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## The inequality hypothesis: Thesis, antithesis, and a synthesis?

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In the pages of this journal Min Hua Jen, Kelvyn Jones and, Ron Johnston recently presented a paper claiming to have evaluated Richard Wilkinson's hypothesis that social inequality damages the health of populations (Jen et al., 2008). It was an interesting paper with findings not originally recognized in Wilkinson's hypothesis, but it suffers from one major flaw: the findings are not a direct evaluation of Richard Wilkinson's hypothesis. We show why below. It is important to point this out as the balance of much very new evidence now points towards inequality having damaging effects on society in all kinds of ways (Wilkinson and Pickett, 2009), not just in terms of health (but for a review of that see Ram, 2006) and it would be unfortunate if the value of these new findings were cast into doubt by studies that did not evaluate the actual hypothesis, but something else, which in turn turns out to be quite interesting.

In hindsight it is easy to see how Jen et al. could have thought that they were evaluating the inequality hypothesis. Part of the argument of their paper is that quite complex methods of synthetic data creation and multilevel modeling are needed to evaluate the inequality hypothesis. This might be the case, although others find the existing evidence in support of Wilkinson's hypothesis to be near overwhelming (Dorling et al., 2007 provide an argument for extending his findings to poorer countries). However, it is possible that it was dealing with that complexity of synthetic data and multiplicity of hypothesized levels which led to the very simple oversight we highlight below. We should note that our response is far from being a simple critique, as we find Jen et al.'s analysis and findings very interesting, just in a way that they didn't. This is thus an attempt at a constructive critique and we hope it is seen in that way and

not just as a response designed to create yet another pointless academic exchange of bravado.

Jen et al. show that it is possible to generate synthetic data to suggest that the patterns observed by Wilkinson could have occurred without the mechanisms he suggests. Wilkinson is the best known advocate of the theory that among affluent nations, life expectancy is lower in more unequal nations because inequality of itself has a detrimental effect on the health of people who live in more unequal societies. A large amount of his life's work has been spent collecting evidence to support this hypothesis. An alternative hypothesis is that more unequal societies simply contain more poor people who are disproportionately likely to die young producing the outcome without any so-called *contextual* effect, but simply as the result of the *composition* of all those individual life chances. It is possible to produce synthetic data that supports the *compositional* story, but of course, it is equally possible to produce synthetic data that would support the *contextual* story. So we look no further at that part of the story here.

There is a paucity of good quality comparable health data available at the individual level to exhaustively test the inequality hypothesis and the idea that inequality hurts all members of an unequal society, not just the poor (although for a good collection of work that does support the hypothesis see Marmot, 2004). If it were the case that the rich benefitted in terms of their health from living in an unequal society, but the poor suffered just a little bit more, as Jen et al. (in effect) suggest, then there may be little incentive for the rich to support redistribution other than for purposes of charity, altruism or a commitment to social justice. Alternatively, if on aggregate all social groups living in an unequal society suffer from the effects of such inequality, albeit to different extents, and all would benefit from redistribution from rich to poor in terms of health and life expectancy, albeit far more for the poor than the rich, but still a benefit for all, then the argument for redistribution is very hard for those in power to evade. Thus the

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political stakes could not be higher as to whether it is *composition* or *context* that causes life expectancy to be lower in more unequal countries.

Would it benefit almost everyone in more affluent countries to live in more equitable societies, or would the rich loose out substantially in terms of their health status were they to sacrifice some of their wealth to make the poor in their countries less poor? The truth may lie somewhere in between these two extremes, but if the analysis that Jen et al. have carried out is true, then the truth lies only at one extreme of the range of possibilities. Redistribution would harm the rich. Fortunately for the rich, even more fortunately for the poor, there is a “killer” flaw in this argument. The killer flaw is that Wilkinson’s hypothesis is about actual experienced health, and most vitally premature death, whereas Jen et al. use what they think is a proxy for that: self-rated health.

Jen et al. quote only one source (Idler and Benyamini, 1997) to suggest that self-rated health “is closely related to mortality at an aggregate level” (Idler and Benyamini, 1997, p. 201). Unfortunately Idler and Benyamini’s study was of community level research, not of international comparisons. At the community level, when comparing neighborhoods within a town, or even towns within a country, what people say about their health is a good proxy for their actual health as measured by mortality rates. However, as the geographical scale is increased the closeness of that relationship reduces, and at the international level it appears to invert for rich countries—as we show below. Those rich countries in which people rate their health the best tend to be those countries in which people live shorter lives. People in more unequal countries, it turns out, appear a little more confused about the status of their health, or those in more equal countries are more prone to express pessimism. Either way, experiments with international survey data on self-rated health cannot be used to discredit the inequality hypothesis.

Between the community and the international level, studies that involve more than one nation have pointed towards there being an ambiguity that grows with spatial scale between what people say about their health and their actual health outcomes. Within the British Isles it is now well known that people in Wales tend to report worse health status than they experience in terms of premature mortality, while people living in Scotland are more likely to be optimistic about their health status when asked (in comparisons to actual life expectancy). England sits in between the other two countries both geographically and in terms of the slopes of relationship between self-rated health and life expectancy. Within each of these three countries the relationship looks like a good proxy. It is only when all three are compared that it becomes clear that there are cultural differences between how different geographical groups describe what are most probably similar actual states of health (Shaw et al., 2008).

In their claim to have discredited the Wilkinson hypothesis Jen et al. use survey data for 15,292 individuals taken from the World Values Survey (WVS) sampled in Wave 3 of that study (1995–1996) across 12 OECD countries (Australia, Finland, Germany, Japan, Mexico, New Zealand, Norway, Spain, Sweden, Switzerland, Turkey, USA). For their study to actually discredit Wilkinson, measures of self-rated health according to that survey undertaken in those countries have to be related to health as measured by Wilkinson, in other words have to be related to life expectancy. In Table 1, we show the proportions of people in a later wave of the same survey, in those same countries, describing their self-rated health as good or better in 2005, and the national levels of life expectancy as reported to the nearest whole year, for men and women combined, by the World Health Report 2005 (WHO, 2005).

Norway is no longer included in the survey, but Britain, France, Italy and the Netherlands are now included, so these are all

**Table 1**

Self-rated health and life expectancy for OECD countries.

Health is good (%)	Life exp. (years)	Country
54	82	Japan
76	81	Australia
74	81	Italy
78	81	Sweden
83	81	Switzerland
72	80	France
80	80	Spain
73	79	Britain
66	79	Finland
67	79	Germany
71	79	Netherlands
82	79	New Zealand
80	77	USA
64	74	Mexico
68	70	Turkey

Sources: World Values Survey (2005) and WHO (2005).

included in the table. Excluding them has little effect on what follows. The correlation coefficient between the two columns of figures shown in Table 1 is +0.19; hardly a ‘close relationship’. If the two poorest OECD countries are removed, the two to which Wilkinson would not claim his theory to apply (Mexico and Turkey), then the correlation becomes  $-0.24$ . The relationship is inverted.

There is thus a tendency for people in the affluent OECD countries to report their health as good or very good more often in countries with lower expectations of life. A small part of this tendency is that because people in more equal countries live longer on average they will tend to be a little older on average, but that will only be a very slight effect. It is not the explanation as to why only 58% of people in Japan say their health is good or very good as compared to 80% of folk in the United States. Furthermore in their study Jen et al. do not standardize by age so they are reporting on the same phenomena that we are showing here. It may well be there appears to be no contextual effect that increases peoples’ chances of telling someone taking a survey that their health is good for people living in more equitable affluent countries. That clearly does not mean that there is no contextual effect on actual experienced health.

Wilkinson does not claim his arguments apply to countries that have not reached a particular income threshold. In Mexico and Turkey enough people still suffer from abject poverty such that simple lack of money kills enough; people experience obviously worse health, and die many years less on average than in other OECD countries. That is why the two lower dots look so out of place in Fig. 1. Once those dots are excluded it is possible to begin to see that, if anything, there is an inverse relationship between life expectancy and self-rated health. In affluent OECD countries where people on average live longer, they are less likely to rate their health as ‘good’ or very good’.

It has been hypothesized that one way to cope with living in an extremely unequal affluent society is to feign optimism, to be strong, have high self-belief, convince yourself that you are special, more able than others: you are strong, you will survive, prosper, get to the top of the pile, achieve the dream, even though you realize that most around you will not. The experience of living in Harlem in New York with its very high murder rate and very low suicide rate is often discussed in this context.

You do not last long in an environment like Harlem if you internalize your concerns. Better to let your anger out, and when asked how you are, say you are doing “just great” (Wilkinson and Pickett, 2009). In contrast in more equitable nations, such as

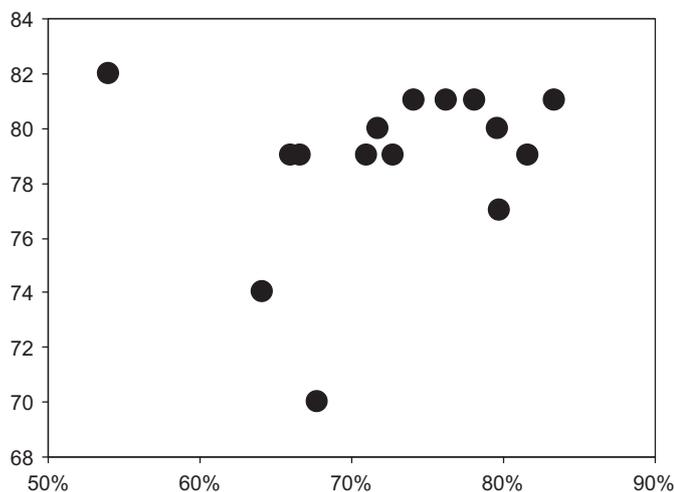


Fig. 1. Self-rated health (%) and life expectancy (years). Source: Table 1 (OECD countries in 2005).

France, it is oft quoted that the French will reply when asked whether they are happy: “only an idiot would answer yes” (obviously not answering in English). Similarly, of people in OECD countries the Japanese are the most likely to be realistic (if not pessimistic) about their personal state of health, while living the longest of people in all these countries. There is less need to fool yourself that all is well in more equitable countries.

So what have Jen et al. discovered if not that Wilkinson (and all his supporters) are incorrect? Well, they may have discovered the beginnings of a stream of evidence to help explain one of the greatest conundrums facing researchers interested in the worldwide effects of inequality on people in rich countries today. Most things are worse in more unequal rich countries. People die younger on average, their education is worse at school, they are more likely to resort to drugs, have sex when very young (and usually when also very drunk), become pregnant as a young teenager, end up in prison as a young adult, become depressed in mid-life, suffer from debt in later life, are much more likely to be murdered even.

Life is more grim in more unequal rich nations. However, despite all this, including worse rates of measured mental-health, people in more unequal rich countries are not more likely to kill themselves than are people in more equitable affluent nations. In fact, if anything, suicide rates are highest in the more equitable of rich countries.

It has been hypothesized that it is harder to blame others, or ‘the system’, for your woes in countries where people are more equal. People are more likely to internalize their concerns, not to lash out, they blame themselves more, and do not talk themselves up. At the extreme more kill themselves. Before that extreme it would appear that more admit their own health to be poor; poorer than it actually is in relation to others living in more unequal countries, but perhaps poor as far as they are really concerned.

Have Jen et al. found the beginnings of evidence to help understand the long hypothesized link between equality and suicide? They do not mention it in their paper, but Wilkinson’s hypothesis has never been successfully applied to suicide rates, in fact almost the opposite occurs. An hypothesis that stretched back to Emile Durkheim observing that countries in which suicide was more common over a century ago tended to have lower murder rates.

The link between equality and suicide is perhaps most well known in the stories of severe melancholy and the suicides of early socialists (see Dixon, 2008; Livesey, 2007). Equality can be hard to deal with, not as hard on society as a whole as inequality

and its consequences, but hard on otherwise affluent individuals to both accept and live with that acceptance. If you come to believe that people are equal, you have to believe that there is nothing that special about your abilities. Academics are typical in fighting this understanding, working in a system which constantly requires them to be clambering for attention. Who wants to say that their collection of university degrees is more a result of their head start in life, than their claim to either innate intelligence or great toil? If equality is good, then academic elitism and one-upmanship is not that useful, so it helps to try to be constructive rather than just find criticism.

Grand theories such as the inequality thesis are currently out of vogue in an academia where the fashion of the day is to say that everything is all very complicated and contingent. Grand theories are, by their nature, unlikely to be true. That is because they tend to contradict each other so only a few can hold water and most have to be wrong. However, a Grand theory may be proposed that turns out largely to appear to hold water.

The most extensive review of the literature undertaken so far, albeit from a partisan source (Wilkinson and Pickett, 2006), clearly shows the balance of academic evidence currently to be in favour of the hypothesis that inequality is bad for societies. Jen et al.’s contribution describes itself with a remarkable lack of contrition as “...a significant addition to the substantive literature” (Wilkinson and Pickett, 2006, p. 203). In the cold light of equality it is simply another paper in the smaller camp apposing the hypothesis; this paper that you are currently reading is simply yet another paper in the camp supporting Richard Wilkinson.

Is it really as tit-for-tat as that? Jen et al. claim to have found the hypothesis to have been “...based on a statistical artifact” (p. 204). We use the simple statistical artifice of the graph, table and correlation coefficient reported above to refute this. But surely something better is possible than one academic paper merely cancelling out another, a bit of sly innuendo that the other side have not quite been smart enough (that really is not our aim at all), a little sad showing-off (on our part) to a potential journal audience of, at the very most, just a few hundred readers interested in this debate? That would all be a bit of a tragic waste of time!

One great product of the inequality hypothesis is that if you do come to believe that greater equality is good for all, and all are essentially capable of making contributions, are all of remarkably equal ability, all deserve a pretty equal share and equal say, then you look more closely for what good can come out of discoveries such as that of Jen et al. rather than simply dismissing that study as suffering itself from the authors not have noticed the statistical artifact that international self-rated health is not a good measure of the actual direction of health inequalities between affluent countries. The good that can come out of Jen et al.’s study is not that it shows any problem with Wilkinson’s work, but that it does reveal remarkable variations in how people in different affluent countries describe their own state of health in ways that clearly are not well reflected by how long they tend to live.

For people in more inequitable countries, such as the United States, clearly more will be suffering ill health for mortality rates to be so high there. The fact that they do not report that, the fact that they even report the opposite, raises the possibility—the potential synthesis—that inequality leads to people being more likely to think positively in more unequal countries. We know from the famous Lake ‘Wobegone effect’ and the numerous examples given of it that are mostly taken from the United States, that people in the United States are remarkably more likely than in other countries to say that they think they are particularly able individuals.

The lake Wobegone effect is for peoples’ optimism to overcome their abilities to estimate. It is named after the fictional lake town

where “all the women are strong, all the men are good looking, and all the children are above average”. The large size of the majorities of American who say they are individually in the upper reaches of intelligence distributions, income distributions, and that good things are more likely to happen to them, they are better drivers than most (and so on and on) has until now largely been anecdotal testament to this (Gilbert, 2006). Similarly, anecdotal stories of people in Japan being less likely to attempt to take personal credit for their social position and standing, of people in France laughing off the idea of using American style terms when asked how they are doing today?, of Scandinavians being dour and unassertive, and so on, have also been largely anecdotal.

There are grains of truth in many stereotypes, they point towards something. The something they seem to be pointing to here is that in more equitable countries such as Japan, France, and the states of Scandinavia, you are less likely to pretend to others that all is ok and you are better than most, and you are less likely to pretend to yourself that you are well when you are not. You may be a better judge of your own situation in a more equitable country, and that is not always a boon.

It is possible that suicide levels are higher in countries where people have not had to be brought up always looking for the bright side of life to get through life? After all, in more equal countries if you are poor and ill you have decent health services to fall back on; and you may be less likely to feel you have to convince the World Values Survey research team, and yourself, amongst others, that you are fit, healthy, or ‘the best’. In the United States the best you can do if you are poor and ill, is often to

try to tell yourself that you are neither really ill, nor that poor, and that things will get better soon. It is either that, or accept the truth, and the truth is far more frequent premature death than in any other rich nation.

## References

- Dixon, T., 2008. *The Invention of Altruism: Making Moral Meanings in Victorian Britain*. Oxford University Press, Oxford.
- Dorling, D., Mitchell, R., Pearce, J., 2007. The global impact of income inequality on health by age: an observational study. *BMJ*.
- Gilbert, D., 2006. *Stumbling on Happiness*. Harper Collins, London.
- Idler, E.L., Benyamini, Y., 1997. Self-rated health and mortality: a review of twenty seven community studies. *Journal of Health Social Behaviors* 38, 21–37.
- Jen, M.H., Jones, K., Johnston, R., 2008. Compositional and contextual approaches to the study of health behaviour and outcomes: using multi-level modelling to evaluate Wilkinson’s income inequality hypothesis. *Health & Place*.
- Livesey, R., 2007. *Socialism, Sex, and the Culture of Aestheticism in Britain, 1880–1914*. Oxford University Press, Oxford.
- Marmot, M., 2004. *The Status Syndrome: How Social Standing Affects Our Health and Longevity*. Bloomsbury, London.
- Ram, R., 2006. Further examination of the cross-country association between income inequality and population health. *Soc. Sci. Med.* 62, 779–791.
- Shaw, M., Davey Smith, G., Thomas, B., Dorling, D., 2008. *The Grim Reaper’s Road Map: An Atlas of Mortality in Britain*. Policy Press, Bristol.
- Wilkinson, R.G., Pickett, K.E., 2006. *Income inequality and population health: a review and explanation of the evidence*. *Soc. Sci. Med.* 62, 1768–1784.
- Wilkinson, R., Pickett, K., 2009. *The Spirit Level: Why More Equal Societies Almost Always Do Better*. Allen Lane, London.
- World Health Organisation, 2005. *World Health Report*. WHO, Geneva.
- World Values Survey, 2005. OFFICIAL DATA FILE v.20081015, 2008. World Values Survey Association <http://www.worldvaluessurvey.org> <[www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)>. Aggregate File Producer: ASEP/JDS, Madrid.