

**Richard Wilkinson and Kate Pickett's response to
Karen Rowlingson's report for the Joseph Rowntree Foundation
'Does income inequality cause health and social problems?'**

We are glad that an independent report from the Joseph Rowntree Foundation (JRF) has reviewed critical responses to our work and found it to be robust. The report recognizes that the critics have been "far more selective" in their presentation of data. We are also glad that it cites the statistical review by Noble (2010), which provides a detailed discussion of technical issues relating to *The Spirit Level* and strongly supports our approach.

However, although we very much welcome the general conclusions of this report, it nevertheless contains a number of errors which will lead the reader to underestimate the power of income inequality to affect societies. We regret that neither of us were invited to participate more fully in the deliberations which led to this report. We commented on a first draft and on the final report, but were told that there was not time for substantial changes to the final report. Although the report gives our work a clean bill of health, it is marred by important inaccuracies likely to mislead many readers.

We deal here only with the most important.

At several points it is said that the size of the effect of income inequality "on health and social problems" is small. There are several mistakes here. First, these statements infer from studies of the effects of income inequality on *health* to all the other outcomes which have been shown to be related to inequality. In other words a study suggesting that income inequality has a small effect on health is interpreted as meaning that income inequality also has a small effect on teenage births, violence, imprisonment, child wellbeing, trust etc.

Not only is the inference obviously unsound, but it is made in the face of the much stronger relationships shown for other outcomes, which are not discussed. The relationships we have reported between inequality and health, though statistically significant, are weaker than those with other outcomes (see tables of correlation coefficients on p.15 of the JRF report). Not only are the relationships between income inequality and other outcomes much closer, but the magnitude of difference in outcomes between more and less equal societies is often vast: three-fold differences in population rates of mental illness, four-fold differences in the proportion of people who feel they can trust each other, two-and-a-half-fold differences in rates at which pupils drop out of US high schools, six to ten-fold differences in teenage pregnancy rates, almost ten-fold differences in the proportion of the population in prison and vast differences in child wellbeing, drug abuse and social mobility.

To call these differences "small" is hopelessly misleading – particularly when these findings are based entirely on data from the most respected sources and are not discussed or challenged in any way in this report. Not only that, but research workers using data covering different societies have sometimes found even bigger differences than we do – see for instance the 10-fold differences in homicide reported both by Daly et al (2001) and, on separate data, by a group at the World

Bank (Fajnzylber et al 2002). Neither of these papers, nor a review of the literature which concludes that the homicide and inequality link is robust (Hsieh al 1993), is referenced in the report.

The mistake is compounded by the statement on p.11 that the correlation coefficients between income inequality and homicides, educational performance, life expectancy and infant mortality “fall below the 0.5 threshold”. This statement seems to reflect nothing more than a bizarre confusion between correlation coefficients and probabilities. Not only are all the relationships statistically significant ($p < 0.05$), but a *correlation coefficient* of $r = 0.5$ means that 25 per cent of the variance in one variable is accounted for by the other. An explanation of even 25 per cent of the variance in an important outcome is impressive. Some of the other correlation coefficients suggest twice as much of the variance is explained by income inequality.

Lastly, the statement that the effects of income inequality are small is based on a paper providing a meta-analysis of studies using multilevel models of health and income inequality which substantially underestimated the overall effects of income inequality. Within these multilevel models the effects of individual income and/or education are controlled out. However, there is now widening agreement (see for instance M. Marmot’s *The Status Syndrome*) that individual income and education are related to health substantially because they serve as markers of social status. To measure the effects of inequality after controlling for individual status differences is clearly over-controlling. We made this point clearly in our *British Medical Journal* editorial (2009) which accompanied the original meta-analysis. Not to recognise this is analogous to thinking you can measure the effects of social class hierarchy while controlling for the effects of individual social class.

There are a couple of others points which we think are also important enough to need a comment. First, a point about the difference between the OECD income inequality data and the data we used from the UN (which was also given by the World Bank). Much the most important difference is that Japan is one of the most equal countries in the UN data but appears very much less equal in the OECD data. As we told JRF, part of the explanation is that the OECD data for Japan is (in contrast to that for other countries) based on income **before** tax. However, thanks to a grant from the Daiwa Anglo-Japanese Foundation there has now been a thorough analysis of the original Japanese income inequality data which confirms that Japan is indeed one of the more equal countries. A report on this work (Ballas D, Dorling D, Nakaya T, Tunstall H, Hanaoka K. *Social cohesion in Britain and Japan: a comparative study of two island economies*) will be available shortly on The Equality Trust web site at: <http://www.equalitytrust.org.uk/resources/other/response-to-questions>

Second, the JRF report suggests that property crime is conspicuously absent from *The Spirit Level*. It was not included because we were unaware of internationally comparable data on property crime. However, a literature search has now found a number of papers published in peer reviewed academic journals which look at *changes* in property crime and *changes* in inequality. A review of these studies has just been submitted to a peer-reviewed journal. It concludes that increases in inequality do indeed have a very substantial impact on crime (see: Rufrancos H,

Pickett K, Wilkinson R, Income inequality and crime: a review and explanation of the time-series evidence. Publication pending)

Third, the JRF Report discusses the range of countries we include and ends by saying "Further research could be carried out on a wider range of countries..." Of course it already has. In 2006 we reviewed 168 analyses published in peer-reviewed journals of the relation between income inequality and health. These covered many different groups of countries including developing countries (see: Wilkinson RG, Pickett KE. Income inequality and health: a review and explanation of the evidence. *Social Science and Medicine* 2006; 62: 1768-84.)

There are a number of other significant errors in the JRF report where crucial research in the peer-reviewed literature has been missed or issues have not been thought through sufficiently carefully. We believe that two factors hindered the production of this report: first, the literature is spread over journals of epidemiology, public health, medicine, neurology, primatology and statistics which are often unfamiliar to those in social policy circles, and second, the JRF Advisory Group lacked proponents (but not opponents) of our thesis who knew the literature well.

References

Ballas D, Dorling D, Nakaya T, Tunstall H, Hanaoka K. *Social cohesion in Britain and Japan: a comparative study of two island economies*. To be made available shortly on The Equality Trust web site at:

<http://www.equalitytrust.org.uk/resources/other/response-to-questions>

Daly M, Wilson M, Vasdev S. Income inequality and homicide rates in Canada and the United States. *Canadian Journal of Criminology* 2001; 43: 219-36.

Fajnzylber P, Lederman D, Loayza N. Inequality and violent crime. *The Journal of Law and Economics* 2002; 45 (1): 1-40.

Hsieh CC, Pugh MD. Poverty, income inequality, and violent crime: a meta-analysis of recent aggregate data studies. *Criminal Justice Review* 1993; 18: 182-202..

Marmot MG. *The Status Syndrome*. Bloomsbury 2004

Rufrancos H, Pickett K, Wilkinson R, Income inequality and crime: a review and explanation of the time-series evidence. (Publication pending)

Wilkinson RG, Pickett KE. Income inequality and health: a review and explanation of the evidence. *Social Science and Medicine* 2006; 62: 1768-84.