Life expectancy and GDP per person
Life expectancy in rich countries is no longer related to National Income per head
Within countries, death rates rise as incomes fall

![Bar chart showing the standardised mortality ratio for women and men across different income quartiles.](image)

**Source:** Brookings Institution.

* Annual death rates shown between 1992 and 2010 for individuals ages 50-74.
Percent of US 17yr olds with only Poor/Fair Health by parental education

- < High School Grad: 4.4%
- High School Grad: 2.4%
- Some College: 1.7%
- College Grads: 0.7%

Life expectancy is strongly related to income within rich countries.
Inequality...

How much richer are the richest 20% in each country than the poorest 20%?

Income gaps
How many times richer are the richest fifth than the poorest fifth?

Japan 3.4
Finland 3.7
Norway 3.9
Sweden 4.0
Denmark 4.3
Belgium 4.6
Austria 4.8
Germany 5.2
Netherlands 5.3
Spain 5.6
France 5.6
Canada 5.6
Switzerland 5.7
Ireland 6.1
Greece 6.2
Italy 6.7
Israel 6.8
New Zealand 6.8
Australia 7.0
UK 7.2
Portugal 8.0
USA 8.5
Singapore 9.7

Wilkinson & Pickett, The Spirit Level
www.equalitytrust.org.uk
Problems

Income inequality
Health and social problems with social gradients and internationally comparable data

- Life expectancy
- Math & Literacy
- Infant mortality
- Homicides
- Imprisonment
- Teenage births
- Trust
- Obesity
- Mental illness – incl. drug & alcohol addiction
- Social mobility
Health and social problems are worse in more unequal countries

Index of:
- Life expectancy
- Math & Literacy
- Infant mortality
- Homicides
- Imprisonment
- Teenage births
- Trust
- Obesity
- Mental illness – incl. drug & alcohol addiction
- Social mobility

(Wilkinson & Pickett, The Spirit Level)
Child Wellbeing is lower in more unequal countries

Death rates of men 25-64yrs & income inequality
US states and Canadian provinces

More children drop out of High School in more unequal US states

Wilkinson & Pickett 2009
Teenage Birth Rates are Higher in More Unequal Rich Countries


www.equalitytrust.org.uk
Imprisonment rates are higher in more unequal countries

Wilkinson & Pickett, The Spirit Level
Mental illness is more common in more unequal societies.
The Relationship between Income Inequality and Social Mobility

Around the world, high income inequality is associated with low social mobility.

Data from Corak (2013), World Bank (2013)
Bigger material differences create bigger social distances and increase social class differentiation.
Literacy Scores of 16-25 year olds by Parents' Education

Self-reported prevalence of illness by education

Source: Banks et al. JAMA 2006; 295: 2037-2045
The benefits of greater equality are not confined to the poor but extend to all social classes.

Infant mortality by class: Sweden compared with England & Wales

People in more unequal countries trust each other less.
People in more unequal states of the USA trust each other less.
Homicide rates are higher in more unequal US states and Canadian provinces.

Cuernavaca, Mexico
‘Armed Response’ - Pretoria, South Africa.
Societies with wider Income differences need more “guard labor”

The proportion of ‘guard’ labor grew with inequality.
USA 1979-2000

Vertical axis: number of protective services employees per 10,000 workers in 2000.
Inequality and mortality over time: multilevel cohort studies

<table>
<thead>
<tr>
<th>Cohort study</th>
<th>Weight (%)</th>
<th>Relative risk (95% CI)</th>
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<tbody>
<tr>
<td>Denmark, CCHS/CPS 1976-8&lt;sup&gt;w1&lt;/sup&gt;</td>
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<tr>
<td>Male</td>
<td>5.45</td>
<td>1.01 (0.99 to 1.02)</td>
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<tr>
<td>Female</td>
<td>5.17</td>
<td>1.01 (0.98 to 1.03)</td>
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<td>1.02 (0.99 to 1.04)</td>
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<td>Norway, Census 1980-2002&lt;sup&gt;w2&lt;/sup&gt;</td>
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<tr>
<td>Male age 30-39</td>
<td>5.06</td>
<td>1.17 (1.14 to 1.20)</td>
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<tr>
<td>Male age 40-49</td>
<td>5.28</td>
<td>1.13 (1.10 to 1.15)</td>
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<td>Male age 50-59</td>
<td>5.45</td>
<td>1.10 (1.08 to 1.11)</td>
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<td>Male age 60-69</td>
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<td>1.07 (1.07 to 1.08)</td>
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<td>Male age 70-79</td>
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<td>1.06 (1.05 to 1.06)</td>
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<tr>
<td>Female age 30-39</td>
<td>4.46</td>
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<td>Female age 40-49</td>
<td>5.00</td>
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<td>Female age 60-69</td>
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<td>Female age 70-79</td>
<td>5.56</td>
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<tr>
<td>Male</td>
<td>2.49</td>
<td>1.10 (1.01 to 1.20)</td>
</tr>
<tr>
<td>Female</td>
<td>2.46</td>
<td>1.04 (0.95 to 1.13)</td>
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<td>Sweden, Census 1990&lt;sup&gt;w5&lt;/sup&gt;</td>
<td>4.13</td>
<td>1.02 (0.98 to 1.07)</td>
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<td>Sweden, SLC 1980-6&lt;sup&gt;w6&lt;/sup&gt;</td>
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<td>US, NLMS 1979-85&lt;sup&gt;w10&lt;/sup&gt;</td>
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<td>Male age 25-64</td>
<td>3.65</td>
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<tr>
<td>Female age 25-64</td>
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<tr>
<td>Male age ≥65</td>
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<td>1.02 (0.96 to 1.08)</td>
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<tr>
<td>Female age ≥65</td>
<td>4.20</td>
<td>0.99 (0.95 to 1.04)</td>
</tr>
<tr>
<td>Combined</td>
<td>100.00</td>
<td>1.08 (1.06 to 1.10)</td>
</tr>
</tbody>
</table>

$\hat{I}^2 = 96\%$ (95% CI 95% to 97%), heterogeneity $P=0.000$

Kondo et al, BMJ, 2009; 339: b4471
Time lags between changes in inequality and changes in health


Psychosocial risk factors for ill health

- Low social status
- Weak social connections
- Stress in early life (pre- & post-natal)
The Jekyll & Hyde of Public Health?

• **Social status** (dominance hierarchies, pecking orders) are orderings based on power, coercion and privileged access to resources – regardless of the needs of others.

• **Friendship** in contrast, is based on reciprocity, mutuality, social obligations, sharing and a recognition of each other’s needs.
Thomas Hobbes, *The Leviathan*. 1651

“...war of each against all”
School bullying is much more common in countries with bigger income differences.

11-year-olds in 37 countries ($r = .62$)

Social hierarchy in non-human primates

Robert Sapolsky studies baboons in the wild

Carol Shively studies macaques in captivity
Companion
Spanish: Compañero;
French: Copain

from the Latin “Con” (with) and “Pan” (bread)
- someone with whom you eat bread
“Gifts make friends and friends make gifts”

What kind of stress cause the biggest rises in stress hormones?


Status Anxiety across income deciles for high, medium and low inequality countries
Self enhancement increases in more unequal societies

Inequality increases conspicuous consumption and consumerism

- People in more unequal areas of the USA are more likely to buy high status cars

- Data from Google searches shows that people in more unequal US states and more unequal countries are more likely to search for status goods
Widening income differences: USA 1967-2014

Percent of all income going to top 1%  1930-2014

Source: World Top Incomes Database
Trade Unions membership (% workforce) and Share of Income going to top 10% (USA, 1918-2008)

Changing ratio of CEO pay to average pay of production & non-supervisory workers in top 350 US companies

Between 1979-2007 the income of the:
- Top 0.1% increased by 362%
- Top 1% increased by 156%
- Bottom 90% increased by 17%
Companies paying CEOs above the median performed less well than those paying below the median

Cumulative shareholder returns

Economic democracy:-

- “turns companies from being pieces of property into communities”
- reduces pay ratios within companies
- transforms the experience of work
- redistributes wealth & reduces unearned income
- improves productivity
- makes companies more environmentally & socially responsible

Boards can include employee, community and consumer representatives
Income Inequality & Political Polarization 1947-2012

The Spirit Level
Why Equality is Better for Everyone
Richard Wilkinson and Kate Pickett

‘A big idea, big enough to change political thinking’ Sunday Times
‘A sweeping theory of everything’ Guardian

For more information:
... a book
and a website...

The Equality Trust
http://www.equalitytrust.org.uk
Depression is more common in more unequal states

Relation between infant mortality and GNP p.c. at high, medium and low income inequality

Plasma fibrinogen by employment grade among Civil Servants, Whitehall II.

(Adjusted for age, ethnic origin and women’s menopausal status)

Women’s preference for more masculinized faces is stronger in more unequal societies

Life Expectancy and Income Inequality among Rich Countries

Income inequality and death rates among working age men in 528 cities in 5 countries

Review of 168 analyses of the relation between income inequality and health.

“(My parents) put...down...most of their imagined shortcomings to their not having been educated, education (was) to them a passport to everything they lacked: self-confidence, social ease and above all the ability to be like other people.

Put simply and as they themselves would have put it, both my parents were shy, a shortcoming they thought of as an affliction while at the same time enshrining it as a virtue.

I assured them, falsely, that everybody felt much as they did but that social ease was something that could and should be faked.

‘Well, you can do that,’ Dad would say, ‘you've been educated,’ adding how often he felt he had nothing to contribute. ‘I'm boring, I think. I can't understand why anybody likes us. I wonder sometimes whether they do, really.’
Not Pretty Enough

Not Smart Enough

Not Good Enough

Not Funny Enough
Status differentiation has a direct effect on cognitive performance

The Effect of Caste Identity on Children's Performance

Number of mazes solved

Caste Unannounced  Caste Announced

High Caste  Low Caste

ABSTRACT: “We begin by describing psychological, social, and biological correlates of the Dominance Behavioral System. Extensive research suggests that externalizing disorders, mania proneness, and narcissistic traits are related to heightened dominance motivation and behaviors. Mania and narcissistic traits also appear related to inflated self-perceptions of power. Anxiety and depression are related to subordination and submissiveness, as well as a desire to avoid subordination. Models of the DBS have received support from research with humans and animals; from self-report, observational, and biological methods; and use of naturalistic and experimental paradigms.”
Depression is more common in more unequal states

Sensitive periods in early life allow organisms to adapt to the environment in which they are growing up.

For humans that is primarily an adaptation to the quality of social relations. Is a child growing up in a world based on:

- trust, cooperation, reciprocity, empathy?

or:

- a ‘dog eat dog’ society, in which you have to fend for yourself and learn not to trust others?

The adaptive processes almost certainly involve epigenetics
Maths & Literacy scores and Income Inequality

Walker, R. et al.
Poverty in global perspective.
Journal of Social Policy
2013; 42, 215-233

The experience of poverty in rural Uganda and India:
urban China, Pakistan, Korea, United Kingdom and Norway.

"Respondents universally despised poverty and frequently despised themselves for being poor. Parents were often despised by their children, women despised their men-folk and some men were reported to take out their self-loathing on their partners and children. Despite respondents generally believing that they had done their best against all odds, they mostly considered that they had both failed themselves by being poor and that others saw them as failures. This internalisation of shame was further externally reinforced in the family, the workplace and in their dealings with officialdom. Even children could not escape this shaming for, with the possible exception of Pakistan, school was an engine of social grading, a place of humiliation for those without the possessions that guaranteed social acceptance.

No parent was able to escape the shame of failing to provide for their children even when children were prepared to stop asking for things – the latter itself being a further source of shame.

...For men, relying on others or on welfare benefits was perceived as a challenge to their sense of masculinity: a British father to two children admitted that he felt ‘like shit ... I’m the man in this relationship. I am meant to be the man ... to take care of the missus and my kids. And I don’t.’"
Bigger income gaps lead to deteriorations in:-

**Social Relations**
- Child conflict
- Homicide
- Imprisonment
- Social cohesion
- Trust

**Health**
- Drug abuse
- Infant mortality
- Life expectancy
- Mental illness
- Obesity

**Human Capital**
- Child wellbeing
- High school dropouts
- Math & literacy scores
- Social mobility
- Teenage births