



Commentary

The mother of underlying causes – Economic ranking and health inequality



Danny Dorling

School of Geography and the Environment, University of Oxford, UK

ARTICLE INFO

Article history:

Available online 10 January 2015

Keywords:

Inequality
Life expectancy
Wealth
Income
Cycling

Wilkinson and Pickett's findings, first published on-line in 2005 have helped to reveal the strong relationships between economic inequality and poor health outcomes in affluent nations (Wilkinson and Pickett, 2006). Their initial findings are reminiscent of the early evidence that smoking among groups of doctors increased the likelihood of members of each group dying of lung cancer. The strong correlation between smoking and cancer was understood long before a specific cause was clearly outlined.

In this paper (Pickett and Wilkinson, 2015), published ten year after the initial announcement of their findings, the authors bring together the beginnings of a case of there being plausible underlying biological and related casual explanations for why people in more economically unequal affluent countries suffer worse health. They suggest that 'Inequality is increasing in most regions of the world, rapidly in most rich countries over the past three decades'. However, income inequality has increased much faster in the UK and USA than in most other affluent nations and it has fallen in some countries (Dorling, 2014).

When rich countries are compared it is clear that those societies with greater rates of economic inequality contain populations experiencing worse overall health outcomes along with a series of other poor outcomes many of which might be expected to be harmful to overall population health, such as higher rates of imprisonment, greater obesity and lower trust or more anxiety. Table 1 shows the most recent data on life expectancy as reported

by ONS for some of the most affluent countries of the world, with data for the USA added. The four countries of the UK are all in the bottom half of the table; although Scotland and the USA vie for bottom place.

Countries which experience high and rising income inequalities do not experience the same rate of improvement in life expectancy over time and so end up being ranked lower when international comparisons are made. Countries that have recently experienced severe economic shocks, such as Iceland, or which now have incredibly high rates of unemployment following the 2008 economic crash, such as Spain, continue to enjoy life expectancies far greater than the UK and USA, which highlights how sustained exposure to high rates of economic inequality is more damaging than other events often considered to be socially catastrophic such as most of a banking system defaulting and/or mass unemployment.

If the UK were included as a whole state in the table above, then it would rank just above Denmark and the USA. Given that observation it is interesting to note that Denmark has a high coefficient of wealth inequality, similar to that found in the USA and higher than in the UK, but not so high a coefficient of income inequality. Data for the year 2000 suggests that this has been the case for some time (see Figs. 1 and 2).

In Denmark contemporary income inequalities are very low and so wealth inequalities may well reduce in future and, eventually, health inequalities should also be expected to reduce and improve Denmark's very low ranking in Fig. 1 and Table 1. Denmark may become a key *sentinel nation* through which the hypothesis that reducing income inequalities should improve health levels can be further tested in future. Fig. 3 shows just how low income inequalities now are in Denmark and how more people tend to be able to have healthier behaviour, such as being able to walk or cycle to work, in countries that are more equitable by income. More equitable countries tend to have better transport planning policies and plan better for society more widely. Countries can change from being more individualist and structurally unequal (with high wealth inequalities) to then move towards the next generation growing up with far higher income equality. It is a matter of politics.

We know that Danes tend to smoke more than other nearby Europeans, but why do they smoke more? To put it very crudely, do Danes partly tend to have a very high rate of smoking because of

E-mail address: danny.dorling@ouce.ox.ac.uk.

Table 1
Life expectancy of women and men in rich countries 2012/13.

Women	Men
86.4 Japan (2012)	80.8 Iceland (2013)
85.1 Spain (2012)	80.5 Switzerland (2012)
84.8 France (2012)	80.1 Sweden (2013)
84.7 Switzerland (2012)	79.8 Japan (2012)
84.4 Italy (2012)	79.7 Norway (2013)
83.7 Sweden (2013)	79.6 Italy (2012)
83.7 Iceland (2013)	79.4 Spain (2012)
83.6 Norway (2013)	79.2 England (2011–2013)
83.0 England (2011–2013)	79.1 Netherlands (2012)
82.8 Netherlands (2012)	78.4 France (2012)
82.3 N. Ireland (2011–13)	78.2 Wales (2011–2013)
82.2 Wales (2011–2013)	78.0 Denmark (2012–2013)
81.9 Denmark (2012–2013)	78.0 N. Ireland (2011–13)
81.2 USA (2012)	76.8 Scotland (2011–2013)
80.9 Scotland (2011–2013)	76.4 USA (2012)

Sources: ONS: National Life Tables, United Kingdom, 2011–2013, released September 2014: http://ons.gov.uk/ons/dcp171778_377972.pdf and Copeland, L. (2014) Life Expectancy in the USA hits new record, USA Today, October 9th, reporting on CDC data just released: <http://www.usatoday.com/story/news/nation/2014/10/08/us-life-expectancy-hits-record-high/16874039/> Excluding data not centred on 2012 or 2013 and Poland, Estonia and Latvia (as these were not rich countries). Note latest data for Germany missing from the ONS figures.

such large structural inequalities in Denmark? As those reduce will the mortality rates in Denmark improve faster than in nearby countries? And, as Denmark is becoming a more equitable country is the health of the young improving quicker than in nearby countries?

There are other outliers such as the Netherlands and Finland where again it might be worth looking at the health outcomes of people of different ages to see to what extent low income and wealth inequalities may not most mitigate other national factors that are harmful to health. Because the health inequality hypothesis is a national theory based on nation-state level data it will be the future divergence or convergence in overall health outcomes and economic drivers at this geographical level that will matter most in determining just how important reducing inequality is. It is clearly very important, but exactly how vital and what else is also of key importance at the national level?

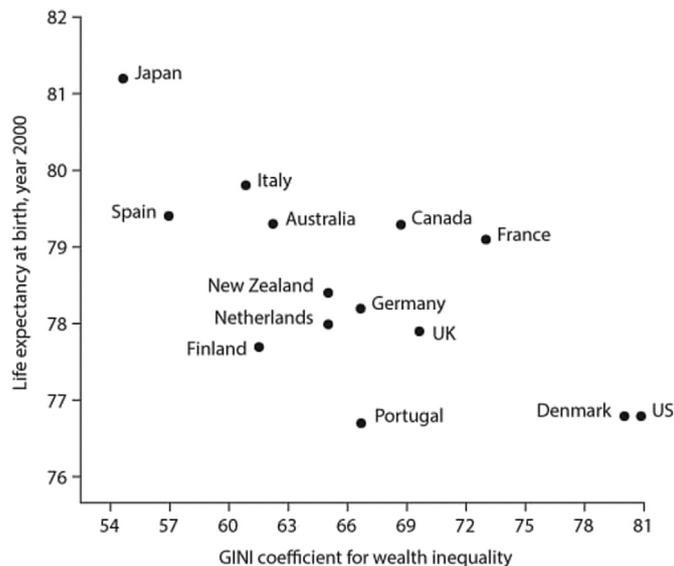


Fig. 1. Wealth inequality and life expectancy in affluent countries. Source: Nowatzki (2012).

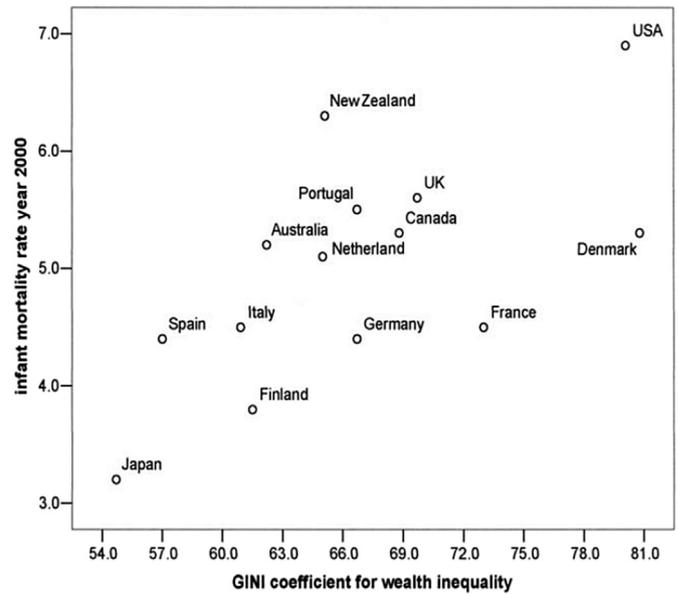


Fig. 2. Wealth inequality and infant mortality rates in affluent countries. Source: Nowatzki (2012).

Pickett and Wilkinson point out that it is only a small minority of studies that fail to find an association between economic inequality and poor health and that most of these are using an inappropriate geographical area within which they try to measure effects. This needs to be understood more widely.

You will not find that health is worse in the most unequal wards of a city as compared to the more equal wards; or when comparing inequalities within counties in the USA. Whatever the underlying mechanisms are, they are clearly working most strongly at the level of nations-states. Pickett and Wilkinson (2015) show that this has been the case for some time, but as yet not enough time has passed to test their hypothesis using much new data.

The inequality hypothesis requires its predictions to be proved correct, for them to be correct countries such as Denmark must rise up the health rankings as it long term inequalities fall. That will take time, but already infant mortality is far lower in Denmark that its wealth inequality rates would suggest (see Fig. 2). Infant mortality rates react more quickly to social changes than does overall life expectancy. Furthermore, and again it is worth stressing of overall health benefit, far more Danes walk of cycle to work than do people in countries that are more unequal by income. It is probable that it is younger Danish people in particular who have benefited most from this trend as compared to younger people in the USA who are still so much more likely to drive and sit in traffic for a long time each day which is very poor for their health (see Fig. 3). They are numerous ways in which high monetary inequalities can harm population health.

Following this latest and highly convincing overall review of the wider evidence hopefully health researchers can now begin to concentrate on several of the geographical anomalies that need to be addressed to help better understand the overall and highly persuasive inequality hypothesis. Addressing these may help shine more light onto the precise casual mechanism at play.

Take again, for example, the Netherlands. It is a country that appeared to be average among OECD nations in terms on inequality and mortality a few years ago. However, more recently that country has not seen life expectancy rises comparable to neighbouring areas and now reports life expectancy rates comparable to England and only just slightly better than the UK average.

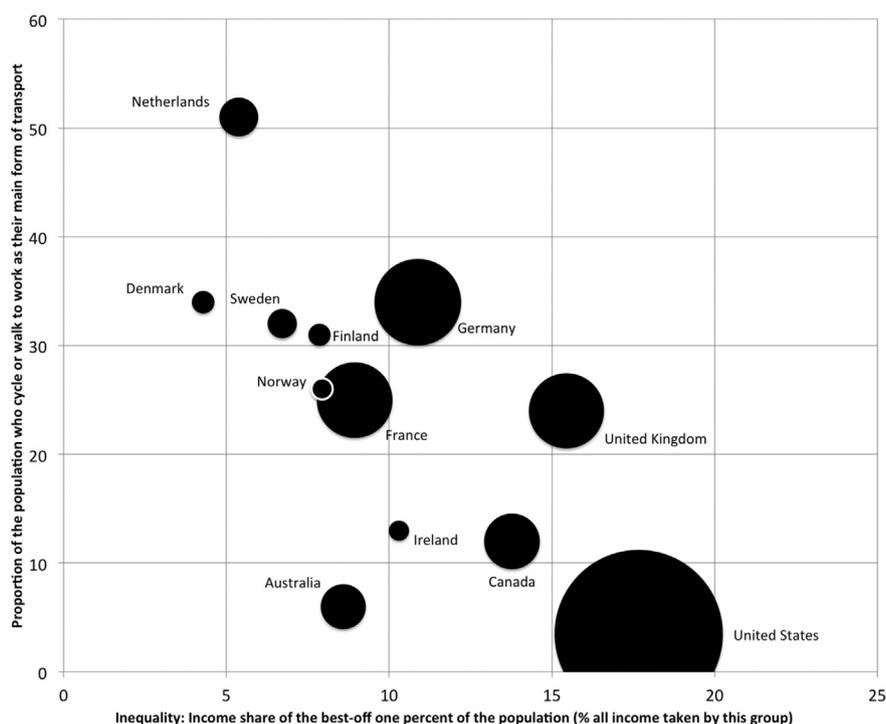


Fig. 3. Proportion of people waking or cycling as their main means of travel. Note: Each circle is a country drawn in proportion to its population. Belgium and Austria and not included because they are not in the Paris top income dataset.

Sources: Paris top incomes dataset and Buehler and Pucher (2012).

The inequality hypothesis is so well born out by the available data that there are only a few places the most affluent pockets of earth that are exceptions but these exceptions might well help be those which prove the rule if further investigated carefully. An example is Singapore, a country that reported one of the lowest infant mortality rates in the world despite very high rates of economic inequality.

Singapore's politicians don't boast of their low infant mortality rate because they are aware that a key influence is the regime of pregnancy testing guest-worker servant women (maids) and deporting them if pregnant or charging their employers/owners for the maternity cost of any child born (Dorling, 2012). If you prevent the poor from becoming pregnant or encourage them not to stay pregnant if they are pregnant, or to travel abroad to have their babies, then infant mortality can be very low in a high economic inequality country.

There are many possible intervening causal mechanisms between high rates of economics inequality and poor rates of health. Picket and Wilkinson explain that the 'causal criteria of temporality, biological plausibility, consistency and lack of alternative explanations are well supported' ... by the evidence they have now gathered, but other than biological plausibility all these criteria can be met without knowing that much about the actual mechanisms at play. Their hypothesis was that 'more equal societies were healthier because they were more cohesive and enjoyed better social relations'. However, there are many ways in which a more cohesive society can be healthier.

It is easier to persuade well-paid medical staff, such as doctors, to live and work spread out evenly across a country when that country has fewer poorer areas to try to avoid living in and fewer richer ones containing many doctors. The entire ethos of a country can be improved when economic inequalities are reduced.

It is very hard to find more equal countries setting up individualistic-blame-the-victim organisation when it comes to

promoting good public health. On top of that, people can usually work fewer hours in more equitable countries giving those who are well more time to care for those who are ill in their families. And these are just three of the mechanisms that might be small parts of what is at play.

The authors suggest that greater economic equality increases 'social capital (operationalised as group membership and social trust)' which is useful, but it is worth working out whether a more trusting society results in one with a better run health service, or the other way round. And then there is the problem of time lags. The UK created the NHS when it was becoming more equal and the UK still benefits from having done that through the British public benefitting from one of the most efficient and cheapest forms of health care in the world, despite the UK now being so economically unequal. But almost all health services reduce suffering more than they influence health outcomes.

Table 2

Income inequality (1% share and Gini) proportion of journeys by cycling or walking 2005–2009, All countries in both original datasets included.

Country	Top 1% income share	Gini	Cycling	Walking	Both	Survey date
Australia	8.59	0.312	1	5	6	2006
Netherlands	5.38	0.266	26	25	51	2008
Sweden	6.72	0.237	9	23	32	2006
Norway	7.94	0.256	4	22	26	2009
France	8.94	0.28	3	22	25	2008
Canada	13.78	0.318	1	11	12	2006
Finland	7.86	0.257	9	22	31	2005
Ireland	10.3	0.313	2	11	13	2006
Germany	10.88	0.29	10	24	34	2009
UK	15.45	0.344	2	22	24	2008
Denmark	4.29	0.228	18	16	34	2008
United States	17.67	0.371	0.5	3	3.5	2008

Source: As Fig. 3 above and Luxembourg income study for the Gini income inequality measure.

It appears to be impossible to create a society with high rates of economic inequality and good health. Humans are far too sensitive to rank hierarchy to be easily fooled into thinking they are being respected when some are paid so much less than others. Pickett and Wilkinson appear to have struck upon the underlying causal mechanism of greatest importance, those who follow their work could do more to uncover how many other social outcomes appear adversely effected by accepting wide inequalities in resources. It is possible that having to live in a society where the implicit ethos is that inequality is good and growing inequalities are good is particularly damaging for human beings in many ways, humans being a very sociable mammal.

The authors explain that high income-inequality matters because “Evolutionary explanations of human sensitivity to social relationships and hierarchies stress the importance of belonging and peoples’ need for positive relationships and connectedness.” This is all true – but it is easier to belong when there is well paid work for you to do, buses and trains to travel on rather than just cars. It may not just be about the gaps between us, but about what we get wrong for us all, collectively, when those gaps grow too large.

To conclude consider again the proportion of people in each of 12 affluent countries who’s main means of transport every day is walking or cycling. This ranges from 51% of the population in the Netherlands to 3.5% in the USA. Could it be that we could learn many wider lessons from knowing that more trust in less individualist societies, such as that in the Netherlands, results in transport planners who better understand that it is much more efficient not to greatly rely on cars, and then a majority of people benefit by gaining more exercise each day rather than sitting in cars getting

fatter?

Evidence for the veracity of the inequality hypothesis, the mother of all underlying causes, is so strong that it is easy to get carried away with a series of very persuasive correlations and not try to look further into the small number of exceptions to the rule which might help reveal more (see [Table 2](#)). So, for example, if people in the Netherlands have managed to get their richest 1% to take only around 6% of all income, and a majority of them walk or cycle each day, and they were an average country when it comes to overall wealth inequality, infant mortality and life expectancy in 2000, why have the Dutch ranked so much worse in recent years in terms of life expectancy (see [Table 1](#) above)? Might recent health outcomes in the Netherlands point to some errors in the economic data? Or is currently life expectancy in the Netherlands largely reflecting the health experiences of an older, less fortunate, Dutch generation? There are always more questions to be answered.

References

- Buehler, R., Pucher, J., May-June 2012. Walking and cycling in Western, Europe and the United States, trends, policies, and lessons. *TR News* 280. <http://policy.rutgers.edu/faculty/pucher/TRNWesternEurope.pdf>.
- Dorling, D., 2012. *Unequal Health: the Scandal of Our Times*. Policy Press, Bristol.
- Dorling, D., 2014. *Inequality and the 1%*. Verso, London.
- Nowatzki, N.R., 2012. Wealth inequality and health: a political economy perspective. *Int. J. Health Serv.* 42 (3), 403–424. <http://www.ncbi.nlm.nih.gov/pubmed/22993961>.
- Pickett, K.E., Wilkinson, R.G., 2015. Income inequality and health: a causal review. *Soc. Sci. Med.* 128, 316–326.
- Wilkinson, R.G., Pickett, K.E., 2006. Income inequality and population health: a review and explanation of the evidence. *Soc. Sci. Med.* 62 (7), 1768–1784.