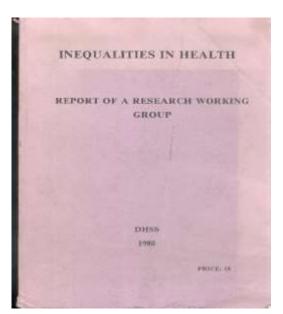
# The long view: understanding (and reducing?) health inequalities through longitudinal studies

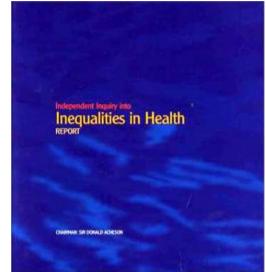
Kate Pickett, FFPH FRSA













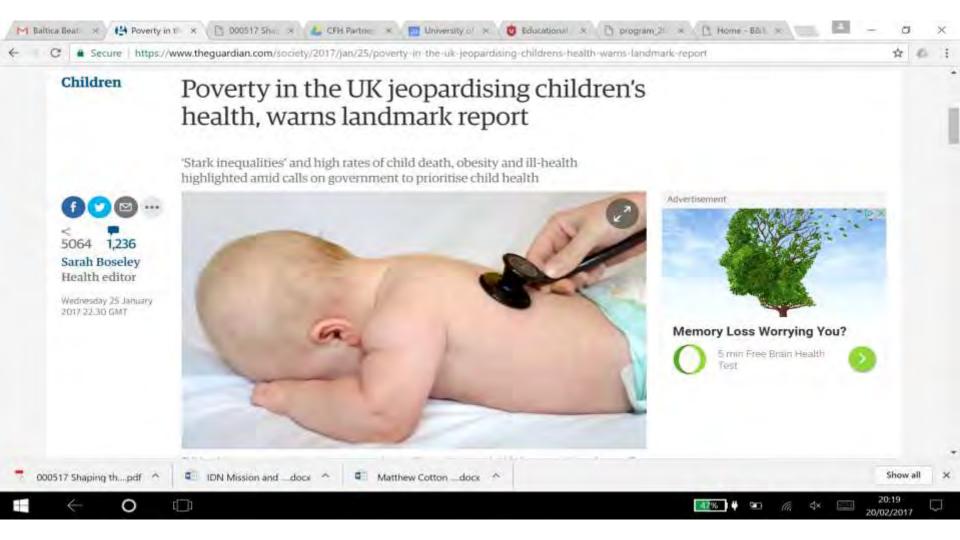
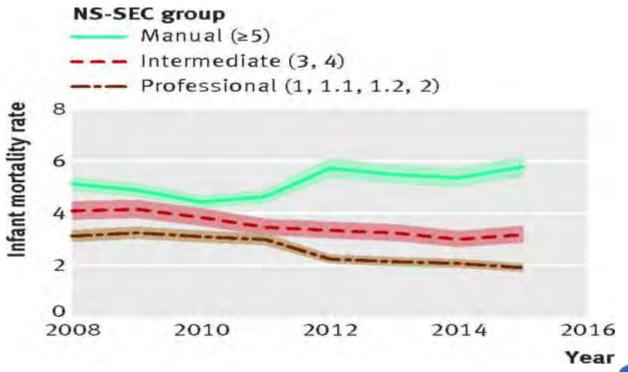


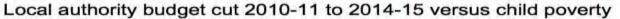


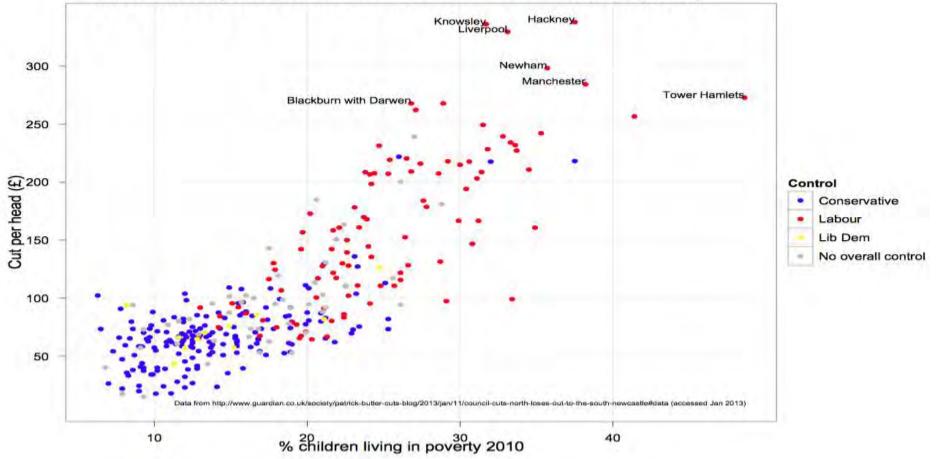
Fig 1 Infant mortality rate (95% confidence interval) by socioeconomic classification, 2008-15.

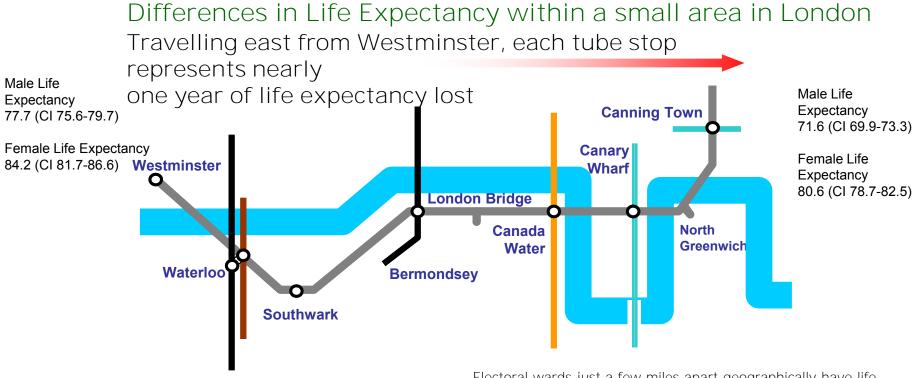


thebmi

David Taylor-Robinson, and Ben Barr BMJ 2017;357:bmj.j2258





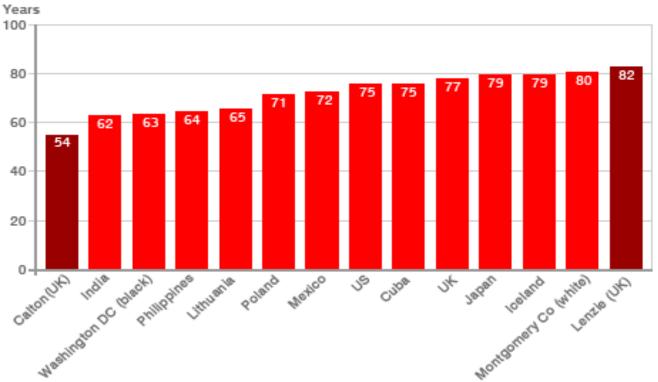


London Underground Jubilee Line

Electoral wards just a few miles apart geographically have life expectancy spans varying by years. For instance, there are eight stops between Westminster and Canning Town on the Jubilee Line – so as one travels east, each stop, on average, marks nearly a year of shortened lifespan. <sup>1</sup>

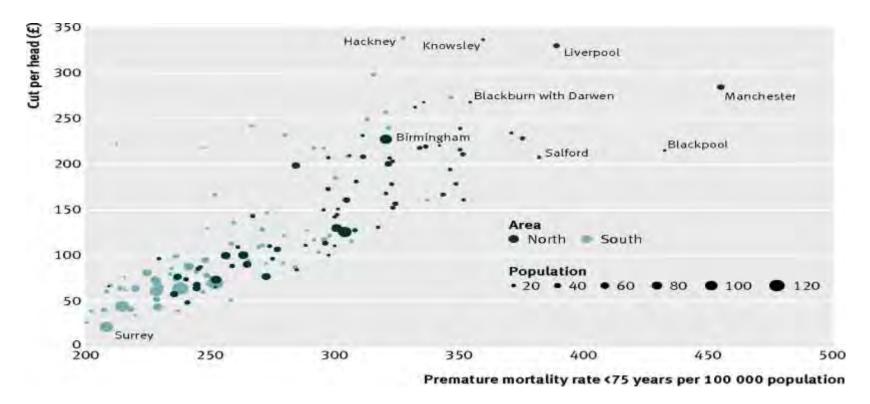
<sup>&</sup>lt;sup>1</sup> Source: Analysis by London Health Observatory using Office for National Statistics data. Diagram produced by Department of Health

#### MALE LIFE EXPECTANCY AT BIRTH



Footnote: Calton, Lenzie both Glasgow (Scotland); Washington DC, Montgomery Co both US SOURCE: WHO 2008

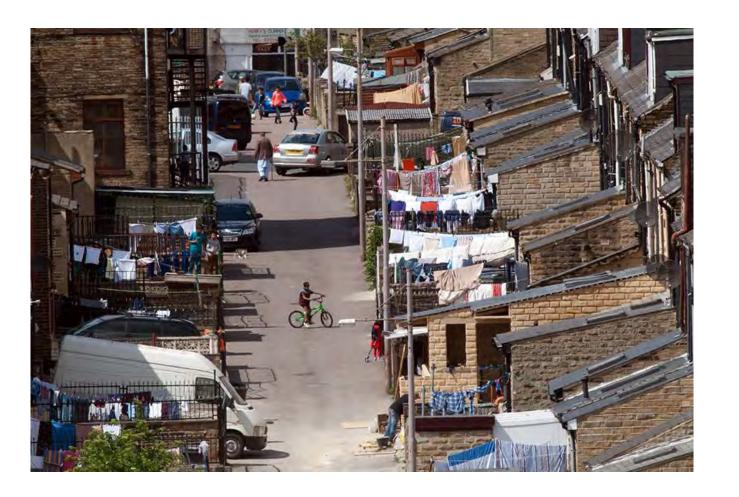
#### Local authority budget cut 2010-11 to 2014-15 versus premature mortality.



Taylor-Robinson D et al. BMJ 2013;347:bmj.f4208



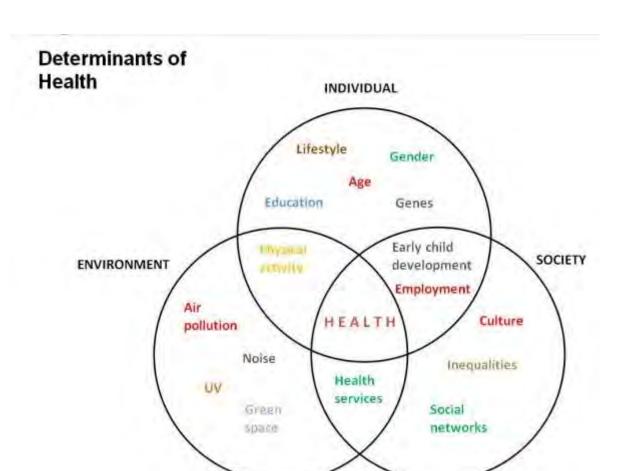




# **Growing up in Bradford**



- High infant mortality
- High rates of disability
- High rates of asthma
- Impending diabetes epidemic
- Childhood obesity
- Social change



# utcomes

#### **MOTHER**

#### LIFESTYLE Nutrition/diet

- Smoking
- Alcohol

#### **ENVIRONMENT**

- Air pollution
- Chemical exposures Water

#### ETHNICITY

#### **MEDICAL**

- Depression/anxiety
- Diabetes Hypertension
- Infections Obesity

#### SOCIO-ECONOMIC

- Deprivation Social capital
- Education

#### **GENETIC**

- Consanguinity
- **BIOLOGICAL**
- Nutritional biomarkers Metabolic biomarkers
- Vitamin D

#### **INFANT**

#### **LIFESTYLE**

- Breastfeeding • Diet
- · Physical activity
- Infant feeding/weaning · Infant care practices

#### **ENVIRONMENT**

- Housing
- Recreation facilities Shops

#### **ETHNICITY**

#### **MEDICAL** • Hospital/GP attendance

Infections

#### SOCIO-ECONOMIC

#### **GENETIC**

#### **BIOLOGICAL**



#### **CHILD**

#### **LIFESTYLE**

- Diet Physical activity
- Screen viewing

#### **ENVIRONMENT**

- Housing
- Recreation facilities
- Green spaces

#### **ETHNICITY**

#### **MEDICAL**

#### SOCIO-ECONOMIC



#### ADULT

- LIFESTYLE
- **ENVIRONMENT**
- **ETHNICITY**
- **MEDICAL**
- SOCIO-ECONOMIC



Birth weight

**Anthropometry** Pre-eclampsia/diabetes Congenital anomalies Kidney volume

Obesity/Overweight **Anthropometry** 

Growth

Immune function

Obesity/Overweight **Allergy** Well-being

Growth

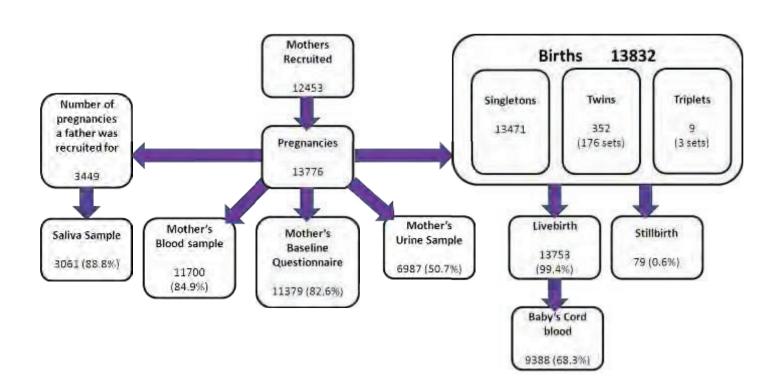
**Education attainment** 

**CHD Diabetes Hypertension** Obesity

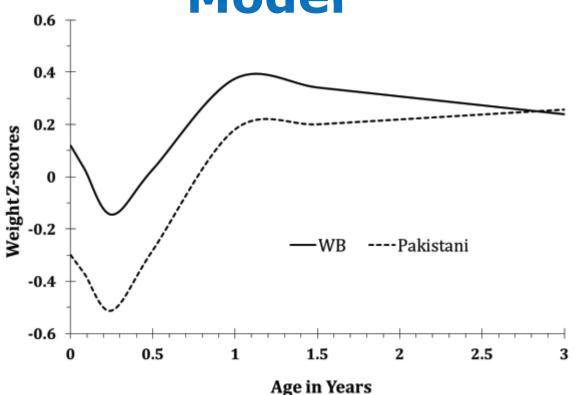
#### **Birth**

#### Life course

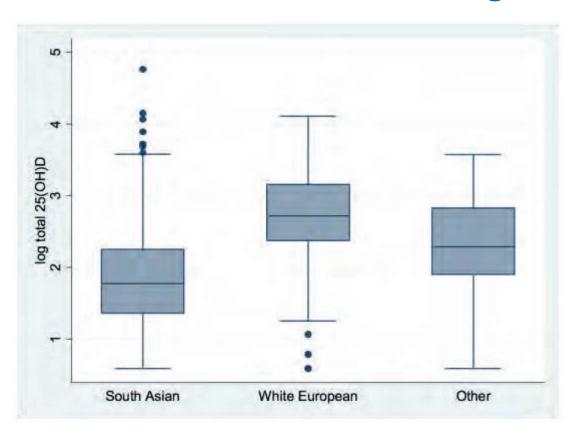
#### **Recruitment Statistics**



# Latent growth Curve Model



## Vitamin D status and ethnic origin



# Dietary exposures of interest



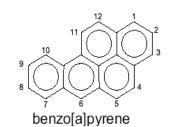
- Polycyclic hydrocarbons
- Heterocyclic amines
- Acrylamides
- Nitrosamines











Mycotoxins (Deoxynivalenol)

DNA reactive

Organochlorins (PCBs, dioxin)

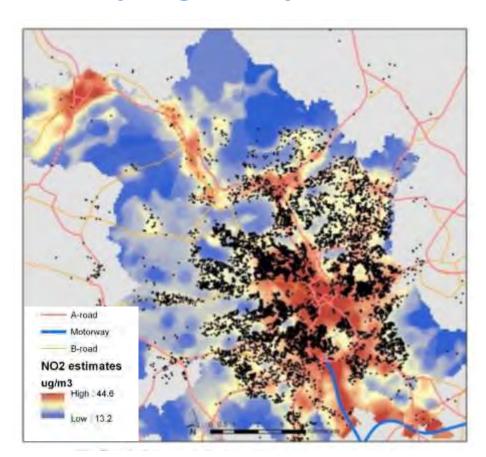




## Air pollution in pregnancy

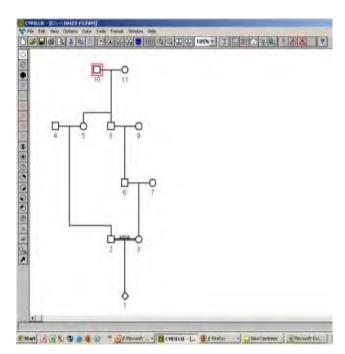
18% increase risk of low birth weight per 5<sub>ug/m3</sub> increase in PM<sub>2.5</sub>

Association with smaller head circumference and birth weight



### **Congenital anomalies**

- Cousin marriage and age (34 years) double risk of having baby with congenital anomaly
- PAR 30%
- But cousin marriage has some positive benefits for wellbeing



#### **Sudden Infant Death Syndrome**

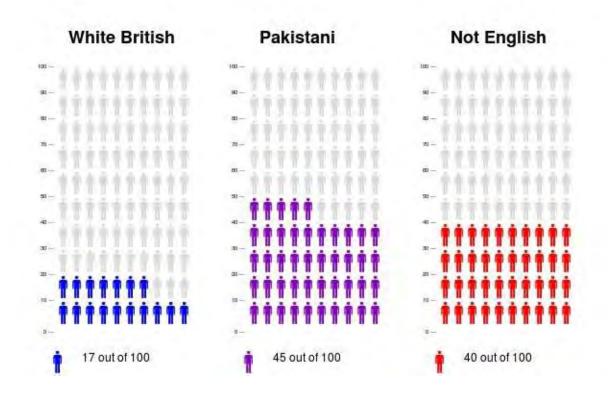


- Infants of Pakistani origin are less likely to be exposed to risk factors for SIDS (smoking, alcohol, solitary sleep) than White British infants
- Pakistani families avoided sofa-sharing and hazardous bed-sharing, whereas White British parents were more likely to sofa-share with their baby

# So what more do we need?

- More detailed information than we can get from a cohort
- More evidence that we can intervene successfully
- More evidence that there are alternatives

# Variation in unrecorded disorder







Big Lottery: £49 million over 10 years

Bradford Trident: Community led partnership

Pregnant mums, and 0-3 years

Bowling & Barkerend, Bradford Moor, Little Horton

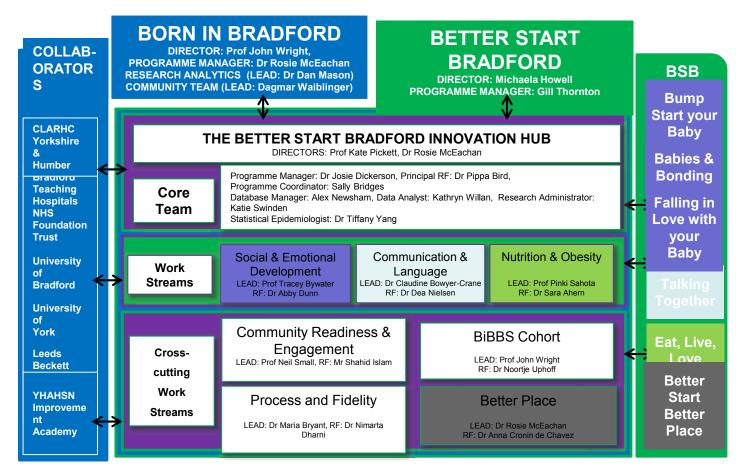
Evidenced based interventions for key outcomes:

 Nutrition & obesity, language & communication, socio-emotional well-being

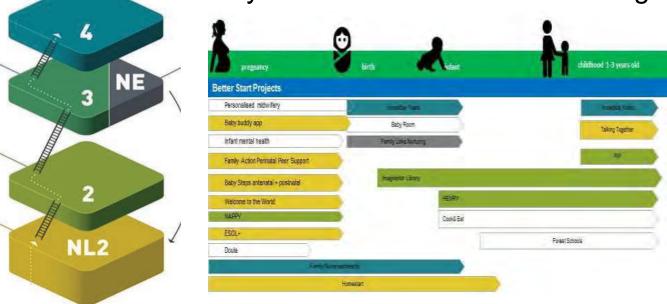


# INNOVATION HUB





Early Intervention Foundation Ratings





#### **Evaluation**

#### Monitoring

#### **Evaluation**

Implementation
When, how, why
does it work/not
work?

Before & After
Do outcomes
improve from the
start to end of a
project?

#### Effectiveness

Does it have a causal effect on outcomes?

Community
Readiness &
Engagement
Are local communities
'ready'? What
stops/helps people take











BORN IN BRADFORD'S BETTER START

## Your journey through our study



During your pregnancy, you join the study and complete

a questionnaire. After that, you could choose to take

part in any of this:





#### When your baby is born

 Measurements and samples (baby's arm, tummy and back, cord blood, mum's hair)

#### In pregnancy

- · Measurements and samples (height, weight, arm, vitamin levels, blood and urine)
- Questionnaire and measures taken of your partner (height, weight, waist, saliva)



- · Join BiBBS events
- · Keep in touch through social media
- Receive newsletters and birthday cards
- Take part in the Better Start Bradford projects
- You may be invited to take part in sub-studies







Born in Bradford's Better Start

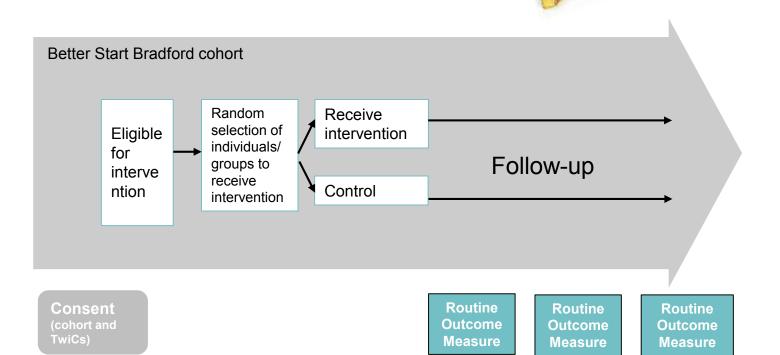


@BiBBSParents

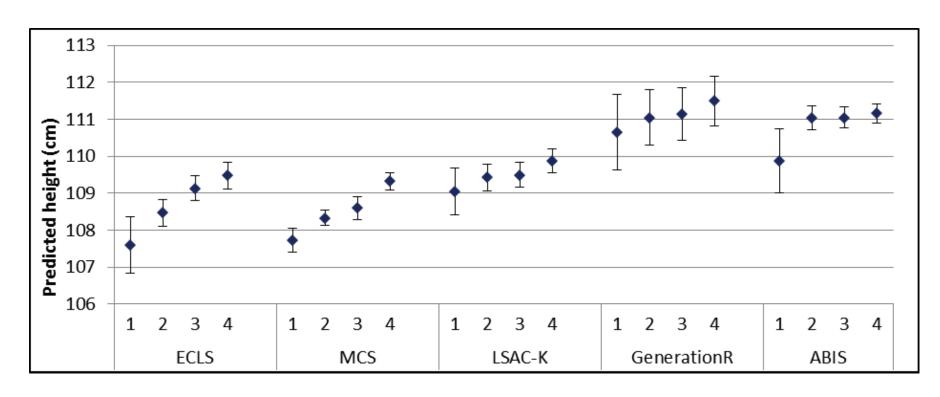




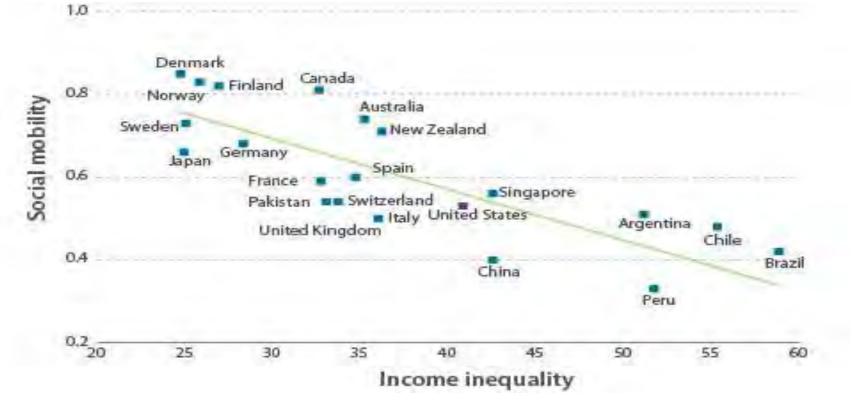
Trials within cohorts (TwiCs)



#### Predicted gradients in child height for girls aged exactly 5 years, by parent education level



#### There is less social mobility in countries with bigger income difference



Corak (2013); World Bank 2013. The Hamilton Project, Brookings Institution

# So we need:

- More data linkage of cohorts, more big data
- More interventions and evaluations within longitudinal studies
- More comparative cross-cohort studies

#### Local health outcomes predict Trumpward swings

Nov 19th 2016 | NEW YORK | From the print edition

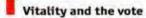


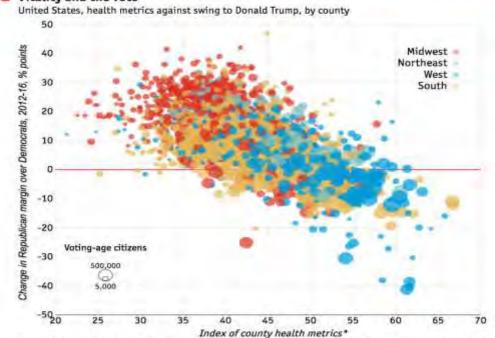








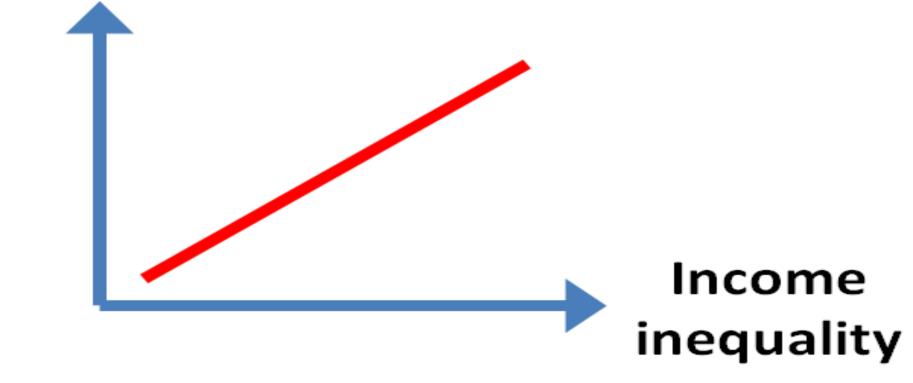




Sources: Atlas of US Presidential Elections; Census Bureau; IPUMS; Institute for Health Metrics and Evaluation; The Economist

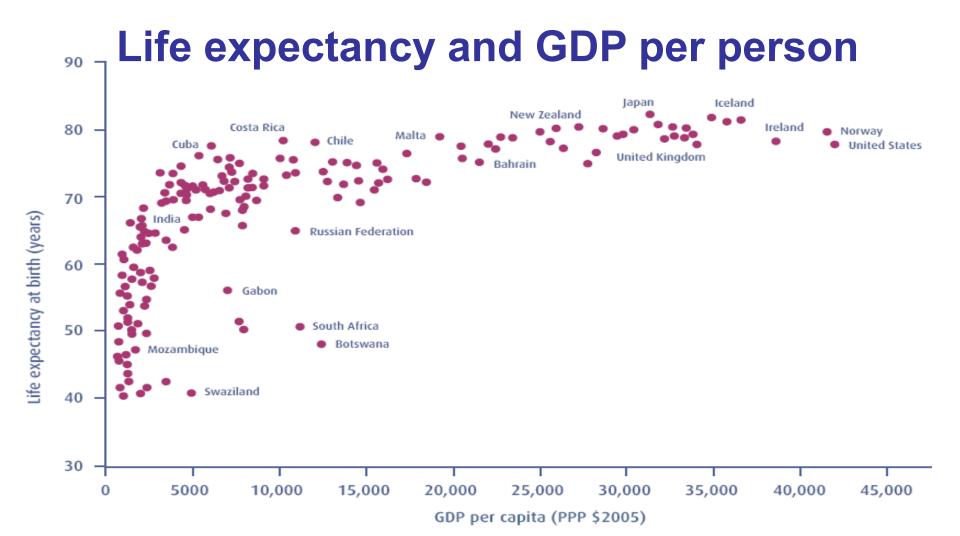
\*Weighted index of obesity, diabetes, heavy drinking, physical exercise and life expectancy, 2010-12

# **Problems**

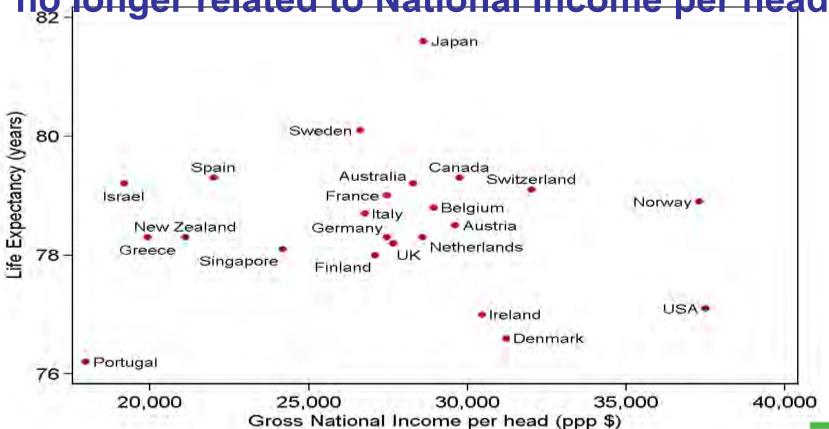




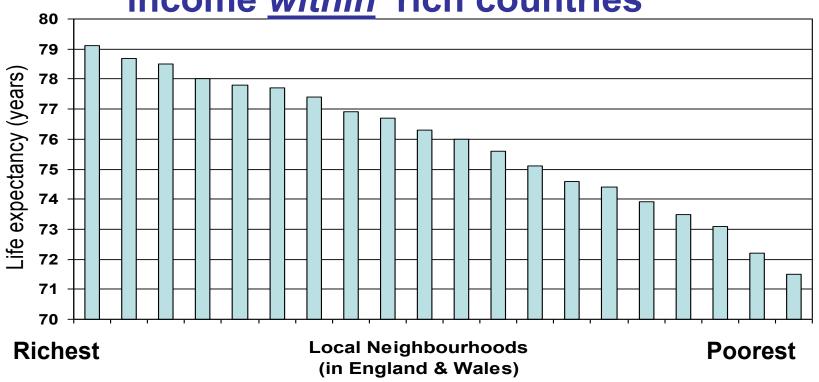
**Photo by kind permission of Matt Stuart** 



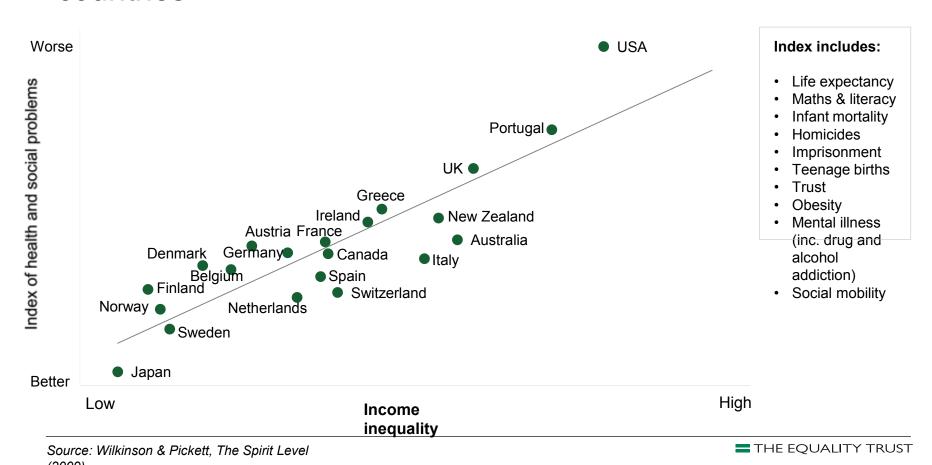
Life expectancy in rich countries is no longer related to National Income per head



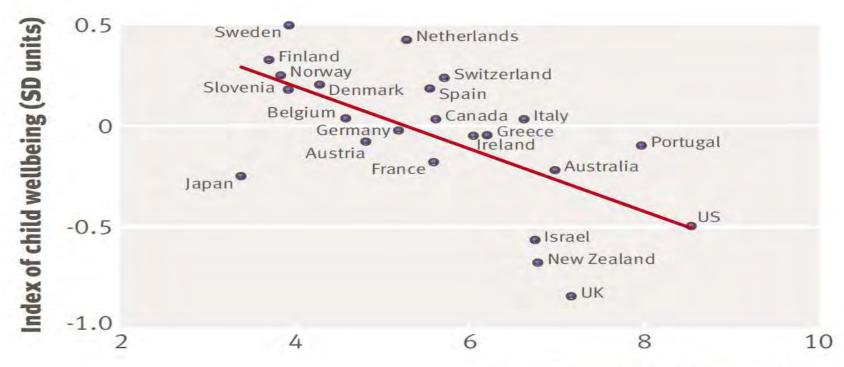
## Life expectancy is strongly related to income within rich countries



### Health and social problems are worse in more unequal countries



#### Child Well-heing is Retter in More Faual Rich Countries



Income inequality (20:20 ratio)

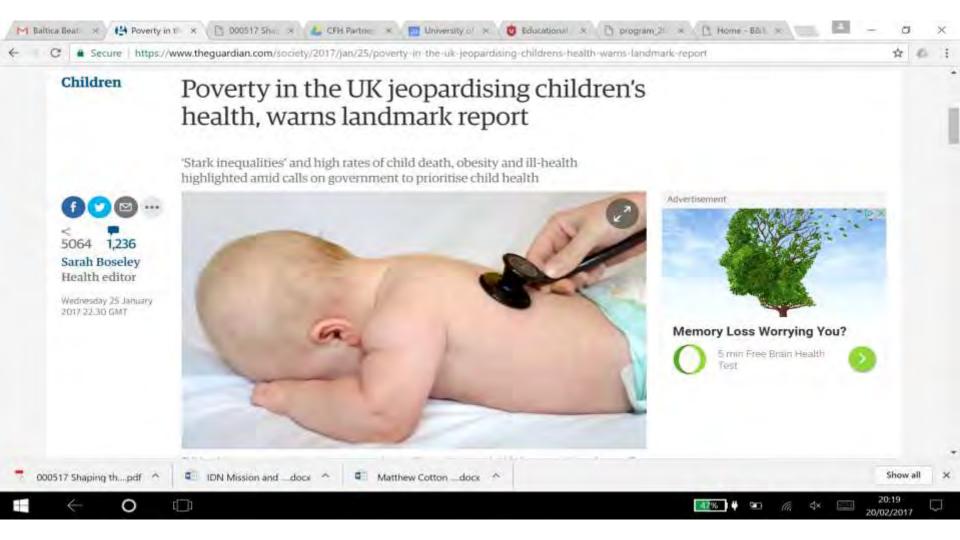
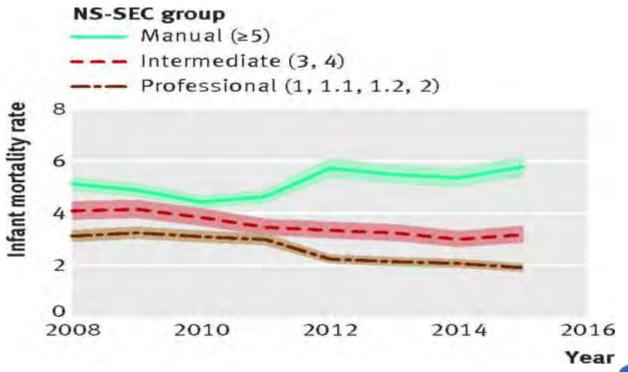


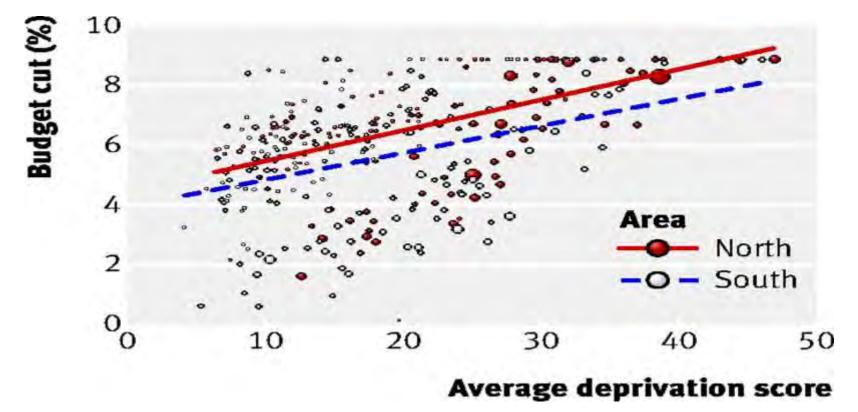
Fig 1 Infant mortality rate (95% confidence interval) by socioeconomic classification, 2008-15.



thebmi

David Taylor-Robinson, and Ben Barr BMJ 2017;357:bmj.j2258

Cut in local authority budget by average deprivation score in north and south of England.

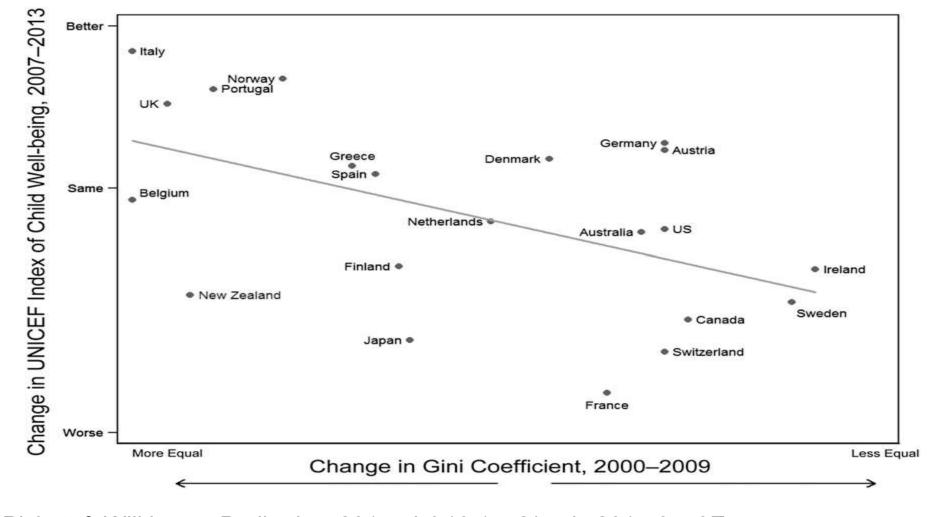


Taylor-Robinson D , Gosling R BMJ 2011;342:bmj.d1487





Just last year a more aseu we alth gained by UK's richest 1000 would pay the adult social care bill for 4 vears



Pickett & Wilkinson, Pediatrics, 2015, doi:10.1542/peds.2014-3549F

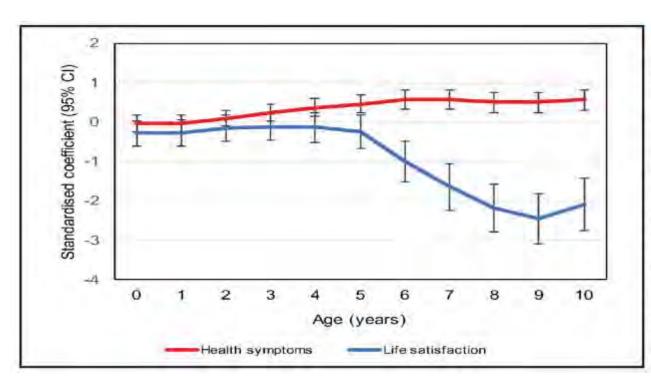


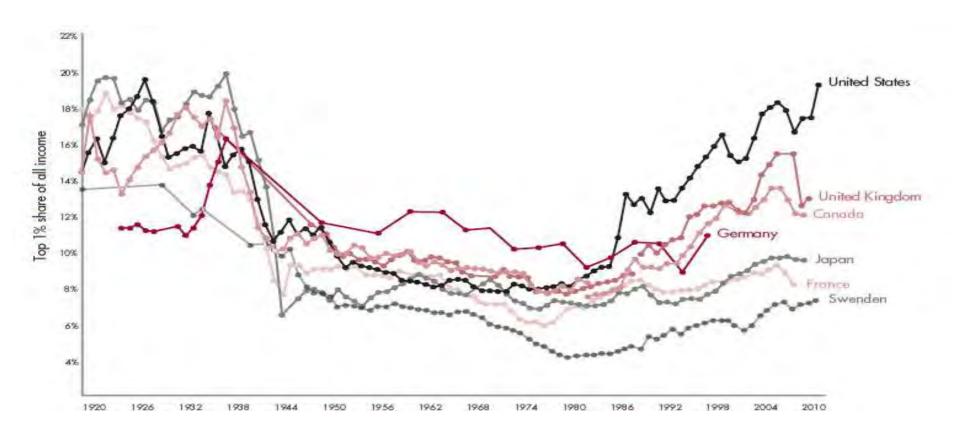
Figure 2 - Association between early life exposure to income inequality each year from birth to age 10, and later health symptoms and life satisfaction in adolescence (11 to 15 years).

Shown are standardised beta coefficients (#) and 95% confidence intervals of the lagged effects, adjusted for concurrent income inequality and country wealth, historical period (survey year), and individual differences in gender, age, and family affluence, and birth year (cohort). The data correspond to the results shown in Table 4.

\*p<0.05, \*\*p<0.01, \*\*\*p<0.001,

Early-life Exposure to Income Inequality and Adolescent Health and Wellbeing: Evidence from the Health Behaviour in School-aged Children Study Frank J. Elgar and Candace Currie





# What can be done?

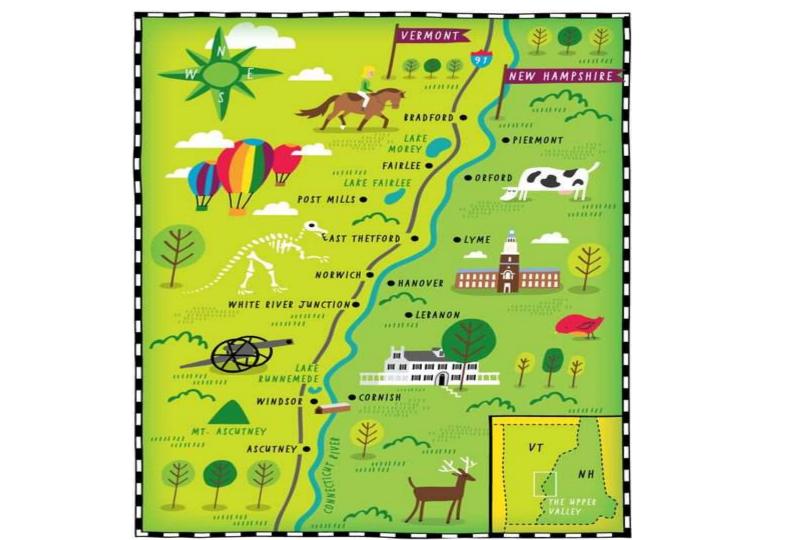
Income differences before tax

Increase
 economic
 democracy employee
 ownership etc

Stronathon

- One? <u>Taxes & benefits</u>
  - Stop tax avoidance
  - End tax havens
  - Make taxation progressive





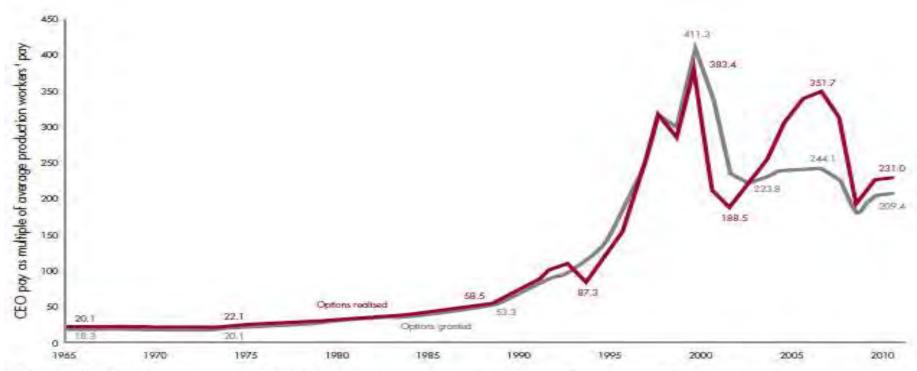
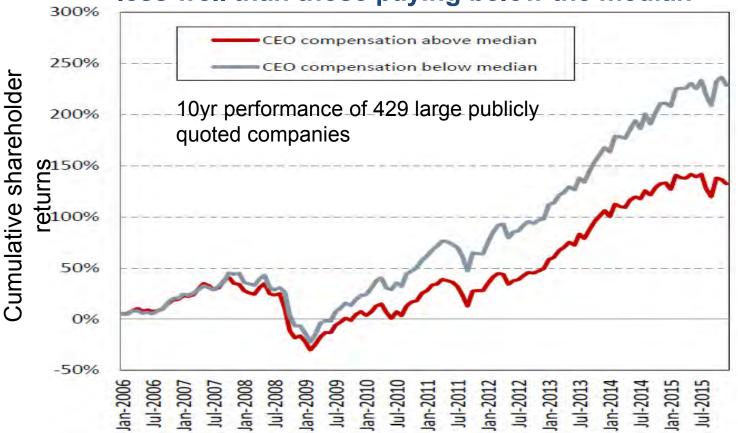


Figure 9: Changing ratio of CEO pay to average pay of production workers in top 50 US companies.

Source: Source: Mishel L, Sabadish N. Economic Policy Institute Brief #331. Washington, 2012.

Companies paying CEOs above the median performed less well than those paying below the median



Marshall R, Lee L. Are CEOs paid for performance? MSCI 2016



Figure 8: Changes in trade union strength and inequality in the USA 1918–2008.

Source: Eisenbrey, R and Gordon, C. Economic Snapshot—unions and labor standards (2012).

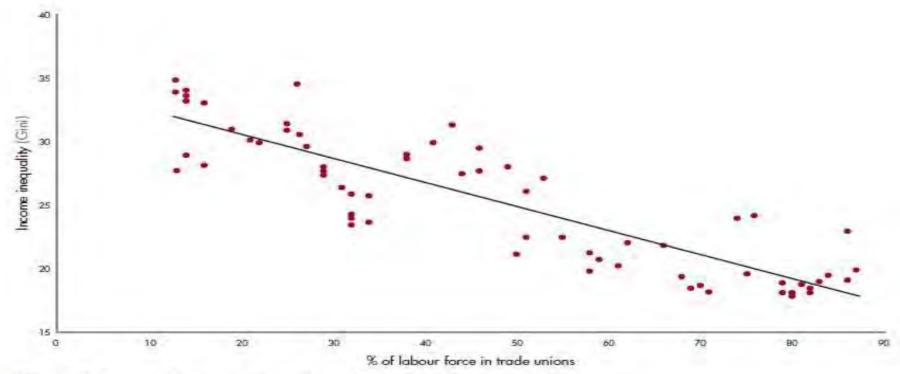


Figure 7: Inequality is greater where Trade Unions are weaker. (16 OECD countries 1966–94)

Source: Gustafsson B, Johansson M. LIS Working Paper 172, 1997.

### **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









The voice of co-owned business



OWNED!

International / Year of



Cooperatives



L'IMPRESA IN ARMONIA CON IL FUTURO

ARUP



thePhoneCo-op

your voice counts





Titles a made





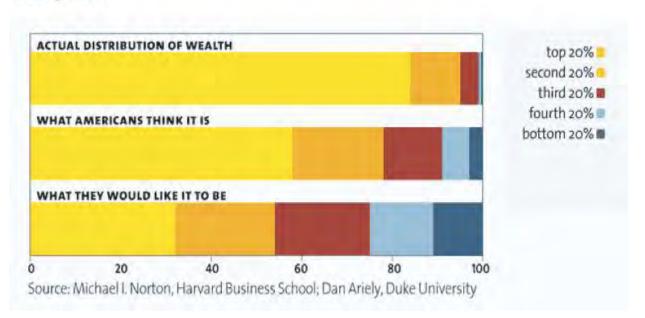
Owned & Operated

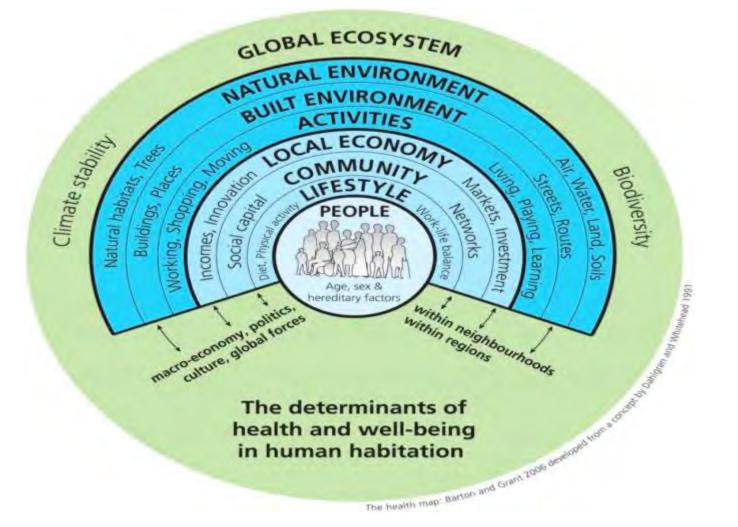
BY OUR

**EMPLOYEE OWNERSHIP** 

### **OUT OF BALANCE**

A Harvard business prof and a behavioral economist recently asked more than 5,000 Americans how they thought wealth is distributed in the United States. Most thought that it's more balanced than it actually is. Asked to choose their ideal distribution of wealth, 92% picked one that was even more equitable.















GENDER





## THE GLOBAL GOALS For Sustainable Development















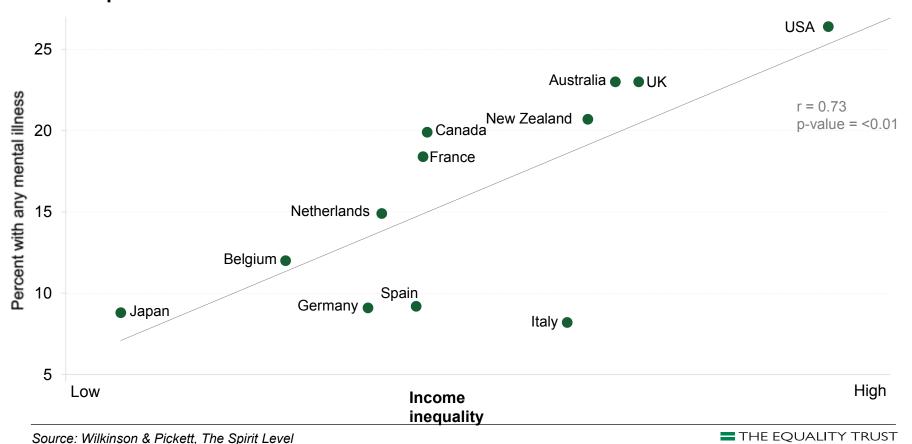








## The prevalence of mental illness is higher in more unequal rich countries



#### Changes in income inequality and the health of immigrants

Tod G. Hamilton a,\*, Ichiro Kawachi b

#### ARTICLEINFO

Article history: Available online 10 November 2012

Keywords: United States Health Income inequality Inequality Immigrants Migration

#### ABSTRACT

Research suggests that income inequality is inversely associated with health. This association has been documented in studies that utilize variation in income inequality across countries or across time from a single country. The primary criticism of these approaches is their inability to account for potential confounders that are associated with income inequality. This paper uses variation in individual experiences of income inequality among immigrants within the United States (U.S.) to evaluate whether individuals who moved from countries with greater income inequality than the U.S. have better health than those who migrated from countries with less income in equality than the U.S. Utilizing individual-level (March Current Population Survey) and country-level data (the United Nations Human Development Reports), we show that among immigrants who have resided in the U.S. between 6 and 20 years, self-reported health is more favorable for the immigrants in the former category (i.e., greater income inequality) than those in the latter (i.e., lower income inequality). Results also show that self-reported health is better among immigrants from more developed countries and those who have more years of education, are male, and are married.

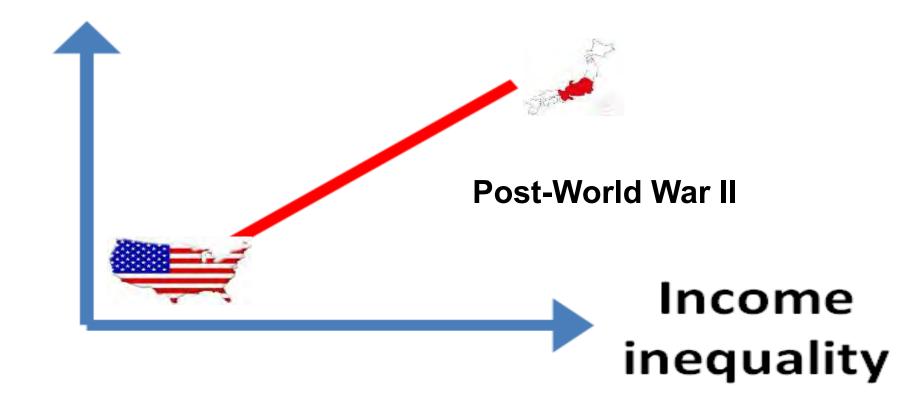
© 2012 Published by Elsevier Ltd.

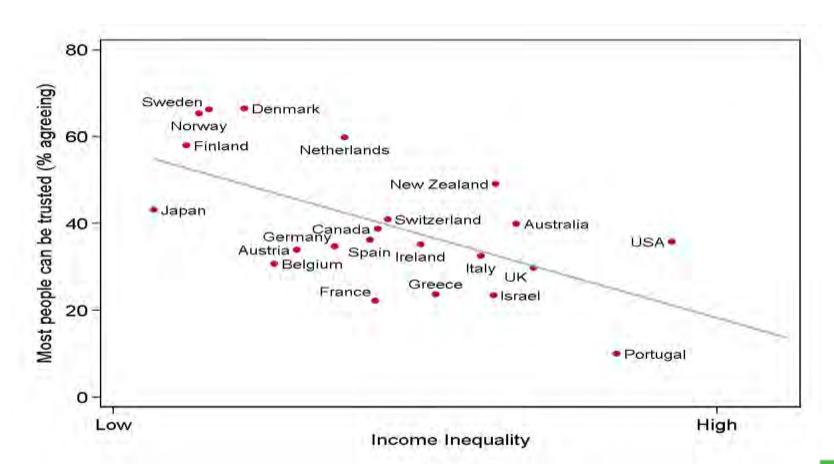
a Department of Sociology, Office of Population Research, Princeton University, 245 Wallace Hall, Princeton, NJ 08544, USA

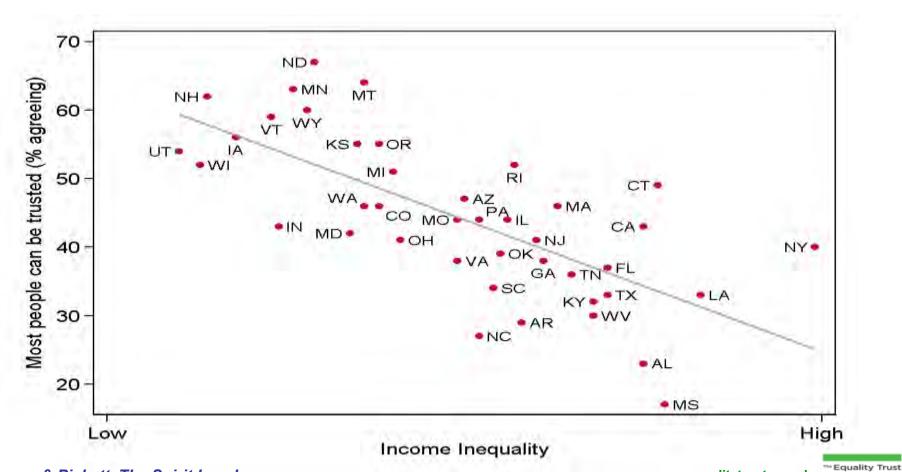
Department of Social and Behavioral Sciences, Harvard School of Public Health, Harvard University, 677 Huntington Avenue, Boston, MA 02115, USA

### Cessation of Exposure

### **Problems**



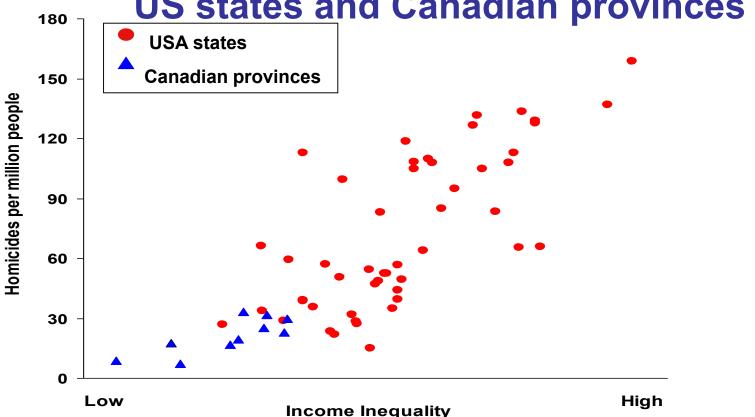




Wilkinson & Pickett. The Spirit Level

www.equalitytrust.org.uk

Homicide rates are higher in more unequal US states and Canadian provinces



Daly M, Wilson M, Vasdev S. Income inequality and homicide rates in Canada and the United States. Can J Crim 2001; 43: 219-36.

Imprisonment rates are higher in more unequal countries

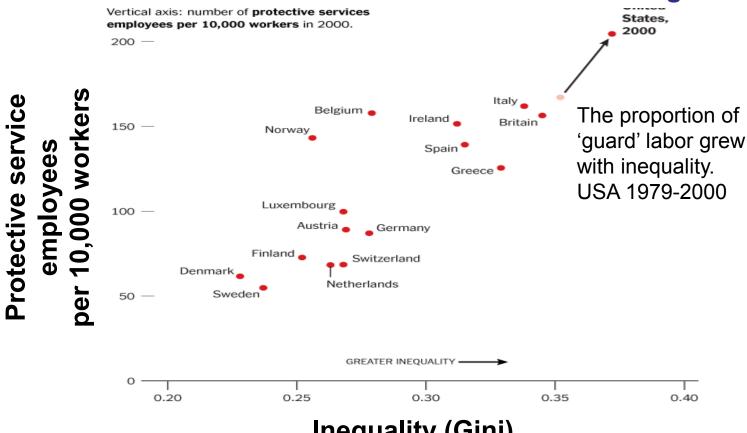


Cuernavaca, Mexico



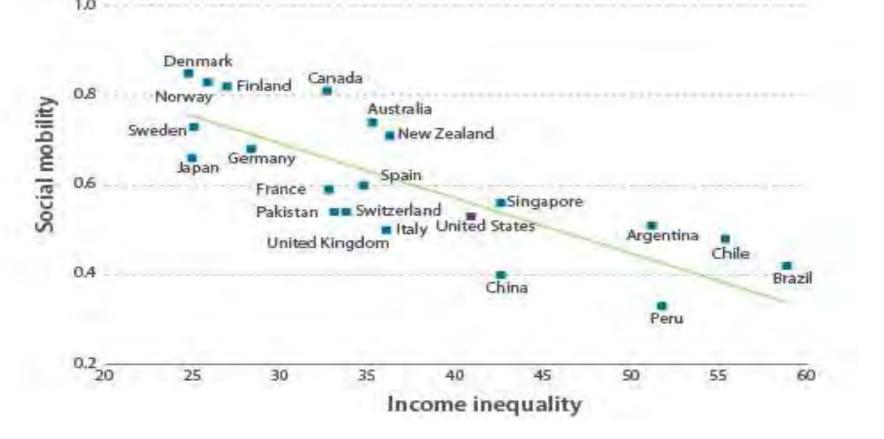


#### Societies with wider Income differences need more "guard labor"

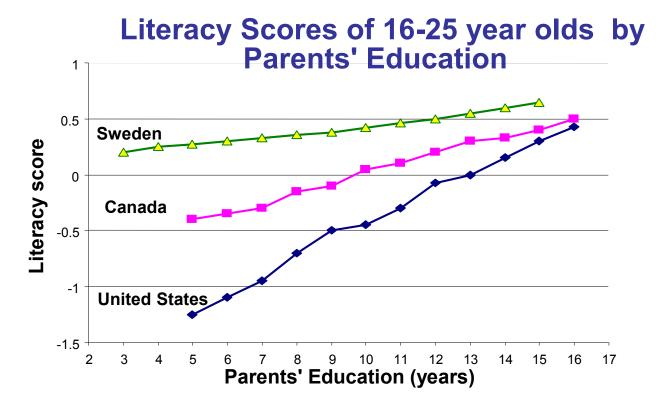


Inequality (Gini)

#### There is less social mobility in countries with bigger income difference



Corak (2013); World Bank 2013. The Hamilton Project, Brookings Institution



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

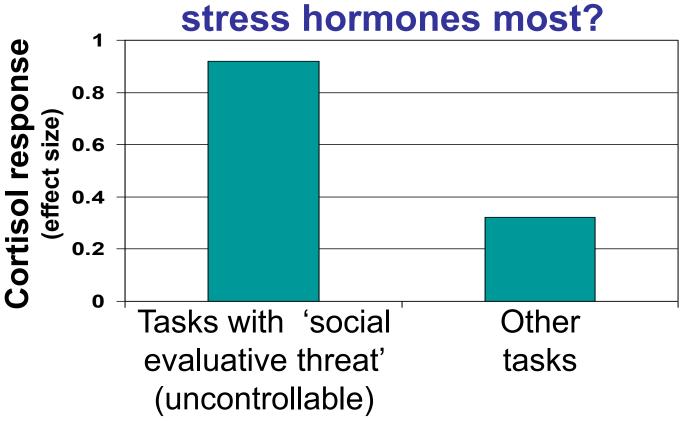
The experience of poverty in rural Uganda and India; urban China, Pakistan, Korea, United Kingdom and Norway.

"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.'

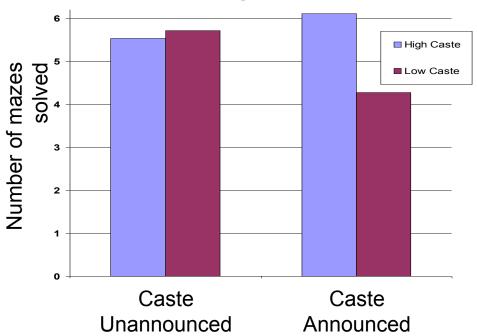
# What kind of stressful tasks raise stress hormones most?



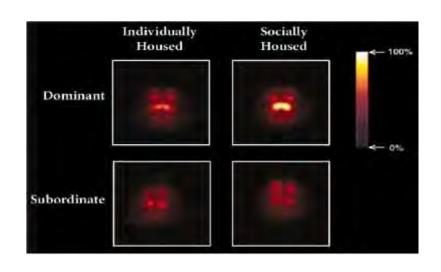
Dickerson SS, Kemeny ME. Acute stressors and cortisol responses. *Psychological Bulletin* 2004; 130(3): 355-91.

### **Stereotype Threat**

#### The effect of caste identity on children's performance

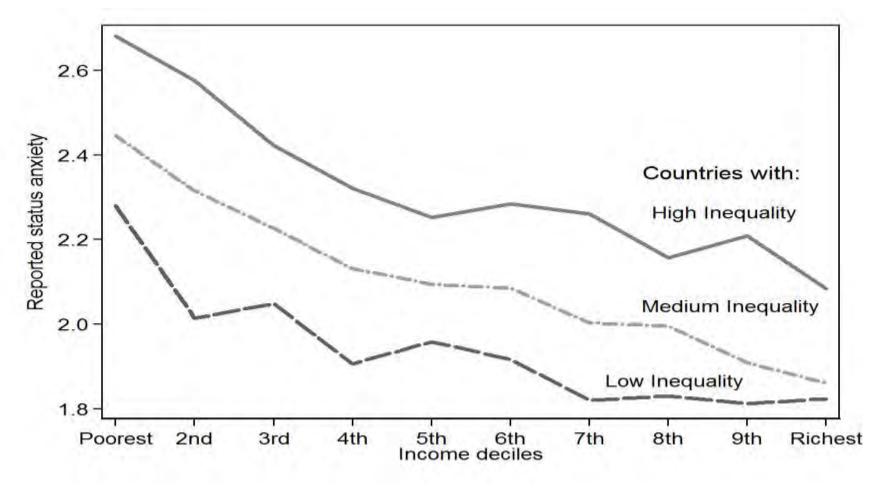


# Social status affects brain chemistry and behaviour in monkeys



- Living in social groups increased "happy" brain chemicals in dominant monkeys but produced no change in subordinate monkeys.
- These neurobiological changes had an important behavioural influence
- When given access to

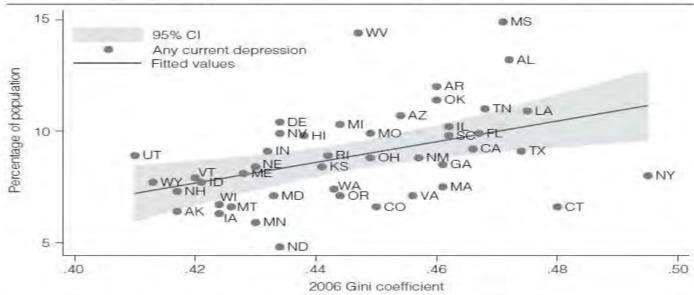
Source: Morgan, D et al. Nature Neuroscience 2002; 5(2), 169-174.



Status anxiety is higher at all levels of income in more unequal countries. Redrawn from Layte and Whelan (2014), data kindly provided by Richard Layte

Figure 1

Income inequality and prevalence of current depression across 45 states<sup>a</sup>



<sup>&</sup>lt;sup>a</sup> Kentucky, New Jersey, North Carolina, Pennsylvania, and South Dakota did not participate in the Behavioral Risk Factor Surveillance System survey in the years for which data were analyzed (2006 and 2008). Possible Gini values range from 0, complete equality, to 1, maximum inequality.

Messias, E., W. W. Eaton, et al. (2011). "Economic grand rounds: Income inequality and depression prevalence across the United States: an ecological study." <u>Psychiatr Serv 62(7): 710-2.</u>

## "Health" is good where life expectancy is low...

Country	% with "good" self-rated health	Life expectancy (yrs)
Japan	54	82
Australia	76	81
Italy	74	81
Sweden	78	81
Switzerland	83	81
France	72	80
Spain	80	80
Britain	73	79
Finland	66	79
Germany	67	79
Netherlands	71	79
New Zealand	82	79
USA	80	77

Correlation : r = -0.24

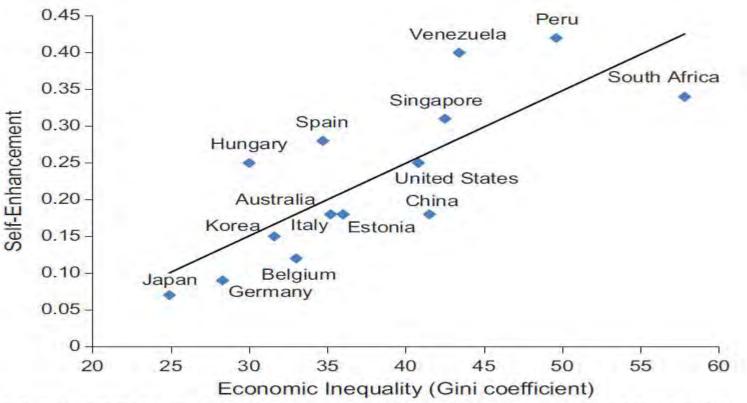
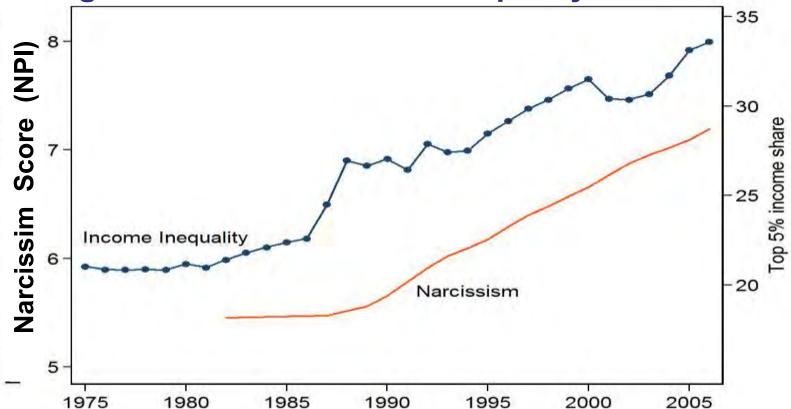


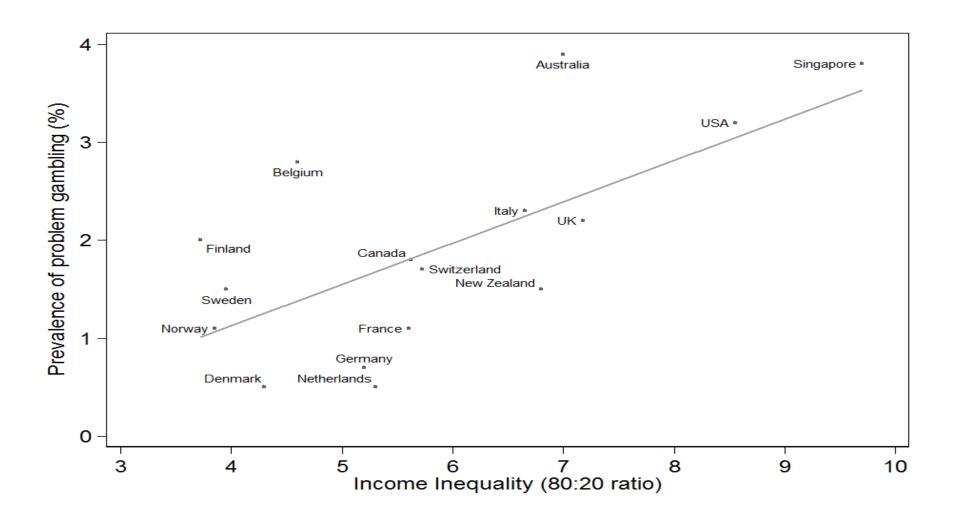
Fig. 1. Scatter plot (with best-fitting regression line) showing self-enhancement (as indexed by beta weights from a two-level model) as a function of economic inequality (as indexed by the Gini coefficient) across nations. The data points for Australia and Italy are very close and overlap on the graph.

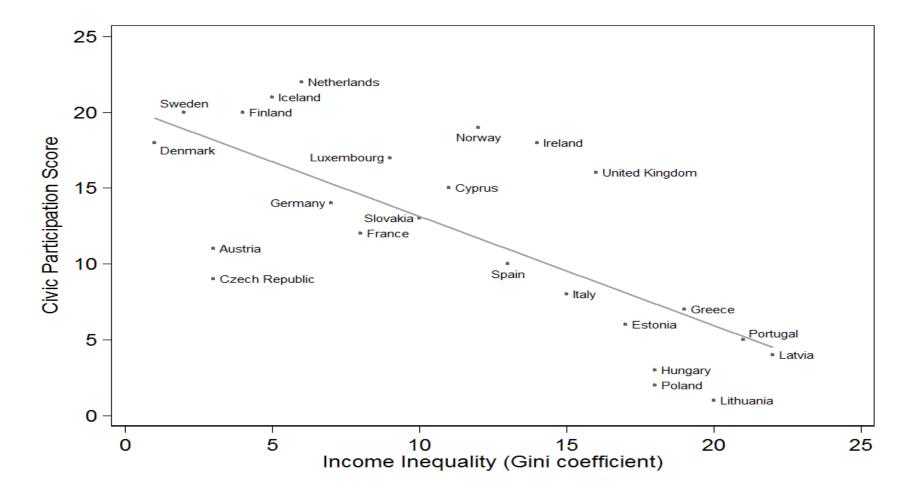
Loughnan S, Kuppens P, Allik J, Balazs K, de Lemus S, Dumont K, et al. Economic inequality is linked to biased self-perception. *Psychological science* 2011:22(10):1254-8.

#### Rising Narcissism & Income Inequality in the USA



Inequality data from World Top Incomes Database







What else happens when societies become more materialistic and individualistic?





# LOUIS VUITTON

MAISON FORIBEE FRI 10 Fd.



GUCCI

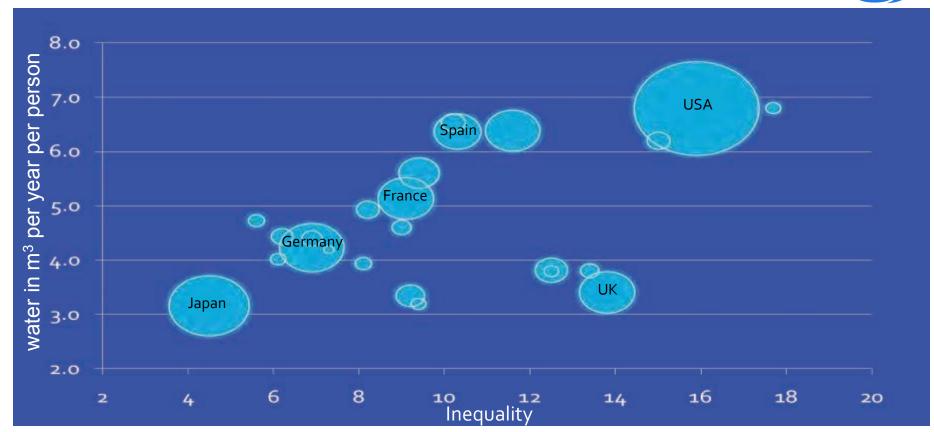


# Two recent studies show that inequality increases conspicuous consumption and consumerism

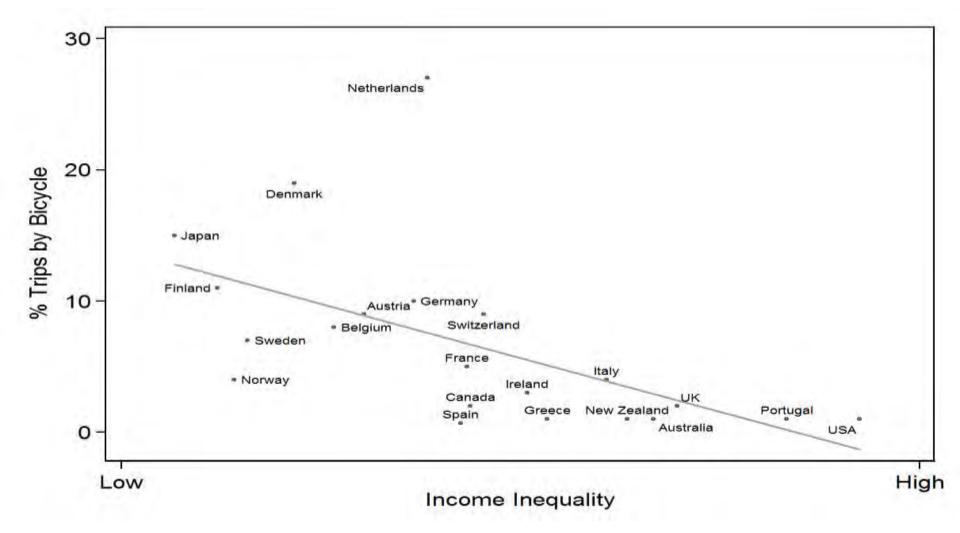
- People in more unequal areas of the USA are more likely to buy high status cars
- Data from internet searches shows that people in more unequal states are more likely to search for status goods

# Inequality and water





Dorling http://sasi.group.shef.ac.uk/presentations



#### More equal countries rank better (1 is best) on recycling

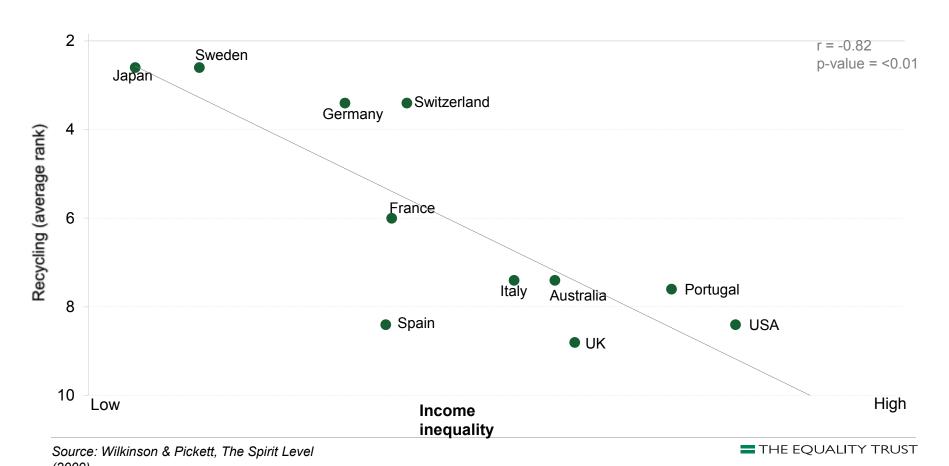
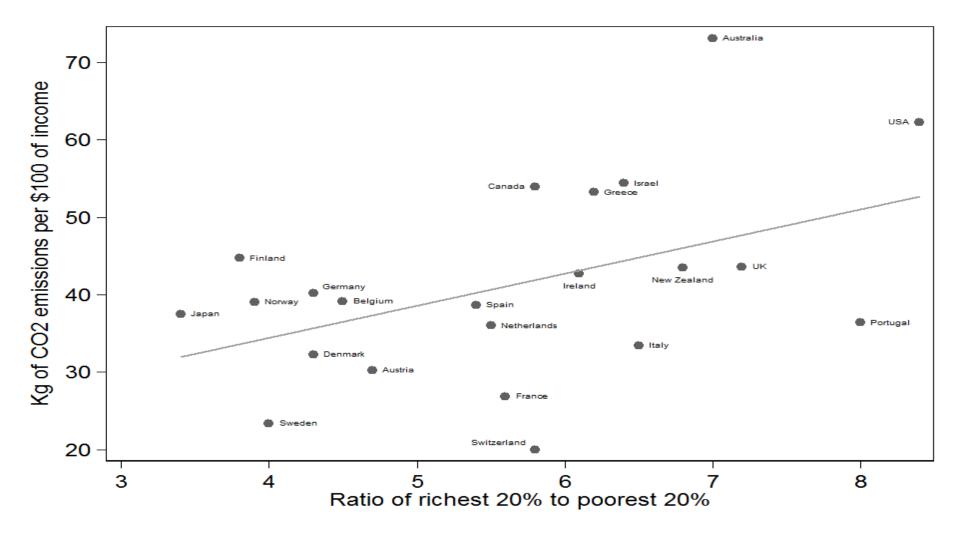


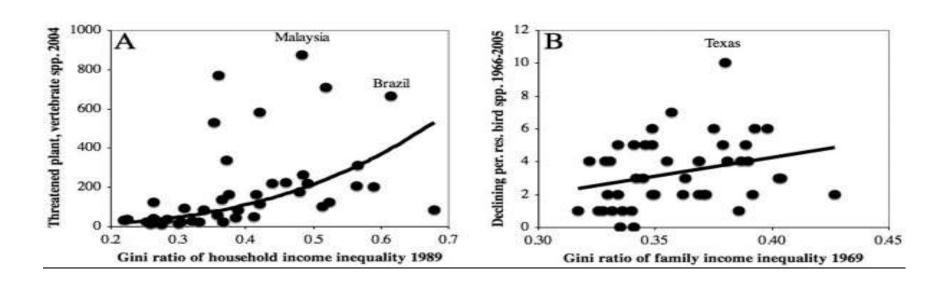


Fig 2 | Relation between environmental compliance score (importance business leaders give to their governments complying with international environmental agreements) and equality of income<sup>1</sup>

#### Wilkinson R, Pickett K & De Vogli R. BMJ 2010; 341:1138-1140



# Inequality and Biodiversity



# Solutions to Inequality

### Kate Pickett, FFPH FRSA









### Inequality

is bad for business, bad for the economy, bad for our democracies, and bad for society. It is a political choice, not an economic necessity.

I look forward to working with John McDonnell to help him re-write the rules so that we achieve shared prosperity.

Things cannot go on like this.

JOSEPH STIGLITZ
NOBEL-WINNING ECONOMIST





#### **THE EQUALITY TRUST**

Because more equal societies work better for everyone



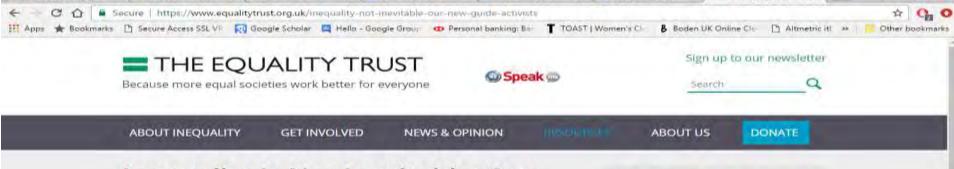




New slide set from the Equality Trust Fosted: 04/04/2013

Latest blog posts





# Inequality Is Not Inevitable: Our New Guide for Activists

December 2016

We are proud to launch our new activist pack: inequality is Not inevitable. This guide aims to help inequality activists target key decision-makers, and those who influence them, so that action is taken to reduce inequality.

In addition to our compelling and growing evidence base in favour of more equal societies, we have always believed in the necessity of a large social movement demanding a fairer, better UK. This guide aims to help people join that movement and to then take concrete action to tackle inequality.

Please do read and share the guide with all the people and organisations that you know and work with!



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Politics and Government

Power and Privilege

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Books on Inequality

The Spirit Level

Newsletters

























GENDER





ZERO







NO



















# An Economic Inequality Framework for Social Justice

Kate Pickett, FFPH FRSA



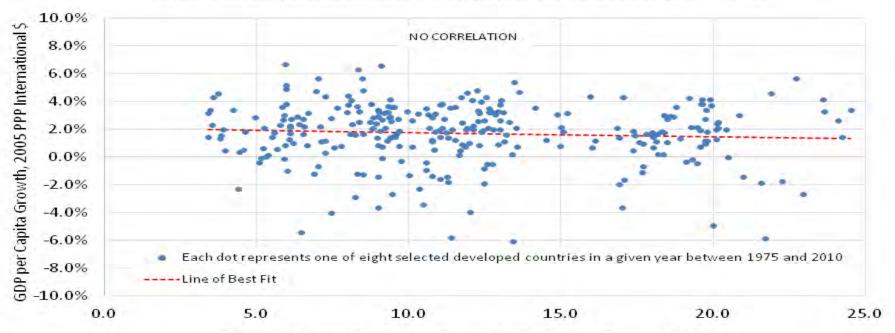






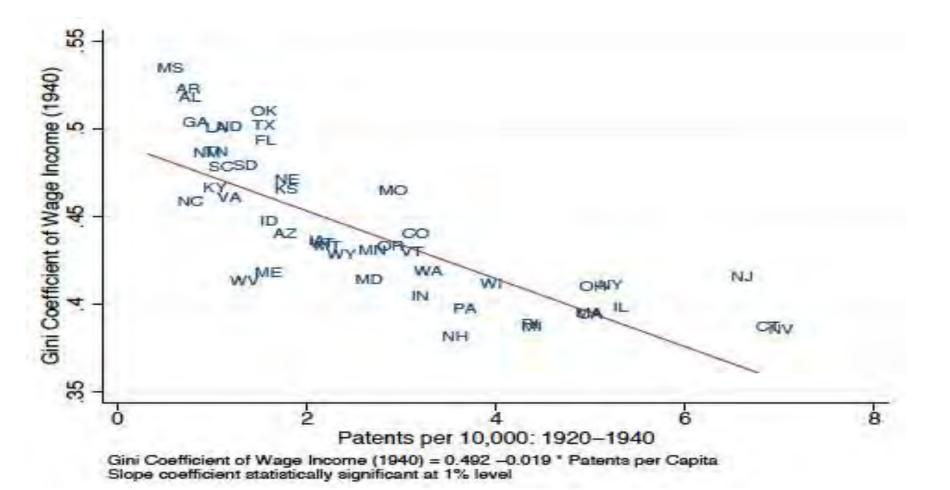
# Chart 1: Developed countries show no correlation between income redistribution and growth

Redistribution vs. Economic Growth, Developed Countries, 1975 – 2010

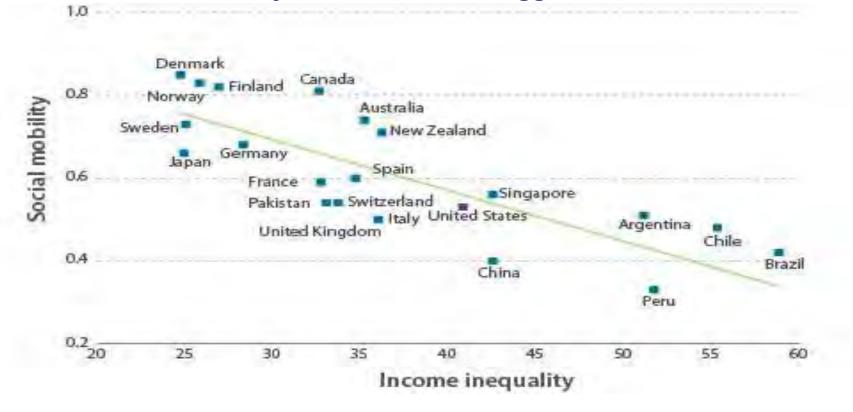


Reduction in Gini Coefficient Due to Redistributive Taxes and Transfers

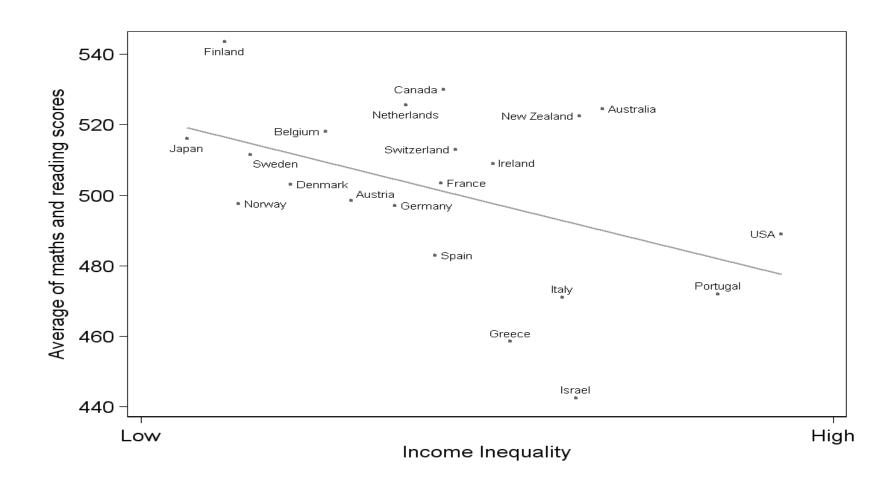


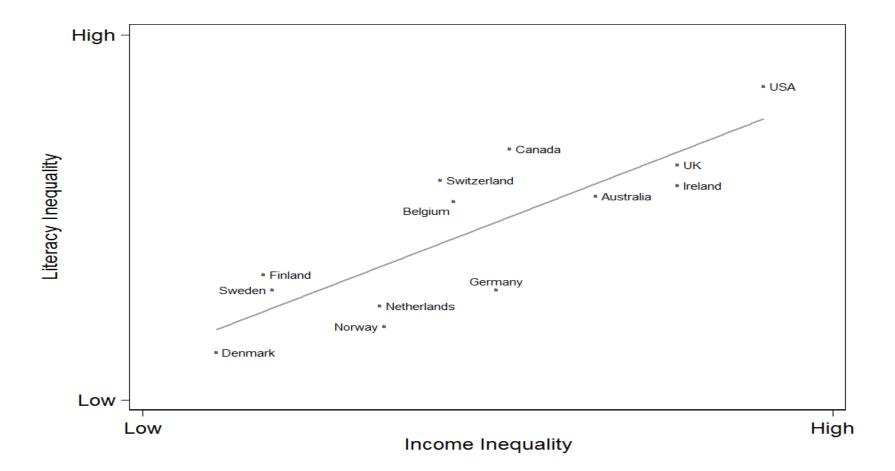


## There is less social mobility in countries with bigger income difference



Corak (2013); World Bank 2013. The Hamilton Project, Brookings Institution

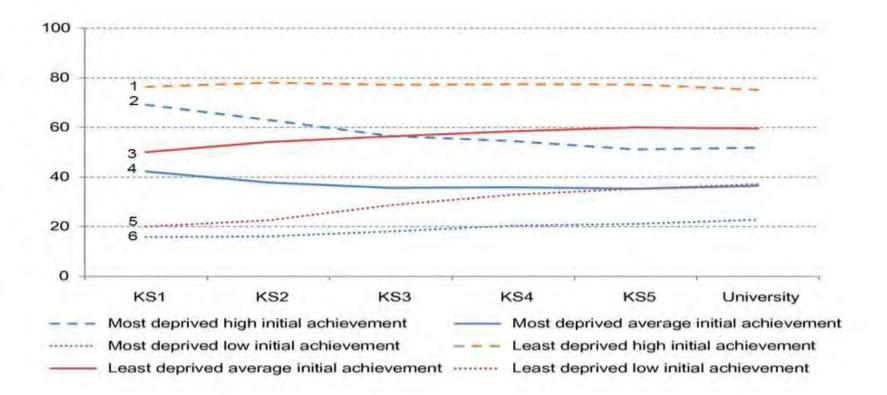




# Children from families receiving welfare benefits and in working class families hear fewer words than children in professional families.{Hart,

## 1995 #3682; Heckman, 2011 #3681}

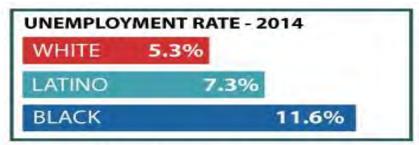
Family Status	Words heard per hour	Words heard in a 100 hour week	Words heard in a 5,200 hour year	Words heard in 4 years
Receiving welfare benefits	616	62,000	3 million	13 million
Working Class	1,251	125,000	6 million	26 million
Professional	2,153	215,000	11 million	45 million

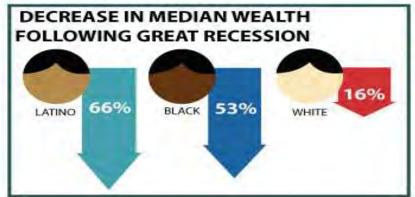


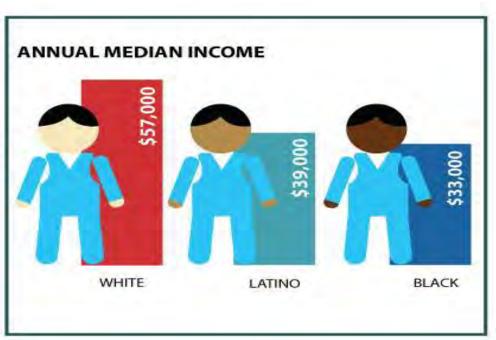
# **INCOME EQUALITY**

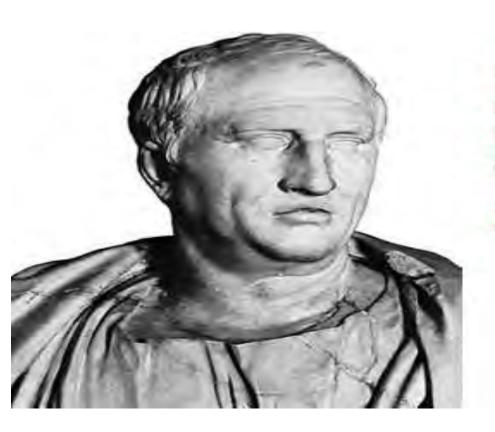


Women work two-thirds of the world's working hours, produce half of the world's food, but earn only 10% of the world's income.









"Any man can make mistakes, but only an idiot persists in his error."

Marcus Tullius Cicero

### What World Leaders are saying...

Income inequality is the "defining challenge of our time". "...rising inequality and declining mobility are also bad for our families and social cohesion – we...trust our institutions less (and) trust each other less when there's greater inequality. And greater inequality is associated with less mobility between generations." President Barak Obama, 4<sup>th</sup> Dec 2013

"Inequality is the root of social ills." Pope Francis, 24th Nov 2013

"...the economics profession (has) downplayed inequality for too long. Now all of us have a better understanding that a more equal distribution of income allows for more economic stability, more sustained economic growth, and healthier societies with stronger bonds of cohesion and trust." Christine Lagarde, Director, IMF, 23<sup>rd</sup> Jan 2013

"Social and economic inequalities can tear the social fabric, undermine social cohesion and prevent nations from thriving. Inequality can breed crimo disease and environmental degradation and hamper economic



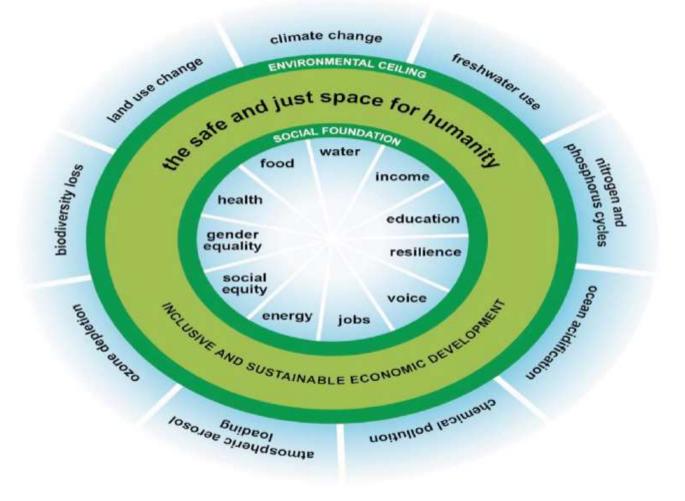
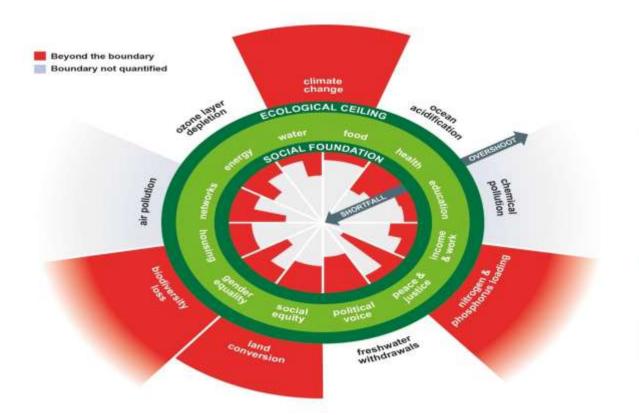


Figure 5. A safe and just space for humanity—the sustainable and desirable doughnut [34].



Humanity's 21<sup>st</sup> century challenge

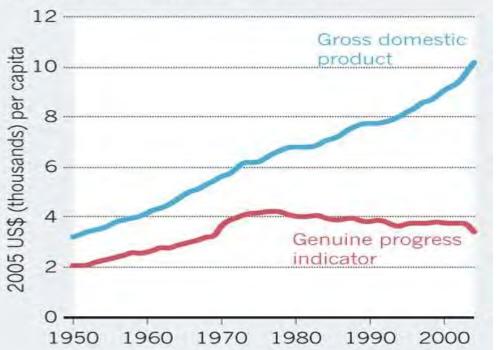


Costanza R, Kubiszewski I, Giovannini E, Lovins H, McGlade J, Pickett K, et al. Development: Time to leave GDP behind. Nature

"Growth is a substitute for equality of income. So long as there is growth there is hope, and that makes large income differentials tolerable." - Henry Wallich, former governor of the US Federal Reserve Bank and professor of economics at Yale.

## **GENUINE PROGRESS FLATTENS**

World GDP has soared since 1950, but a metric for life satisfaction called GPI has not.



Gross National Happiness is more important than Gross Wational Product. By: HM. Jigme Singye Wangchuk.

Living Standards

· Household per capita

Assets

Housing

income

- Psychological Wellbeing Life satisfaction
- Positive emotions
- Negative emotions Spirituality

#### Health

- · Mental health
- · Self reported health
- Healthy days
- Disability

#### **Ecological Diversity** and Resilience

- · Ecological Issues
- · Responsibility towards environment
- · Wildlife damage (Rural)
- Urbanization issues

# GNH

Time Use Work

- Sleep

#### Community Vitality

- . Donations (time & money) Community
- relationship
- Family
- Safety

#### Education

- Literacy
- · Schooling
- Knowledge

#### Value

#### Good Governance

- · Gov't performance · Fundamental rights
- Services
- · Political Participation

#### **Cultural Diversity** and Resilience

- Speak native Language
- Cultural Participation
- Artistic Skills
- Driglam Namzha

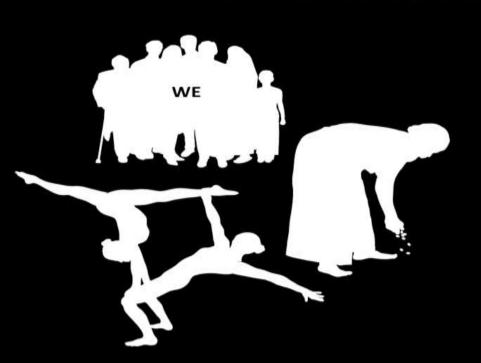
Building WELLBEING ECONOMIES in Africa 28 NW - 100 2016 ECONOMY COMMUNITY CHANGE HAVE BEEN COSYSTEM HUHAN CENTRED WHATS AFRICAN ABOUT THIS? UNUSUM Maritis Convert Wisdom Cultury

# Come to Goodland....you might want to live here

Its president refuses the state mansion. He gives away 90% of his pay, living on the national average wage to share in the struggles of his people. Goodland has a new constitution, written by citizens. When its financial sector fell apart, speculators had to take their losses and the guilty were taken to court, not given a public bailout.

The country has a dynamic, largely mutually owned, local banking system. It avoids bad risk and bends over backwards to help small businesses. In Goodland, human wellbeing is more important than economic growth. There is a national plan for good living, free health and education services, subsidised childcare allowing for a more equal workplace, and support for the elderly. It has a law enshrining protection of its life-supporting ecosystems that stands above all other laws

# We are social adaptable humans



FROM

self-interested fixed preferences isolated work-hating dominant TO

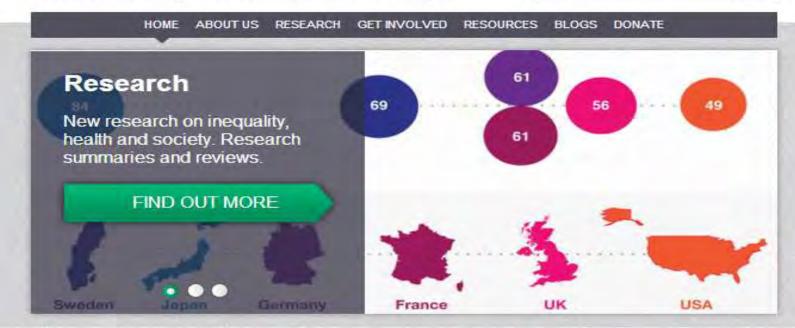
socially reciprocating
fluid values
interdependent
purpose-seeking
dependent





Because more equal societies work better for everyone







New slide set from the Equality Trust Fosted: 04/04/2013

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From the cover of *Funny Times*