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Poverty and Inequalities in Health

by
Alan Shiell

DISCUSSION PAPER 86

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June 1991

The Author

Alan Shiell was a Research Fellow in the Centre for Health Economics, University of York and is now a Research Fellow in the Centre for Health Economics Research and Evaluation, Sydney, Australia.

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POVERTY AND INEQUALITIES IN HEALTH

Introduction

The first objective of the World Health Organisation's 'Health For All' policy is the reduction of health related inequalities by some 25 per cent (WHO 1985). The UK Government's endorsement of the HFA targets therefore indicated that health inequalities should never have been off the political agenda. Their continued importance as an issue of health-policy was confirmed recently by the health minister, William Waldegrave, who announced that the reduction of the remaining inequalities in health should be a prime aim of health services. The purpose of this paper is to explore the possibilities for reducing health inequalities by reconsidering the role structural or material conditions play in their determination and the role health care might play in their eradication.

Since the work of people such as Chadwick and Rowntree no one has doubted the association between ill health and poverty and so it is reasonable to question why the link should be reconsidered here. One reason is the pace of economic change in the UK during the 1980s. This period was characterised initially by increased unemployment, widened income differentials and then rapid economic growth which brought a fall in the rate of unemployment. By the end of the decade, the economic boom had ended and the economy was entering a recession which some commentators have suggested may be the worse since the 1930's. The effect of these economic changes on the levels of poverty is disputed and the effect on health inequalities is unknown. In this paper, the evidence on the numbers of people living on low incomes and the relationship between ill health and personal economic circumstances is

reviewed before consideration is given to the implications of each on policy to reduce health inequalities.

Concepts of poverty

Discussion of the numbers of people living in poverty is clouded by the lack of political consensus about what constitutes poverty and where the poverty line should be drawn. In a speech delivered in May 1989, John Moore MP, the then Secretary of State for Social Security, argued that poverty in the absolute sense had been eradicated by economic success and that relative poverty was actually inequality. It was further claimed that inequality in income, far from being something to eradicate, was necessary to ensure the economic growth by which the living standards of all, including those living on relatively low incomes, were raised over time. The theory underlying this argument is that substantial changes in the real incomes of high earners 'trickle down' into smaller but still positive increases in the living standards of the poorer members of society.

Some evidence in support of this argument is provided by changes in the distribution of earnings since 1973. Before 1979, the degree of inequality in the distribution of earnings had narrowed slightly and though average real earnings increased, the change was small. After 1979, average real earnings increased sharply as did the difference between top and bottom incomes (Adams 1988). The distribution of household income since 1979 is shown in table 1. The share of the bottom quintile has fallen whilst that of the top quintile has risen. Consequently, the ratio of the top to bottom quintile (a crude measure of the extent of inequality in income) has increased substantially. However, changes in the level of average earnings say little about the living

standards of those living in poverty.

It is obvious that absolute poverty of the sort found in parts of the third world are not found in the UK (though see Oppenheim (1990) and Carr-Hill (1987) for a more cautious note). Furthermore, for a number of reasons, the political debate about whether one should refer to low income as relative poverty or inequality is of little concern. First, Wilkinson (1990) suggests that it is relative and not absolute poverty which influences health with the most significant effect of deprivation occurring in families living on incomes below 50 per cent of the national average. Above this threshold the impact of additional income on health is more muted. Co-incidently, this level of income is also the yard-stick by which the European Community measure the extent of poverty. Secondly, the aim of the WHO, endorsed by the UK Government, is the reduction of health based inequalities within countries as well as among countries and it is not incompatible to pursue both of these objectives at the same time. The reduction of inequality in income is therefore a legitimate means of reducing inequality in health if indeed the former is shown to contribute to the latter. Finally, for practical purposes, aggregate data is only available on the numbers of people living in relative poverty.

An alternative approach to measuring poverty, most closely associated with Townsend (1990), focuses on deprivation and its impact on health. Deprivation has been defined as '...a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family or group belongs.' (Townsend 1987). Townsend's measure is based on over sixty standards relating to seven main aspects which includes diet, shelter and working environment. Obviously these

are related to income but Townsend suggests the concept is different from poverty because of the focus on material conditions rather than resources.

It is an empirical matter whether deprivation or poverty is more closely associated with poor health. Both concepts are closely related to each other though neither includes specific local factors such as access to public services and local amenties which may also impinge on an individual's health state or access to health services.

How many people live in poverty?

The distribution of income tells one little about the numbers of poeple living in poverty. Traditionally two measures are available from official sources, both of which measure relative poverty (or inequality) rather than absolute levels of poverty. The first relates family income from whatever source to 'equivalised' social security benefit levels. Welfare payments are often used as a 'poverty-line' in this manner on the assumption that the rates are laid down by Parliament as minimum income levels. Those living on incomes on or below the social security level may be defined as living in poverty whilst those living on incomes equal to or less than social security levels plus 40 per cent may be described as living on the margins of poverty (Oppenheim 1990). The additional weighting is made to reflect the allowances and extra benefits available to claimants which are not available to people in low paid employment.

The second measure relates household (rather than family) income to average earnings. As mentioned above, the EC use this approach defining households living on incomes less than or equal to 50 per cent of average

earnings as living in poverty. In parallel with the previous method, households with incomes less than 60 per cent of the average may be defined as living on the margins of poverty.

In the UK, official information on the numbers of people living on 'low incomes' was initially calculated with reference to supplementary benefit levels and figures are available until 1985 (DHSS 1988a). The method of counting people on low incomes was then changed but figures for 1987 based on social security levels have been estimated by researchers from the Institute of Fiscal Studies (Johnson and Webb 1990). Out of necessity, the method used by these researchers is slightly different from that used previously by staff of the Government's statistical service in previous years. Strictly speaking therefore, there is a break in the continuity of the series. With the introduction of Income Support replacing the complex system of supplementary and discretionary benefits, the method of recording people on low incomes was changed to the use of income percentages based on households not families. To reflect this change, the new series was renamed 'Households Below Average Income' (DHSS 1988b). Information on this series is available biannually back to 1979.

The numbers of people living in poverty as defined by each of these methods (the low income statistics and the households below average income statistics) are shown in tables 2 and 3. Table 3 is divided in two to distinguish the numbers of people living on incomes below the 50 per cent and 60 per cent average-income threshold both before and after housing costs. There are arguments in favour of each approach which need not be rehearsed here although the series 'after housing costs' is more comparable with figures based on social security levels. The tables also show the number of children

living in poverty expressed as a proportion of all children.

Have the numbers really increased?

The circularity in using social security payments as both a measure and a means of alleviating poverty means that part of the increase in the number of people defined as poor when measured by social security levels is due to increases in the real value of those benefits. This brings a larger number of low income earners into the poverty threshold even though the living standards of the poor in total may have increased. Between 1981 and 1983, the value of benefits increased by 20 per cent and outstripped the rise in earnings. However, between 1983 and 1985, the value of benefits increased by only 9 per cent and lagged behind average earnings (Nolan 1989). The consequent changes in the value of social security benefits relative to average income levels may explain why the numbers of people living in poverty as defined by social security levels increased between 1981 and 1983 while the numbers defined by relative income levels remained static.

Over the whole period since 1979 however, the story told by each of the two measures of poverty is consistent with the other. On both measures, the number of people living in poverty increased substantially. During this period, the real value of benefits increased by only 5.8 per cent (Bradshaw 1990) which does not appear sufficient to explain the sizeable increase in the numbers of people living on or below the 'low-income' poverty line. This provides further evidence that the increase in numbers of people living in poverty is neither an artefact of changing social security levels nor of the different methods used by the IFS to calculate the 1987 low income figures.

The two methods of defining poverty say little about the living standards of the poorest members of society. Table 4 shows the numbers of people who in 1987 were living on incomes of less than 50 per cent and less than 60 per cent of the equivalent (i.e. real) average income in 1979. Considering income before housing costs, the number of people in general and children in particular living below the various income thresholds has fallen in both relative and absolute terms indicating a rise in the real living standards of those defined to be living in and on the margins of poverty. The situation after housing costs is more complicated. The number of people living in poverty has increased slightly though the proportion remained the same. The number of children living in poverty fell slightly though the proportion increased. The number of children and people living in or on the margin of poverty (i.e. on incomes less than or equal to 60 per cent of the average) fell slightly but once again the proportion of children increased.

Further insight into the living standards of people in poverty can be obtained by considering how the real incomes of those in the poorest decile and the poorest quintile have changed since 1979. Note, that these groups are slightly larger than those on or below 50 per cent and 60 per cent of average income. Table 5 shows the rates of change in real income for these groups, both before and after housing costs, in comparison with changes in the average income. Before housing costs, the living standards of the poorest sections of society rose moderately though at less than one half of the rate for average incomes. After housing costs, the income of the poorest sections fell in real terms, substantially so for the bottom decile.

Who are the poor?

Comparison of the poorest decile of the population in 1979 and in 1987 shows how the constitution of this group by family type has changed. The number of pensioners and single parents has fallen whilst the number of married couples with children and single people without children have both increased (see table 6). Married couples with children now constitute one third of people living on welfare payments and 41 per cent of people living on incomes less than or equal to 50 per cent of the average (see table 7).

Table 8 shows the risk of poverty by economic status and family type (i.e. the proportion of each group living on incomes substantially below the average). Over one half of single parents who are not in full time employment and one half of people who are unemployed are living on incomes of less than 50 per cent of the average, as are one half of all single parents (including those in full time employment). From this evidence, the Child Poverty Action Group concluded that 'The risks of falling into poverty were higher for people with children than those who had no children and were particularly high for single parents.' (Oppenheim 1990).

The review of the social security system in 1986 which led to the introduction of Income Support recognised the risks of increasing numbers of children living in poverty and sought to correct the situation by better targeting of welfare benefits. As yet the data needed to assess whether this targeting has worked are not available. The official statistics for 1989 will not be published for some time. Estimates for 1988 have been prepared independently by the Institute of Fiscal Studies for the House of Commons, Social Service Select Committee and it is envisaged that these will be

published shortly.

What is known of inequalities in health?

The Black report, published in 1980, presented comprehensive evidence to suggest there were large differentials in mortality and morbidity in favour of those in higher social classes (DHSS 1980). Subsequent studies using the same approach have updated this evidence and indicated the continued presence of class inequalities in mortality up to 1984 (Whitehead 1987, Goldblatt 1990). These studies have also suggested that the differential between socio-economic groups has widened over time (see table 9).

Since the publication of the Black report, the methods used by the working group, and therefore the conclusions they reached, have been criticised on a number of grounds (Le Grand 1985, Illsley 1986, Illsley and Le Grand 1987, Carr-Hill 1987, Strong 1990). First, there was criticism of the focus on inequalities by occupational class to the exclusion of other forms of inequality such as those related to gender, ethnic origin or geographical area. Second, though of necessity because of limitations on the availability of data, the Working Group focused on differences in mortality to the relative neglect of morbidity, survival or life expectancy. Third, there has been concern about the introduction of bias arising from differences in occupation recorded at census and at time of death, from the changes in classification of some occupations over time, and from changes in the number of people in the two extreme social classes such that over time social class V will include a higher proportion of people at greater risk of death. Fourth, the report concentrated on deaths occurring between the ages of 15 and 65. This conceals any age-related differentials within this age-group and focuses

attention on a decreasing proportion of deaths overall by ignoring deaths amongst the very young and old. Finally, it has been suggested that much of the observed differential among socio-economic groups is the result of selective social mobility i.e. that people are in lower social classes because of poor health rather than being in poor health because of their membership of a lower social class. Each of these criticisms is discussed below.

(i) Occupational Class

Inequalities in health are also associated with gender, ethnic origin and geographical location though the bulk of the research literature focuses on the relationship between occupational class and health partly because of the availability of data. The relative neglect of inequalities other than those relating to economic status is not of major concern given our focus on the association between poverty and ill health. The relationship between occupational class and income is slight though it is strengthened if one includes fringe benefits in the definition of income (Wilkinson 1986b). The relation between income and occupation (or the lack of one) is stronger and systematic differentials in mortality and occupation have been demonstrated (Marmot 1986, Wilkinson 1986a). Wilkinson (1989) has also shown that the rate of change in mortality is negatively associated with the rate of change of income. That is, occupations which experienced the fastest rise in income also experienced the fastest fall in mortality. More generally, occupational class may be regarded as a 'catch-all' indicator of material living standards as occupation will partly determine income as well as the type and location of the home and the quality of the physical environment (Townsend 1990).

(ii) Measurement of health

The question of which indicator should be used to measure health is not merely academic. Class differentials in mortality may be widening at the same time as those for survival are reducing (Illsley 1986, Carr-Hill 1990b, Strong 1990). Le Grand (1985) has also shown that differences in age at death amongst individuals are narrowing because of the elimination of infectious diseases which used to kill young and their replacement as the main course of mortality by cardio-vascular and malignant diseases which tend to kill much later in life. It is therefore important to remember by what indicator is health being measured when interpreting trends in inequality.

Social class differentials still exist if health is measured in terms of potential life years lost and are wider than for mortality because deaths amongst lower social classes occur at younger ages (Blane et al 1990). Confirmation that the class differentials apparent in mortality also arise in self-reported morbidity has come from analysis of GHS data (Hurst 1985, Arber 1987, O'Donnell and Propper 1989). Concerns that this might be due to class differences in reporting of poor health are proved unfounded by evidence from the Health and Lifestyle Survey (Cox et al 1987). In addition to recording self-perceived symptoms, this survey repeated the GHS questions on self reported health. Both of these subjective measures were validated with more objective physiological indicators of morbidity such as blood pressure and lung function (Blaxter 1987, Blaxter 1990). Each of the indicators of morbidity showed class differentials with gradients of similar magnitudes to those found in other studies for mortality.

(iii) Classification bias

Two studies have shown that the relationship between social class and mortality is not an artefact of either bias in classifying occupation at time of death or of changes in the classification of occupation. Pamuk (1985) demonstrated that social class differentials exist even amongst occupations for which the Registrar General's classification has not changed whilst Goldblatt's use of the OPCS longitudinal data, which allowed deaths to be linked to occupation recorded at time of census rather than time of death, eliminated so called 'numerator-denominator' bias as an explanation for the relationship between social class and mortality (Goldblatt 1989).

Pamuk's study also used a variety of means to measure the degree of inequality across all the social groups to overcome problems associated with comparisons of only the two extreme social classes (Pamuk 1985). This confirmed the existence of a graduated differential throughout the occupational groups and appeared to show that the differential was widening over time. However, the study cannot address the question of whether the apparent widening trend was real or an artefact of changes in the composition of classes I and V because of the effect these extreme values continue to have on the slope co-efficients of inequality. Similarly, neither cross-sectional studies using alternative measures of socio-economic status (where the numbers in each group are larger and therefore less prone to distortion) (Davey-Smith et al 1990) nor the extrapolation of data from only two points in time (Blane et al 1990) can be used to support an argument about <u>trends</u> in the extent of inequality over time (Carr-Hill 1990c).

(iv) Age differentials

The use of death rates before age 65 has been justified on the grounds that premature death is a more appropriate object of study even though the number of such deaths as a proportion of the total is decreasing. Deaths below the age of 15 years are rare except in the first year of life. Class differentials in the post-neonatal period have diminished as adult mortality rates have widened though before 1979 this may have been due to the exclusion of babies born outside marriage (Pamuk 1988). Rates for babies born to unmarried mothers but jointly registered show some relationship with occupational class of the father but the pattern is often distorted by the effects of small numbers. MacIntyre and West (1991) consider differentials in mortality among adolescents and by focusing on smaller age bands are able to show that class differences are significant in children and adults but are negligible in the 15-19 age group. This finding is contrary to those found in studies using broader age groups, however the result sheds little light on the cause of class differentials because MacIntyre and West conclude that the age pattern is consistent with material, lifestyle and selection theories.

The OPCS longitudinal survey has also shown that class differentials in mortality persist beyond the age of 65 though the range is narrower than at younger age groups (Fox et al 1986). Within the 20 to 65 age range, the class differential in the mortality rate is greatest at ages 25-34 but most deaths at working ages occur at ages 45-64 (Goldblatt 1989, Le Clerc 1989).

(v) Social mobility

The impact of selective social mobility on occupational mortality is

unclear. The theoretical relationship between health and social mobility may take one of two forms. Either health may have a direct effect on mobility or selection may be determined by other factors which may themselves influence future health state (Wilkinson 1986a). On the former, the OPCS longitudinal survey provides some evidence that health related social mobility in the last five to ten years of life is not an important determinant of class inequalities (Fox et al 1986). The question of a longer term, inter-generational effect was assessed by Wadsworth (1986) who showed that health in childhood does affect later social mobility but only in males. The influence of this on the class distribution of health has been disputed. Reworking Wadsworth's figures in different ways and drawing markedly different conclusions as a result, Wilkinson (1986a) dismisses the effect of childhood illness on class differentials in adults while Carr-Hill (1990b) claims that as much as one half of the observed differential in prior health status arises because of social mobility. In a recent review of the evidence since the publication of the Black report, West (1991) concludes that selection has been dismissed too readily as a possible cause of inequality in health but that viewed within a sociological perspective it bears many of the characteristics of sexual or racial discrimination heaping one form of disadvantage upon another.

On the indirect relationship, Illsley (1986) has considered the social mobility of mothers by comparing the social class of their fathers with that of their husbands. Women who married into a higher social class tended to be taller and better educated than women who married into lower social classes (i.e. they possessed many of the features which characterised their attained class). Perinatal mortality rates amongst mothers who were upwardly mobile were also lower than those who remained in or moved down from the same social

class. Taken together these findings provide some support for the notion that social mobility is determined by factors related to later health state but the extent of this effect and its impact on class inequalities is not clear. Somewhat unconvincingly, Wilkinson (1986a) assumes a linear relation between the class differentials in height and education with those in perinatal mortality to suggest that less than 20 per cent of the observed class difference in perinatal mortality (and, by inference, of differences in adult mortality) is the result of selective social mobility.

Wilkinson (1986a) has also pointed to evidence that the rate of social mobility has not changed very much over time and therefore it cannot be an explanation for widening social class differentials. This reasoning fails to consider the changing size of social class V. The numbers in this group are falling and therefore a constant outflow of healthy people to be replaced by a constant inflow of less healthy people is sufficient to ensure that the group comes '... to contain a greater proportion of people at high risk of dying?' (Carr-Hill 1990b).

(vi) Summary

In summary, despite the shortcomings in the methods used to assess class inequalities originally in mortality (rather than in health) the conclusion that there is a gradient favouring those in the higher social classes stands up to further analysis. This remains true whether one considers mortality, life expectancy, physiological measures of morbidity or self-reported ill health. It also remains true when alternative measures of socio-economic characteristics are used such as income, car ownership and housing tenure. The class differential in standardised mortality is increasing over

time but the importance of this is less clear. The number of people in the occupational class most at risk of higher mortality is falling and the relationship may be a consequence of social mobility rather than evidence of class as the causal factor. At one extreme, fifty per cent of the relationship between social class and health is due to selective mobility (i.e. the direction of causation runs from health or health related factors to social class and not vice versa) (Carr-Hill 1990b) though other estimates put the influence of selection much lower (Wilkinson 1986a).

How do the Poor Die Earlier?

The main causes of death vary by age group (OPCS 1990). The social class differential in all cause mortality is at its widest between the ages of 15 and 34. In 1989, accidents and adverse effects were the major cause of death in this age group being responsible for 32 per cent of death. At ages 45-64, when the number of deaths amongst the working population is at its highest, the principle causes of death were cancers (40 per cent) and heart disease (32 per cent). Cause-specific class differentials for these three causes of death are similar to the all-cause social class differential in mortality.

Accidents are responsible for forty per cent of the excess deaths of unskilled workers (defined as mortality of unskilled workers minus mortality of all occupied) between the ages of 25 and 34 though the total number of deaths is relatively small. Action to reduce mortality from accidents would therefore do little to reduce all-cause inequalities in death though the effect on inequalities in life-expectancy would be higher. Such action might include appropriate health care to reduce mortality from accidents once they

had occurred though it is likely that the greatest impact would be felt from policies to reduce the incidence of accidents. This requires the participation of a range of agencies other than the National Health Service including those responsible for housing, pre-school education and road safety.

Between the ages of 45 and 64, circulatory diseases and cancers are responsible for 49 per cent and 31 per cent of excess deaths respectively. The number of deaths from these causes is also substantially larger than from accidents in younger age groups. If successful, action to prevent premature mortality from circulatory disease and cancer would have a significant effect on inequality of death (Le Clerc 1989).

Why do the Poor Die Earlier?

The proportion of deaths from cancers and coronary heart disease has focused attention on differences in lifestyle as the factor explaining inequalities in mortality. There is a class gradient in the use of tobacco, in diet and in the amount of exercise people take with those in non-manual social classes, smoking less tobacco, eating more fibre, fruit and polyunsaturated fats and taking more exercise (Blaxter 1990). The relationship between alcohol consumption and class is more complex. Analysis of the GHS indicates that there is little variation by social class in the proportion of people drinking more than recommended limits. The proportion reporting very high levels of consumption is slightly higher among men in manual occupations and women in professional occupations. For both sexes, the proportion of people abstaining from alcohol altogether is substantially higher in the unskilled group (Green 1989). Blaxter (1990) found that class differences in the consumption of alcohol varied by gender and the area of

residence. Class gradients were found for men only. In industrial and manufacturing areas, higher consumption was associated with manual occupations whilst in 'high-status' areas and London, higher consumption was associated more with non-manual social groups.

It is difficult to distinguish the health effects of socio-economic status from lifestyle because of the influence each exerts on the other. Blaxter (1990) warns against crude generalisations but concludes from the evidence in the Health and Lifestyle survey that socio-economic and psycho-social circumstances exert a more powerful influence on an individual's health than his or her behaviour. Moreover, the effects of behaviour are mediated by an individual's economic circumstances. As Blaxter (1990) reports 'Unhealthy behaviour does not reinforce disadvantage to the same extent as healthy behaviour increases advantage...Only in the more favourable circumstances is there 'room' for considerable damage or improvement by the adoption of voluntary health related habits', (p. 233). In what is emphasised to be an exploratory analysis of evidence from Sweden, Lundberg (1991) suggests that working environment is the prime source of class inequalities in physical illness but early childhood deprivation and health-related behaviours also exert significant independent effects.

There is further evidence which suggests that differences in the rates of adult mortality from coronary heart disease and some respiratory disorders are as much due to early social and economic circumstances as they are adult behaviours (Kaplan and Salonen 1990, Forsdahl 1978, Notkola et al 1985). Much of this work derives from Finland though similar conclusions have been drawn for England and Wales (Barker and Osmond 1986a, Barker and Osmond 1986b, Barker et al 1989). The causal mechanism linking deprivation in early

childhood with increased risk of ischaemic heart disease in adults is disputed but the association between one and the other is particularly important given the recent economic trend in the UK which has resulted in a substantially higher proportion of children living in relative poverty.

Economic Insights into the Causes of Inequalities in Health

One implication of Blaxter's findings from the Health and Lifestyle survey is that health education to improve lifestyles may have the effect of worsening class differentials because of the more positive response from people in non-manual social classes. This appears to be a modern equivalent of Rowntree's notion of secondary poverty, in which people on low incomes make their circumstances worse by inefficient use of their resources. However, such behaviour, if indeed it does exist, need not be irrational or the product of ignorance. Action to promote health imposes costs in the form of financial expenditures and changes in lifestyle on the individual today for an uncertain return some time in the future. The propensity to invest in health promoting activities therefore depends on the individual's rate of time preference i.e. the rate at which he or she discounts future costs and benefits so that they are comparable with costs and benefits incurred today. Farrell and Fuchs (1982), in considering the relationship between schooling and health, reject social class as a determinant of health behaviour in favour of some other factor which they suggest may be differences amongst individual's rates of time preference (Fuchs 1982). This conclusion is based on observed behaviour rather than theory and cannot explain systematic class-based differences in health status unless discount rates are also determined, at least in part, by socio-economic position.

The propensity to change behaviour will also depend on people's attitudes to risk. Tversky and Kahneman (1981) suggest that the psychology of individuals leads to asymmetries in behaviour under uncertainty. People will prefer a certain option to an uncertain one if the likely outcome is positive but are more prepared to take a risk if the likely outcome is detrimental. Applying this to attitudes to health, it has been suggested that people will persist in behaviours which offer some certain benefit now at the risk of poor health in the future. Once ill, however, they will prefer more risky treatments over conservative ones (Cohen and Henderson, 1988). Consequently, any class differences in attitudes to risk will reflect itself in differences in health-behaviour. There is some support for this theory from empirical work done in experimental settings but the work has been restricted to selected samples of individuals and has not explored class differences (Loomes and Sugden, 1982).

Neither can an individual's health-behaviour be divorced from his or her material circumstances or educational background. In an attempt to explain the existence of class differences in health behaviour, Dowie (1975) adopts a portfolio approach which takes into account an individual's stock of both physical and human capital. The former is simply material wealth while the latter comprises both health state (largely genetically determined) and level of education (largely acquired). In order to maintain a given standard of living, it is argued that people from lower social classes must run down their stock of health proportionately faster than people from higher social classes to compensate for their relative lack of material wealth and education. They are therefore more likely to accept jobs with greater occupational hazards but higher incomes or live in cheaper residential areas of environmental risk.

The economic model on which both Dowie's, and Fuchs and Farrell's work is based was developed by Michael Grossman (1972). As well as offering an explanation as to why people in lower social classes may rationally eschew the lessons of health education, the model emphasis the multi-faceted nature of the determinants of health and warns against simple single-cause single-remedy responses to the problem (Birch and Stoddart 1990). It also highlights the role of income constraints and the beneficial aspects of some health-reducing activities. As a result, in addition to their unwillingness, the scope to respond to health education may be lower amongst poorer members of society.

Bradshaw and Holmes (1989) observed that the level of social security benefits paid to some families in the North-East was not sufficient to enable them to afford a more nutritious diet even if they were aware of the deleterious affects of their current lifestyle. The National Food Commission also showed that the cost of the recommended diet in official guidelines was 35 per cent more expensive than the amount poorer families were spending on food (Cole-Hamilton and Lang, 1986). Work by Graham (1987) confirmed the joint-product nature of behaviours which are detrimental to health but beneficial in other ways when she assessed the smoking habits of young mothers. Graham found that many mothers felt unable to fulfil their child care responsibilities without recourse to tobacco as this partially compensated them for their relatively poor social and economic circumstances. The personal costs associated with giving up smoking were therefore perceived to be greater than the uncertain and distant health benefits.

However, in the tradition of neoclassical economics, the Grossman model is predicated on individual choice. It therefore cannot handle systematic class-based causes of inequality in health particularly adequately.

Implications for policy

(i) Health care

Health is often held to be equivalent to health care (Aiach and Carr-Hill 1989) and this leads to an uncritical belief that changes in health service provision can and should be used to remedy inequalities in health (Townsend and Davidson 1982, Whitehead 1987). However, health services do have as an objective the improvement of health and so it is reasonable to assume they may have some impact on health differentials even though the precise mechanism linking one to the other may not be well understood.

There is some evidence to indicate that health services may have contributed to widening social class differences in mortality from illness susceptible to medical intervention because reductions in mortality have been greater for people in higher social classes (Mackenbach et al 1989). However, higher relative effectiveness of medical care received by individuals in higher social classes may arise because of better access to services, better quality of care or better responsiveness on the part of individuals. Mackenbach's study did not address this question and without some insight into the cause of the findings it is difficult to decide an appropriate policy response.

Evidence on differential access to health care in the UK is largely inconclusive. The literature concentrates on differences in availability and uptake of services and in clinical process rather than the effects these have on health outcome. The analysis of class differences in the use of services is also clouded by problems defining appropriate utilisation relative to need.

Despite these problems, the wealth of survey evidence reviewed in both the Black Report (DHSS 1980) and The Health Divide (Whitehead 1987) indicates that people from lower social classes or manual occupations are more poorly served by primary care and preventive services and make fewer visits to such facilities.

Much less work has been done looking at class differences in the use of hospital services. Based on an analysis of GHS data, Le Grand (1978) found that compared to people from lower social classes, people in social classes I and II made greater use of health services (including primary care) relative to need, where this was defined in terms of self-reported morbidity. The method used by Le Grand to compare differences in NHS expenditure relative to self reported morbidity has been criticised (Wagstaff 1989, O'Donnell and Propper 1989). Using a slightly different approach and more recent data from the GHS, O'Donnell and Propper (1989) showed that use of hospital services was greater amongst people from lower social classes. As self-reported morbidity was also higher in this group, the authors conclude that the differential in use of hospital services was most likely related to need. Le Grand and colleagues (1990), whilst not addressing the differences in method between Le Grand's earlier study and the work of O'Donnell and Propper, suggest that the difference in the two sets of results arises partly because of an increase in self-reported morbidity amongst people in higher social classes and partly because the NHS has succeeded in reducing inequalities in access to hospital.

The changing age pattern of the differentials in mortality provides some evidence that health care systems have succeeded in pushing back inequalities in death to their own technological frontiers (Fries 1980). Within the constraints of existing health care technology, there would appear to be

little more that the health service could do at a general level to ameliorate inequalities in health. This point is reinforced by MacIntyre (1989) who suggests that the question 'What can the NHS do to reduce inequalities?' is too vague and unspecific to be of any use. The question she suggests we should be asking is '...under what circumstances do which specific components of health care (whether at the primary, secondary or tertiary level of prevention) increase or decrease inequalities in which conditions between which social groups' (MacIntyre 1989). This statement has rather an obvious quality to it but it does serve to focus attention on specific health care activities and the problems faced by particular groups of society in accessing, utilising and eventually benefiting from each service. It also suggests that a micro-analysis of the effects on access to health care of system-wide changes, such as the introduction of self-governing hospital and fund-holding General Practitioners, is essential (Shiell 1991, Scott and Maynard 1991).

(ii) A Wider Strategy

As part of its wider strategy, the Black report made three principle recommendations; a comprehensive anti-poverty drive based on a fairer distribution of earnings and better training and employment opportunities to encourage self dependence and autonomy, the abolition of child poverty through new and improved child and infant care allowances, the provision of pre-school education and child care plus policies to improve nutrition and reduce childhood accidents, and finally proposals designed to improve material conditions amongst the community as a whole including a comprehensive disability allowance plus policies to improve working environments and housing.

A major difficulty with such a strategy is that there is little evidence to suggest it would have the desired effect on health for as yet there is little work to show any causal link running from one to the other. The causal effects of poor housing and dampness on mortality and long term disease have been demonstrated (McCarthy et al 1985, Platt et al 1989, Lowry 1989) but the impact on health of other forms of material deprivation has not been adequately measured (Townsend 1990). Consequently, it is difficult to prescribe policy responses with any degree of confidence.

Some evidence in support of Black's proposals to concentrate financial support on families with young children is provided by a prospective study from the United States of America (Kehrer and Wolin 1979). Expectant mothers who were at high risk of giving birth to low birth-weight babies were randomly allocated to different welfare schemes. The results showed that an income support scheme based on a system of negative taxation which guaranteed a minimum family income some 50 per cent higher than comparable families in a control group was successful in substantially reducing the number of babies born below a critical birth weight.

The Research Agenda

The greatest obstacle preventing more confident determination of policies to correct inequalities in health is the lack of information on the causal links between (elements of) socio-economic status and subsequent ill-health. Much of the research discussed in this paper has been based on cross-sectional data and is limited to bi-variate analysis. Models of the links between lifestyle, socio-economic status and health state emphasise both the

multi-variate and the temporal nature of the relationships (Grossman 1972, Carr-Hill 1985). Inter-generational and previous life-cycle effects in particular point to the need for longitudinal data to establish the causal links (Le Grand 1986). This either requires the further exploitation of existing data-sets or the generation of new data (Blaxter 1986). If causal links between elements of socio-economic circumstances and health state are demonstrated, it will then be necessary to evaluate the efficiency of alternative policy responses to the problem.

Thus, there would appear to be a full research agenda. Williams, in response to a survey by Hart (1981), suggested '...there is more than enough work to keep a thousand researchers going for a thousand years'. This may be so but a more cautionary note is struck by Carr-Hill (1987). He suggests that the margins of error in any quantitative analysis, the scope for different interpretations of the same phenomena, the gaps in existing data sets and, most importantly, the inherently political nature of the inequalities debate all mean that little if anything conclusive will ever emerge from further research activity.

Carr-Hill's pessimism may be too extreme. More rigorous analysis of existing longitudinal data-bases may not prove conclusively that poverty or inequality in income does or does not cause inequality in health but it may resolve some of the issues which currently obscure our understanding of the relationship. These include the effects of using different measures of health, socio-economic status and inequality, and the influence of social mobility and the changing structure of the occupational groupings over time on observed differentials.

Le Grand (1986) identified nine key issues which should figure in any research agenda. Four of these related to research concerned with establishing the links between elements of socio-economic status and ill-health and to evaluating the role health care might play in the improvement of health relative to socio-economic changes. Three others, relating to the objectives of policy towards inequalities in health, the most useful way of measuring and defining health and the political impediments to the implementation of effective policies to reduce inequalities are all ostensibly political issues of the sort Carr-Hill warns cannot be resolved by research. Further research may inform the debate of these issues but will not provide definitive answers. The question of what should be done about inequalities in health will therefore remain an ideological one to be influenced by the results of research but ultimately determined by politicians.

Conclusions

If there is a causal relationship between income and future health state, then the evidence about poverty and inequalities in income reviewed here suggests that class inequalities in health will, at the very least, persist and will probably widen in the coming years.

The appropriate response on the part of the NHS is unclear. The evidence on differential access to health care is inconclusive. It does suggest that the health service could do more to remedy inequalities in access to specific forms of health care but the effect this would have on health outcome is not certain. Any response on the part of the health care sector would need to be specific to a condition, a treatment or a social grouping. Global strategies on the part of the NHS are too ill defined to be of much use.

The link between material conditions and health state has long been accepted though the way in which one translates into the other is complicated, little understood and has not been conclusively demonstrated. There is a role for research to better formulate models of the relation between health and socio-economic circumstances and to overcome some of this deficiency in knowledge but hopes that further study will find definitive answers quickly are likely to be misplaced. In the meantime, in the absence of any action, inequalities in income and in health will persist.

Policies to remedy material deprivation and to reduce inequalities in income can be justified on their own merits though the argument is obviously one based on ideology rather than the neutral appeal to objective research findings. This should not necessarily be a bar to policy change. Macro-economic policy incorporating the 'trickle down' theory was implemented without any prior evidence to suggest that it would work in practice. Recent experience has shown that the policy has not worked and the living standards of the poorest sections of society have not improved substantially, let alone kept pace with the rest of society. Equally, there is no convincing evidence that the reduction of income inequalities will lead to the reduction of inequalities in health. However, the continued demonstration of an association between poverty and ill health does at least suggest that action to reduce the former may go some way to reducing the latter. A concerted effort to put this suggestion to the test by reducing inequalities in income, by improving the living standards particularly of families with children and by supporting both measures with a research programme to assess the effect each has on health status would be a good indicator of the new Prime Minister's commitment to making Britain a classless society.

Table 1

Distribution of Household Income
(Great Britain)

	Percentages					
Before Housing Costs	Bottom Fifth	Next Fifth	Middle Fifth	Next Fifth	Top Fifth	Ratio of Top : Bottom
1979	10.1	14.4	18.2	23.0	34.3	3.40
1981	9.1	13.9	17.7	22.6	36.0	3.67
1983	9.8	14.0	17.7	22.6	35.9	3.66
1985	9.8	13.7	17.6	22.8	36.2	3.69
1987	8.9	12.9	16.9	22.2	39.1	4.39
After Housing Costs						
1979	9.5	14.2	18.2	23.2	35.0	3.68
1981	8.9	13.5	17.5	22.8	37.3	4.19
1983	8.8	13.4	17.6	22.9	37.3	4.24
1985	8.6	13.1	17.5	23.2	37.6	4.37
1987	7.6	12.1	16.8	22.5	41.0	5.39

Source: Social Trends 21 (1991) Table 5.16

Table 2

Proportion of People Living on Supplementary Benefit (SB) or Incomes Less than SB + 40 per cent

	SB		SB + 0.4	
	All	Children	All	Children
1979	12.0	9.0	22.0	21.0
1981	14.0	12.9	27.5	27.4
1983	16.6	16.1	30.5	30.8
1985	17.3	18.2	28.5	28.6
1987	19.0	18.0	28.0	30.0

Source: DHSS, 1990

Table 3

Numbers (%) of People Living Below 0.5 and 0.6 of average income in current terms

	0.5 average income		0.6 average income	
Before Housing Costs	All	Children	All	Children
1979	3750 (7.1)	1310 (9.8)	9020 (17.2)	2680 (20.2)
1981	4390 (8.2)	1790 (13.7)	9860 (18.5)	3300 (25.2)
1983	4280 (8.0)	1490 (11.8)	9620 (17.9)	3040 (24.1)
1985	4990 (9.2)	1830 (14.7)	10890 (20.1)	3250 (26.1)
1987	7720 (14.3)	2420 (20.2)	13810 (25.5)	3850 (32.1)
After Housing Costs				
1979	4930 (9.4)	1620 (12.2)	10330 (19.6)	3030 (22.8)
1981	6370 (11.9)	2360 (18.0)	12140 (22.8)	3810 (29.0)
1983	6210 (11.5)	2090 (16.6)	11920 (22.2)	3550 (28.1)
1985	7230 (13.4)	2470 (19.8)	13270 (25.4)	3780 (30.4)
1987	10500 (19.4)	3090 (25.7)	16150 (29.8)	4350 (36.3)

Source: DHSS, 1990

Table 4

Numbers (%) of People Living Below 0.5 and 0.6 of 1979 Average Income in Real Terms

	0.5 average income		0.6 average income	
Before Housing Cost	All	Children	All	Children
1979	3750 (7.1)	1310 (9.8)	9020 (17.2)	2680 (20.2)
1987	2460 (4.6)	780 (6.5)	6870 (12.7)	2130 (17.8)
After Housing Costs				
1979	4930 (9.4)	1620 (12.2)	10330 (19.6)	3030 (22.8)
1987	5070 (9.4)	1580 (13.2)	9580 (17.7)	2830 (23.6)

Source: DHSS, 1990

Table 5

Before Housing Costs
Increase in Real Income 1979-1987

	Bottom 10%	Bottom 20%	Average (all families)
Before Housing Costs	8.5	7.8	22.9
After Housing Costs	-5.7	-1.1	23.1

Source: DHSS, 1990

Table 6

Composition (%) of Poorest 10 per cent of Population

	1979	1987
Pensioners	26	12
Single Parents	13	9
Single Person	9	19
Married couples, no children	9	11
Married couples with children	44	50

NB Figures add up to more than 100 because of rounding

Source: DHSS, 1990

Table 7

Who Lives in Poverty (%)

	SB Levels	< 0.5 average income
Pensioner couples	10	13
Single pensioner	23	10
Married couples with children	31	41
Single parents	3	12
Married couples no children	9	9
Single person	26	16
Total (n)	2900	10500

Source: DHSS, 1990

Table 8

Risk of Poverty

Economic Status	Percent of Group
Pensioners	25
Full time workers	8
Sick/disabled	32
Single parents*	58
Unemployed	59
Others	32

* Excludes single parents in full time employment

Family Status	
Married pensioners	27
Single pensioners	23
Married couple with children	20
Married couple, no children	10
Single parents (all)	47
Single person	15

Source: DHSS, 1990

Table 9

Mortality by Social Class
(Men, 15-64, England and Wales)

Class	1931	1951	1961*	1971*	1981+
I	90	86	75	75	66
II	94	92	81	81	76
III	97	101	100	104	103
IV	102	104	103	114	116
V	111	116	127	121	166

* Adjusted to 1951 occupational classification

\+ Men 20-64 Great Britain

Source: Wilkinson (1986)

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