

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 particular critics 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, we wrote *The Spirit Level* as 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 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 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.

Professors Richard Wilkinson and Kate Pickett reply to Saunders' pamphlet 'Beware of False Prophets', published by Policy Exchange.

Several of the issues which Saunders raised have been dealt with in our **Preliminary Points** (above). We address his remaining criticisms of our analyses in the order in which they appeared in Section II of *The Spirit Level*

Chapter 4: Trust, social capital, women's status, foreign aid

Saunders agrees with us that there is a statistically significant relationship between inequality and trust internationally, and does not test our evidence that this is also true in US states, although the data are available online from the General Social Survey. Many other researchers also agree^{8,9} and, indeed, Eric Uslaner, a US sociologist has used causal models to show that inequality affects trust, and not the other way round.¹⁰ Social capital also has a well established association with inequality.¹¹ Saunders has to remove all the Scandinavian countries to reduce the link between inequality and women's status to non-significance, but like others, we also show that women's status is significantly worse in more unequal US states.¹² For foreign aid donations, Saunders again removes the Scandinavian countries as "outliers" but does not remove Japan, which is actually further removed from the trend line than the Scandinavian countries. If he were to follow his own counsel and remove Japan as well, a significant association between inequality and foreign aid remains ($r = -0.6$, $p = 0.02$). Saunders also makes much of the fact that more unequal countries (especially the USA) have higher levels of individual charitable giving. But, as the Charities Aid Foundation points out, charitable giving in the USA is heavily influenced by tax policy. It may also be a response to the dire plight of the poor, resulting from the lack of better social security systems in the US. Only 3% of US charitable giving goes overseas, so total US donations to overseas development are still substantially lower than other rich countries.

Conclusion: trust, social capital, and women's status are robustly associated with greater equality internationally and in US states, and foreign aid donations are higher in more equal countries.

Chapter 5: Mental illness and drug abuse

Saunders totally ignores our evidence that mental illness is significantly higher in more unequal countries, presumably because he cannot refute it. He also ignores our international evidence on inequality and drug abuse. He does look at mental illness in US states and, although he finds a significant relationship with inequality, he excludes states in his usually inconsistent fashion, until the relationship disappears. His analyses of mental illness are not included in his summary table of results. Saunders does not mention our evidence that child mental health problems are related to US state levels of inequality.

Conclusion: levels of mental illness are strongly associated with greater inequality internationally and for women and children in US states, and drug abuse is higher in more unequal countries.

Chapter 6: Life expectancy and infant mortality

Relationships between income inequality and life expectancy have been repeatedly demonstrated since 1979¹³. 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 inequality¹⁴. At times, the cross sectional associations have seemed to disappear¹⁵, and reappear¹⁶. This variability is probably caused by the long lag periods between sudden changes in income distribution and their effects on health – given that health is affected by circumstances throughout life. We do accept that this is one of the weaker associations demonstrated in The Spirit Level, although the association is clearly much stronger among US states. If the 128 studies of the relation between income inequality and health which use data for large areas (whole nations, regions, states or cities) are classified before the use of what are often inappropriate control variables, only 6% fail to show some significant associations. Two important new pieces of evidence have appeared recently. One is a study published in the British Medical Journal – a meta-analysis of multi-level studies of income inequality and health.¹⁷ This shows unequivocally that, even after controlling for individual income or education, inequality is related to significantly higher mortality rates. (This study is almost certainly ‘over controlled’ and so underestimates the magnitude of the effect of inequality on mortality because individual income and education are related to health principally because they are markers of status.) 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 increases.¹⁸

Saunders accepts our evidence on links between income inequality and infant mortality

Conclusion: physical health is better in more equal societies and increases in inequality in US states are associated with lower improvements in life expectancy

Chapter 7: Obesity

Once again, Saunders relies on the removal of ‘outliers’ to reduce the link between inequality and obesity to non significance. He removes the USA. But once again, other countries are actually more distant outliers than those he removes. Greece is more of an outlier than the USA – take out Greece and the USA together as he ought to advocate (although we think this approach is wrong), and the significant link between inequality and obesity is restored. Indeed, for women, the link is there even with Saunders’ approach ($r=0.5$, $p=0.03$). The same is true for overweight children, Saunders removes the USA, but not Canada, which is a more distant outlier; if both are removed, the link between inequality and child overweight is significant ($r=0.6$, $p<0.01$). Other researchers have shown that income inequality is related to higher body mass index and obesity rates in industrialized countries, modelling a 5 or 10 year time lag between inequality and body size.¹⁹ Saunders does not discuss our evidence of correlations between income inequality and obesity in US adults or US children. A helpful method is to look for coherence among data sources – if more people are obese in more unequal countries, then shouldn’t those countries have higher calorie intakes? Indeed, we have shown this to be the case.²⁰

Conclusion: obesity levels are higher and more children are overweight in more unequal societies.

Chapter 8: Educational achievement

In order to remove statistical significance from our analysis of inequality and educational scores, Saunders splits our countries into two different groups, claiming that the data do not conform to the requirements of regression analysis. In fact, regression analysis is very robust to its assumptions. We have repeated our analysis with more recent (2006) data from the Programme for International Student Assessment and confirm that maths, literacy and indeed science scores are higher in more equal countries. We, and others, also show effects of inequality on educational scores in US states (which Saunders claims is due to the influence of Southern states), and on dropping out of high school, which he does not discuss at all.²¹ Again, looking for coherent patterns, we have also previously shown that a smaller proportion of young people are involved in further education in more equal rich countries.²

Conclusion: educational scores are higher in more unequal countries and US states, and far fewer children drop out of high school in more equal states.

Chapter 9: Teenage births and pregnancies

Saunders has to remove both the English speaking countries and the Scandinavian countries to reduce the association between inequality and teenage birth rates. In fact, inequality explains why some English speaking countries have more teenage births than others – far from removing some strange extraneous cultural factor causing English speaking girls to have babies as teenagers, this deletion of the English speaking countries removes an important part of the picture. UNICEF reported a link between inequality and teenage births in 2001²², and Gold and colleagues have published studies of the USA, showing the relationship to be mediated by social coherence^{23 24}. In the USA we used data on teenage conceptions, rather than births – we would have preferred to use this measure in our international analyses as it avoids the issue of differential access to abortion in different societies and among different social classes. Saunders agrees that inequality is significantly linked to teenage births in US states.

Conclusion: more teenage women become mothers in more unequal societies, and more teenage women become pregnant in more unequal US states.

Chapter 10: Homicides and violence

There have been more than 50 studies of income inequality and violent crime; for a review, see Hsieh and Pugh²⁵. Because of their different settings, Saunders' criticisms are irrelevant to most of these. Recent studies in the epidemiological and criminological literature continue to confirm the link, see for example Elgar & Aitken²⁶ who studied homicides in 33 countries. Saunders removes the USA from our analysis but, interestingly, this is one time when he does not add in his 'extra' poorer countries. He claims that the relationship in US states is driven by the proportion of people in each state who are African American. This explanation has been offered

previously, as well as a claim that US violence is driven by 'Southern culture'. Martin Daly has recently shown this to be spurious.²⁷ We also present data on aggression in US states, which Saunders does not discuss. He removes the Scandinavian countries from our analysis of child conflict; a measure he claims not to like because it combines fighting, bullying and child relationships. But Elgar has recently shown, in a multi-level analysis of 37 countries, controlling for wealth and social support, that inequality is indeed related to more bullying.²⁸

Conclusion: more than 50 studies of inequality and violence show that homicide rates increase in more unequal states.

Chapter 11: Imprisonment

Saunders accepts that there is a significant association between income inequality and rates of imprisonment internationally. So in this case, he adds in selected poorer countries and argues that the relationship then disappears. He suggests that in US states the relationship is due to the proportion of African Americans in each state. Saunders seems to believe that the fact that imprisonment rates are unrelated to peoples' self-reporting of burglary and car thefts (quite suspect data as he admits), contradicts our view that more unequal countries are more punitive. What is needed to demonstrate this is not the imprisonment rate in relation to *reported victimization rates* but the imprisonment rate in relation to *convictions* – do more unequal societies send more convicted criminals to prison and do they send them away for longer – which, as we cite with numerous citations in *The Spirit Level*, academic criminologists think is happening, both internationally and in the USA. We recently examined the relationship between income inequality and the age of criminal responsibility – theorizing that if we are right, and more unequal countries do have harsher judicial systems, then more unequal societies will be likely to have a younger age of criminal responsibility. This is exactly what we found (note: this analysis has not yet been subjected to peer review, but it will be). Recently, other researchers have reported that both income inequality and high rates of imprisonment have an impact on homicide rates, but these effects are independent of one another.²⁹

Conclusion: imprisonment rates are higher in more unequal societies.

Chapter 12: Social mobility

When Saunders attacks our analysis of inequality and social mobility he says he has been "saving the worst until the last". We believe, as do many economists, that social mobility is best measured by intergenerational income mobility.³⁰ Income mobility is a much more objective measure than class mobility (Saunders' methodological soundness on social mobility has been questioned previously by pre-eminent researchers in the field^{31 32}). When we published *The Spirit Level*, measures of intergenerational income mobility were available for only eight countries. Saunders claims that we inappropriately used regression methods to assess the link between income inequality and social mobility. He then misquotes economist Jo Blanden, from the London School of Economics, who wrote a report published in 2009 discussing social mobility in the UK.³⁰ In this report, which Saunders is clearly aware of, Blanden reports social

mobility for a further three countries in our dataset, which, when added in, not only confirm that there is a significant relationship between inequality and social mobility, but also overcome Saunders' objections to using regression methods in this case. So our theory successfully predicted subsequent findings. Did Saunders not notice these data in Blanden's report? He also seems to have failed to notice Table 5 in her report which shows that many different measures of inequality are related to many different measures of social mobility. Indeed, she says that "the majority of correlations are quite large, at over 0.5, indicating a strong positive relationship between inequality and intergenerational (im)mobility" and concludes that:

- 1) There is the expected relationship between inequality and mobility.
- 2) The relationship between mobility and poverty is not driving this, inequality at the top is important as well.
- 3) Inequality in childhood appears crucial for all measures, but inequality in adulthood also matters for our preferred measure of income persistence.³³

In the report of the National Equality Panel, Professor John Hills also shows the relation between social mobility and income inequality.³⁴

Conclusion: the evidence linking inequality to reduced social mobility has strengthened since the publication of The Spirit Level

The Index of Health and Social Problems

We created our **Index of Health and Social Problems** by combining data on problems with social gradients (all weighted equally) and then examining the relationship between the combined index and income inequality. Saunders created his own so-called Index of Social Misery by – as he put it – "trawling through the international comparative statistics to find any indicator which varies positively with income inequality". He includes *alcohol consumption* (which, unlike alcohol abuse, many would not regard as a social evil) and *low fertility* (and of course low fertility rates are a positive social good, both for the planet and as a reflection of women's status). He also includes HIV infections which have been shown repeatedly by other researchers to be higher in more *unequal* societies,^{35 36} and divorce rates, which again have been linked to *inequality*, rather than equality, in the USA.³⁷ His trawl seems to have produced remarkably little. However, even if we were to allow all his exclusions from our data at once (the Scandinavian countries, the USA and Japan) our combined Index of Health and Social Problems remains significantly related to income inequality.

The Issue of Ethnic Heterogeneity

Saunders believes that the higher level of health and social problems in more unequal states is better explained by the percentage of the population in those states who are African American. This has been debated in the public health literature for some time. The same point has been raised in relation to the pattern of violence among the US states. These ideas have now been shown to be inaccurate in relation to health³⁸⁻⁴² and violence.²⁷ We suggest that Saunders pays close attention to these analyses.

The reason why there was initial confusion over the role of ethnicity is because in those states where there is a larger African American population there is also a bigger income gap between the black and white populations. But in states with a higher proportion of African Americans it is not only black health which is worse: white health is also poorer, and levels of violence among whites are also higher. This is because it is not, of course, skin colour which determines health or behaviour. Instead, ethnicity starts to affect health and wellbeing when it becomes a marker of social status which attracts the same discrimination and downward prejudice which low social status and deprivation have always attracted.

In conclusion, we stand firmly behind the estimates of the impact of inequality presented in The Spirit Level. Our findings are in accordance with many studies published both before and after ours. As Saunders' attacks involve *ad hoc* criticisms of just some of our particular datasets, he would have to produce a completely new set of complaints about studies which confirm our findings but use data from quite different settings.

Note: Saunders does not dispute the evidence we present showing that in rich countries income inequality is significantly correlated with:

- Mental illness
- Child wellbeing
- Parental leave
- Recycling
- Business leaders agreeing that governments should comply with international environmental agreements
- The Global Peace Index
- Spending on advertising
- Social expenditure
- The proportion of spending on education going to the public sector

Nor does he dispute our associations in the United States between inequality and:

- Women's status
- Trust
- Obesity
- Child overweight

Responses from Professors Richard Wilkinson and Kate Pickett to the 20 questions posed by Mr Christopher Snowden - Fact Checking 'The Spirit Level'

1. Why do you exclude the Czech Republic, South Korea and Hong Kong from your analysis when all these societies are wealthier than Portugal?

There are different ways of measuring average income in different countries; the choice of measure makes small differences in precise ranking of countries by wealth. We chose countries ordered according to the Atlas Method, because this is used by the World Bank to classify countries into Low, Medium and High Income categories. Our source is the World Development Indicators Database, World Bank, April 2004. From this list we selected the 50 richest countries, excluded those with populations less than 3 million and those without income inequality data from the United Nations. Our aim was to examine the impact of inequality on health and social problems among rich countries, where average levels of income are not related to health, happiness or well-being. Our selection criteria also mean that we only consider the older, rich, developed, market economies, and so allows us to compare like with like. The countries which our critics suggest we should include fail to meet the criteria.

2. Why do you exclude Singapore from your graph of mental illness when you included it in the same graph when it was published in Oliver James' *Affluenza*?

Comparing the prevalence of mental illness in different societies has long been thought to be problematic because of cultural differences in labelling mental illness or in help-seeking behaviours. To overcome these limitations, the World Health Organization established a consortium to provide international comparisons of the prevalence of mental illness. As referenced in *The Spirit Level*, we use these WHO estimates for Belgium, France, Germany, Italy, the Netherlands, Spain and the USA. We added in estimates from Canada, the UK and Australia because they used almost exactly comparable methods (diagnostic interviews of random samples of the population) to the WHO studies. We did not include a survey of mental illness from Singapore in either of our peer-reviewed publications on this topic, or in *The Spirit Level*, because the WHO surveys included questions on illegal drug abuse and, in 1988, the death sentence became mandatory in Singapore for manufacturing, importing, exporting or trafficking drugs in small quantities. Possession of small quantities was taken as prima facie evidence of trafficking. We therefore consider that self-reported estimates of mental illness in Singapore survey will be under-estimates. *However, even if Singapore is included, there is still a statistically significant association between income inequality and mental illness ($r=0.58$, $p=0.04$).*

3. Why do you say that the USA's decline in homicide ended in 2005 when 2008 saw the lowest number of homicides since 1965? As you must know, America's murder rate has halved in the last two decades despite rising inequality.

We started writing *The Spirit Level* in January 2007 and delivered it to our publisher in February 2008, so clearly we could not have accessed homicide data from 2008 – typically official statistics are published 2-3 years post-collection. At time of writing (mid-2010), the most up-to-date data are for 2008.

The homicide rate in the USA has indeed declined, on average over the past two decades, whilst income inequality has been rising. But, as we discuss in *The Spirit Level*, and show here, there is a match over time between bottom-sensitive measures of income inequality and changes in homicide rates.

4. Why did you use older data for your life expectancy/inequality graph than you used elsewhere in *The Spirit Level*? Is it because more recent data shows no correlation with inequality?

To avoid the effects of random fluctuations in inequality measures in each country, we took the average of inequality measures published in four consecutive years of the UN Human Development Report. We then matched outcome data (including life expectancy) as nearly as possible to the same time frame as the measures of inequality. When looking at life expectancy against National Income per head we again took the most up to date measures of those covering the same time frame. There are also many recent studies that demonstrate a relationship between income inequality and health, see for example the study of more than 60 million individuals by Kondo and colleagues.⁴³

5. You use the high rate of teen births in Portugal (in 2002) as proof that inequality is related to teen births. Why do you not mention that abortion was illegal in Portugal until 2007?

We do indeed show that teenage births are related to income inequality in rich countries, as have UNICEF.²² This is not dependent on Portugal; indeed if we exclude Portugal the relationship with inequality is slightly stronger, not weaker. In the USA, unlike internationally, data on teenage conceptions were available so we use those, rather than births, as they are unaffected by state differences in access to abortion, and we show the same robust relationship with inequality.

6. Why do you not include the crime rate in your index of health and social problems? Is it because the crime rate tends to be higher in 'more equal' countries?

It has often been pointed out that homicides are one of the few crimes which can be compared reliably between countries. Comparisons of other kinds of crime are affected by differences in the law, in reporting, and by other extraneous influences. Car crime, for

instance, is affected by the number of cars and rape is dramatically affected by reporting (see our answer to Q 19 below). While there are some research papers showing relationships between inequality and property crime, there are no sources of data (including those used by Snowden) which deal adequately with these problems. Hence, we confined our attention to adult and juvenile homicide rates. There are more than 50 studies showing that inequality is related to violence, see for example the review by Hsieh and Pugh²⁵ and the recent study by Elgar and Aitken.²⁶

7. Why do you say that homicide is inversely related to suicide when there is no evidence for this?

In fact, there are several pieces of research which show that homicide rates are inversely related to suicide, see for example^{44 45}

8. Why do you suggest that people in more equal countries give more to charity when the reverse is true?

We do not say that people in more equal countries give more to charity - instead we show that more equal countries donate more in development aid to foreign countries. We do cite Eric Uslaner's work which shows that people who have high levels of trust are more charitable.¹⁰ Snowden presents data from the Charities Aid Foundation, which suggests that more unequal countries (especially the USA) have higher levels of individual charitable giving. However, as the Charities Aid Foundation points out, charitable giving in the USA is heavily influenced by tax policy, and may also be a response to the exceptional need created by the US lack of social security systems. Only 3% of US charitable giving goes overseas, so total US donations to overseas development are substantially lower than other rich countries.

Low levels of US government aid are partly a reflection of low trust in government (strongly related to inequality) and also of a lack of social security and welfare provision. Together these shift the onus of support to private charitable giving, which, even so, fails to match state provision in many other countries.

9. Why did Kate make a video called 'Why Cubans live longer than Americans?' when all the sources show that life expectancy in Cuba is lower than in the USA?

Kate was not consulted about the title for this online clip from a short interview. What she actually said was that countries such as Cuba, Costa Rica and some poorer European countries have life expectancy as high, or higher than, the USA. In fact, in the 2006 revision of the United Nations World Population Prospects report, for 2005-2010, infant mortality rates in Cuba were 5.1 per 1000 live births, compared to 6.3 for the United States, and life expectancy was in Cuba was 78.3 years, compared to 78.2 years in the USA.

10. Why do you write about "increased family break-down and family stress in less equal countries" when divorce and single-parent households tend to be more common in more equal countries?

Although lone parent families are not more common in more unequal countries, changes in income inequality are correlated with rising divorce rates in US counties.

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.¹⁰

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 Oswald⁴⁶) 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 rates⁴⁷) 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.⁴⁸

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

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 studies¹⁴. Other 'heavyweight' economists, including Nobel laureates, have also written about the significance of inequality for wellbeing and human capital formation⁴⁹

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. (See³⁸⁻⁴¹. 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 below¹⁸. 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 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 1979¹³. 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 health¹⁴. 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 disappear¹⁵ – only to reappear later¹⁶. 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 health¹⁷. 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 increases¹⁸.

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, they 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 really related 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 colleagues¹⁸ have shown that states with greater increases 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 are 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 above.

References

1. Wilkinson RG, Pickett KE. Income inequality and social dysfunction. *Annual Review of Sociology* 2009;35:493-511.
2. Pickett KE, Wilkinson RG. Child wellbeing and income inequality in rich societies: ecological cross sectional study. *Bmj* 2007;335(7629):1080-7.
3. Walberg P, McKee M, Shkolnikov V, Chenet L, Leon DA. Economic change, crime, and mortality crisis in Russia: regional analysis. *Bmj* 1998;317(7154):312-8.
4. Pei X, Rodriguez E. Provincial income inequality and self-reported health status in China during 1991-7. *J Epidemiol Community Health* 2006;60(12):1065-9.
5. Ichida Y, Kondo K, Hirai H, Hanibuchi T, Yoshikawa G, Murata C. Social capital, income inequality and self-rated health in Chita peninsula, Japan: a multilevel analysis of older people in 25 communities. *Soc Sci Med* 2009;69(4):489-99.
6. Subramanian SV, Delgado I, Jadue L, Vega J, Kawachi I. Income inequality and health: multilevel analysis of Chilean communities. *J Epidemiol Community Health* 2003;57(11):844-8.
7. Hales S, Howden-Chapman P, Salmond C, Woodward A, Mackenbach J. National infant mortality rates in relation to gross national product and distribution of income. *Lancet* 1999;354(9195):2047.
8. Putnam RD. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster, 2000.
9. Kennedy BP, Kawachi I, Prothrow-Stith D, Lochner K, Gupta V. Social capital, income inequality, and firearm violent crime. *Soc Sci Med* 1998;47(1):7-17.
10. Uslaner E. *The moral foundations of trust*. Cambridge: Cambridge University Press, 2002.
11. Islam MK, Merlo J, Kawachi I, Lindstrom M, Gerdtham UG. Social capital and health: does egalitarianism matter? A literature review. *Int J Equity Health* 2006;5:3.
12. Kawachi I, Kennedy BP, Gupta V, Prothrow-Stith D. Women's status and the health of women and men: a view from the States. *Soc Sci Med* 1999;48(1):21-32.
13. Rodgers GB. Income and inequality as determinants of mortality: an international cross-section analysis. *Population Studies* 1979;33:343-51.
14. Wilkinson RG, Pickett KE. Income inequality and population health: A review and explanation of the evidence. *Soc Sci Med* 2006;62(7):1768-84.
15. Judge K. Income distribution and life expectancy: a critical appraisal. *Bmj* 1995;311(7015):1282-5; discussion 1285-7.
16. De Vogli R, Mistry R, Gnesotto R, Cornia GA. Has the relation between income inequality and life expectancy disappeared? Evidence from Italy and top industrialised countries. *J Epidemiol Community Health* 2005;59(2):158-62.
17. Kondo N, Sembajwe G, Kawachi I, van Dam R, Subramanian SV, Yamagata Z. Income inequality, mortality and self-rated health: A meta-analysis of multilevel studies with 60 million subjects. *Bmj* 2009.
18. Clarkwest A. Neo-materialist theory and the temporal relationship between income inequality and longevity change. *Soc Sci Med* 2008;66(9):1871-81.
19. Kim D, Kawachi I, Hoorn SV, Ezzati M. Is inequality at the heart of it? Cross-country associations of income inequality with cardiovascular diseases and risk factors. *Soc Sci Med* 2008;66(8):1719-32.
20. Pickett KE, Kelly S, Brunner E, Lobstein T, Wilkinson RG. Wider income gaps, wider waistbands? An ecological study of obesity and income inequality. *J Epidemiol Community Health* 2005;59(8):670-4.
21. Kaplan GA, Pamuk ER, Lynch JW, Cohen RD, Balfour JL. Inequality in income and mortality in the United States: analysis of mortality and potential pathways. *Bmj* 1996;312(7037):999-1003.
22. UNICEF Innocenti Research Centre. A league table of teenage births in rich nations. Florence: Innocenti Report Card, 2001.

23. Gold R, Kawachi I, Kennedy BP, Lynch JW, Connell FA. Ecological analysis of teen birth rates: association with community income and income inequality. *Matern Child Health J* 2001;5(3):161-7.
24. Gold R, Kennedy B, Connell F, Kawachi I. Teen births, income inequality, and social capital: developing an understanding of the causal pathway. *Health Place* 2002;8(2):77-83.
25. Hsieh C-C, Pugh MD. Poverty, income inequality, and violent crime: A meta-analysis of recent aggregate data studies. *Criminal Justice Review* 1993;18:182-202.
26. Elgar FJ, Aitken N. Income inequality, trust and homicide in 33 countries. *Eur J Public Health* 2010.
27. Daly M, Wilson M. Cultural inertia, economic incentives and the persistence of "Southern violence". In: Schaller M, Norenzayn A, Heiney H, Yamagishi T, Kameda T, editors. *Evolution, culture and the human mind*. New York: Psychological Press, 2010.
28. Elgar FJ, Craig W, Boyce W, Morgan A, Vella-Zarb R. Income inequality and school bullying: multilevel study of adolescents in 37 countries. *J Adolesc Health* 2009;45(4):351-9.
29. Nadanovsky P, Cunha-Cruz J. The relative contribution of income inequality and imprisonment to the variation in homicide rates among Developed (OECD), South and Central American countries. *Soc Sci Med* 2009;69(9):1343-50.
30. Blanden J. How Much Can We Learn From International Comparisons Of Intergenerational Mobility? London: Centre for the Economics of Education, 2009.
31. Breen R, Goldthorpe JH. Class inequality and meritocracy: a critique of Saunders and an alternative analysis. *Br J Sociol* 1999;50(1):1-27.
32. Breen R, Goldthorpe JH. Merit, mobility and method: another reply to Saunders. *Br J Sociol* 2002;53(4):575-82.
33. Blanden J. Essays on intergenerational mobility and its variation over time [PhD Thesis]. University of London, 2005.
34. National Equality Panel. Anatomy of Economic Inequality in the UK. London: Government Equalities Office, 2010.
35. Stillwaggon E. HIV/AIDS in Africa: fertile terrain. *Journal of Development Studies* 2002;38:1-22.
36. Holtgrave DR, Crosby RA. Social capital, poverty, and income inequality as predictors of gonorrhoea, syphilis, chlamydia and AIDS case rates in the United States. *Sex Transm Infect* 2003;79(1):62-4.
37. Frank RH, Levine AS. Expenditure cascades. *Cornell University mimeograph*. Ithaca: Cornell University, 2005.
38. Ash M, Robinson DE. Inequality, race, and mortality in U.S. cities: a political and econometric review of Deaton and Lubotsky (56:6, 1139-1153, 2003). *Soc Sci Med* 2009;68(11):1909-13; discussion 1914-7.
39. Ram R. Income inequality, poverty, and population health: evidence from recent data for the United States. *Soc Sci Med* 2005;61(12):2568-76.
40. Ram R. Further examination of the cross-country association between income inequality and population health. *Soc Sci Med* 2006;62(3):779-91.
41. Subramanian SV, Kawachi I. The association between state income inequality and worse health is not confounded by race. *Int J Epidemiol* 2003;32(6):1022-8.
42. McLaughlin DK, Stokes CS. Income inequality and mortality in US counties: does minority racial concentration matter? *Am J Public Health* 2002;92(1):99-104.
43. Kondo N, Sembajwe G, Kawachi I, van Dam RM, Subramanian SV, Yamagata Z. Income inequality, mortality, and self rated health: meta-analysis of multilevel studies. *Bmj* 2009;339:b4471.
44. Bills CB, Li G. Correlating homicide and suicide. *Int J Epidemiol* 2005;34(4):837-45.
45. Rezaeian M. An analysis of WHO data on lethal violence: Relevance of the New Western Millennium. *Asia Pacific Journal of Public Health* 2009;forthcoming.
46. Blanchflower DG, Oswald AJ. Well-being over time in Britain and the USA. *Journal of Public Economics* 2004;88:1359-1386.

47. Barford A, Dorling D, Pickett K. Re-evaluating self-evaluation. A commentary on Jen, Jones, and Johnston (68:4, 2009). *Soc Sci Med*;70(4):496-7; discussion 498-500.
48. Wilkinson RG, Pickett KE. Income inequality and socioeconomic gradients in mortality. *Am J Public Health* 2008;98(4):699-704.
49. Cunha F, Heckman JJ. The Economics and Psychology of Inequality and Human Development. *J Eur Econ Assoc* 2009;7(2):320-364.