in the proximate determinants of health to the inequalities in health itself. Studies in the HICs that shed light on the issue are the “Whitehall” studies of British civil servants. North et al. [66] sought to explain the strong inverse relation between grade of employment and sickness absence. Several risk factors were identified, including health-related behaviours (smoking and frequent alcohol consumption), work characteristics (low levels of control, variety and use of skills, work pace, and support at work), low levels of job satisfaction, and adverse social circumstances outside work (financial difficulties and negative support). The authors found that inequalities in these risk factors accounted for only about one third of the grade differences in sickness absence. Marmot et al. [67] undertake a similar exercise for coronary heart disease. They find that smoking, lack of exercise and high blood pressure are more common amongst the lower civil service grades, but that cholesterol levels are higher amongst the higher grades. Grade differences in these risk factors account for about 40% of the overall grade difference in the risk of coronary heart disease, with differences in smoking being the single largest contributory factor.

THE UNDERLYING CAUSES OF HEALTH INEQUALITIES

What are the underlying determinants of health?

48. *Gathering evidence on underlying determinants.* Figure 7 distinguished between three types of socioeconomic or underlying determinant—household-level determinants, community-level determinants, and health-system and related-sector determinants. From quantitative studies using survey data, as well as qualitative exercises such as focus groups and consultative exercises, a good deal is known about the factors that are important in shaping health outcomes.

49. *Income as a determinant of health.* At the household level, income (or, more broadly, financial wealth) and education are key determinants, though intra-household inequality (especially along the gender dimension) is also important. In LMICs, at least, as has been seen, the better off tend to use health services more frequently and to a greater degree than the poor. Indeed, they often demand not just more private sector care but also more public sector care [60]. The better off also often use modern providers rather than traditional practitioners [60]. Most dietary and child-feeding practices also improve with higher levels of income. Good sanitary practices—e.g. hand-washing and disposal of faeces—are also usually positively associated with income. Income is often associated as well with the number of children a woman has and the age at which she has her first child. Higher income households also typically provide greater stimulation to children.

50. *Health service utilisation depends on user fees and insurance coverage.* The demand by households for health services is sensitive to the money price they are charged. In Kenya, for example, it has been estimated that an increase in public fees from nothing to 10 Kenya shillings would result in a reduction in the use of public facilities by 18% [68]. In Ghana, an increase in public sector user fees by 50% has been estimated to reduce demand in public clinics by 6% [68]. The impact of user fees depends on a household's income—the poor tend to be more deterred than the better-off, and to be more likely, as a result of fees, to delay seeking care [69]. It is not just fees that deter the prospective patients—it is also the *uncertainty* surrounding payments in environments where informal payments are rife. By reducing the price people pay out-of-pocket for health services, health insurance—whether public or private—tends to encourage greater use of services—a phenomenon termed “moral hazard” by economists [70]. Insurance coverage in one sector (e.g. the private sector) encourages substitution between sectors (e.g. from the public to the private sector) [71].

51. *Education is associated with better health outcomes.* Education leads to better health outcomes, even after controlling for the higher household income that usually goes hand in hand with higher levels of education. For example, education (especially that of women) is strongly associated with the level of health service utilisation, the type of provider, the choice of private versus public provider, dietary and child-feeding practices, and sanitary practices [51]. It is not just general education, but also health-specific knowledge that matters. A recent study in Morocco [72] suggests that, by themselves, general numeracy and literacy do not—at least in Morocco—lead to better child nutrition. What enables women to achieve higher levels of nutrition for their children is the fact that they are able to use their general knowledge and skills to acquire health-specific knowledge.

52. *Women's power affects health outcomes.* Lack of control by women over household resources often harms health outcomes for them and for their family. In many countries, women have only a very limited degree of control over household financial resources, and frequently—though not always—have lower levels of literacy and education. Often these inequalities get translated into inequalities in the control over household decisions relevant to health outcomes. The area of family planning is an obvious example—where women have a low degree of control in the household generally, they tend to exercise relatively little control over the number of children they have and their timing. But there is also a beneficial impact on nutrition outcomes of female control of household resources.

53. *Community matters—geography, infrastructure, but norms and values too.* Moving to the next level of socioeconomic or underlying determinants, community influences matter too. Ecology and geography obviously matter—getting to a health centre is harder if the roads are impassible during the rainy season. The environment also matters—for example, good sanitary practices are harder if the water and sanitation conditions in the local community are poor. Communities often share similar values and norms, and these shared values—through peer pressure—often play a large part in shaping health behaviours [73]. Social pressures amongst teenagers are one example—pressures to take up smoking, to drink alcohol, to use addictive drugs and to engage in

violent activities. Attitudes towards women are also important. A variety of social norms and practices influence women's access to resources (inside and outside the household), such as land, extension services and credit (as well as their decision-making power in the household). These influence the time and energy cost of women's work related to household production and reproduction, placing a direct burden on them and limiting their capacity to engage in productive work, to seek health care, and to devote time and energy to child care. Community influences on household behaviours often operate indirectly through the institutions in communities, such as civic youth clubs, women's groups, and other civic associations. These groups often play a key role in mobilising community action for better health and nutrition. The term "social capital" is sometimes used to describe the norms and networks that facilitate collective action—such as the setting-up of a community nutrition program. There are three key layers of social capital: ties within the community ("bonding"), relations between members of different communities ("bridging"), and connections between communities and formal institutions ("linking") [73]. There is some evidence—at least for the United States—that social capital may be important in shaping health [53, 54].

54. *Health services make a difference.* Moving to the health-system determinants, there is a good deal of evidence on the impacts on health outcomes and health service utilisation of service availability, accessibility, prices and quality. Availability—defined in terms of e.g. staff in local health facilities—often emerges as an important determinant of service utilisation and health outcomes [74-76]. Accessibility—the ease with which people can get to facilities—also emerges as important. One important dimension of this is travel time. This depends on the distance households have to travel, but also the transportation system, the road infrastructure, and geography. Distance is the most frequently encountered variable in empirical studies of utilisation and often has a significant impact on utilisation and health status [74, 77-80]. Price also influences utilisation behaviour and health outcomes. A higher money price tends to reduce utilisation, especially amongst the poor, unless accompanied by improvements in service quality [68]. By the same token, insurance tends to raise the usage of health services [71, 81]. The quality—or more exactly the perceived quality—of health services also influences usage. Studies of willingness-to-pay for changes to health services put quality improvements near the top of the list of things respondents are willing to pay for [68]. Unsurprisingly, the better off are "willing" to pay more for quality improvements than the poor, but willingness to pay for quality improvements is still significant amongst the poor. Measures of perceived quality—e.g. the availability of drugs, opening hours, and the training of staff—do appear in practice to influence households' demand for health services and to impact on health outcomes [68, 74, 80, 82].

55. *Other sectors also matter.* Moving finally to the box labelled "supply in related sectors" in Figure 7, it is clear that the availability, accessibility, prices and quality of other key services also influence household health-related behaviours and hence health outcomes. There is some—but mixed—evidence that food prices and distance to a food market influence child survival and malnutrition [74, 77, 83]. There is also evidence that local water and sanitation conditions influence child health outcomes [74, 76, 84-86].

The distribution of the underlying determinants of health

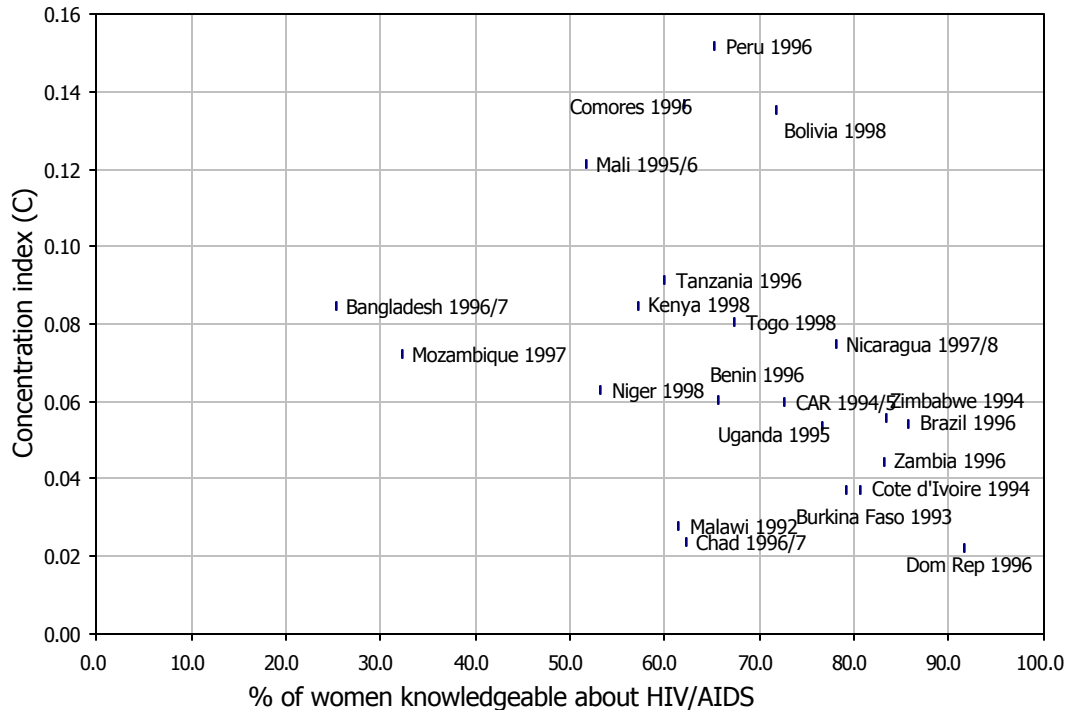
56. *The poor are poor.* At the household level, the obvious source of inequality in health outcomes is household income. Income inequality varies considerably across LMICs, ranging from Gini coefficients in the 0.20-0.30 range in some of the eastern European countries to around 0.60 in Brazil, Sierra Leone and South Africa.

57. *Services are less affordable for the poor.* In many countries, Ministry of Health (MoH) schemes are supposed to provide services free at the point of use, or at least at heavily subsidised prices. However, in practice, in poor countries funding is extremely limited (and often declining sharply), and the range and quality of services offered by public facilities is very low (and often declining). Thus, in practice, the *effective* insurance coverage is much lower than might at first seem, and is often declining [48]. Some countries charge for public health services, sometimes with fee-waiver schemes for certain groups. Looking at what people actually spend does not, of course, indicate the price people face, since for many services there is no such thing as a single fee per health service contact. The cost can rise or fall depending on what is provided—for example, the better-off may choose to spend more per health service contact in the belief this gives them better quality care. Calculating the cost of a *fixed bundle* of services, and expressing it as a proportion of household disposable income, gives an indication of the *affordability* of health services to different income groups. For example, in Vietnam in 1998, the average user charge per spell of inpatient care in a public hospital was equivalent to 45% of the poorest quintile's average annual non-food expenditure [43]. The figure for the richest quintile was just 4%. Even a visit to a polyclinic in Vietnam in 1998 absorbed 9% of the poorest quintile's average annual non-food expenditure. Fee-waiver and exemption schemes are often intended to protect the poor from user fees, but there is evidence [43, 69, 87] that in practice they benefit better-off groups, such as the military and civil servants, to a surprisingly high degree. Insurance—both social and private—tends to be even more concentrated amongst the better off. For example, in Jamaica, 23% of the richest quartile had private insurance coverage in 1989, whilst only 1% of the poorest quartile did [71]. Inequalities are often evident too in *social* insurance coverage. For example, 29% of the richest quintile in Vietnam in 1998 was covered by the social insurance programme, whilst only 6% of the poorest quintile was.

58. *The poor have less knowledge.* Another key factor at the household level is the unequal distribution of education—especially mother's education. Filmer and Pritchett [34] show how much lower the educational enrolment and attainment of the poor is in many countries, but also how the inequality varies across countries. Furthermore, and especially relevant for child health, the inequality by wealth is usually larger for girls than for boys, and is almost always larger in west African countries [88]. But it is not just general education that is unequally distributed. Health-specific knowledge is highly unequally distributed between the poor and the better off. Figure 13 shows the large gaps in knowledge about HIV/AIDS between poor and better-off women. In some cases, the large gaps are in countries where HIV prevalence is fairly low (e.g. Bolivia, Mali and Peru). But there are large gaps in high-prevalence countries too, notably the Central African Republic, Kenya, Mozambique, Tanzania and Zimbabwe. Intra-household

inequality—especially along the gender dimension—also tends to be greater amongst poorer households.

Fig 13: Inequality in knowledge about HIV/AIDS amongst women in selected LMICs
(Source:[2])



59. *Poor communities can be held back by social norms.* At the community level, too, it is clear that the poor are disadvantaged. For example, they are more likely than the better-off to live in remote areas where the roads become impassable at certain times of the year. Social pressures amongst teenagers tend to be strongest in poor communities, and attitudes towards women tend to be less favourable to good health outcomes in poor communities. In terms of social capital, the poor tend to have a lot of “bonding” social capital, a moderate amount of “bridging” social capital, but very little “linking” social capital [73].

60. *Health facilities serving the poor are inadequate.* At the health system level, the poor are further disadvantaged. Taking into account population size, the poor may not always be disadvantaged in terms of availability of some facilities—e.g. primary health facilities—but are clearly at a disadvantage in terms of accessibility, tending to have to travel further [82] and for longer [60]. Quality of care—interpreted broadly to include service and amenities, as well as technical quality—also tends to be lower in facilities serving the poor. This is not always easy to measure. Official statistics often provide information on the availability of drugs, medicines, growth monitoring and immunisation programs, and so on, but these often paint a rosier picture of quality than is warranted. A facility survey in Côte d’Ivoire [79] found a substantial divergence between drugs and medicines that were supposed to be available, according to government records, and those that were actually available, according to the facility survey. These data revealed

clear gaps between poor rural areas and better-off urban areas in the proportions of facilities with immunisation and growth monitoring programs. Finally, the poor often face a higher price at the point of use than the better off, simply because they are less likely to have insurance coverage. This is sometimes offset by fee-waiver schemes but in practice these often end up exempting the near-poor from fees rather than the poor [87].

61. *Poor communities lack water, sanitation and infrastructure.* Survey data also often reveal some large differences between poor and nonpoor households in availability of good drinking water and sanitation. It is not just type and location of drinking water source that varies by economic status—often the poor pay more in terms of money (piped water is often subsidised) and time (poor women especially have to walk long distances to collect water).

Explaining inequalities in health through inequalities in underlying determinants

62. *Decomposing the underlying causes of health inequalities.* In just the same way as one cannot conclude from socioeconomic distributions alone which proximate determinants are central to understanding the causes of health inequalities, so too is it impossible to conclude which socioeconomic determinants are most relevant simply by looking at their distribution across, say, income quintiles. As before, what is required is a framework linking distributional information to estimates of the impacts of the various socioeconomic determinants on health outcomes. This can be done [89] by using a regression framework, which links health to its underlying determinants, and then decomposing the concentration index for health outcomes into inequalities in its determinants.

63. *Underlying causes of inequalities in child survival.* This method has been used [86] to unravel the underlying causes of inequalities in childhood survival in Cebu, the Philippines. Several significant determinants of child survival were identified, including mother's education, household income, health insurance coverage, drinking water availability, sanitation conditions, travel time (or distance) to various health service facilities, staffing levels in local primary care facilities, and the availability locally of vitamins, vaccines, ORT and female contraceptives. Most important amongst these, in terms of its contribution to survival inequalities between poor and non-poor children, was income. Inequalities in mother's education were also found to be a major factor. Inequalities in health service availability were found to be relatively small, so that although they were found to be important influences on the average child's survival prospects, they did not help explain survival differences between poor and non-poor children.

64. *Causes of increased inequalities in malnutrition.* Another paper [89] has used this method to examine the causes of increased inequalities in malnutrition in Vietnam over the period 1993-98. The paper finds that inequalities in height-for-age in 1998 are largely accounted for by inequalities in household consumption, but that inequalities at household level in water and sanitation are also important, as are inequalities in unobserved community-level factors. The rise in inequality in height-for-age in Vietnam between 1993 and 1998 is estimated to be due largely to increased impacts of household

consumption and women's education on child malnutrition, rather to other factors such as rising consumption inequality. However, these effects appear to have been partially offset by inequality-reducing changes in unobserved community-level factors.

7. TACKLING HEALTH INEQUALITIES

WHICH PUBLIC POLICIES IMPACT ON HEALTH INEQUALITIES?

65. *Levels of policy and linkages.* Claeson et al. [48], using the framework in Figure 7, emphasise that there are three key levels of government action—the macro level, the health system, and the micro level. Government decisions and actions at each level influence the amount households pay for their health care (financing), and the quantity, quality and type of services they receive (delivery). At the macro level, governments decide how much to spend on health care (and related services) and where, and how to raise the revenues to finance them. At the system level, they decide the mode of service delivery and how to regulate the private sector, and how much to charge for different services and how far to exempt the poor from fees. At the micro level, they influence the accountability of providers and the services and interventions they deliver, and how best to implement facility-based revenue collection schemes. There are, in short, many ways that governments can potentially influence both health gaps between the poor and better-off, and the degree to which poor households are affected disproportionately by the costs of health services.

66. *Paucity of evidence on impact of policies on inequalities.* Whilst there is much common-sense advice that can be offered to governments on these matters [48], there has been remarkably little academic research that assesses the intended and unintended impacts of government policies on health inequalities. Rather, the evidence tends to be very piecemeal. For example, it might be argued—and often is [90]—that travel time to health facilities influences the utilisation of facilities, that the poor have to travel for longer than the better off, that transport policies can influence travel time, and therefore improving transport systems ought to be one of the measures taken to help reduce health inequalities. What is missing from such claims is evidence showing that governments with pro-poor transport policies do indeed manage to achieve smaller gaps between the poor and better off in health outcomes, and that such policies produce larger impacts, per dollar of taxpayer's money spent, than other policies. A limited number of studies have, however, been undertaken that shed some light on the impact of policies on health inequalities. These include some broad-brush studies trying to link government policies to health inequalities and utilisation inequities, and some micro-based work trying to evaluate the impact of specific interventions and programs on the health and health service utilisation of the poor.

THE IMPACT OF POLICIES ON HEALTH INEQUALITIES

67. *Why do some OECD countries have higher health inequalities than others?* Van Doorslaer et al. [30] explore the role of four factors in influencing the level of health inequality in selected OECD countries. Two relate to health expenditures—the level in per capita terms, and the public share. The others relate to policies outside the health ministry—the level of income per capita, and the inequality in per capita income. The authors regress concentration indices capturing levels of health inequality amongst adults on these four variables for nine OECD countries. They find that neither total health care expenditure per capita, nor the percentage spent publicly, has any statistical association with health inequality. Of the two income variables—the GDP per capita and the Gini coefficient of income inequality—only the latter proved to bear a consistent and significant positive association with health inequality. It appears, therefore, that income-related inequality in health is more associated—in these countries, at least—with the distribution of income in a society than to its aggregate income level or its levels of health spending. This is, however, a small sample of OECD countries and the variables included do not capture very well the various dimensions of the health policies of the countries analyzed.

68. *Does government health spending narrow health inequalities?* The results of Bidani and Ravallion [91] imply somewhat different conclusions. They find that at both one-dollar-a-day and two-dollar-a-day poverty lines, public health spending has a larger impact amongst the poor than amongst the nonpoor, and that female education enrolment has a larger impact amongst the poor at \$2 a day but a smaller impact at \$1 a day. By having a larger impact on the poor, public health spending thus serves to reduce health inequality between the poor and nonpoor. The same is true of female education at \$2 a day, but not at \$1 a day. The implication is that countries that have small gaps between the health of the poor and nonpoor do so because they have high levels of public spending on health and high female education enrolment (in the case of the \$2 poverty line).

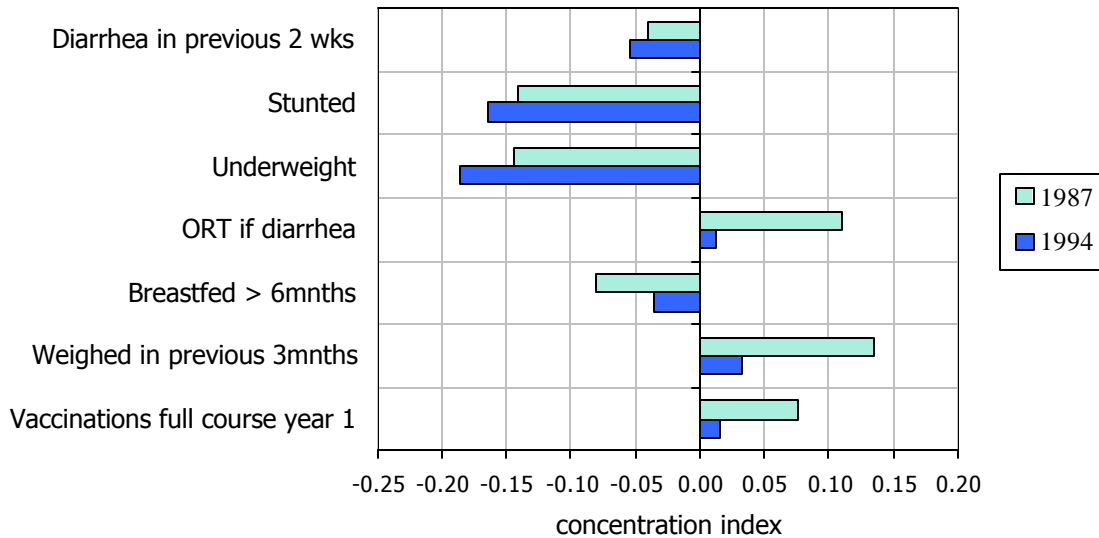
69. *Why do some countries have more equitable health systems than others?* Van Doorslaer et al. [57] explore the extent to which the cross-country differences in inequality and inequity in health care utilisation in Figure 8 reflect health system features. They find some evidence that the results may reflect differences across countries in how the poor and better off fare with respect financing and revenue-collection. In Belgium and Ireland, the lower income groups tend to be exempt from copayments for general practitioner (GP) care, and it is precisely in these two countries that the distribution of GP utilisation is most pro-poor. The impact of insurance coverage is less evident. There is some evidence that the poor in the US do less well than they ought, given their need, which might be thought to be at least in part to lack of health insurance coverage. But the same happens in East Germany (as it then was), Denmark and Sweden, all of which have universal and comprehensive public insurance coverage. There is some evidence, however, that the characteristics of the delivery system get reflected in the distribution of

utilisation across income groups. The authors suggest, for example, that differences across the Dutch income distribution in how specialists get paid—salary for the poorer sickness fund members, fee-for-service for the better-off privately insured—may be a factor behind the tendency for the better-off to have higher specialist visit rates. There is, however, no strong evidence of any distributional of a GP gatekeeper scheme. It might be thought that by requiring patients to be referred to a specialist, the system could better target resources on those who need them most and reduce the tendency of the better off to secure more resources than merited on the basis of need. In many countries, the distribution of specialist visits—even after controlling for need—is indeed found to be pro-rich, but this happens both in countries where the GP acts as a gatekeeper and in countries where patients can go directly to a specialist.

THE IMPACTS OF SPECIFIC PROGRAMMES ON HEALTH INEQUALITIES

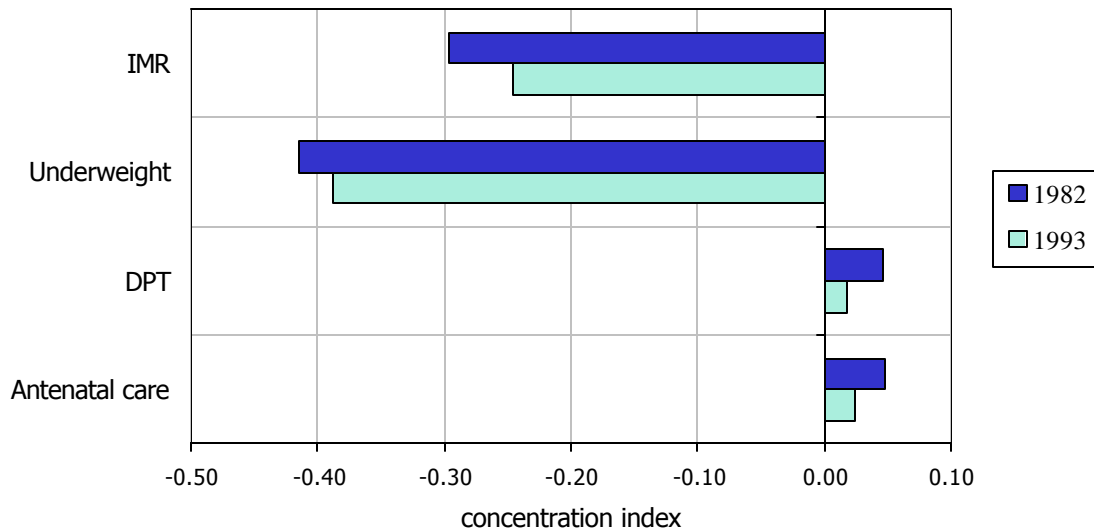
70. *Did Ceara's MCH programme narrow health inequalities?* One study examining the distributional impact of a specific program has already been mentioned in section II—the evaluation of the Ceara initiative by Victora et al. [23]. This program aimed at improving maternal and child health outcomes in rural Brazil, and placed a strong emphasis on building trust between government health workers and the poor [22]. The initiative resulted in some substantial improvements in average service usage and health outcomes. The distributional data presented by Victora et al. are simply before-and-after data, the implicit counterfactual being persistence of the status quo. Nonetheless, the results are interesting. As is clear from Figure 14, which reworks their data into concentration indices, the initiative substantially reduced the inequality between poor and better-off children in vaccination coverage, weighing and ORT use. Despite this, there was a widening in the gap between poor and better-off children in all three outcomes (the prevalence of diarrhea, stunting and underweight). It seems likely that this was caused, in part, by the reduced pro-poor inequality in breastfeeding—women in all income groups were more likely in 1994 than in 1987 to have breastfed their child for at least six months, but the increase was substantially higher amongst better-off women.

Figure 14: Inequalities in service use and child health outcomes, Ceara, Brazil
(Source: Derived from data reported in [23])



71. *Did policy changes in Pelotas narrow health inequalities?* In the same paper, Victora et al. also examine the combined impact of a variety of programs introduced in the Brazilian city of Pelotas over the period 1982-93. These included a large increase in the number of first-line government health facilities, the introduction of three neonatal care units, and a general increase in government expenditure on preventive and curative health. Over the period, the IMR fell from 38.9 to 20.9, and the prevalence of underweight fell from 6% to 4%. These were accompanied by increases in the proportions of pregnant women receiving antenatal care (from 85% to 91%) and children receiving three doses of DPT in their first year of life (from 83% to 90%). Victora et al. present data that allow the distributional impact to be assessed, the implicit counterfactual being, as before, persistence of the status quo. Figure 15 presents their results in the form of concentration indices. As is clear, the decade saw substantial reductions in the inequality between poor and better-off children in vaccination coverage and receipt of antenatal care. These improvements were accompanied by reductions in the gap between poor and better-off children in the prevalence of underweight and the IMR. However, the percentage reductions in inequality in these two outcomes (6% and 17% respectively) were much smaller than the percentage reductions in inequality in DPT coverage and antenatal care receipt (61% and 51% respectively).

Figure 15: Inequalities in service use and child health outcomes, Pelotas, Brazil
(Source: Derived from data reported in [23])



72. *Have social funds reduced health inequalities?* Social funds have been set up in over 50 countries to date. These directly finance small community-managed projects, many of which—rural health clinics, water, sanitation, etc.—potentially have impacts on health outcomes. The effects of many of these have been or are being evaluated, with a view to the questions of how far they reach the poor and what impact they have on use and outcomes. Preliminary results in unpublished World Bank evaluations suggest that health sector and water projects have reached the poor reasonably well, but that sanitation projects have largely benefited the better-off. Evaluations also suggest that health facilities constructed using social funds have often been better or at least as good as other facilities in terms of staffing and capital equipment, but no better in terms of the availability of medicines. Health facilities funded through social funds have increased utilisation, but only in one country to date (Bolivia) has there been any significant estimated effect on health outcomes (child mortality).

8. MEASURING FINANCIAL PROTECTION

73. *Household health expenditures reduce disposable income.* In addition to a concern to improve the health of the poor, a concern is also evident in the international development community over the impact of medical care costs and lost earnings on a household's ability to purchase things other than medical care. In other words, in addition to the desire to ensure that health improvements occur (especially amongst the poor), there is a desire to ensure that this is not at the expense of excessive drops in the living standards of the households involved.

74. *What matters—inequality or poverty?* One interpretation of this concern is that the distribution of the costs of obtaining health care should not be such as to increase the degree of income inequality. In other words, there should not be more inequality in the income households have available “after” health care payments than there was “before”. Regressive payments (i.e. payments that absorb a larger share of a poor household's

income than of a rich household's) would violate this requirement. This is the issue of “redistributive effect” [92]. An alternative interpretation is that the costs associated with ill health should not drive households into poverty, or drive them further into poverty if they are already there. In other words, the distribution and size of medical care costs and lost income should not be such as to raise the proportion of households or people in poverty (the headcount) or to raise the average depth of poverty (the poverty gap) [93]. There is, of course, no right answer to the question of whether one should focus on the effect of health care spending on poverty or on its effect on income inequality. Both are legitimate concerns, but they are different concerns.

MEASURING AND DECOMPOSING REDISTRIBUTIVE EFFECT

75. *Measuring redistributive effect.* The redistributive effect of a tax—i.e. the impact of a tax on the distribution of income—can be measured by the change in income inequality brought about by the tax. The same reasoning can be applied to health care payments. One common measure of income inequality is the Gini coefficient. This is similar in logic to the concentration index discussed above, where the horizontal axis shows the cumulative proportion of individuals or households ranked by income, as in Figure 2, but where the vertical axis measures not the cumulative proportion of ill health but rather the cumulative proportion of income. The resultant curve—known as the *Lorenz curve*—lies below the diagonal and the Gini coefficient is defined as twice the area between the line of equality and the Lorenz curve. The degree of redistributive effect in this case is simply the difference between the Gini coefficients “before” and “after” the tax or health care payment, denoted below by *RE*. When *RE* is positive, income redistribution is said to be pro-poor (there is less inequality after the tax or health care payment than before), and when it is negative income redistribution is said to be pro-rich.

76. *Decomposing redistributive effect.* *RE* can be shown [94] to be equal to $V - H - R$, where *V* captures *vertical* income redistribution, *H* horizontal inequity and *R* reranking. This decomposition separates out vertical and horizontal differences—i.e. payment differences by people on *different* incomes and payment differences by people on the *same* income. *V* indicates the change in income inequality that would have been brought about by health care payments if everyone at each pre-payment income level had paid the same amount towards health care. In other words, *V* abstracts from the payment differences arising at each income level. For any particular type of payment, *V* is increasing in two things: the average share of income absorbed by the payment type (or the *budget share*), and its progressivity. The latter measured by Kakwani's [95] index, computed on the assumption that at each income level everyone spends the same amount on health care. A positive value of *K* indicates a progressive payment structure, whilst a negative value indicates a regressive structure. The formula linking *V* to *g* and *K* is simply $V = [g/(1-g)]K$. *H* is classical horizontal inequity—people on the same income paying different amounts—and is measured by the degree of inequality in post-payment income within each group of pre-payment equals. If at each pre-payment income level, all households pay the same towards health care, inequality in post-payment income will be zero for each group of prepayment income equals. Any inequality within any group

counts as horizontal inequity. H is non-negative, and any horizontal inequity necessarily reduces RE . This is simply a reflection of the fact that since horizontal inequity entails inequality in post-payment incomes within at least some groups of pre-payment equals, it will always leave the post-payment income distribution more unequal than would have been the case in the absence of horizontal inequity. The last term, R , captures the degree of reranking in the move from the pre-payment to the post-payment income distribution. The case of the Vietnamese man from *Voices of the Poor* cited in the Introduction is an example of how health care payments can cause people to move up or down the income distribution. If there is any reranking, RE will be lower than would otherwise be the case.

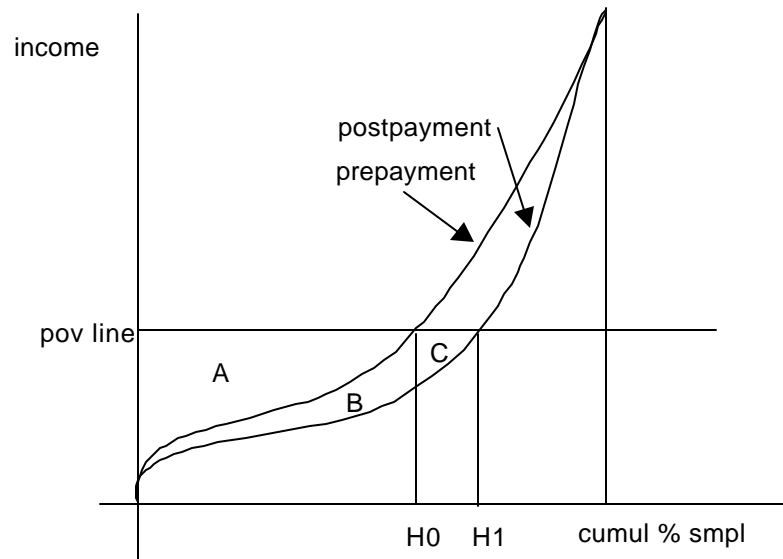
THE POVERTY IMPACT OF HEALTH CARE PAYMENTS

77. *Poverty impact is different.* Redistributive effect simply indicates how income inequality is affected by out-of-pocket payments. It does not indicate whether these payments push households into poverty.

MEASURING POVERTY IMPACT

78. *Pen's parade and the measurement of poverty impact.* Figure 16 from [93] provides a simple framework for examining the impact of out-of-pocket payments on the two basic measures of poverty—the headcount and the poverty gap. It also allows one to relate progressivity and redistributive. The chart is a variant on Pen's parade, named after the Dutch economist Pen who invented it. The parades plot household income (before and after out-of-pocket payments) along the y -axis against households ranked by pre-payment income along the x -axis. Reading off the parade at the poverty line gives the number of households living below poverty—the *headcount*. The area below the poverty line above the parade gives the poverty gap—the total shortfall from the poverty line. In the case of the pre-payment parade the headcount is H_0 and the poverty gap is equal to area A . In the post-payment parade, assuming the same poverty line is applied (one could argue for a slightly lower line, of course), the headcount is H_1 and the poverty gap is equal to the area $A+B+C$. Area B represents the deepening poverty experienced by households who were already poor before out-of-pocket payments. Area C corresponds to the addition to the poverty gap caused by households who were not poor before out-of-pocket payments but *are* poor after their out-of-pocket payments.

Figure 16: Pen's parade—before and after out-of-pocket payments



79. *What influences poverty impact?* Wagstaff et al. [93] explore the links between poverty impact, on the one hand, and progressivity and redistributive effect, on the other. They show that, in general, providing the poverty line is not too high, the poverty impact of out-of-pocket payments will be greatest if out-of-pocket payments are regressive and smallest if they are progressive. They also show that, like redistributive effect, the poverty impact is larger, for a given progressivity level, the larger is the share of income absorbed by out-of-pocket payments. Finally, they show that poverty impact is greater the smaller is the average level of pre-payment income.

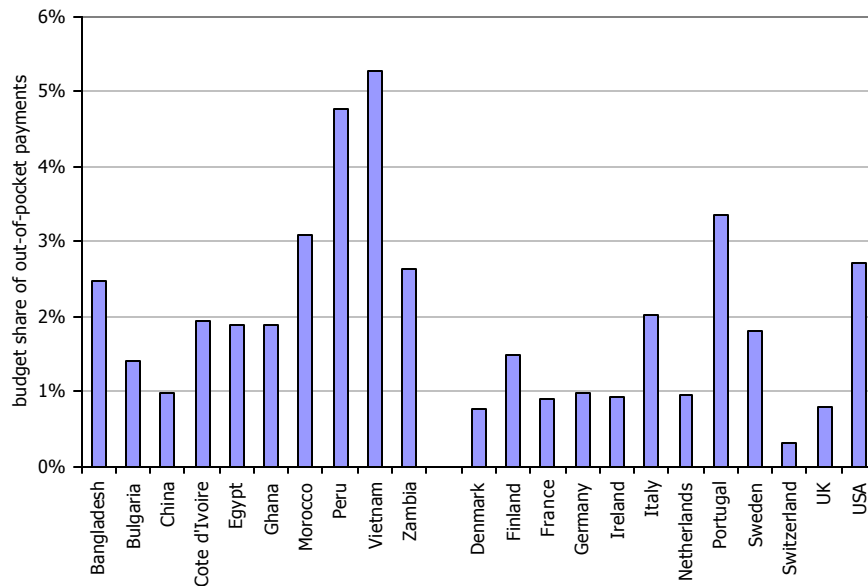
9. FINANCIAL PROTECTION—EVIDENCE AND EXPLANATION

ESTIMATES OF REDISTRIBUTIVE EFFECT

80. *The redistributive effect of out-of-pocket payments.* Other things equal, the redistributive effect of out-of-pocket payments is larger the larger the budget share of out-of-pocket payments. Figure 17 shows estimates of this for a variety of LMICs and OECD countries. There is considerable variation but it is clear that the share of income absorbed by out-of-pocket payments tends to be higher in the LMICs than in the OECD countries. Figure 18 shows progressivity and *RE* estimates for out-of-pocket payments for various OECD and LMICs [96]. In the OECD countries, a clear pattern emerges: out-of-pocket payments are regressive and hence are associated with pro-rich redistribution. The poor are, on other words, using services and spending a proportionately larger share of their income on them than the better-off. In the LMICs, by contrast, there are two groups of countries. At one extreme are China and Peru, with

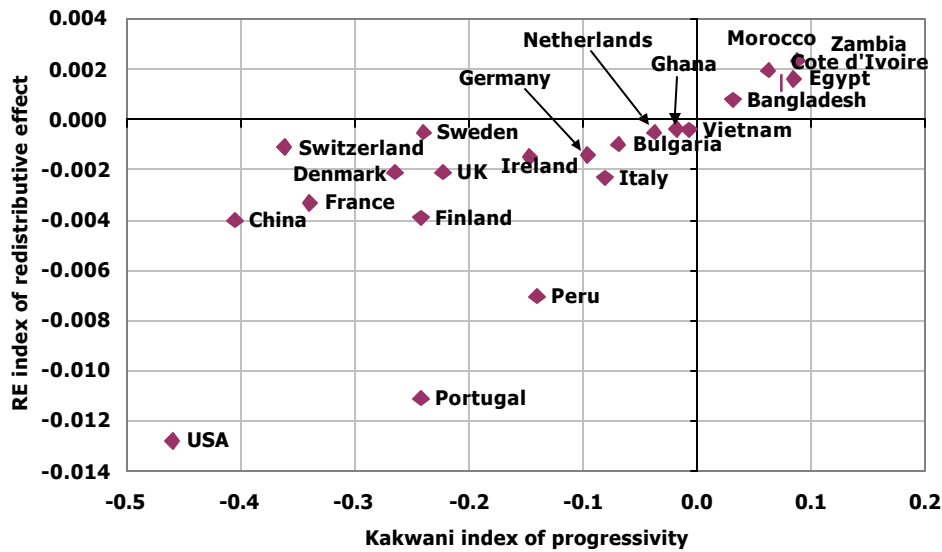
very regressive out-of-pocket payments. Here the poor are evidently using services but paying a large share of their income for them. Out-of-pocket payments in these countries leave the distribution of income more unequal. At the other extreme are countries like Zambia and Egypt, and India (not shown in the chart), where out-of-pocket payments are progressive and where it is predominantly the better-off who are paying for health services. It is, of course, possible that in these countries, the poor are *using* services as much as—if not more than—the better-off but not *paying* for them (e.g. because of fee-waiver schemes). However, the evidence from section 6 suggests that it is more likely that the poor are simply using services less than the better-off in these countries. In these countries, the distribution of income after out-of-pocket payments is *more* equal than before.

Figure 17: Shares of income spent on out-of-pocket payments for health care



Source: [93, 96]

Figure 18: Progressivity and redistributive effect of out-of-pocket payments



Source: [93, 96]

81. *Probing further—out-of-pocket payments in Vietnam.* As is clear from Figure 18, out-of-pocket payments exerted a very small disequalising effect on the income distribution. This can be decomposed more fully using the $RE=V-H-R$ decomposition [92]. The term labeled $V\%$ in Table 1 expresses V as a percentage of RE and shows the relative importance of horizontal differences and reranking. V indicates what RE would have been in the absence of horizontal differences and reranking, so a value of $V\%$ of, say, 50% says that in absence of horizontal differences and reranking, the pro-rich income redistribution associated with out-of-pocket payments would have been only 50% of its actual value. In the event, $V\%$ is around 40% in 1993, indicating that horizontal differences and reranking combined are responsible for over half of the (small amount of) pro-rich income redistribution associated with out-of-pocket payments. In fact, the majority of the redistributive effect that is not due to progressivity is due to reranking rather than to horizontal inequity.

82. *Changes in redistributive effect of out-of-pocket payments in Vietnam 1993-98.* Between 1993 and 1998, out-of-pocket payments became even less redistributive. This reduction in RE in absolute value was roughly equally attributable to changes in vertical redistribution (V) and to changes in horizontal differences and reranking (H and R). The fall in V by 60% was only very marginally due to the reduction in the overall share of pre-payment income absorbed by out-of-pocket payments, in turn due to the higher user fees at public facilities over this period being more than offset by smaller outlays on medicines (the latter being due to the 30% reduction in their real price) [43]. By far the more important factor underlying the change in V was the reduction in the regressiveness of out-of-pocket payments. Over the period in question, the Kakwani index changed (became less regressive) by nearly 60%. This presumably reflects the large share of out-

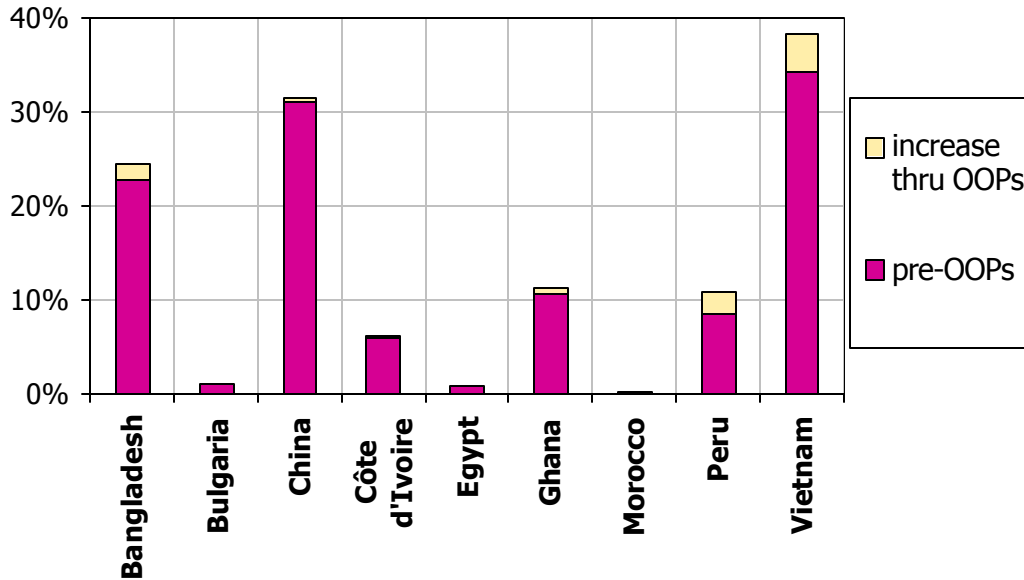
of-pocket expenditures absorbed by drugs (especially for the poor) and the fall in the real price of drugs [43]. The offsetting effect of increased fees in public facilities seems to have had little impact on the financing burden per se. By 1998 the fees in the public sector had become so high relative to the average poor household's income (cf. above) that it seems likely that the rise in fees simply deterred the poor from using services. Also of note in Table 1 are the reductions in the values of H and R . The percentage reduction in H is larger, so that reranking accounts for an even larger share of the additional redistributive effect in 1998. Although H and R both decline, their overall decline (40%) is smaller than the change in V . Their contribution to redistributive effect, reflected in $V\%$, inevitably therefore rises—horizontal differences and reranking were more important as sources of redistributive effect in 1998 than they were in 1993.

Table 1:
FFC and RE decomposition for out-of-pocket payments in Vietnam, 1993 and 1998

	1993	1998	% change
FFC	0.9557	0.9617	1%
G_{pre}	0.3444	0.3700	7%
RE	-0.0053	-0.0028	-48%
g	6.0%	5.5%	-8%
K	-0.0325	-0.0139	-57%
V	-0.0021	-0.0008	-61%
H	0.0014	0.0007	-52%
R	0.0019	0.0013	-31%
$H+R$	0.0033	0.0020	-40%
$V\%$	38.5%	29.2%	
$H\%$	-25.8%	-23.7%	
$R\%$	-35.6%	-47.1%	
$H+R\%$	-61.5%	-70.8%	

ESTIMATES OF POVERTY IMPACT

83. *The poverty impact of out-of-pocket payments.* Figure 19 from [93] shows the estimated impact of out-of-pocket payments on the headcount in various LMICs. In none of the countries is the impact especially large—the largest impact is in Vietnam where the headcount rises by around four percentage points. Calculations along similar lines suggest that out-of-pocket spending on hospital care might have raised the headcount in India by two percentage points.

Figure 19: Estimates of headcount impact of out-of-pocket payments (OOPs)

EXPLAINING REDISTRIBUTIVE EFFECT AND POVERTY IMPACT

84. *The dog that didn't bite?* Despite the widespread concern over their adverse distributional consequences, the evidence that out-of-pocket payments in LMICs are highly regressive or drive households into poverty is not overwhelming. Out-of-pocket expenditures on health depend on the quantity of services used (i.e. utilisation) and on the price paid per unit of service. As has been seen, in LMICs—unlike HICs—utilisation is invariably higher amongst the higher income groups—often dramatically so. The relationship between price and income is less clear-cut. On the one hand, the failure of fee-waiver schemes to cover the poor, and the concentration of private and social insurance amongst the better-off, tends to make for a lower price amongst the high income groups. On the other hand, the fact that the better-off often spend more per health service contact (presumably in the hope of getting better quality care), tends to make for a higher price amongst the better-off. Overall, though, because utilisation is often so much higher amongst the better-off, it not should come as too much of a surprise that out-of-pocket expenditures are apparently invariably a larger share of household income amongst richer households in the LMICs, or that the poverty impact of out-of-pocket payments also seems small.

85. *But fee waivers and insurance do matter.* This is not to say that making fee-waiver schemes work better for the poor and extending health insurance to the poor are not important. Rather that their importance seems likely to be more in terms of ensuring the poor use health services than in terms of reducing the distributional consequences of services they are already using.

10. CONCLUSIONS

86. *Measurement issues are well understood.* As is apparent from the foregoing, there is a good deal that is known in the field of equity, poverty and health outcomes. On the measurement, a good of work has been done. Measures of health sector inequalities are available that are firmly grounded in the inequality literature and hence have properties that are well understood. The limitations are well known, and indices are available that respond to these limitations, by, for example, allowing the analyst to specify the degree of aversion to inequalities between the poor and better-off. Standard-error estimators are also available, enabling significance tests to be undertaken on survey data, as are indices of “achievement”. The latter capture not only the degree of poor-nonpoor inequalities but also the mean. Indices of the distributional impact of health spending are also available, which are firmly grounded in the literature on income redistribution and poverty.

87. *Evidence is accumulating on health inequalities...* There is extensive evidence now on poor-nonpoor inequalities in health outcomes for children in the developing world. This shows gaps between poor and better-off children in survival prospects and malnutrition, but these gaps vary across countries. There is much less on adult health outcomes, but what there is suggests the existence of poor-nonpoor inequalities.

88. *their proximate causes...* A good deal is known about inequalities in health service utilisation—both utilisation generally and utilisation of child health services. In contrast to the situation in OECD countries, where the poor tend to be more intensive users than the better-off, the poor in LMICs are typically fare less intensive users of services—including public services—than the better-off. Less is known about the inequalities in the other proximate determinants of health—feeding and sanitary practices, etc. Virtually nothing seems to be known in the developing world about the extent to which inequalities in different proximate determinants of health are responsible for inequalities in health outcomes. Such an analysis of British civil servants suggested that inequalities in smoking are the single biggest cause of inequalities in coronary heart disease.

89. *and their underlying causes.* There is a good deal of evidence on inequalities in the socioeconomic or underlying determinants of health, but this evidence is scattered and does not lend itself to making comparisons between the size of inequalities in, say, accessibility of health services and inequalities in, say, insurance coverage. There has been only a small amount of work to date that enables inequalities in health to be decomposed or “unpacked” into inequalities in the various underlying determinants. The evidence to date suggests, perhaps unsurprisingly, that it is not so much inequalities in the availability and accessibility of health services that accounts for inequalities in survival and malnutrition between poor and better-off children in the developing world but rather inequalities in income, mother’s education and sanitation.

90. *Evidence too on the distributional impact of health spending.* There is now evidence for the developing world on the impact of out-of-pocket payments on the distribution of income and on poverty. This shows that more often than not, out-of-

pocket payments absorb a higher share of income of the better-off than the poor (i.e. are *progressive*) and hence tend to *narrow* the income distribution rather than widen it. Where regressive, out-of-pocket payments are not often especially so, and therefore only marginally widen the income distribution. The evidence on poverty impact suggests that there is some variation across countries, but that in most the impact on the headcount is probably fairly small. Both findings are consistent with the far higher rates of utilisation amongst the better-off in the developing world.

91. *Less is known about the effects of policies and programmes.* Far too little empirical work has been undertaken on the impact of policies and programmes on health inequalities. There is mixed evidence on whether public spending on health and promoting female education reduces health inequalities. There is some evidence from the OECD countries that exempting the poor from user charges for primary care promotes a pro-poor utilisation pattern, but the OECD evidence on the impact of insurance coverage on inequalities in health service utilisation is mixed. There is some evidence that variations in provider-payment systems for patients at different income levels is reflected in the distribution of utilisation by income, but little evidence that using a GP as a gatekeeper promotes equity in utilisation. Limited evidence is available on the distributional impact of specific programs. The Ceara initiative in Brazil seems to have been associated with widening gaps in health outcomes between the poor and the better off, while the programs introduced in Pelotas, Brazil, over the period 1982-93 were associated with a narrowing in child health gaps. In neither case, however, were there any controls, so one should be cautious about attributing the changes to the programs. It is on the issue of evaluating the distributional impact of policies and programmes that much more work needs doing.

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