

## UNEQUAL IN DEATH

"I'm all right, John": voting patterns and mortality in England and Wales, 1981-92

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### Abstract

**Objective:** To investigate the association between voting patterns, deprivation, and mortality across England and Wales.

**Design:** Ecological study.

**Setting:** All the electoral constituencies of England and Wales.

**Main outcome measures:** Combined and sex specific standardised mortality ratios.

**Results:** For the years surrounding the three elections of 1983, 1987, and 1992 overall standardised mortality ratios showed substantial negative correlations of -0.74 to -0.76 with Conservative voting and substantial positive correlations of 0.73 to 0.77 with Labour voting (all  $P < 0.0001$ ). Correlations were higher for male than female mortality. Conservative voting was strongly negatively correlated ( $r = -0.84$ ) with the Townsend deprivation score, while Labour voting was positively correlated ( $r = 0.74$ ) with this. Labour and Conservative voting explained more of the variance in mortality than did the Townsend score. In multiple regression analyses for the 1992 election Labour voting ( $P < 0.0001$ ), Conservative voting ( $P < 0.0001$ ), the Townsend score ( $P = 0.016$ ), and abstentions ( $P = 0.032$ ) were all associated with mortality. Labour and Conservative voting explained 61% of the variance in mortality between constituencies; when Townsend score and abstentions were added this increased to 63%.

**Conclusions:** Conservative and Labour voting are at least as strongly associated with mortality as is a standard deprivation index. Voting patterns may add information above that provided by indicators of material deprivation. People living in better circumstances and who have better health, who are least likely to require unemployment benefit and free school meals or to rely on a state pension in old age, and who are most able to opt out of state subsidised provision of transport, education, and the NHS, vote for the party that is most likely to dismantle the welfare state.

### Key messages

- The places where people are most likely to die young are also the places where people are most difficult to count when alive
- The places where people are most likely to die young are also the places where people are least likely to choose or to be registered to vote
- This study provides further evidence of the strength of self interest in voting in Britain
- There are wide ranging social, economic, and political implications from the polarisation of health and voting in Britain

## Introduction

Differences in mortality in residential areas have been analysed for over 150 years in Great Britain.<sup>1</sup> William Farr considered these differences to show the "comparative salubrity of every part of England and Wales."<sup>1</sup> Later investigators took geographical differences to reflect a wide range of factors, including the influence of altitude, climate, migration, water constituents, specific occupational factors, pollution, and the long term effects of development during early life.<sup>2</sup> Although these studies have been primarily concerned with the causes of disease, the more general issue of differences in area reflecting socioeconomic disparities has remained a constant theme.<sup>3 4 5 6 7 8</sup> This is reflected in the development of a series of deprivation indices, which are increasingly being used for health services resource allocation and planning.<sup>9</sup> They generally use census variables such as car ownership, overcrowding, occupational social class, unemployment, the prevalence of one parent families, and housing tenure to produce a single score which reflects the degree of material deprivation in an area.

When water hardness is being related in areas to rates of ischaemic heart disease, for example, a causal association between the exposure and the disease is hypothesised.<sup>10</sup> The use of deprivation indices, on the other hand, does not assume a direct causal relation between material deprivation and health outcomes. The deprivation indices are, however, strongly related to mortality and statistically account for a considerable proportion of the variance in mortality between areas, rendering them useful for demonstrating the size of socioeconomic inequalities in health for health service planning and for investigating the degree of equity in the distribution of health service resources.

Other aspects of the sociocultural constitution of areas, those that cannot be indexed by census variables, may help to explain geographical variations in mortality. One measure, which has been little studied in this regard, is voting behaviour. There are major differences in voting patterns between different social groups, but voting also reflects aspects of the ideology, history, and composition of populations that are not simply reducible to social class. We report the relation between voting and mortality in England and Wales around the time of the last three general elections.

## Methods

The electoral data are the results of the general elections of 1983, 1987, and 1992 for each constituency in England and Wales. For the purposes of comparison, the Liberal party, Social Democratic Party, the Alliance, and the Liberal Democrats are treated as a single party throughout this time, which for ease of reference we will call Liberal. There are 561 constituencies in this dataset, the two newly created Milton Keynes constituencies of 1992 being treated as one constituency to maintain historical continuity.

The full postcode of the usual residence of people who had died was used to assign each death in England and Wales to a local government ward, which in turn could then be assigned to the parliamentary constituency in which the person had lived. The deaths were divided into three groups by year of death: 1981-5, 1986-9, and 1990-2. Mortality data coded to constituency are currently available only up to the end of 1992. The all age mortality data in each period used population data from the 1981 and 1991 censuses corrected for underenumeration.<sup>11</sup> (Mid-year 1983 and end-year 1987 constituency population profiles were estimated from the two census sources for the first two periods.) Standardised mortality ratios were calculated separately for males and females and for both groups together in each constituency using the overall age specific

death rates for England and Wales for the periods under consideration. Standardised mortality ratios for constituencies in the three time periods were then compared to the corresponding proportions of the electorate voting for each political party in the general elections of 1983, 1987, and 1992.

The Townsend deprivation score for each constituency was calculated using 1981 and 1991 census data. This index is based on car ownership, unemployment, overcrowded housing, and housing tenure and reflects levels of material deprivation.<sup>12</sup> Initial analyses computed simple correlations between standardised mortality ratios and the percentage of the population voting for the major parties or abstaining. Correlations between Townsend deprivation scores and voting behaviour were also computed. Regression analyses then examined the influence of voting patterns and Townsend deprivation scores on standardised mortality ratios.

## Results

Table 1 shows the voting patterns for England and Wales in the three elections. The distribution of votes is only indirectly reflected in the distribution of seats won in British elections, but it is the distribution of votes as indicators of political allegiance which interests us here, not which party won each seat. We are also interested in what proportion of the electorate chose not to vote in each area and the associations between that indicator of political apathy and mortality.

Table 1--General election figures for England and Wales				
Election No of seats won*	Total votes	Overall	Minimum	Maximum
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1983				
Conservative 376	12 211 280	32.38	6.29	48.61
Labour 168	7 466 474	19.80	1.92	53.51
Alliance 15	7 088 222	18.80	5.28	45.11
Abstentions Electorate	10 625 773 37 707 619	28.18 100.00	18.82 100.00	48.37 100.00
1987				
Conservative 366	13 047 000	34.21	5.93	51.42
Labour 179	8 770 926	23.00	4.42	58.60
Alliance 13	6 771 607	17.75	4.61	40.97
Abstentions Electorate	9 309 140 38 139 406	24.41 100.00	15.62 100.00	44.56 100.00
1992				
Conservative 325	13 297 554	34.79	5.98	52.88
Labour 222	10 414 196	27.24	3.72	61.71
Liberal Democrats 11	5 643 192	14.76	3.11	42.38
Abstentions Electorate	8 332 388 38 225 759	21.80 100.00	7.03 100.00	46.12 100.00
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 \*In 1983 two seats were won by Plaid Cymru and total number of seats was 561; in 1987 three seats were won by Plaid Cymru and total number of seats was 561; in 1992 four seats were won by Plaid Cymru and an additional constituency in Milton Keynes was added, raising the number of seats in England and Wales to 562.

In table 2 the correlations between voting pattern and mortality are presented for the years around each general election. Standardised mortality ratios showed large positive correlations with Labour voting, smaller positive correlations with abstentions, large negative correlations with Conservative voting, and smaller negative correlations with Liberal voting. The magnitude of positive and negative correlations was greater for male than for female mortality in all cases. The only noticeable change between the elections is the increase over time in the strength of the association of abstention rate with both male and female standardised mortality ratios.

Table 2--Correlations between voting and standardised mortality ratios

Election	Overall	Male	Female
1983			
Conservative	-0.76	-0.81	-0.65
Labour	0.76	0.79	0.67
Liberal	-0.49	-0.52	-0.42
Abstentions	0.36	0.43	0.27
1987			
Conservative	-0.75	-0.80	-0.64
Labour	0.77	0.80	0.68
Liberal	-0.52	-0.54	-0.45
Abstentions	0.37	0.43	0.28
1992			
Conservative	-0.74	-0.79	-0.61
Labour	0.73	0.75	0.63
Liberal	-0.50	-0.53	-0.42
Abstentions	0.54	0.62	0.40

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 All P<0.0001.

Figure 1 shows maps of voting patterns in the 1992 election and maps of mortality for the period around this election; the degree to which voting and death coincide geographically is evident. Scatter plots of standardised mortality ratio and voting are shown in figure 2. Outliers in these scatter plots are labelled as is Basildon, where the Conservative victory in 1992 was seen as crucial. The result in Basildon was announced early after the polls closed and showed the trend that was to be seen across the country of a secure Conservative victory. Basildon--popularly considered to be inhabited entirely by the species "Essex person"--was in 1992 considered to be an unlikely Conservative seat, although its position in figure 2 shows it to be entirely typical.

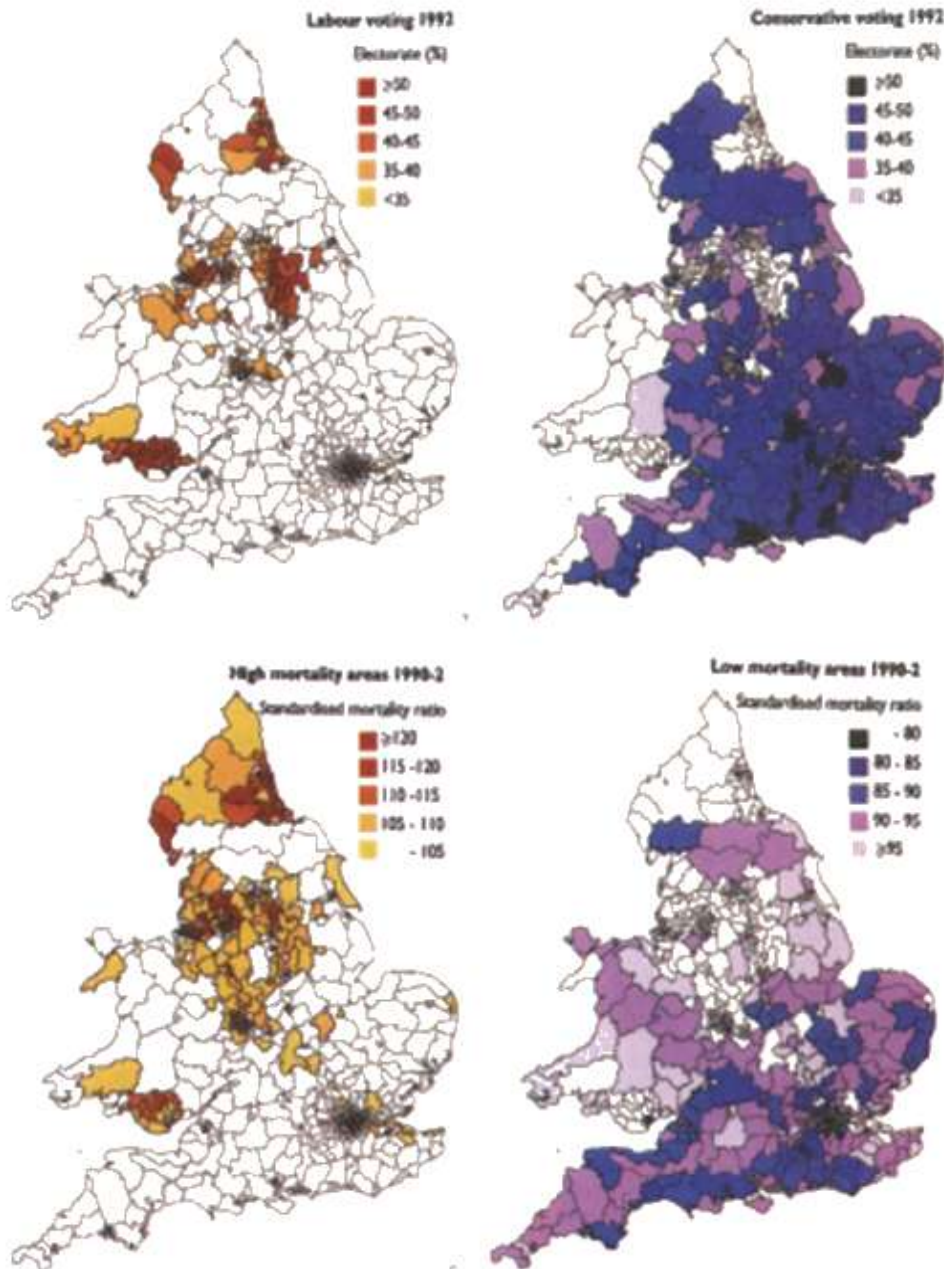


Fig 1 – Maps of Labour and Conservative voting in 1992 with maps of high mortality (standardised mortality ratios in white areas <100) and low mortality areas (standardised mortality ratios in white areas >100)

### Voting and Mortality in England and Wales by 1992

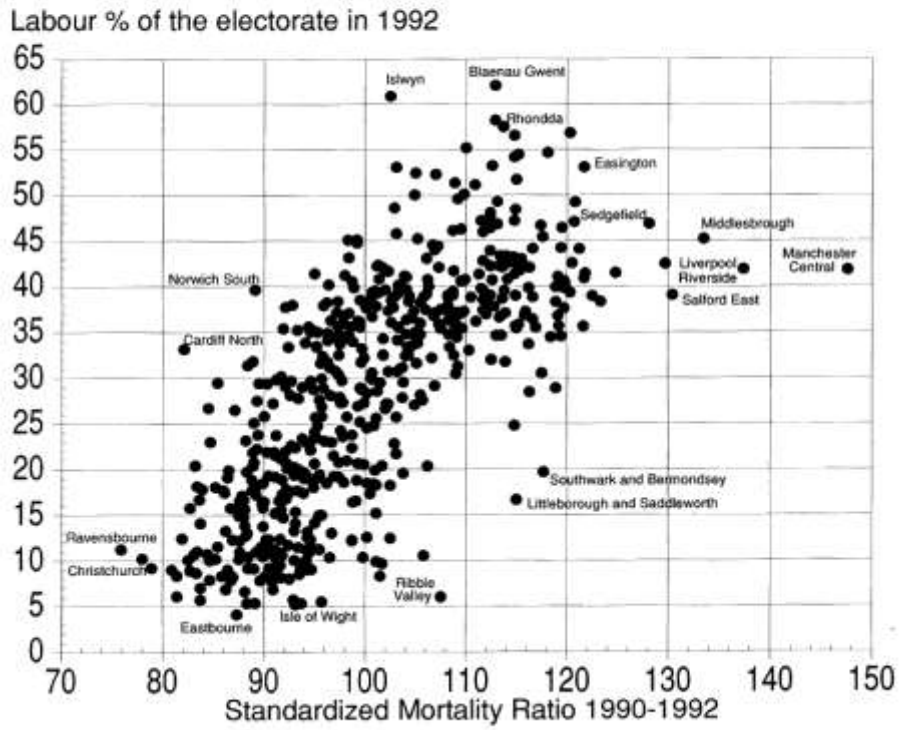
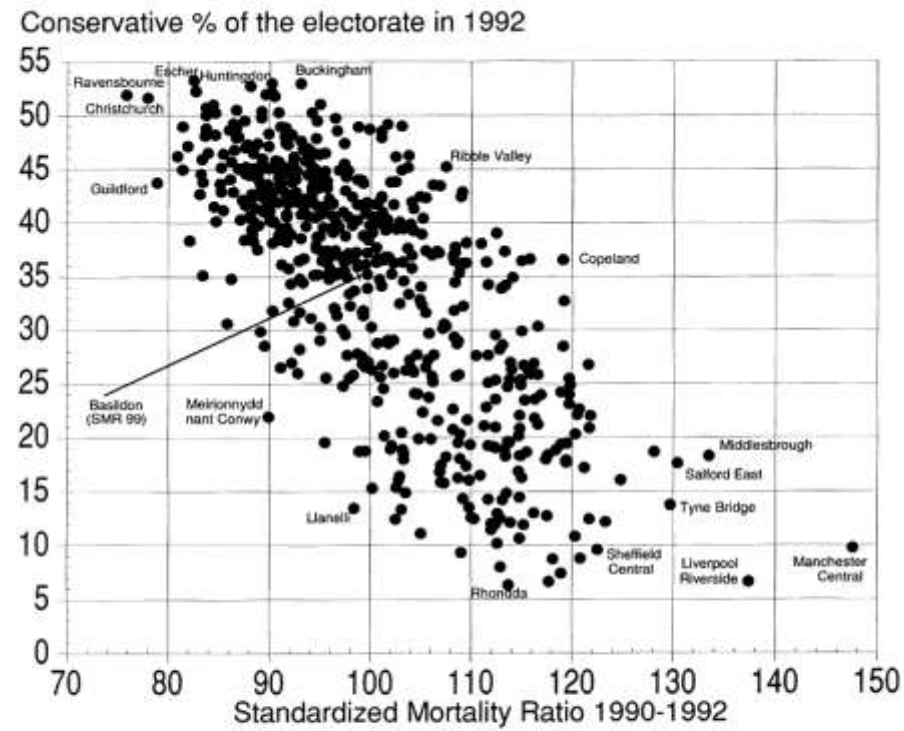


Fig. 2 Scatterplots of Conservative and Labour voting in 1992 against all age standardised mortality ratios for 1990-2. SMR = standardised mortality ratio

Voting patterns were also strongly related to the Townsend deprivation score, which is in turn positively associated with mortality. In table 3 the Townsend score in 1981 and 1991 is related to the voting and mortality data associated with the closest general election (1983 and 1992). There has been a moderate degree of attenuation in the strength of correlations between 1983 and 1992, with the exception of the association between the Townsend score and the abstention rate, which has increased greatly.

Table 3--Correlations between voting patterns, mortality, and Townsend deprivation score

	Townsend 1981 (with election 1983 and mortality 1981-5)	Townsend 1991 (with election 1992 and mortality 1990-2)
Conservative	-0.84	-0.77
Labour	0.74	0.61
Liberal	-0.55	-0.49
Abstentions	0.66	0.84
Standardised mortality ratio:		
Overall	0.74	0.67
Male	0.81	0.77
Female	0.60	0.50

All P<0.0001.

The contribution of the Townsend score, together with voting data, to the statistical explanation of variation in mortality between constituencies is summarised in table 4. Around both the 1983 and 1992 elections Labour and Conservative voting accounted for more of the variance in mortality than did the Townsend score. In multiple regression analyses for 1983 Labour voting (P<0.0001), the Townsend score (P<0.0001), and Conservative voting (P = 0.012) were all associated with mortality. Abstentions were not significantly related to mortality once Labour and Conservative voting and Townsend score were included in the regression.

Table 4--Variances in mortality (percentages) accounted for by voting and deprivation variables alone and in combination

	1983	1992
Townsend score	54	45
Labour vote	58	53
Conservative vote	58	55
Townsend score and Labour vote	64	61

Townsend score and Conservative vote	61	57
Labour and Conservative vote	62	61
Townsend score and Labour and Conservative vote	65	63

In 1992 Labour and Conservative voting and Townsend score were all associated with mortality ( $P < 0.0001$ ). When abstentions were included in the four independent variable model, Labour voting ( $P < 0.0001$ ), Conservative voting ( $P < 0.0001$ ), the Townsend score ( $P = 0.016$ ), and abstentions ( $P = 0.032$ ) were all associated significantly with mortality, although the addition of abstentions did not increase the proportion of variance explained. In all of these analyses the direction of the association between each variable and mortality remained the same as in the univariable case.

## Discussion

### VOTING AND MORTALITY ACROSS ENGLAND AND WALES

We found that voting patterns can supplement the list of socioeconomic and environmental factors that are strongly associated with mortality.<sup>13</sup> Conservative and Labour voting show associations of equal size with mortality but in the opposite direction. In line with other studies,<sup>6 14 15</sup> voting is more strongly associated with male than female all cause mortality. One explanation for this is that mortality from breast cancer--a major contributor to all cause mortality in women--shows an opposite direction of association with deprivation than other major causes of death.<sup>16</sup> Interestingly, limiting long standing illness shows larger correlations with a variety of area based deprivation indices for women than men.<sup>15</sup> We are currently analysing census data on long standing illness in relation to voting patterns to see if the same relation holds true here.

The correlations between voting and mortality were generally of remarkably similar size for the periods surrounding the three most recent elections, even though the geographies of both mortality and voting were slowly changing. The only exception to this relates to abstentions, for which the positive correlations with mortality were greater around 1992 than around 1987 or 1983. Abstentions can be viewed as an indicator of apathy and, more strongly, social disintegration. Abstention rates rose dramatically during the 1980s in particularly poor parts of the country, places where death rates have traditionally been high and where over recent years mortality trends have been unfavourable.<sup>8 12</sup> This reflects the geographical polarisation of the poorest groups in society that took place during the 1980s.<sup>17 18</sup>

Mortality data have been standardised using information about the population drawn from the last two population censuses, and this is known to be deficient in inner city areas for 1991. To compensate for the undercount in these areas we have included estimates for the number of people not enumerated in each constituency in each age and sex group in 1991. The two constituencies with the highest death rates (Manchester Central and Liverpool Riverside) also experienced some of the highest rates of underenumeration in the 1991 census. The places where people are most likely to die young are also the places where people are most difficult to count when alive.

The problems of assessing the political preferences of people living in different areas have risen in recent years. In particular, as a direct result of the introduction of the community charge (poll tax) a large number of people were compelled to exclude themselves from the electoral register for the general election of 1992.<sup>19</sup> We have not included estimates of the number of adults who were eligible to vote but were excluded from the electoral register in each constituency in our analysis.



The two constituencies which saw the highest decrease in voter registrations (of over 30% between 1979 and 1992) were, again, Manchester Central and Liverpool Riverside. These constituencies also saw some of the highest increases in abstentions among those adults who did choose to remain on the electoral register between 1987 and 1992 (increases of 7 and 10 percentage points respectively). If we had included estimates of non-registration in our correlations the relation between lack of support for the ruling political party and high rates of mortality would have been even stronger. The places where adults are most likely to die are the places where people are least likely to choose (or be registered) to vote.

### COULD HIGH MORTALITY AMONG LABOUR VOTERS ACCENTUATE CONSERVATIVE MAJORITIES?

To date studies of voting in Britain have not considered general mortality as a factor in explaining electoral patterns. This is despite easily recognised regularities such as traditional Labour support being extremely high among workers in occupations associated with high mortality and poor health, such as mining. Neither has the direct effect of mortality on voting been considered. If Labour voters die at a younger age than Conservative voters on average then they will be alive to vote at fewer elections per lifetime. The recent Conservative strategy of encouraging increasing socioeconomic inequality, which has in turn produced increasing socioeconomic differentials in mortality<sup>20</sup> and increases in death rates among some groups living in the most deprived areas,<sup>21 8 12 22 23</sup> will in turn consolidate the Conservative electoral advantage by hastening (in relative and, for some groups, absolute terms) the death of those who would oppose them at the polls.

### VOTING AND DEPRIVATION

The somewhat smaller correlations between the Townsend score and mortality in these data compared with other studies that have investigated deprivation and mortality<sup>14 16 7</sup> reflect our use of the all ages standardised mortality ratios rather than the truncated age groups (such as 16-64) in other investigations. The strength of the association between area based deprivation and mortality is attenuated at older ages. The increasing average age of the population may account for the decrease in magnitude of correlation between the Townsend score and mortality between 1983 and 1992, since deaths at older ages--which are less strongly related to deprivation<sup>14</sup>--will contribute more to the standardised mortality ratios for 1992 than 1983. The same phenomenon may account for the attenuation in the size of correlations between voting behaviour and mortality over time.

As with all investigations using area based socioeconomic indicators it could be argued that our data are prone to suffer from the ecological fallacy.<sup>24</sup> This postulates that while phenomena may be associated at the ecological level--for example, areas with high Conservative voting have low mortality--this may not be seen at the individual level--for example, people who vote Conservative may not have lower mortality. We cannot address this problem in this study. Indeed, due to the confidential nature of voting in Britain it is unlikely that such data exist. The partial exception to this relates to the study of mortality of members of parliament (MPs). In a mortality study of male MPs elected in 1945 Labour MPs had a 25% higher death rate than non-Labour (mainly Conservative) MPs.<sup>25</sup>

Area based indicators may capture contextual effects of areas that are not simple aggregates of the characteristics of people living in the areas.<sup>26</sup> Socioeconomically disadvantaged areas may suffer, for instance, from poor leisure facilities, transport, housing conditions, and environmental conditions and have few retail outlets, all of which influence health in ways that are independent of the socioeconomic position of the individual residents.<sup>26</sup> Areas with high socioeconomic

inequality have higher mortality and worse profiles with respect to other health indicators, regardless of the overall socioeconomic level.<sup>27 28</sup>

## Conclusions

Although the fiscal and social policies of the Conservative and Labour parties have converged greatly over the past 17 years, voting choice remains strongly influenced by individual circumstances. Conservative voters tend to be richer and live in more affluent areas, they are less likely to require unemployment benefit, their children are less likely to benefit from free school meals, they are less likely to be reliant on a state pension in old age, and, if wealthy enough, they can afford to opt out of much state subsidised provision (ranging from public transport to education and the NHS). Conservative voters may therefore assume it is sensible for them to support a party that will improve their already (generally) privileged economic situation through apparent tax reductions, while dismantling the components of the welfare state that are most needed by others. Such "I'm all right, Jack" thinking is shortsighted. Across nations overall life expectancy is more favourable in countries with redistributive taxation and with leftist governments committed to greater social expenditure.<sup>29 30</sup> Richard Wilkinson, among others, has argued that in societies with greater socioeconomic inequality life expectancy is lower and several indicators of poor health throughout life--from birth weight, child growth, and general morbidity to risk of death from many causes--are less favourable than in more equal societies.<sup>31</sup> Of particular concern is that the increases in socioeconomic inequality in Britain, which now places the country in the unenviable position of being one of the most inequitable industrialised countries in the world, will have adverse influences on the health and wellbeing of children, which will in turn undermine the future health of the nation.<sup>32</sup>

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