

Professors Richard Wilkinson and Kate Pickett, authors of *The Spirit Level*, reply to critics.

NOTE: Almost all of the research we present and synthesise in *The Spirit Level* had previously been peer-reviewed, and is fully referenced therein. In order to distinguish between well founded criticism and unsubstantiated claims made for political purposes, all future debate should take place in peer-reviewed publications.

Preliminary points (specific responses to The Taxpayers Alliance follow below)

As epidemiologists with decades of experience in analysing the social determinants of ill health, and having published over 100 articles in peer-reviewed journals, *The Spirit Level* represents a synthesis of our own and other people's research in this area, written for a wide audience. It was emphatically not written as a left-wing polemic and politicians and policy-makers across the political spectrum have welcomed and accepted the evidence it contains.

One of our critics has suggested that "sociology has been remarkably inept at providing us with the evidence and tools to create a better society". We agree, but epidemiology has been much more successful in uncovering the causes of disease, in identifying influences on population health and in pointing the way to effective public health policy. We work within this paradigm of quantitative observational studies and, because we so often act as peer reviewers ourselves, we can draw on the depth and breadth of research from other academics throughout the world. There are of course strong moral arguments in favour of greater equality and people often tell us that *The Spirit Level* speaks to their experience of life in very unequal countries. But our work rests on evidence, not moral arguments or anecdote.

As well as having subjected our analyses to peer review; our research has also been funded at various times by the UK's Economic and Social Research Council, the Medical Research Council, and Department of Health, as well as by the US National Institute of Health, all of whom subject research proposals to rigorous review. Our critics seem not only to be unaware of the vast public health literature in this area (particularly recent work) but also of the work of many sociologists, economists and other academics.

The Equality Trust was not set up on the basis of a left-wing political ideology. Politicians of all parties, including Conservative and UKIP candidates, signed our Equality Pledge prior to the election. The Liberal Democrats and Conservatives responded positively to our suggestion of a Fairness Test for deficit reduction measures, and peers across the benches cited our work in the House of Lords debate

on the Equality Bill. We spoke at fringe meetings of all main political parties last year and continue to abide by a simple principle – we will talk to anybody about the evidence that inequality is damaging, but will not align with any political party. In addition to politicians, we have discussed our evidence with civil servants, faith groups, charities, academics, NGOs, journalists, regional development groups, NHS organizations, trade unions, arts festivals and royal societies.

We are cautious about the quality of the data we use. For example, we found no relationship between inequality and adult obesity in US states when using self-reported data on height and weight, but when we were provided with data calibrated by actual measures of height and weight, the relationship was there. And when we find something contrary to our hypotheses - smoking, suicide and children's aspirations, we discuss that in our book.

Some critics have suggested that we are selective in the choice of health and social problems that we examine, but The Spirit Level is not a 'theory of everything' (as others have claimed): it is specifically a theory of problems which have social gradients – problems which become more common further down the social ladder. So, for example, we would not theorize that alcohol *use* would be related to inequality, as it does not have a social gradient, but that alcohol *abuse* would be because it does have a social gradient, and indeed deaths from alcoholic liver disease are more common in more unequal US states.¹

But to prove that we did not simply select problems to suit our argument, we included an analysis of the relationship between the UNICEF Index of Child Wellbeing in Rich Countries and income inequality.² We included the UNICEF Index because it combines 40 different aspects of child wellbeing which we had no part in selecting. Yet we show it behaves exactly like our Index of Health and Social Problems showing strong relationships with income inequality and none in relation to average national income.

Apart from problems with social gradients, we also extend our analysis, looking for pointers to how greater equality might affect prospects of achieving global sustainability and good relationships with developing countries.

It has been suggested that we should have included more, and poorer, countries in our analyses. We aimed to examine only those countries where population health is no longer linked to average levels of income – those on the upper flat part of the curve in figure 1.1 in The Spirit Level. Clearly poorer countries need economic growth to provide their citizens with adequate material resources.

We selected our countries according to a strict set of rules – with no departures or exceptions. We took the richest 50 countries ranked by wealth according to the Atlas method, which the World Bank uses to classify countries into Low, Medium and High Income categories. Our source was the World Development Indicators Database, World Bank, April 2004. From the richest 50 richest countries we excluded those with populations of less than 3 million to exclude tax havens, and then used all the remaining countries for which a comparable income distribution measure was available in the United Nations Human Development Reports.

Rather than 'cherry-picking' the data and counting countries in or out according to whether they did or did not fit our thesis, we included them 'warts and all'. For example, we include Singapore in our analysis of income inequality and infant mortality although it is a very significant outlier, claiming the lowest infant mortality in the world despite being the most unequal country in our dataset (see Fig 6.4

in The Spirit Level). This is the exact opposite of our critics' tactics of looking at the data in each relationship and selectively adding or removing countries, in an attempt to make the relationships go away. Our aim was to see if there was a consistent tendency among these countries for health and social problems with social gradients to be more common in societies with bigger income differences. And to double check that our findings were not just due to chance we repeated all the analyses among the 50 states of the USA.

In contrast to our approach, much the most common strategy used by our critics has been to selectively remove or add countries to our analyses in an attempt to make the damaging effects of inequality disappear. But it is important to note that the criticisms are entirely *ad hoc* criticisms of each relationship between inequality and a social outcome. This means they are irrelevant to almost all of the very many other demonstrations of similar relationships in different settings published in academic journals by other researchers. If, instead, we drew attention to research papers showing – for instance – that income inequality in the regions of Russia,³ the provinces of China⁴ or Japan,⁵ the counties of Chile,⁶ or among rich and poor countries⁷ combined, is related to health, which regions, provinces, counties or countries would Saunders and our other critics find excuses to remove to make those relationships disappear? We show (below) the weaknesses of each of these *ad hoc* criticisms of our data, but it should be remembered that, even if they were all accepted, there are many other demonstrations of these relationships in other settings where the criticisms of our work are entirely irrelevant.

Our analysis suggests that the social gradients which exist in health and many social problems cannot be the result simply of a tendency for social mobility to move the resilient up the social ladder and the vulnerable down. No amount of sorting would explain why problems with social gradients may be anything from twice to ten times as common in more unequal societies. Our findings also suggest that these problems are unrelated to differences in absolute material standards – national income per head – from one country to another. What the evidence does suggest is that problems which become more common further down the social ladder are substantially a responses to social status differentiation itself, and that when greater inequality increases the scale of social differentiation, the problems get worse. Our critics provide no alternative account of why so many problems have social gradients.

Responses from Professors Richard Wilkinson and Kate Pickett to the 20 questions posed by the Tax Payers' Alliance

We answer questions 1 and 2 together as they are both about Angus Deaton's work.

1. **Q.** You claim to present an overview of the research on health and inequality, yet leave out the scientifically most heavyweight survey of the field, Princeton Professor Angus Deaton's article in the prestigious Journal of Economic Literature. Is this simply because Deaton finds no robust relationship between life expectancy and income inequality among the rich countries? (Deaton, A. S. 'Health, inequality and economic development', Journal of Economic Literature, May 2001)

2. **Q.** You base much of your thesis on the relationship between inequality and life expectancy within U.S states. Why do you neglect to tell your audience that researchers have found that this relationship vanishes once they control for demographic differences? (Deaton, A.S., D. Lubotsky. "Mortality, inequality and race in American cities and states", *Social Science & Medicine*, March 2003)

A. Angus Deaton's 2001 study is far from being the most up-to-date review of inequality and health and the social determinants of health has never been his main field. Look also at more recent work, perhaps particularly from the group at the Harvard School of Public Health, many of which are co-authored by I Kawachi, Professor of Social Epidemiology and Chair of the Department of Society, Human Development, and Health at Harvard. (See for instance reviews such as: Kondo N, Sembajwe G, Kawachi I, van Dam RM, Subramanian SV, Yamagata Z. Income inequality, mortality, and self rated health: a meta-analysis of multilevel studies. *British Medical Journal* 2009;339:b4471 doi:10.1136/bmj.b4471.. . In 2006, we published a much more comprehensive review than Deaton's, taking into account the five years of research published since his 2001 paper, and based on close to 200 studies⁸. Other 'heavyweight' economists, including Nobel laureates, have also written about the significance of inequality for wellbeing and human capital formation⁹

Since Deaton's paper several of the issues he raised have been the subject of further research, including the idea that the relationship between inequality and health in the 50 states is actually attributable to the proportion of each state's population which is African American. The same point was once raised in relation to the pattern of violence among the states. Both have now been shown to be inaccurate. (See¹⁰⁻¹³. We hope the Tax Payers Alliance will inform their readers of these more recent findings to avoid further misunderstanding.

The reason why the initial confusion over the role of ethnicity arose is because in those states where there is a larger African American population there is also a bigger income gap between blacks and whites. But in the states with a higher proportion of African Americans it is not only black health which is worse: white health is also poorer. The issue is not of course that skin colour determines health. Instead, ethnicity matters when skin colour becomes a marker of social status which attracts the same discrimination and downward prejudice which low social status and deprivation have always attracted. The evidence on violence is similar. Relations between inequality and violence exist in both Southern and Northern states. Rates of homicide perpetrated by white men are related to income inequality even when inequality is measured only among whites. To suggest removing or controlling for the proportion of the population which is African American in each state is analogous to saying one should look at the effects of inequality only after taking out the disadvantaged.

We do not of course base our thesis on a single relationship between inequality and life expectancy within US states. Given that there are now over 200 studies testing this relationship there is no possible reason for doing so.

3. **Q.** Correlation is not causation. This is true both for simple relationships and with multiple variables. Do you have any studies that actually establish a relationship between life expectancy and inequality, based on exogenous variation of inequality, quasi-experiments or any other well identified source of variation?

A. Indeed, correlation is not necessarily proof of causation. However, as epidemiologists, we are trained in researching causal relationships within an observational framework.

One of our critics has admitted that “sociology has been remarkably inept at providing us with the evidence and tools to create a better society”. We agree, but epidemiology has been much more successful in uncovering causal influences on population health and in pointing the way to effective public health policy. Epidemiologists have been able, within an observational framework, to show that: smoking causes lung cancer; sleep position affects babies’ risk of dying; social status and social networks have a profound impact of on people’s risk of chronic disease, etc., etc..

We discuss the epidemiological criteria for the establishment of causality in our book. One example might strike readers as a useful illustration. At the end of the Second World War, the USA was a very equal country, and ranked high on population health; Japan was a very unequal country and ranked very poorly on population health. Since then, these two countries have switched their relative positions: the USA is now very unequal and ranks very low on health; Japan became much more equal and its life expectancy increased faster than any other developed country till it had the highest life expectancy in the world. See also the study by Clarkwest et al referenced in point 4 below¹⁴. There are a number of papers dealing with changes over time, with path analysis, and with causal ordering. In addition, a number of the associations found in observational studies of humans, including biological measurements, have been supported by genuine experiments on non-human primates where social status can be manipulated while material standards are kept constant.

Answers to questions 4, 5 and 6 are combined.

4. Q. Your most famous claim is that “inequality kills”. Yet using OECD life expectancy data, UN life expectancy data, OECD Gini and UN Gini, with different selection of countries, in several specifications, we again and again fail to replicate your result and find any statistically significant relationship between life expectancy and inequality. Is the explanation that you have relied on cherry picking – using the exact selection of measures, countries and year where such a correlation can be shown to exist?

5. Q. Your initial defense for the lack of a statistically significant relationship between life expectancy and inequality from OECD data overall was that we should look at the working age population. Do you have any further defense, given that the OECD data shows no statistically significant relationship also for the population between 15 and 60?

6. Q. If inequality (rather than poverty) is strongly related to poor health, why can we not find any statistically significant relationship between inequality and health outcomes as measured by the OECD for 16 of 19 health variables?

A. The claim that ‘inequality kills’ has been made for us, in publishers’ publicity and in translation. However the weight of the evidence from studies of either infant or adult mortality, among both rich and poor countries, the American states, the regions of Russia, the provinces of China, the counties of Chile and many more suggests it does.

Relationships between income inequality and life expectancy have been repeatedly demonstrated since 1979¹⁵. There are over 200 tests of this link, internationally and in the US states, and the vast majority of studies confirm the adverse impact of inequality on health⁸. However, after periods in which income distribution has changed rapidly, the cross-sectional international association between income inequality and life expectancy have sometimes seemed to disappear¹⁶ – only to reappear later¹⁷. This seems to be because there are substantial lag periods between changes in income distribution and changes in population health. Every cause of death, and death rates in every age group

have different lag periods. Death rates in later life are known to be powerfully influenced by experience in early life. Taking this into account it is surprising that relationships between health and inequality have been demonstrated so many times in so many different contexts. But we accept that the inequality/health relationship is one of the weaker associations demonstrated in The Spirit Level – no doubt partly for the reasons just described. Because lag periods are much shorter for infant mortality these relationships have been more consistent as have the association among US states. However, two new pieces of evidence leave little room for doubt as to the veracity of these relationships. One is a study published in the British Medical Journal – a meta-analysis of multi-level studies of income inequality and health¹⁸. This shows unequivocally that, even after controlling for individual income or education, inequality is related to significantly higher mortality rates. The second is a study showing that US states with bigger increases in inequality between 1970 and 2000 had less improvement in life expectancy than those with smaller increases¹⁴.

7. Q. If inequality is strongly related to life expectancy, why have the countries with the highest increase in inequality witnessed on average higher increases in life expectancy in the last two decades according to OECD data?

A. Researching changes in inequality and changes in outcomes is difficult, and needs careful thought about lag times. The widening of income distribution which started in the late 1970s or early 1980s; followed the spread of neo-liberal economic and political thinking from the English speaking countries to other countries. While income differences rose rapidly in the 1980s in several English speaking countries, it remained stable in a number of other developed countries before spreading to them a decade or two later. The question is which period are current improvements in health related really to – current increases in inequality or the earlier stability? So you may have the relationships exactly the wrong way round. But if you have good evidence it should be presented in a peer-reviewed journal. Clarkwest and colleagues¹⁴ have shown that states with greater changes in inequality between 1970 and 2000 have had less improvement in life expectancy than those with smaller increases.

8. Q. Why do you claim that more unequal nations have less creativity, (and that Portugal is as creative as the United States), when data from the World Intellectual Patent Organization shows the opposite?

A. We used data from the World Intellectual Patent Organization (http://www.nationmaster.com/graph/eco_pat_gra_percap-economy-patents-granted-per-capita). This shows patents per capita for Portugal at 0.6 and the USA at 1.0. In contrast, patents per capita for Japan are 7.8 and for Sweden 30.1.

9. Q. Why do you claim that more unequal nations have more mental illness (and that the United Kingdom has 250% the mental illness level of Germany) when data from the World Health Organization shows the opposite?

A. We use WHO data designed to provide comparable estimates of the prevalence of mental illness. Rather than reflecting the use of medical and psychiatric services as the data on which this question is based does, the data we used is based on the scientific

collection of data using standardized diagnostic interviews administered to random samples of the population. The question reflects a confusion epidemiologists are taught to avoid at the beginning of their training. The only reason WHO went to the expense of collecting the data we used is that help-seeking behavior is a very unreliable guide to the prevalence of health problems.

10. Q. Why do you claim that “[i]n Sweden, people don’t bother to check your tickets on the train or bus” when this is obviously not the case? The American audience reading the Boston Globe might believe you, but anybody who has lived in or visited Sweden will immediately see through the deception.

A. We have, happily, visited both Sweden and the USA several times recently so our claims are based on our own experiences in those countries. But our experiences are borne out by the evidence on trust.

Questions 11-20 are the same as the questions put by Christopher Snowden in his Democracy Institute pamphlet and are answered in our replies to him.

11. Why do you say that community life is weaker in less equal countries when these nations have more people involved in community organisations (charities, sports clubs, environmental groups etc.)?

Robert Putnam’s measures of ‘Social Capital’ are based on membership of voluntary and community associations of the kind you mention. Both in his earlier study of the Italian regions and in his study of the American states he shows there is a very strong tendency for the more equal regions and states to have stronger community ties measured in this way. Looking at changes over time in the US as a whole he also says: "Community and equality are mutually reinforcing... Social capital and economic inequality moved in tandem through most of the twentieth century. In terms of the distribution of wealth and income, America in the 1950s and 1960s was more egalitarian than it had been in more than a century. ...those same decades were also the high point of social connectedness and civic engagement. Record highs in equality and social capital coincided. Conversely, the last third of the twentieth century was a time of growing inequality and eroding social capital. By the end of the twentieth century the gap between rich and poor in the US had been increasing for nearly three decades, the longest sustained increase in inequality for at least a century. The timing of the two trends is striking: somewhere around 1965-70 America reversed course and started becoming both less just economically and less well connected socially and politically." p.359

Sociologists distinguish between generalized trust (trust of people with whom we do not have an intimate relationships) and particularized trust (trust of people like ourselves). Generalized trust is related to social capital, and many researchers, including Putnam, have linked these measures of social capital to greater equality. Indeed, they have shown that it is inequality that affects trust, rather than the other way round.¹⁹

12. Do you accept that the World Values Survey data show no correlation between 'happiness' and inequality, but a strong correlation between 'happiness' and income?

We accept that there is no relation between inequality and WVS measures of happiness, but among the rich countries neither is there a relation between happiness and Gross National Income per head (see our figure 1.2 in *The Spirit Level*). In our debate at the RSA, Richard meant to say that happiness and income have a reverse social gradient, rather than no social gradient. The correlation between income and happiness among individuals within countries has been shown to be a relationship with relative income and social status. It has also been shown that additional income makes much more difference to the happiness of the poor than the rich. This would suggest that redistribution would improve over-all happiness. Several economists who study happiness (e.g. Blanchflower and Oswald²⁰) show that, in sub-national analyses, more equal societies, for example more equal US states, are happier. International comparisons of subjective variables, such as happiness, are notoriously unreliable (for example, self-reported health appears better in countries with higher death rates²¹) This is why in *The Spirit Level* we concentrated very largely on objective measures of health and wellbeing.

13. On page 19 of *The Spirit Level*, you say you included alcohol addiction as a 'health and social problem', but you never discuss it in the rest of the book. Is this because the highest rates of alcoholism are in Scandinavia?

It is important to distinguish between *alcohol use* and *alcohol abuse*. *Alcohol use* is difficult to measure and often has no social gradient – consumption tends to be higher in higher social classes. This is in marked contrast to binge and problem drinking. We include *alcohol abuse* (as measured by surveys of mental illness that cover drug and alcohol addiction) in our Index of Health and Social Problems, and have previously demonstrated a significant relationship between deaths from *alcohol-related liver disease* and income inequality in US states.²²

14. Why do you show no data about the (high) prevalence of mental illness in Scandinavia?

The World Health Organization has not yet produced internationally comparable data on mental illness for Scandinavian countries, but we eagerly await such data. In the absence of robust estimates from the WHO, we know of no high quality data to justify the suggestion that Scandinavian countries have a higher prevalence of mental illness.

15. If equality creates good health, why does Denmark currently have the lowest life expectancy of any country in your list?

As with our other analyses, we (unlike our critics) do not pick and choose different countries to include or exclude according to whether or not their outcomes fit the inequality data. Denmark does indeed have much lower life expectancy than we would expect given its level of inequality. We have never claimed that income inequality is the *only* cause of worse health and social problems in a society. There will always be countries that do a bit better or worse on any outcome than we might predict given their level of inequality. Some researchers have attributed Denmark's relatively poor health to its high levels of smoking.

16. Why were Singapore and Hong Kong excluded from your graph on obesity?

The International Obesity Taskforce did not report data on obesity for Singapore in the 2002 report which was available when we were writing *The Spirit Level*. Hong Kong is not a nation state but even if it were it does not meet our inclusion criteria (see point 1).

17. Do you accept that the "correlation" between trust and equality rests entirely on figures from the four Nordic countries and that there is no pattern amongst the remaining 19 nations?

Absolutely not. These countries are NOT outliers, but lie on the trend line. However, even if they are excluded there is still a statistically significant correlation among the remaining countries ($r=-0.46$) as well as among US states where the correlation between trust and inequality is also highly significant ($r=-0.7$).

18. Why do you say that young people "defer sexual activity" in more equal countries when there is no evidence for this?

We don't say that people defer sexual activity in more equal countries – we simply discuss Professor Jay Belsky's theory about quality versus quantity reproductive strategies which biologists have identified in many species.

19. If greater equality makes countries less violent and more law-abiding, why does Sweden have the highest rate of rape and theft of any country in your list? Why does Finland have the highest murder rate in Europe?

As we discuss in *The Spirit Level*, there are multiple influences on health and social problems, and income inequality is only one factor (albeit a strong and robust factor, demonstrated in more than 50 studies) affecting murder rates. Finland has a higher rate of homicides than we would predict, given its level of inequality, probably because of its high level of gun ownership. If we control for gun ownership in US states, the relationship between inequality and homicides actually gets stronger. For crimes other than homicides,

comparing crime data among different countries is problematic, due to reporting differences. It seems sensible to assume that rape is more likely to be reported in societies where women's status is higher.

20. Since when has the definition of a tax haven been a country with fewer than 3 million inhabitants? Isn't this just an excuse to leave out Slovenia?

The cut off for a small country has to be defined somehow – countries with populations around our 3 million cut-off point include Slovenia, Namibia, Lesotho, and Botswana. Slovenia is the only rich country with close to 3 million inhabitants excluded from our analyses. What happens if we add it in? Not much – the correlation between income inequality and homicides is $r=0.42$ ($p=0.04$) with Slovenia in, and $r=0.43$ ($p=0.04$) with Slovenia out. For imprisonment, the correlation with Slovenia in is $r=0.66$ ($p<0.001$), with Slovenia out, it is $r=0.65$ ($p<0.001$)....etc

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