

Measuring Inequality:

How we do it matters, but there is no right way to do it

Markus P. A. Schneider



UNIVERSITY *of*
DENVER

COLLEGE OF ARTS, HUMANITIES
& SOCIAL SCIENCES
Economics

November 1, 2018

- 1 Background
- 2 Measurement: the Unresolvable Issue?
- 3 Multi-metric Work

Let me posit three issues:

- 1 Humans have poor judgements across orders of magnitude
- 2 Our focus influences what differences we see – or are blind to
- 3 “The way one tries to measure inequality is never neutral”
(Piketty, 2014, p. 270)

Physical / life sciences offer many examples

How much is \$1 billion?

- Diameter of an atom: \approx 1 billionth of the height of a human
- Diameter of the sun: \approx 1 billion times the height of a human

All things too small for us to see:

Subatomic particles, atoms, bacteria, complex cells ...

tremendous scale – and other – differences among these!

How much is \$1 billion?

- If you have \$1 billion:
Spend \$1m / year on rent for 100 yrs. & still have 90% of a \$1b left
- If you have \$1 million:
Rent an avg. apart. in downtown Denver^a for almost 42 years

^aAssuming no interest is earned; assuming Denver downtown average rent: \$2,000 per month or \$24,000 per year.

How much is \$1 billion?

GQ article by Jon Ronson (2012):

Talking to the anonymous millionaire (earning \$1.25m annually):

*“So what can and what can’t you do in terms of luxury living?”
I ask her.*

“If you’re really rich, you can buy your doctors,” she says.

A difference between DU & Harvard:^a

- Retaining the services of a financial advising firm
- Top in-house financial advising department

^aPiketty (2014, pp. 447–452): The Pure Return on University Endowments

Scale differences matter!

We don't.

We care about are the *causes* of observed inequality.

“I want to insist on this point: the key issue is the justification of inequalities rather than their magnitude as such. That is why it is essential to analyze the structure of inequality.”

(Piketty, 2014, p. 264)

Moral Question: Modern Economics Framing

How we view rising inequality depends on what we think the cause is.

- **Perfect Markets / Exogenous “Government”:**
Reflection of differences in contributions to society.
- **Imperfect Markets / Endogenous Institutions:**
Rents – some gain at the cost to everyone! (see Stiglitz)

Moral Question: Other Economic Traditions

How we view rising inequality depends on what we think the cause is.

- **Smith:**

Power relations between employers, workers, & landlords that favors “capitalists” at the expense of society.^a

- **Marx:**

Gains always disproportionately benefit the capitalists & are fundamentally exploitative – and scale matters!

- **Keynes:**

Power held by employers & power held in finance requires countervailing forces (e.g. regulation & active policy).

^aCaptains of industry & master merchants: “an order of men, whose interest is never exactly the same with that of the publick, who have generally an interest to *deceive and even oppress the publick, and who accordingly have, upon many occasions, both deceived and oppressed it.*”
(Smith, 1776, chpt. XI)

Assuming perfect markets & exogenous “Government”:

“Of the tendencies that are harmful to sound economics, the most seductive, and in my opinion most poisonous, is to focus on questions of distribution.” (Lucas, 2004)

Assuming perfect markets & exogenous “Government”:

“Of the tendencies that are harmful to sound economics, the most seductive, and in my opinion most poisonous, is to focus on questions of distribution.” (Lucas, 2004)

Sociologists & heterodox economists:

Writing about inequality & a vanishing middle class for a long time.

Growing consensus among economists:

Observed changes in inequality *cannot* be explained by perfect markets & general equilibrium.

Two major contributions of Piketty's work:

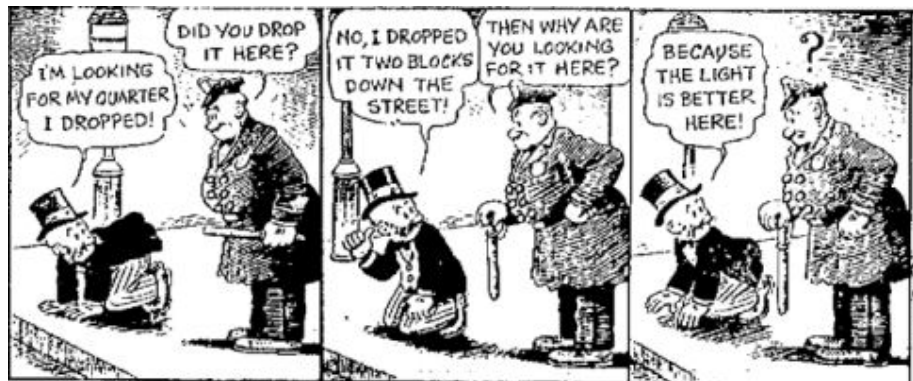
Data

Compilation of administrative records

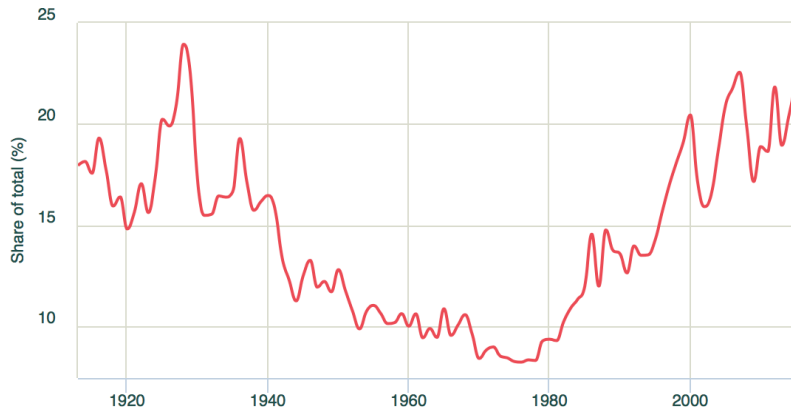
Measurement

Gini \Rightarrow Top 1% Income Share

Point #3: Where we look matters!



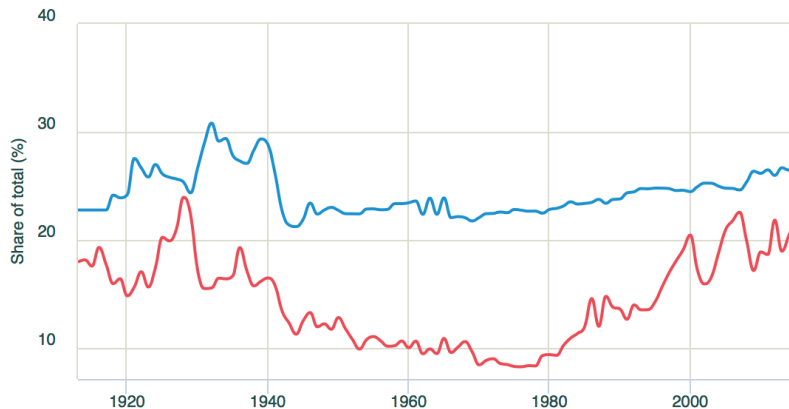
Top 1% fiscal income share, USA, 1913-2015



— Fiscal income | Top 1% | share |

Graph provided by www.wid.world

Income inequality, USA, 1913-2015



— Fiscal income | Top 1% | share |

— Fiscal income | P90-99 | share |

Graph provided by www.wid.world

- Piketty: Problems with the Gini → look at top x% share!
- Others (e.g. Wolff): Gini considers the *whole* distribution!

- Piketty: Problems with the Gini → look at top x% share!
- Others (e.g. Wolff): Gini considers the *whole* distribution!

“Of the tendencies that are harmful to a sound focus on questions of distribution is to argue about the *right* measure of inequality!” (Me)

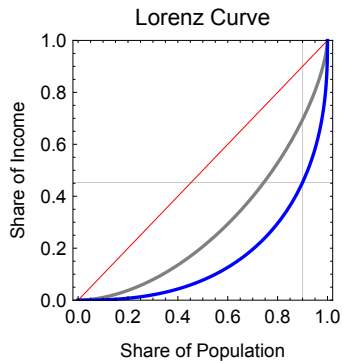
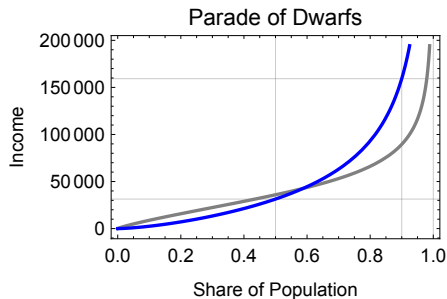
Thesis:

The right measure of inequality is socially & historically contingent.

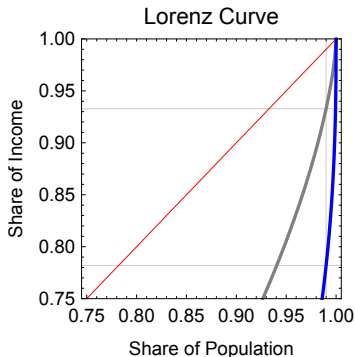
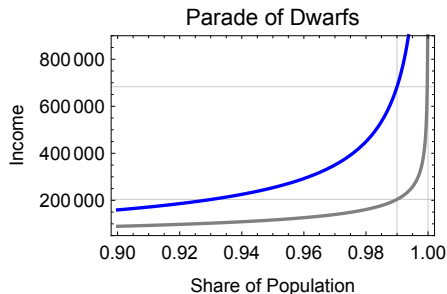
Practical Approach:

- Use graphical tools to understand changes
- Look at multiple measures
- *Don't forget what's actually important*

“Parade of Dwarves” & Lorenz Curve



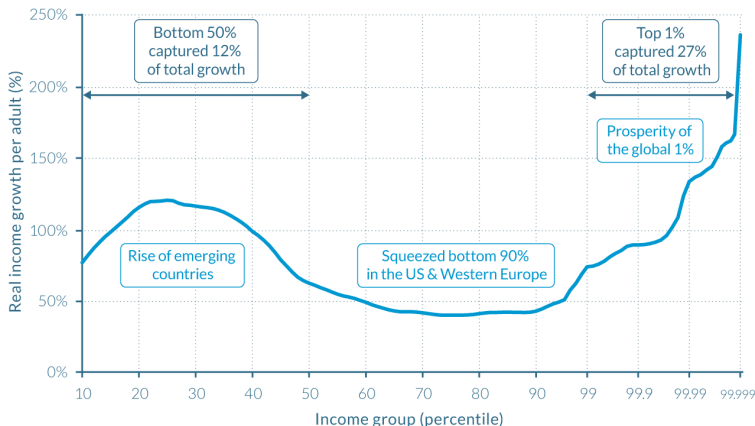
“Parade of Dwarves” & Lorenz Curve



The change in the top 1% income share from 7% to 22% implies changes in top incomes of orders of magnitude!

The change in the top 1% income share from 7% to 22% implies changes in top incomes of orders of magnitude!

- 1 Political influencers going from being millionaires to billionaires – that's a big deal!
- 2 The most common measure of inequality de-emphasizes *that* change, **that's a big deal for thinking about inequality!!!**

Real Income Growth¹ by Global Percentile, 1980 and 2016

Source: WID.world (2017). See wir2018.wid.world/methodology.html for more details.

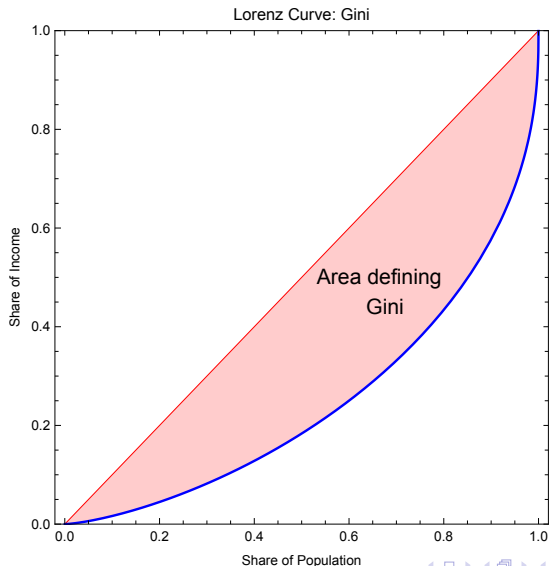
On the horizontal axis, the world population is divided into a hundred groups of equal population size and sorted in ascending order from left to right, according to each group's income level. The Top 1% group is divided into ten groups, the richest of these groups is also divided into ten groups, and the very top group is again divided into ten groups of equal population size. The vertical axis shows the total income growth of an average individual in each group between 1980 and 2016. For percentile group p99p99.1 (the poorest 10% among the world's richest 1%), growth was 74% between 1980 and 2016. The Top 1% captured 27% of total growth over this period. Income estimates account for differences in the cost of living between countries. Values are net of inflation.

¹ Difference between two "Parades ..." in %-terms.

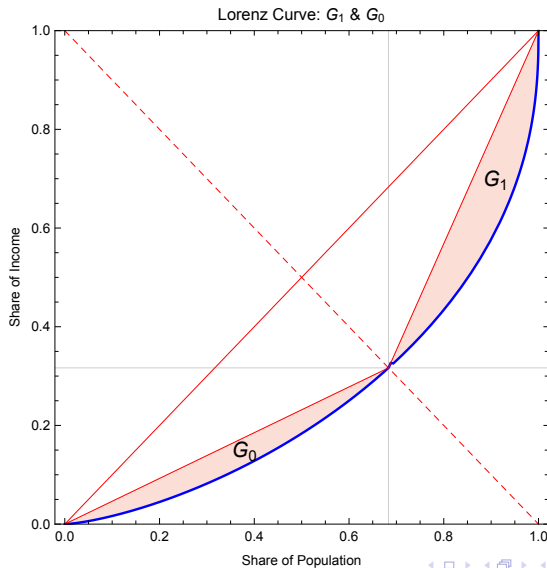
Many ways to measure inequality \Rightarrow Not one solves *all* problems

Take a Multi-metric approach: *Always* compare multiple measures

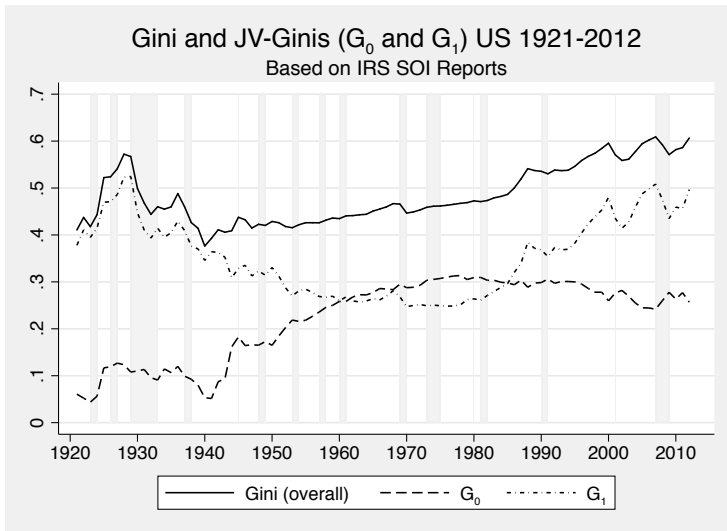
Jantzen & Volpert (2012): separate Ginis for top & bottom



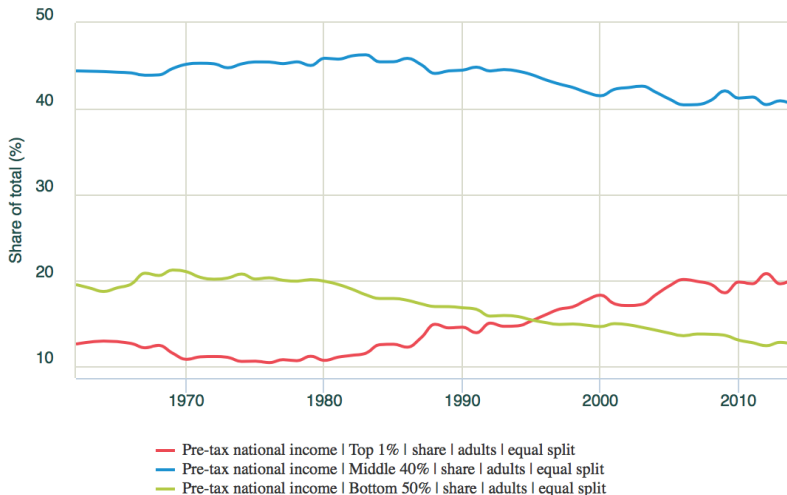
Jantzen & Volpert (2012): separate Ginis for top & bottom



Schneider & Tavani (2016): applied to Piketty's data

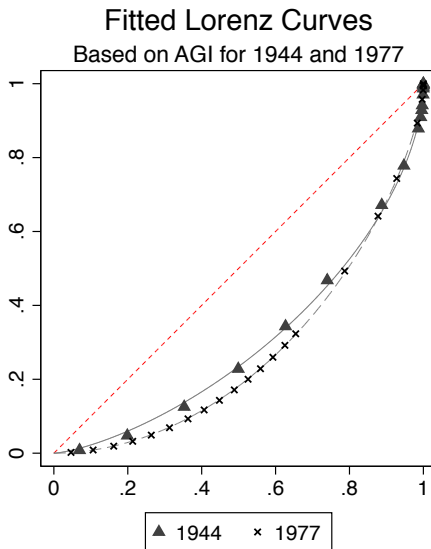


Income inequality, USA, 1962-2014

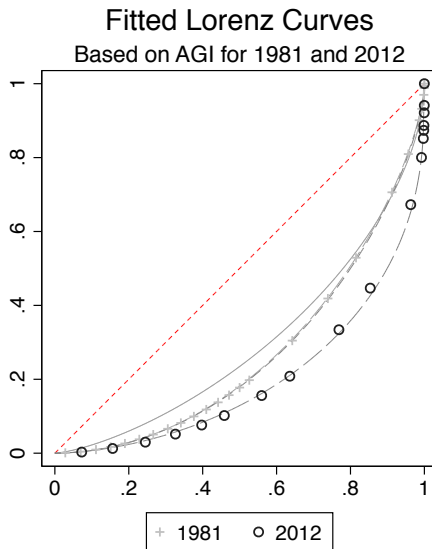


Graph provided by www.wid.world

Schneider & Tavani (2016):



Schneider & Tavani (2016):



- 1 Change in inequality:
Qualitative difference WWII to end-1970s versus 1980-present.

- 1 Change in inequality:
Qualitative difference WWII to end-1970s versus 1980-present.
- 2 Economists were missing it – until Piketty et al
 - Focused on *one* metric (turned out the wrong one)

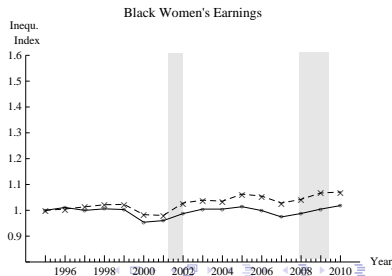
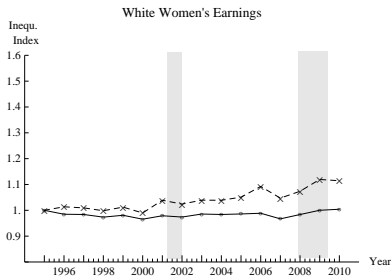
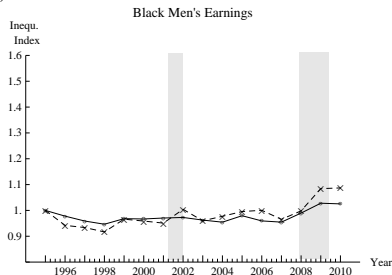
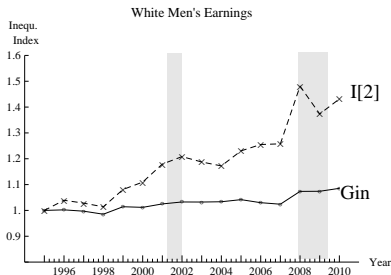
- 1 Change in inequality:
Qualitative difference WWII to end-1970s versus 1980-present.
- 2 Economists were missing it – until Piketty et al
 - Focused on *one* metric (turned out the wrong one)
- 3 Piketty (2014) also risked missing important changes:
 - Decreasing inequality bottom to middle
 - Declining income share of the bottom 90%



Figure: Estimates inequality indices, 1995 to 2010 (CPS Data)

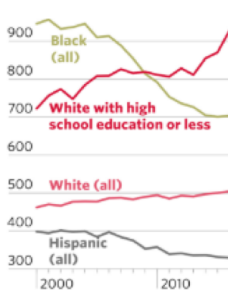
Differences in the Experience of Inequality (Schneider, 2013)

Gini & I[2] for Earnings, 1995 to 2010
(1995 = 1)



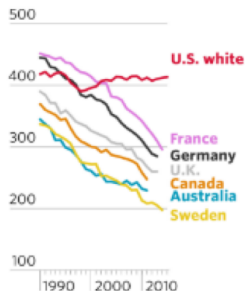
White deaths are rising...

Mortality rate by race, ages 50-54



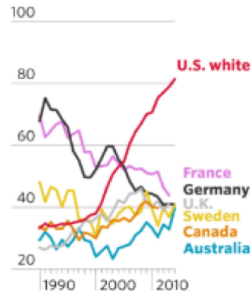
...in contrast to elsewhere...

Mortality rate for all causes, ages 45-54



...due in part to increases in 'deaths of despair'.

Mortality rate due to alcohol, drugs and suicide, ages 50-54



Thank you!