



# On the way to extreme inequalities: how income and wealth research highlights the challenges for the 21<sup>st</sup> century?

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WITH THE SUPPORT OF



# From inequality to strenghtening power vertical

- ▶ Introduction: history, civilization and extreme inequalities
- ▶ 1- Extreme inequality: theory and math
- ▶ 2- Extreme inequality today: are they back?
- ▶ 3- Wealth is back: repatrimonialization
- ▶ 4- Extreme consequences in the world
- ▶ Conclusion: The treats of the 21<sup>st</sup> century and a new hope

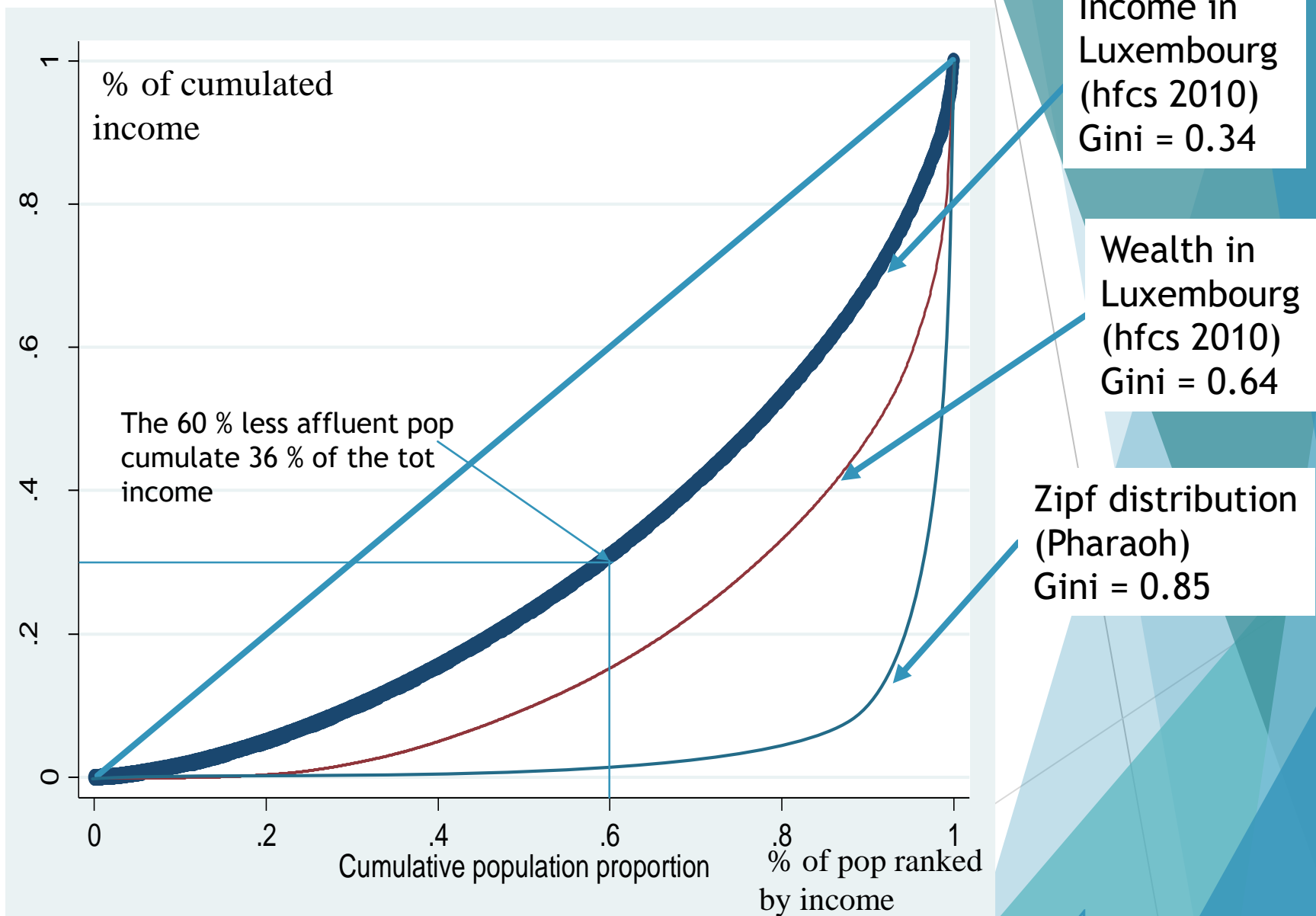


# Introduction: history, civilization and extreme inequalities

Gini = 0 in case of “perfect” equality, & 1 in case of “perfect inequality” => one single individual possesses everything

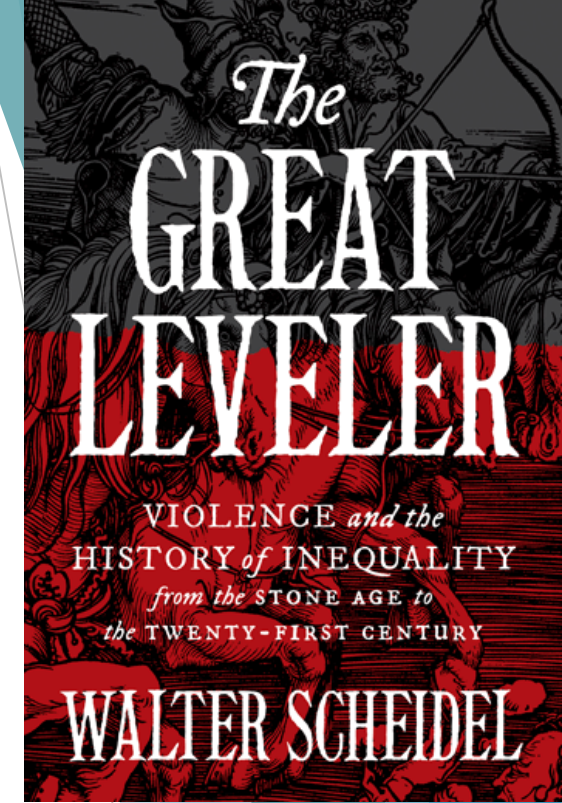
Gini of income = 0.20  
→ the world lowest  
Gini of income = 0.35  
→ European nations  
Gini of income = 0.45  
→ the U.S.  
Gini of income = 0.60  
→ Brazil  
Gini of wealth = 0.65  
→ European nations  
Gini of wealth = 0.80  
→ the U.S.

## Lorenz curve & the Gini index



# Introduction: civilization and (in)equality

- ▶ Commonsense: civilization is a process of equalization  
(welfare state development, Golden age, Wirtschaftswunder, Trente Glorieuses, blurring social class borders, increasing social mobility, etc.)
- ▶ Archeology: civilization is intrinsically characterized by inequality  
(criteria of civilization are Cities, labor specialization, concentration of surplus production, class structure, state organization, along with monuments, trade, art, writing and math)  
Charles L Redman, The Rise of Civilization : From Early Farmers to Urban Society in the Ancient Near East, San Francisco, Freeman, 1978, p. 277.
- ▶ The new Walter Scheidel's book (jan 2017):  
great civilizations show high (& increasing?) levels of inequality
- ▶ In period of peace or social rest, inequality remain high and stable

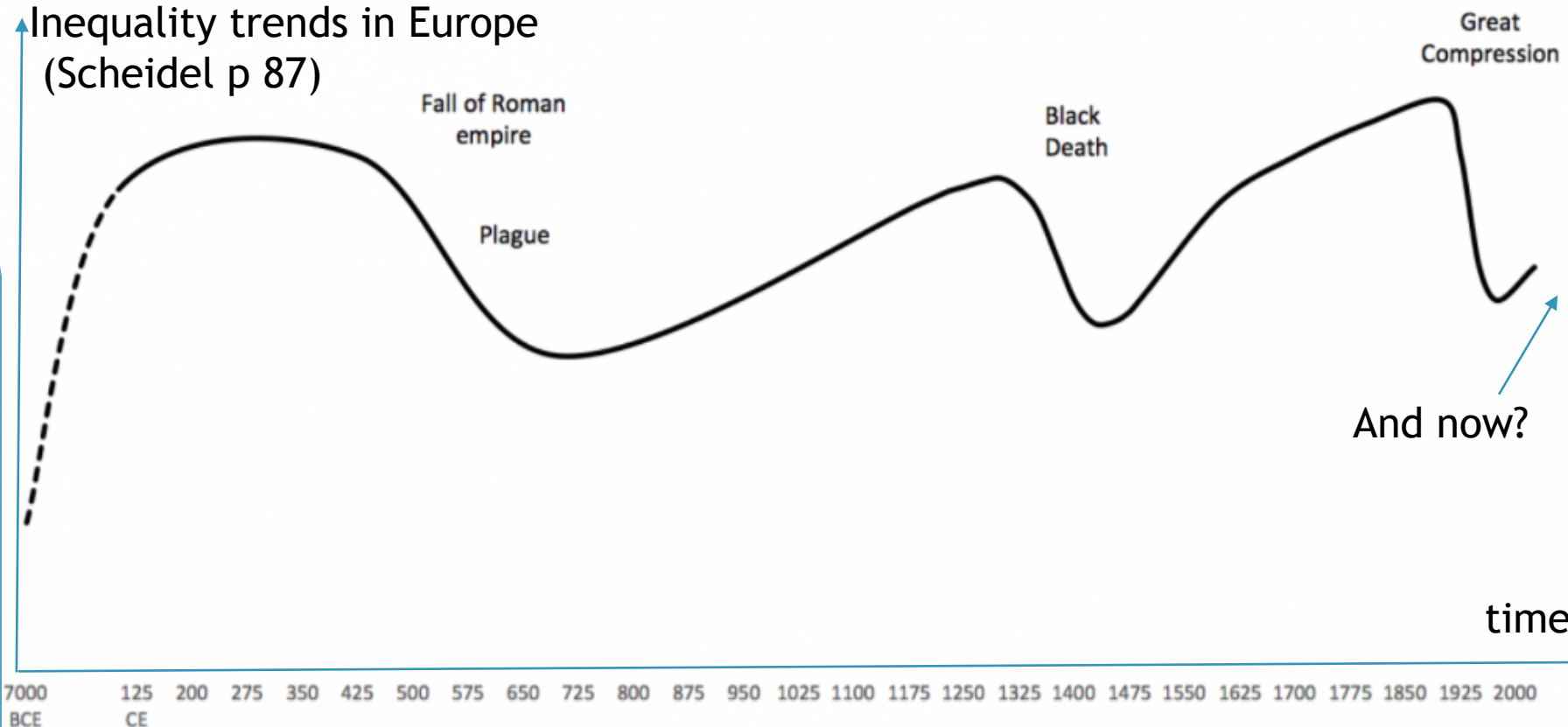




# Introduction: civilization and (in)equality

- ▶ The new Walter Scheidel's book:  
four horsemen of the reduction of inequality
- ▶ Wars, Epidemics, Revolutions, State collapse

Inequality trends in Europe  
(Scheidel p 87)

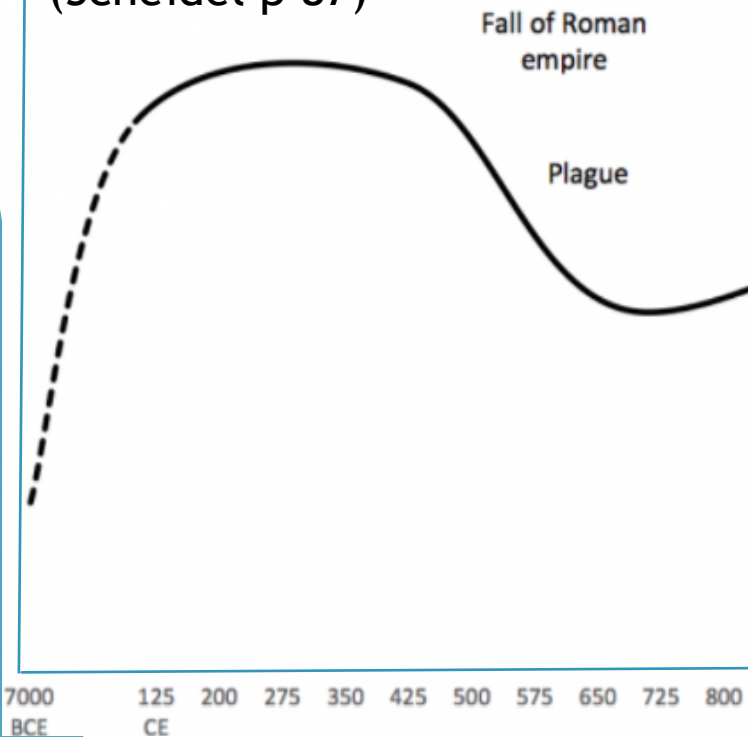




# Introduction: civil

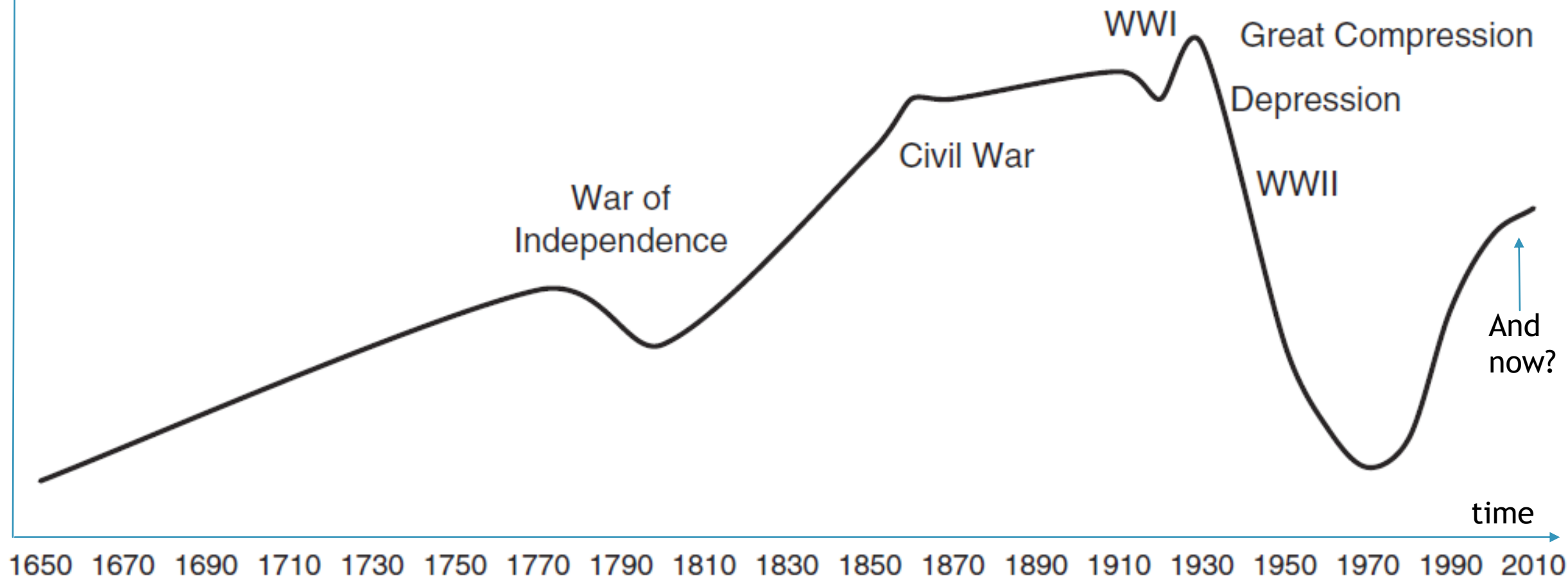
- ▶ The new Walter Scheidel's four perspectives in the
- ▶ Wars, Epidemics, Rev

↑ Inequality trends in Europe  
(Scheidel p 87)



Albrecht Dürer 1498.  
The Four Horsemen,  
in Johannes (Saint),  
Book of Revelation  
(6:1-8)

Inequality trends in the U.S.  
(Scheidel p 110)





# 1- Extreme inequality: theory and math

# The theory: A “new” class structure: forget Quételet, learn Pareto

- Farewell to the theory of average (hu)man (Quetelet, Halbwachs)
- Welcome(back) to extreme society (Pareto, Nielsen)

Nielsen, François. 2007. “Economic Inequality, Pareto, and Sociology: The Route Not Taken.” *American Behavioral Scientist* 50 (5): 619–638.



**Vilfredo Pareto**  
1848-1922

**1896**

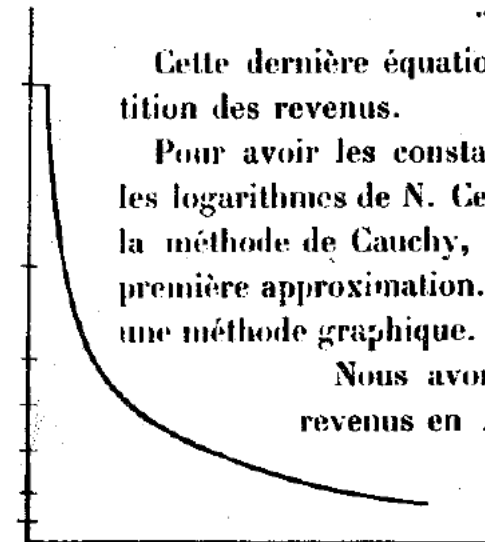
L'équation de cette ligne peut se représenter par

(1)  $\text{Log } N = \text{Log } A - \alpha \text{ Log } x$

ce qui donne

(2)  $N = \frac{A}{x^\alpha}$

$$N = \frac{A}{x^\alpha}$$

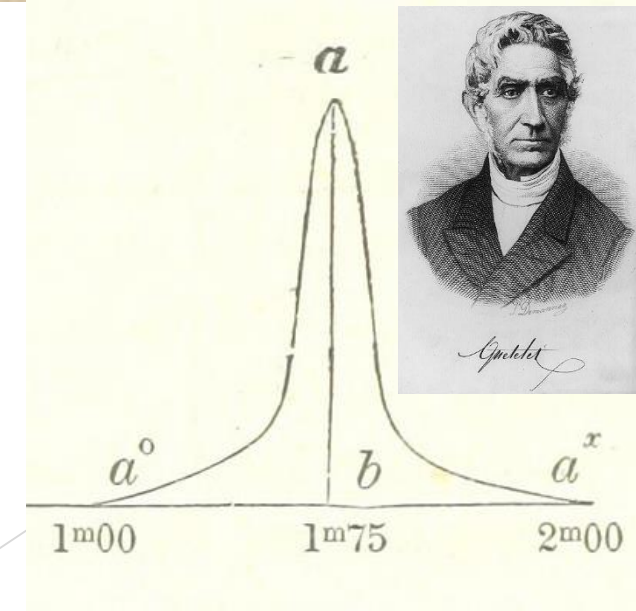
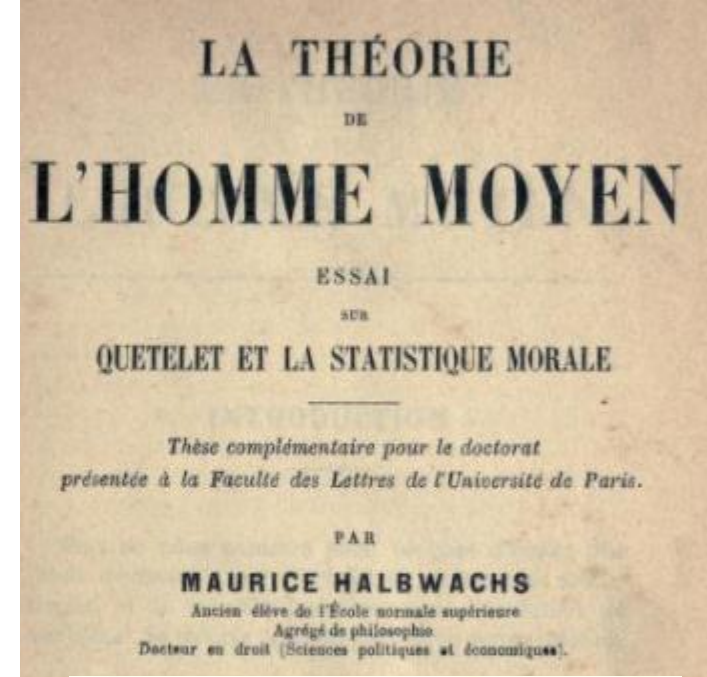


Cette dernière équation représente la courbe de répartition des revenus.

Pour avoir les constantes A et  $\alpha$ , nous interpolerons les logarithmes de N. Cette interpolation sera faite suivant la méthode de Cauchy, qui est très suffisante pour cette première approximation. On peut même souvent employer une méthode graphique.

Nous avons déjà indiqué la répartition des revenus en Angleterre. Voici les résultats de quelques autres statistiques.

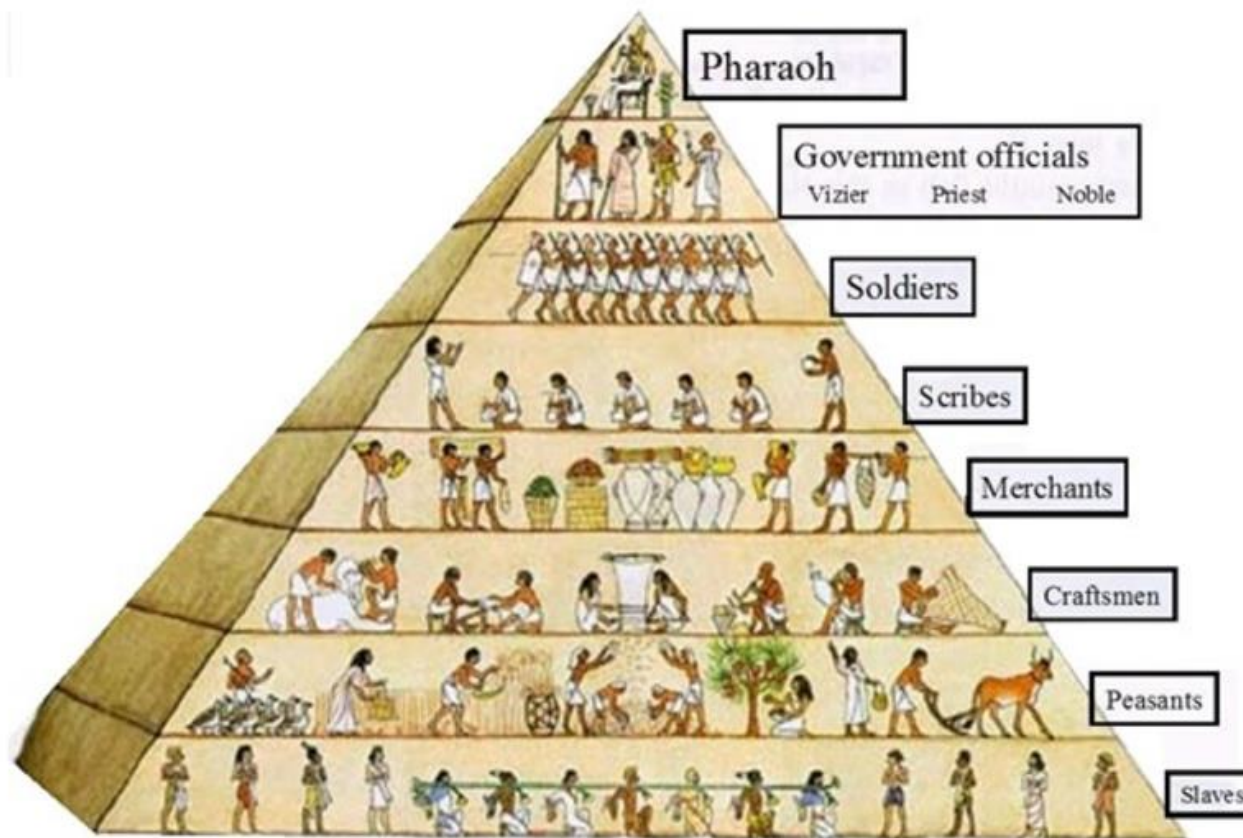
*Fig. 2.*



**Adolphe Quételet**  
1796-1874

# 1. The Zipf's pyramidal model of extreme inequality

N	Order
1	1
10	2
100	3
1,000	4
10,000	5
100,000	6
1,000,000	7
10,000,000	8



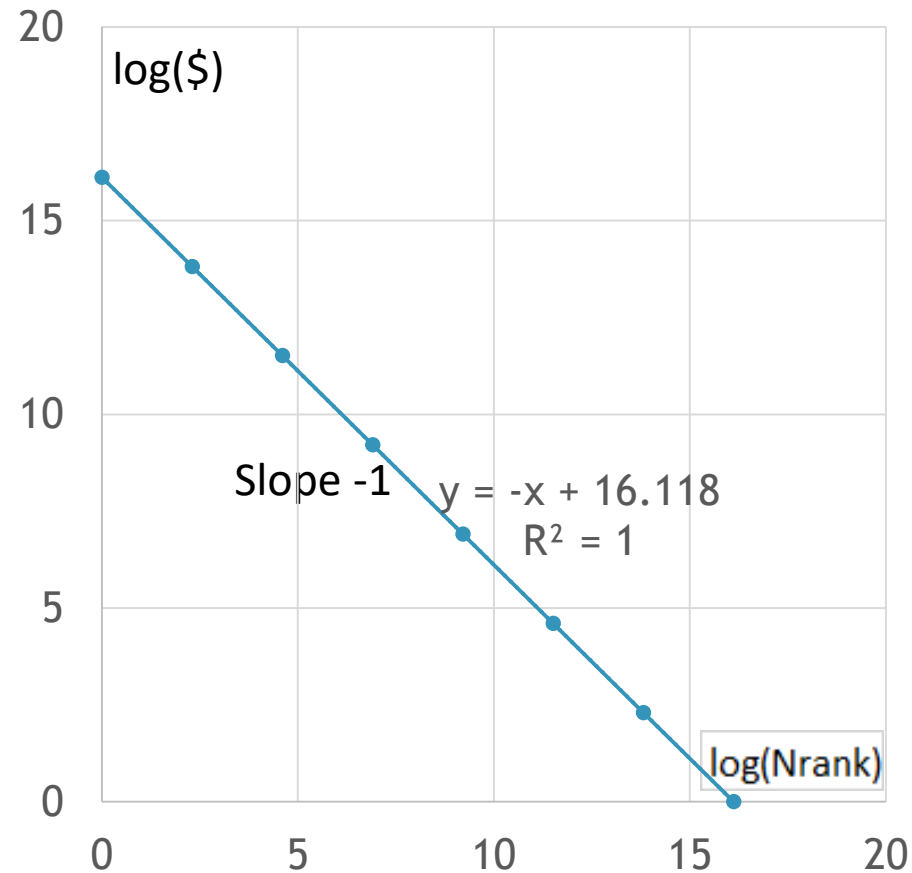
\$/person
10,000,000
1,000,000
100,000
10,000
1,000
100
10
1

Gini index = 0.847  
 Share top 10% = 87.5%  
 Share top 1% = 75.0%  
 Share top 0.1% = 62.5%

As for Pareto  $N = \frac{A}{x^\alpha}$  with  $\alpha > 1$ , the higher  $\alpha$  the higher equality

Zipf curve if  $\alpha = 1$ , an extreme case of inequality  
(extreme in the sense that the integral diverges)

→ The speed limit of inequality?





## Vilfredo Pareto now: power tailed distributions

Gabaix, X., "Power Laws in Economics and Finance,"  
Annual Review of Economics, 1, 255-94, 2009.

Power-tailed distributions (Pareto-Levy distributions)

Zipf distributions => Krugman 1996 etc. Gabaix 1999 etc.

Applications =>     in economic geography (size of cities)  
                             in finance (stock market statics and  
dynamics)

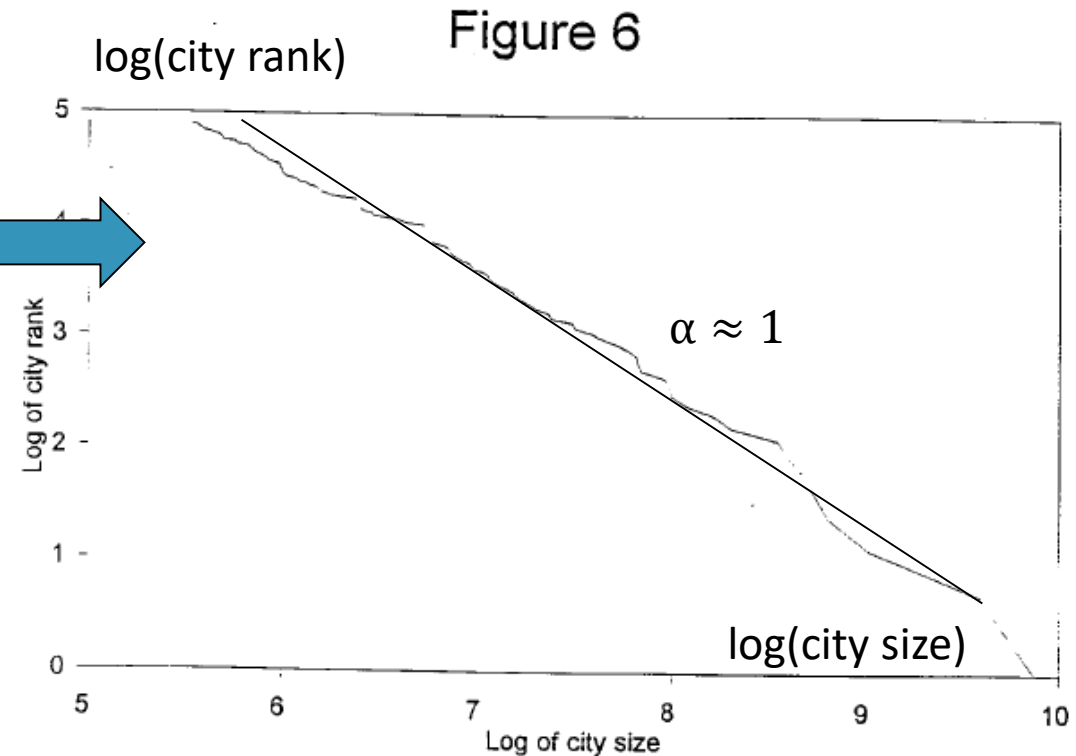
HOW THE ECONOMY ORGANIZES ITSELF IN SPACE:

A SURVEY OF THE NEW ECONOMIC GEOGRAPHY\*

Paul Krugman

Department of Economics, Stanford University

Revised, January 1996



## Vilfredo Pareto now: power tailed distributions

Applications => in finance (stock market statics and dynamics)  
"Why Has CEO Pay Increased So Much?",  
Xavier Gabaix & Augustin Landier,  
Quarterly Journal of Economics, vol. 123(1), 2008, p. 49-100

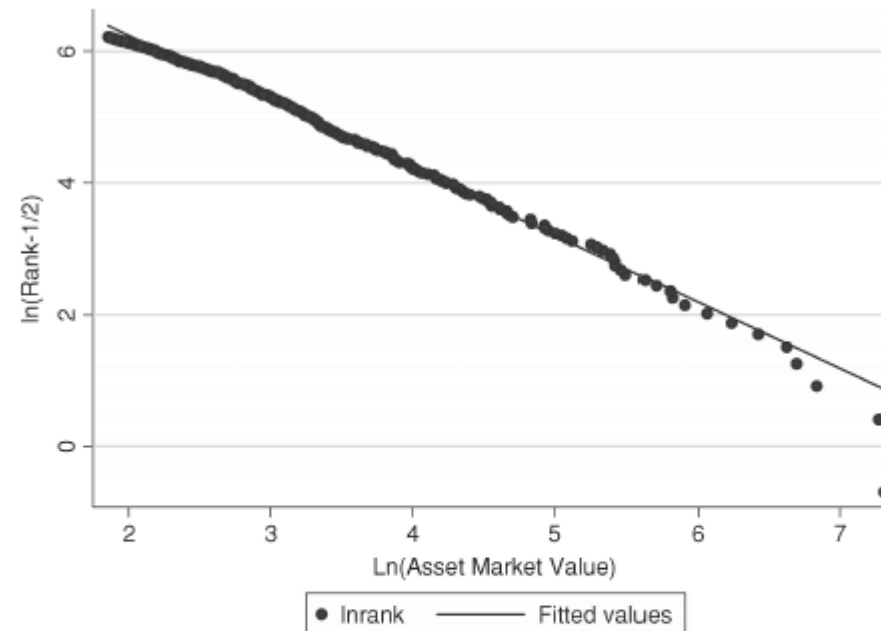


FIGURE III

Size Distribution of the Top 500 Firms in 2004

*Note.* In 2004, we take the top 500 firms by total firm value (debt + equity), order them by size,  $S_{(1)} \geq S_{(2)} \geq \dots \geq S_{(500)}$ , and plot  $\ln S$  on the horizontal axis and  $\ln(\text{Rank} - 1/2)$  on the vertical axis. Gabaix and Ibragimov (2006) recommend the  $-1/2$  term and show that it removes the leading small sample bias. Regressing  $\ln(\text{Rank} - 1/2) = -\zeta^{\text{OLS}} \ln(S) + \text{constant}$  yields  $\zeta^{\text{OLS}} = 1.01$  (standard error 0.063),  $R^2 = 0.99$ . The  $\zeta \simeq 1$  is indicative of an approximate Zipf's law for market values and leads to  $\alpha = 1/\zeta \simeq 1$  in the calibration.

$$\alpha = 1/\zeta \approx 1$$

## Upper tail power distributions everywhere

Applications => linguistics, terrorism, wars, astrophysics

Pareto is pervasive and almost everywhere ...

Aaron Clauset, Cosma Rohilla Shalizi, and M. E. J. Newman 2009

Power-Law Distributions in Empirical Data , SIAM Rev., 51(4), 661-703.

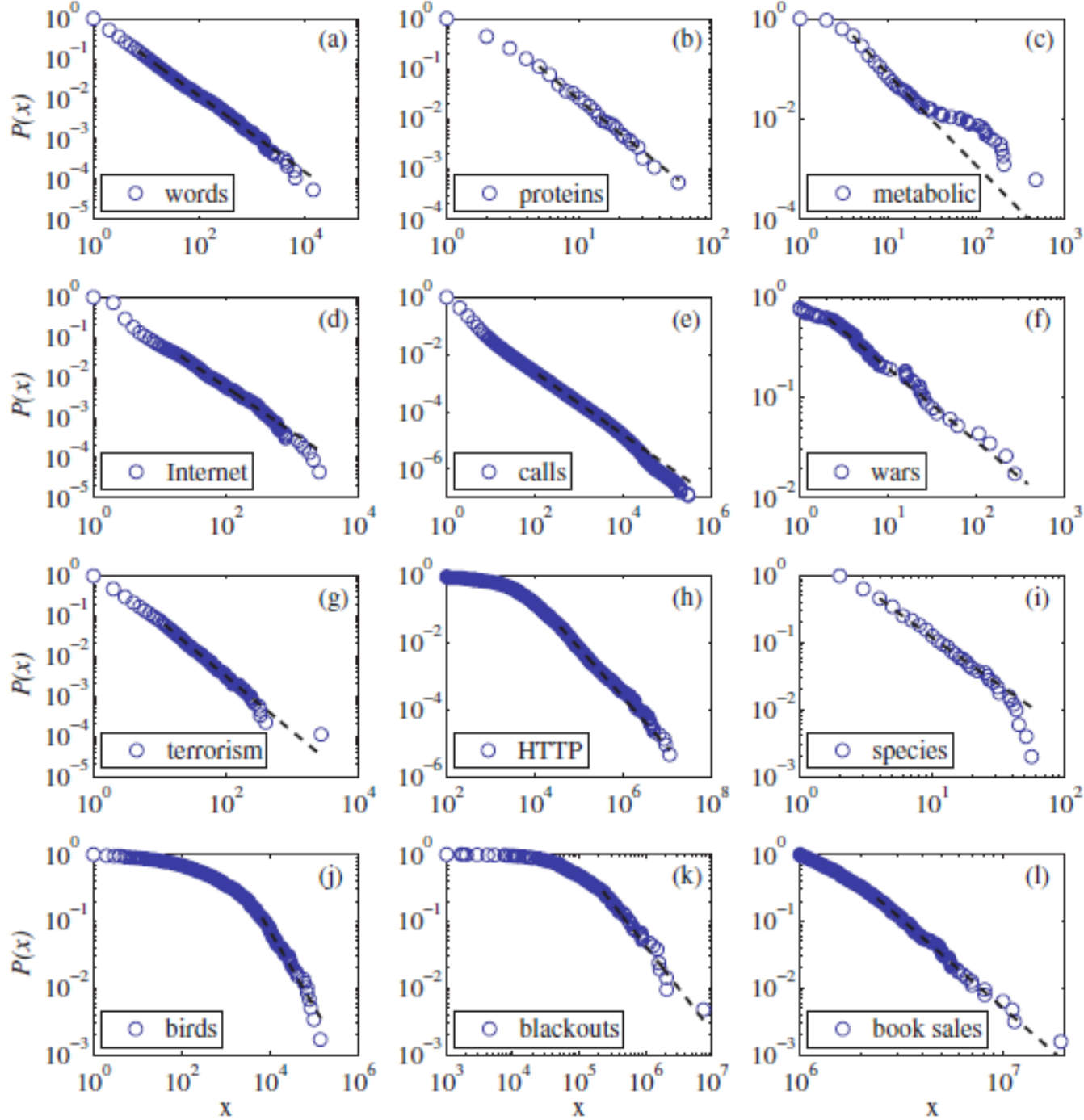


Fig. 8 The CDFs  $P(x)$  and their maximum likelihood power-law fits for the first 12 of our 24

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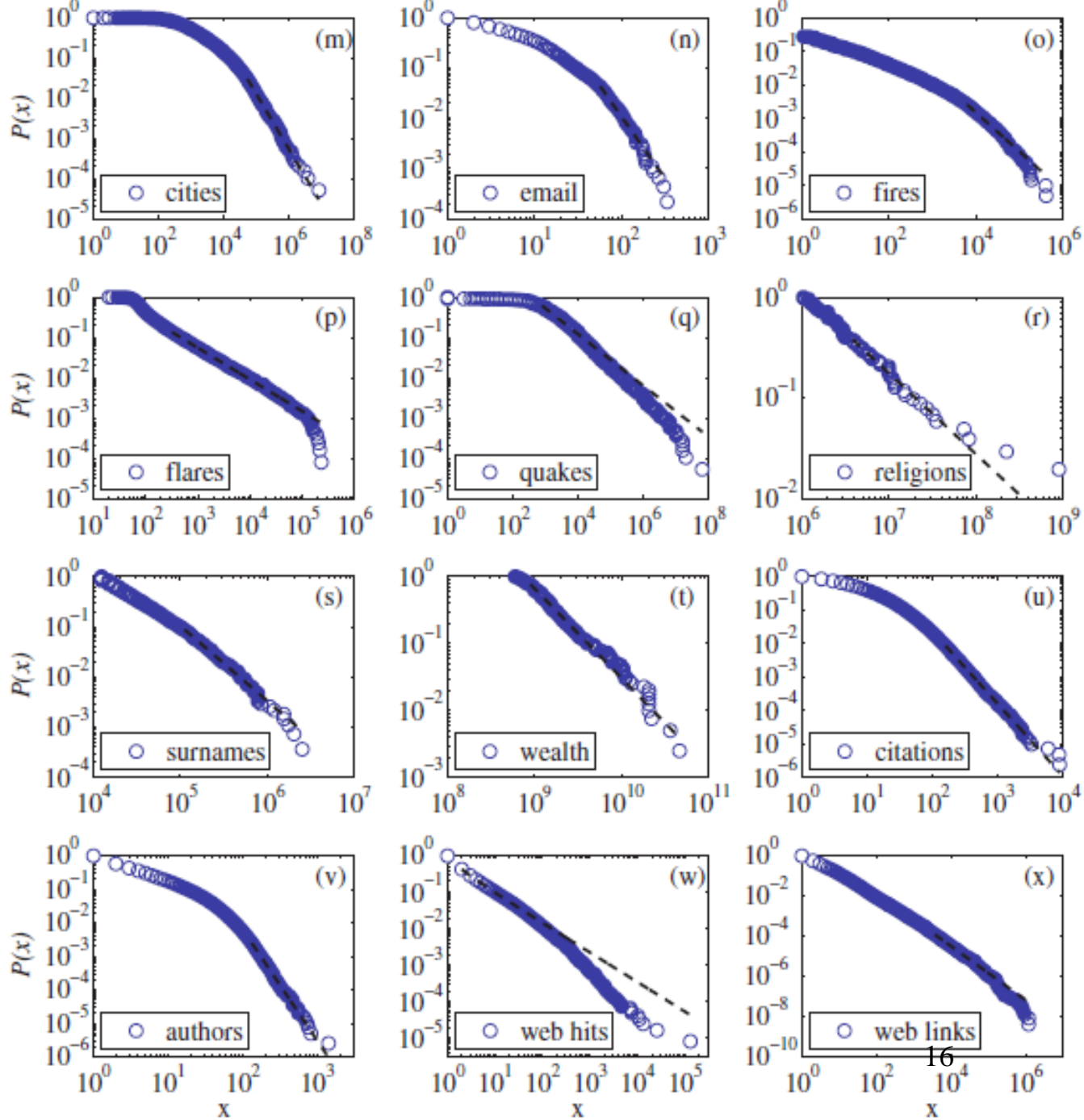
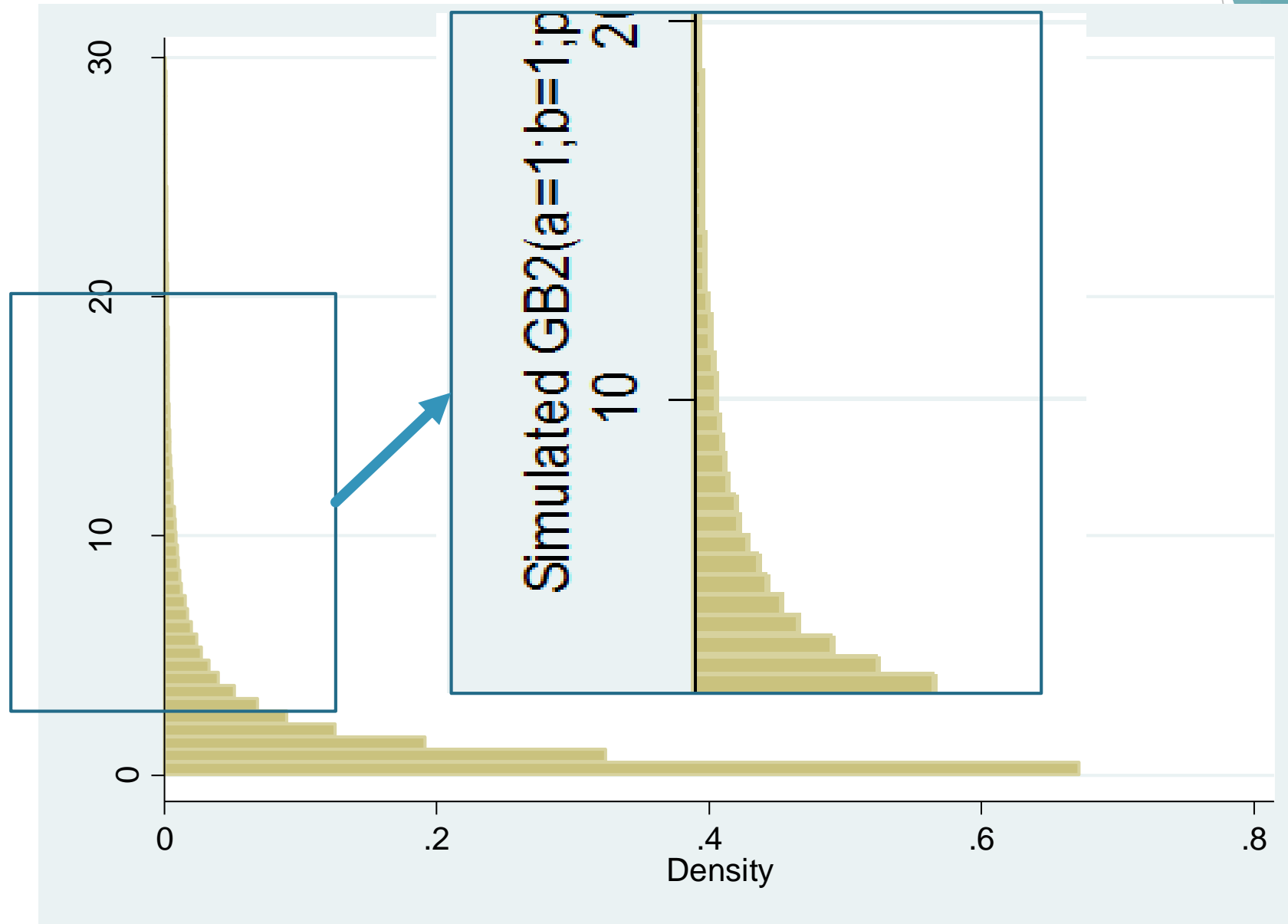
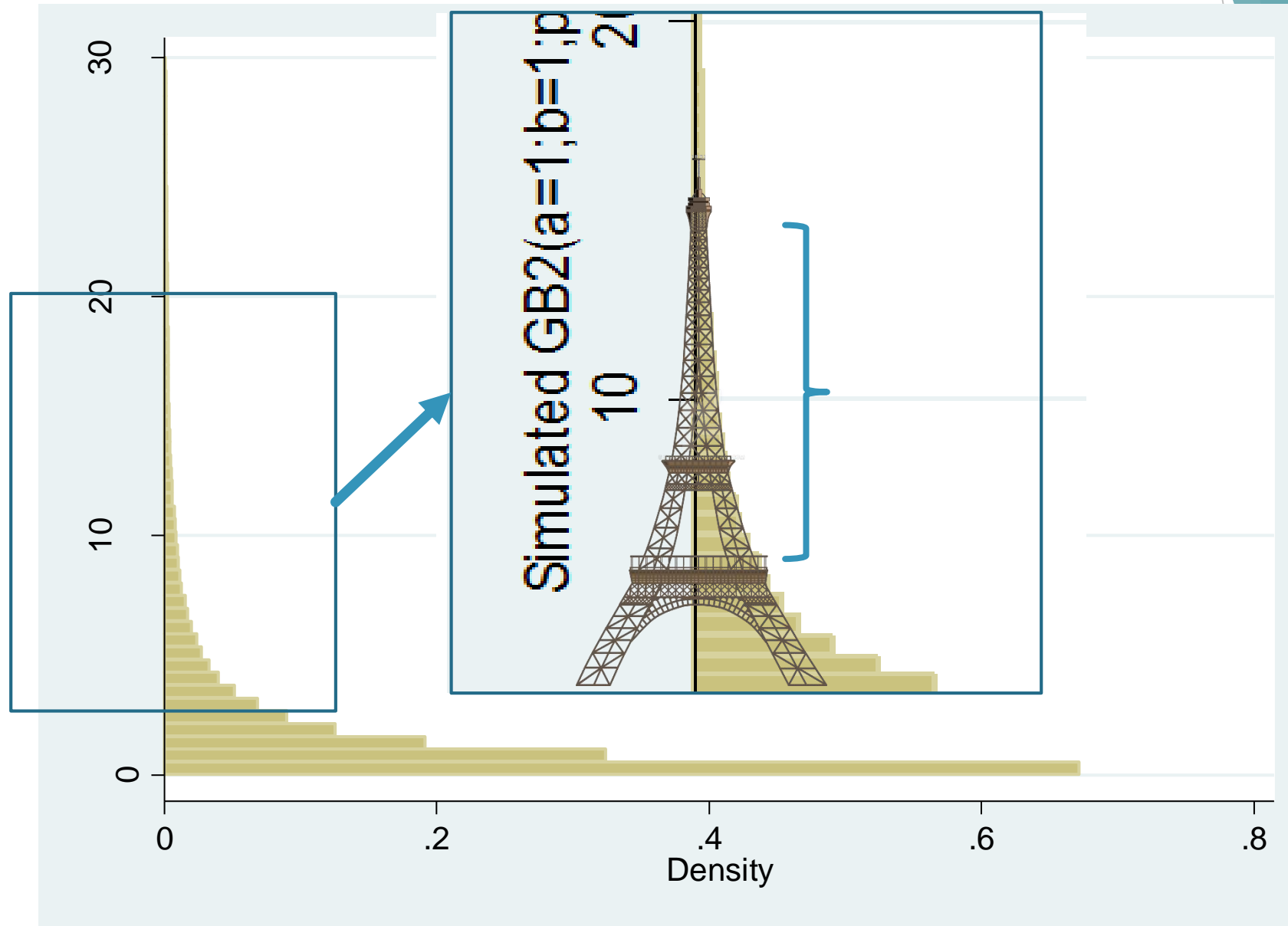


Fig. 9 The CDFs  $P(x)$  and their maximum likelihood power-law fits for the second 12 of our 24



## The Zipf law as it looks





2- Extreme inequality today: are they back?

# Middle-ization in the Golden Age?

## **Yesterday: The Western middle class dream**

(not everywhere but in many western countries)

Galbraith, Goldthorpe and Lockwood, Mendras, Lederer?, etc. etc.

Fourastié « *The great hope of the 20th century* »

- 1- « Wage based middle class society » = permanent wage earner are a majority
- 2- Wage incomes sufficient to live well => the affluent society
- 3- Generalization of labor stability and social protection
- 4- Education boom and increasing value of diplomas, upward social mobility
- 5- Political centrality of middle class
- 6- Beliefs in progress



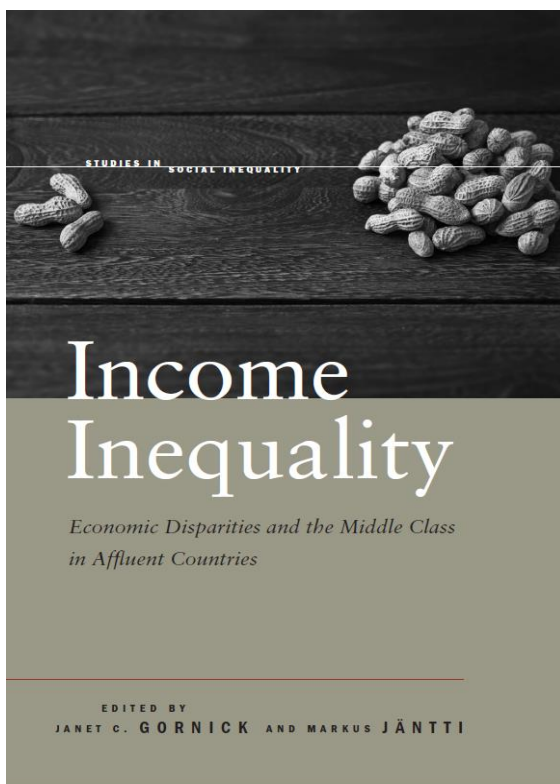
# De-middlization or even worse?

**Today: Very bad news in social facts...for post-affluent countries**  
(not everywhere but in many western countries)

Piketty, Alderson, Tomaskovic-Devey, Therborn, Mann, etc.

*« The great worries of the 21th century »*

- 1- « Wage uncertainty » = decline in predictability and repatrimonialization
- 2- Wage stagnation and real cost of life => the post-affluent society
- 3- Generalization of precariat and destabilization of social protection
- 4- Over-Education boom and increasing value of diplomas, downward social mobility
- 5- Loss of political centrality/control of middle class
- 6- New worries

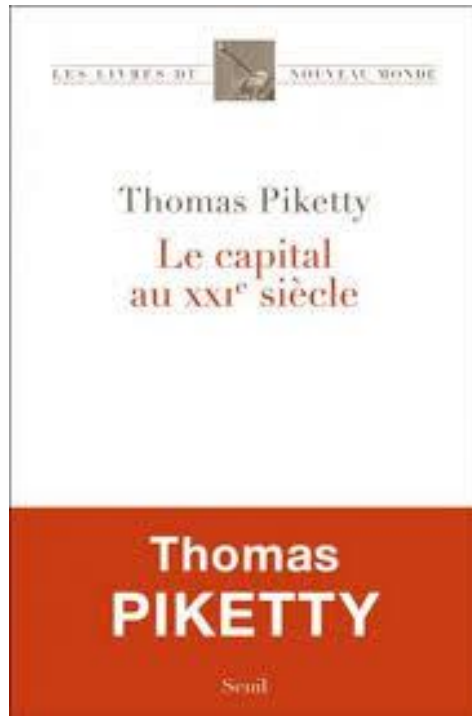


- ▶ *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries* edited by: Janet C. Gornick and Markus Jäntti (Stanford University Press) 2013
- ▶ <http://www.sup.org/book.cgi?id=21329>



Louis Chauvel, 2016,  
*La Spirale du déclassement*  
*Essai sur la société des illusions*  
*[the Spiral of downward mobility,*  
*an essay on the society of*  
*illusions]*, Seuil, Paris.



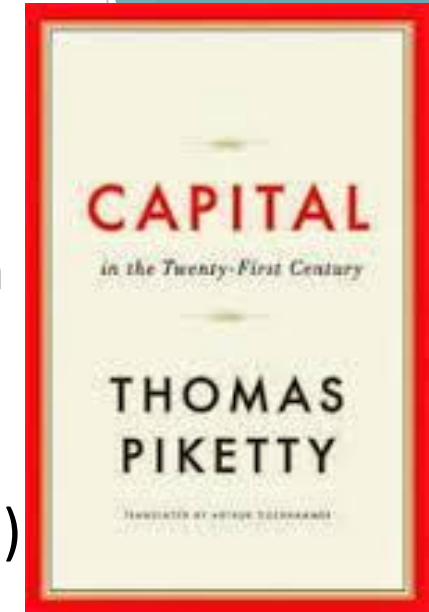


# The bad news (Piketty)

- \*Capital expansion and wage stagnation

- \*Structural Matthew effect(1):

$R(\text{real interest rates}) > G(\text{real eco growth})$   
 $\Rightarrow$  the new era



- \*The richer will save, not the poorer

- \*Auto-generated spiral of accumulation of wealth and inequalities

- \*Farewell to meritocracy

**(1): “For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken even that which he hath”. Matthew 25:29, King James Version.**

# Even worse news (Alderson, Beckfield, etc. etc.)

- ▶ End of the 1960-70 Western social dream
- ▶ Demography-connected changes:  
baby-boom overcrowding effects, homogamy, role of education
- ▶ Market transformations: deindustrialization, global competition (new-developed countries and destabilization of the western upper working class), technological bias, **winner take all**
- ▶ Economic & Social policies: Tax reforms at the top, declining minimum wages and decay of social regulations at the bottom

Alderson, A. S., J. Beckfield and F. Nielsen, "Exactly How Has Income Inequality Changed? Patterns of Distributional Change in Core Societies." *International Journal of Comparative Sociology*, 46, 405-423, 2005.

Robert H. Frank and Philip J. Cook 1995  
The Winner-Take-All Society  
(New York: The Free Press,).

Godechot, Olivier 2012 Is finance responsible for the rise  
in wage inequality in France?  
*Socio-Economic Review* 10(3), 447-470

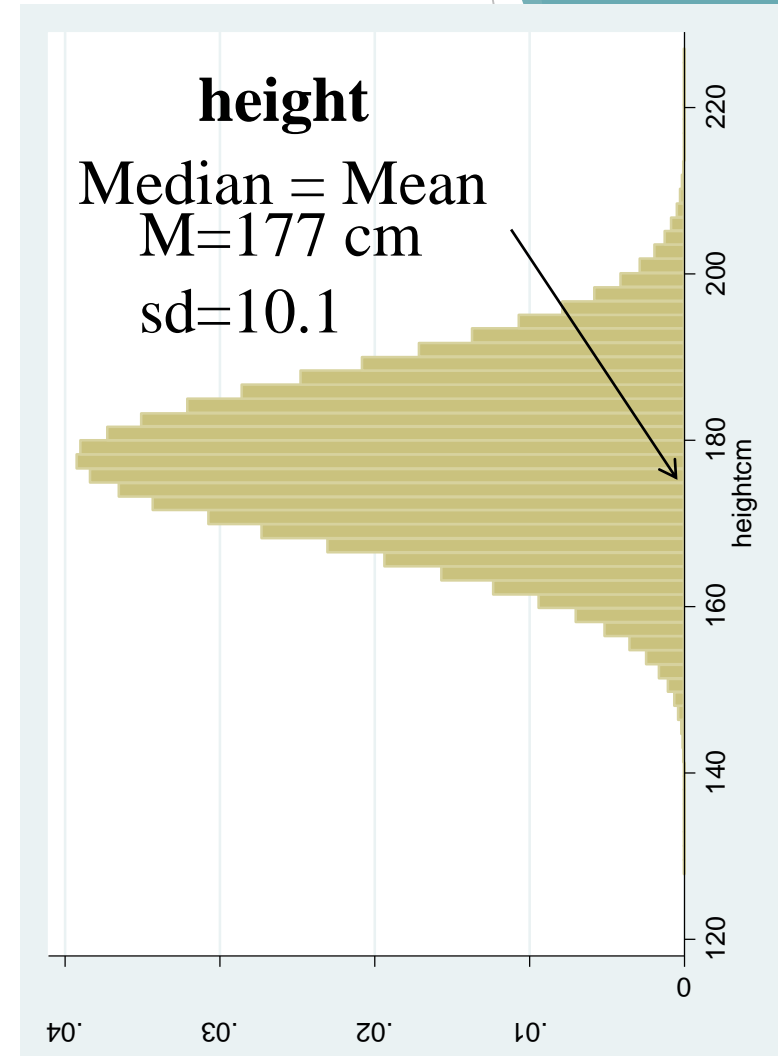


1- Normal law world  
max height = 227 cm  
(in a 1.000.00 sample)

Max/Median = 1.280  
(in a 1.000.00 sample)

Gini index = .12

In the US: Robert Wadlow, the tallest person  
272 cm = 1.53 the median



2- Typical Income

Pareto-Champernowne-Fisk law  
with a gini index = .45

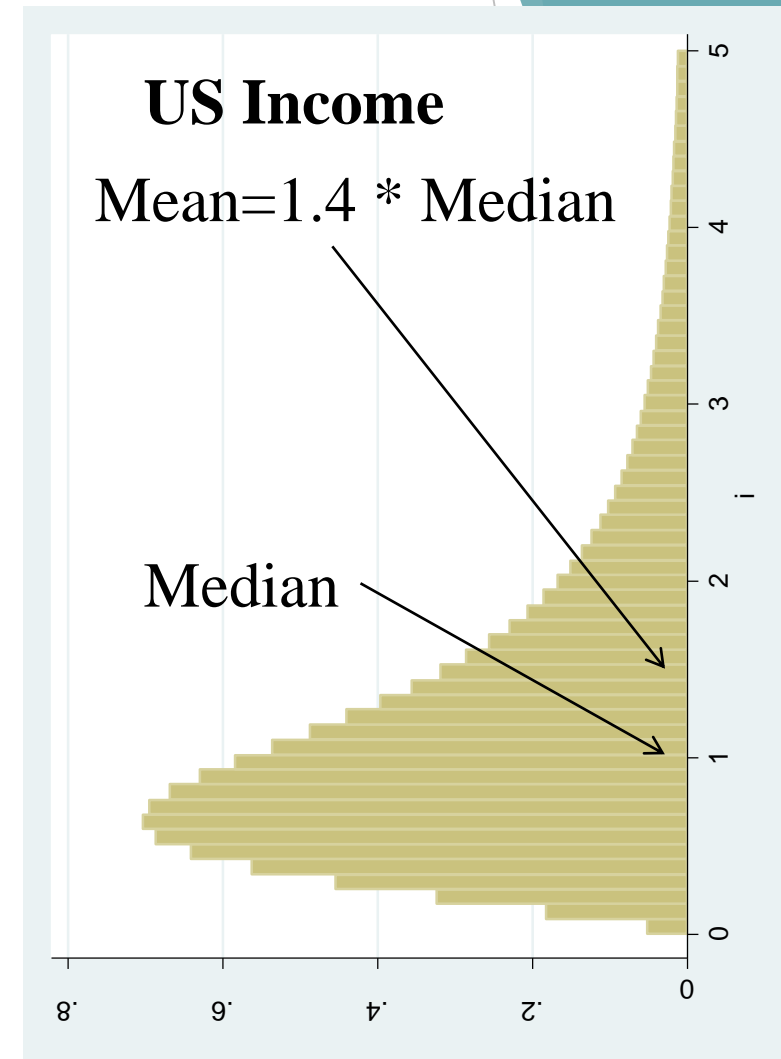
Max/Median Income = 700  
(in a 1.000.000 sample)

In the US 2013

LNG Charif Souki \$141 Millions

=3154 times the median US FT yearly earning lvl

Fits based on SCF 2011



### 3- Typical Wealth

Pareto-Champernowne-Fisk law  
with a gini index = .72

Max/Median Income = 71 000  
(in a 1.000.00 sample)

In the US

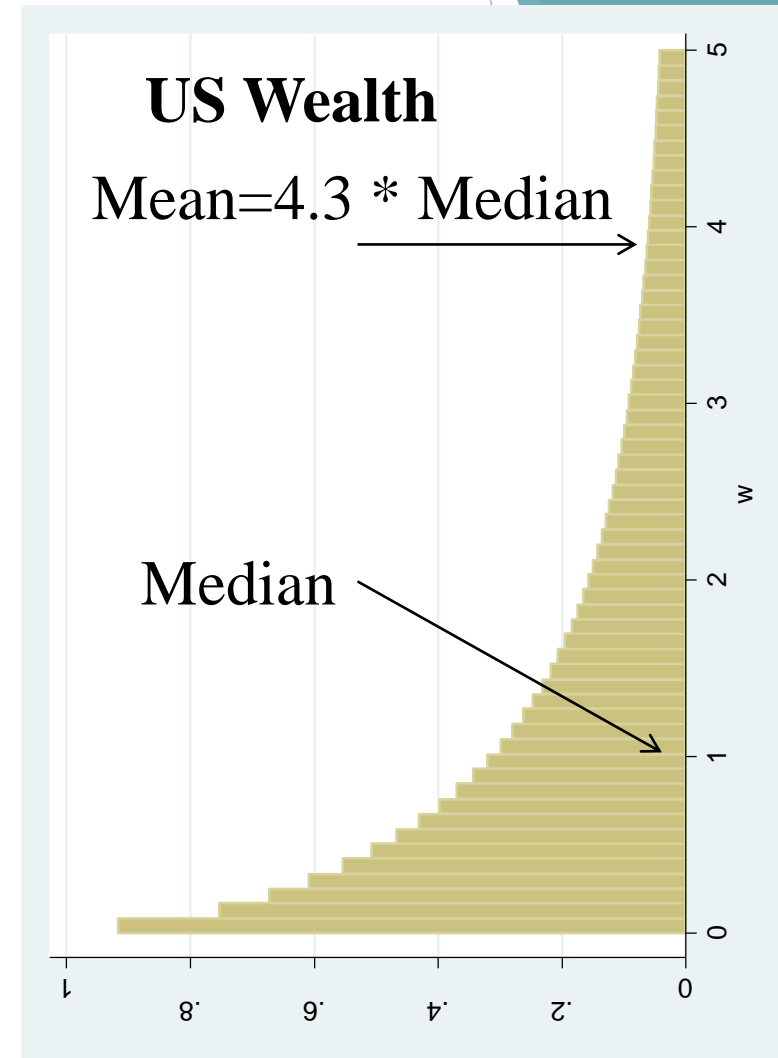
6 Walton family members own \$152 Billions

=250 000 times the median wealth

=500 000 times the median US FT yearly earning

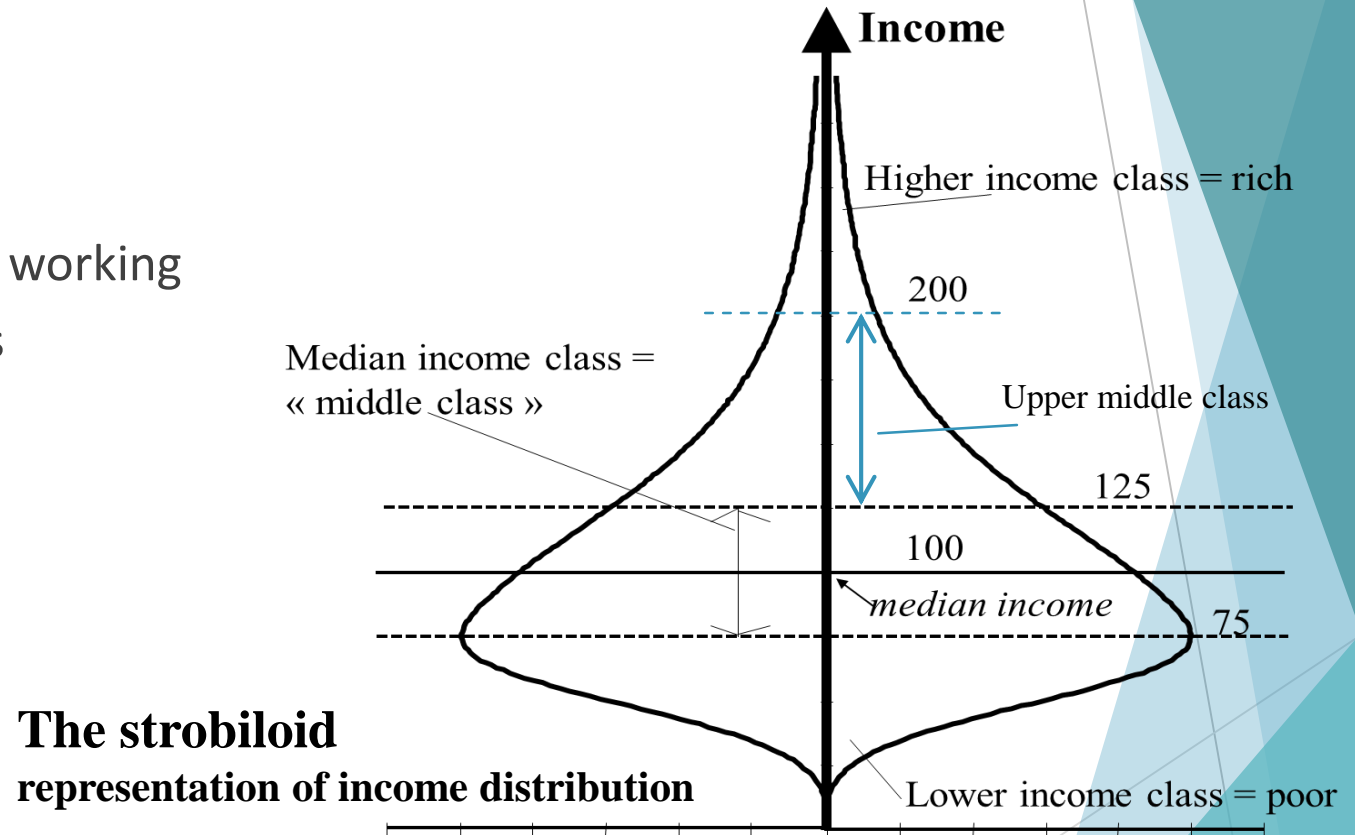


Fits based on SCF 2011  
**No wealth based middle class**



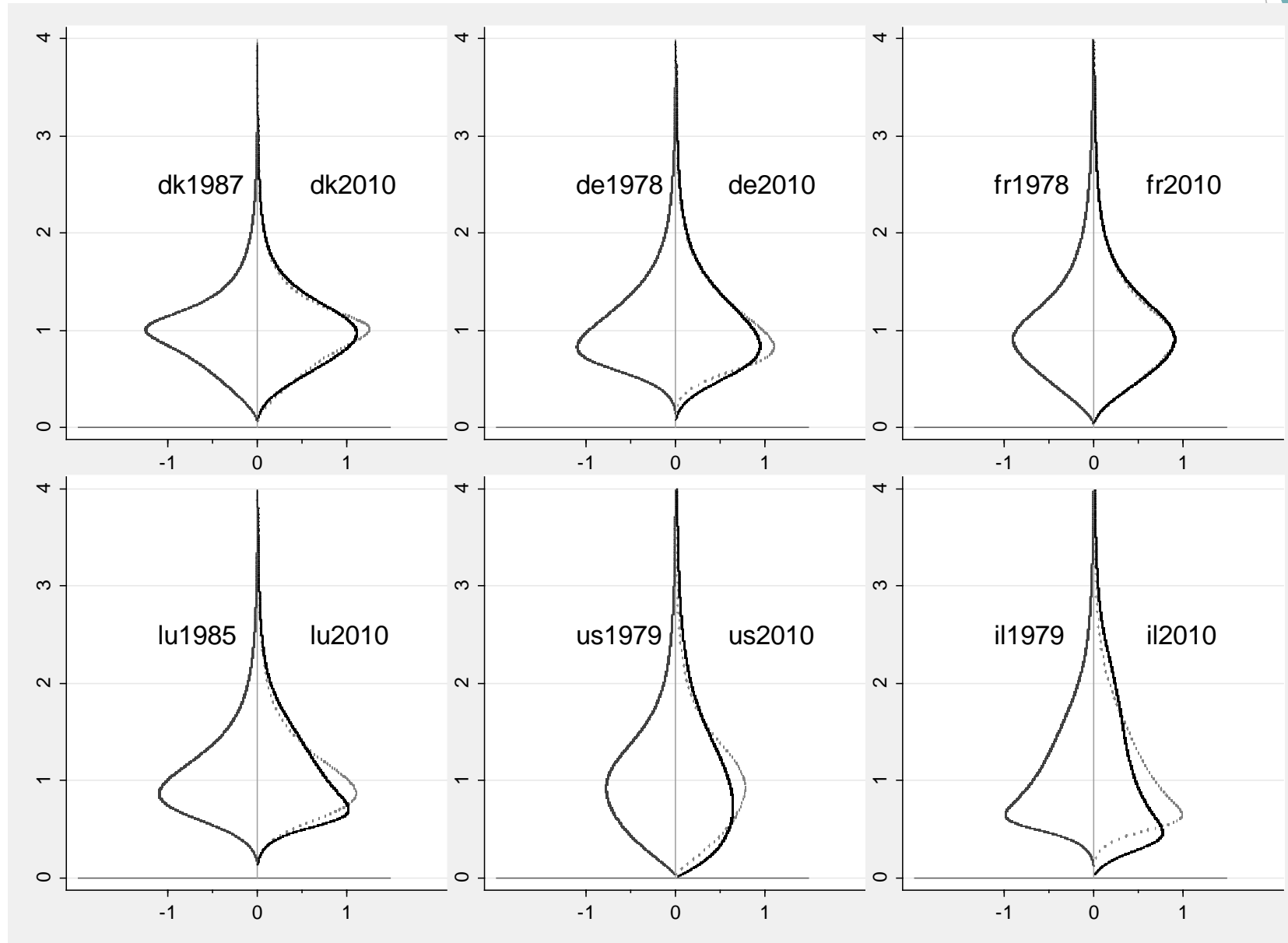
## Changes in the general shapes of income distribution

- ▶ Globalization of the income distribution:
- ▶ The rich are indexed on global firms size
- ▶ The others on the BRICs working and wage earner classes



⇒ Even more massive changes in the distributions still to come ?...

# *The strobiloid = graph changing shapes*



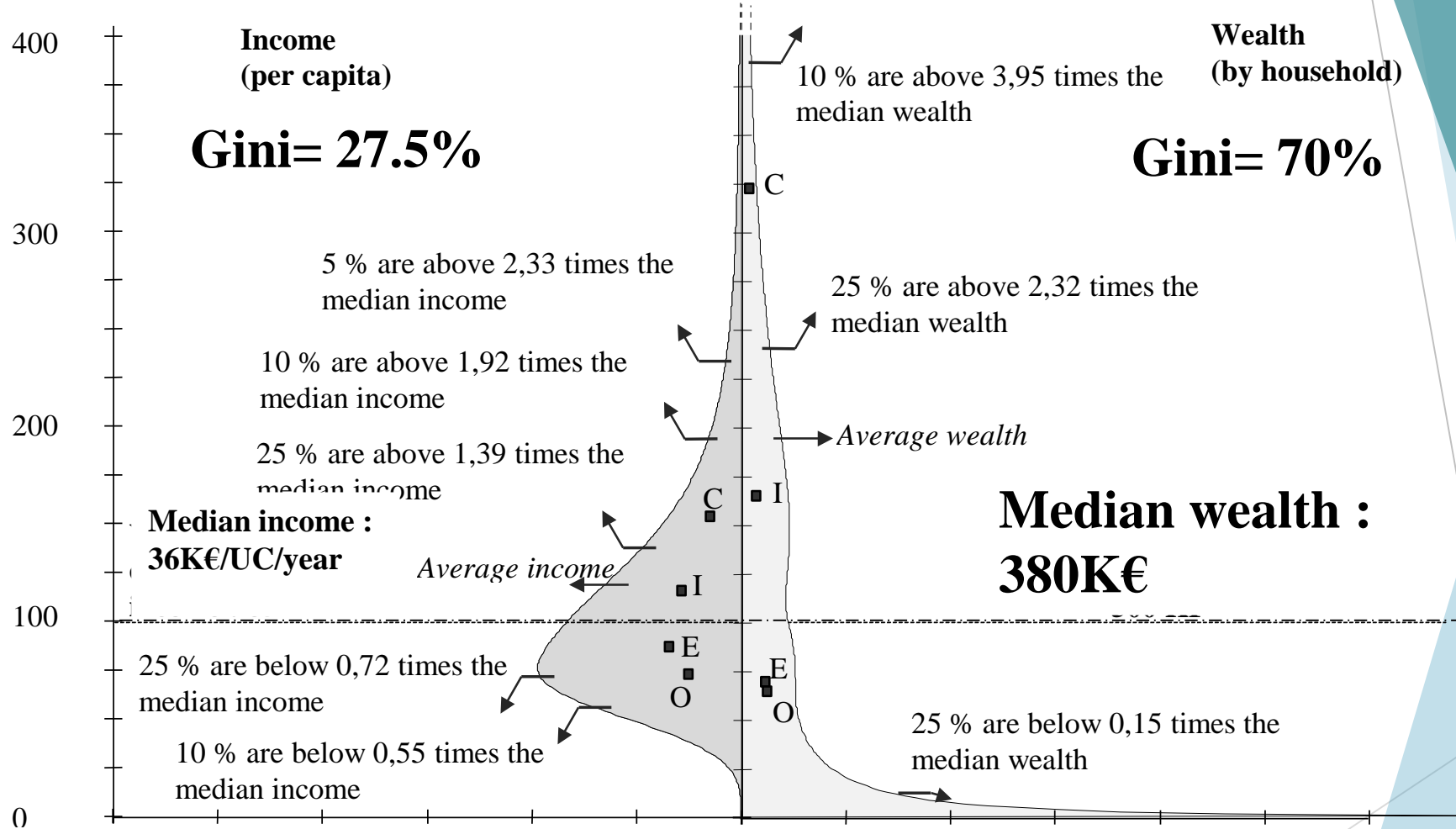


### 3- Wealth is back: repatrimonialization

# Luxembourg Income Strobiloid EU-SILC 2010 and Wealth (LWS) in euro

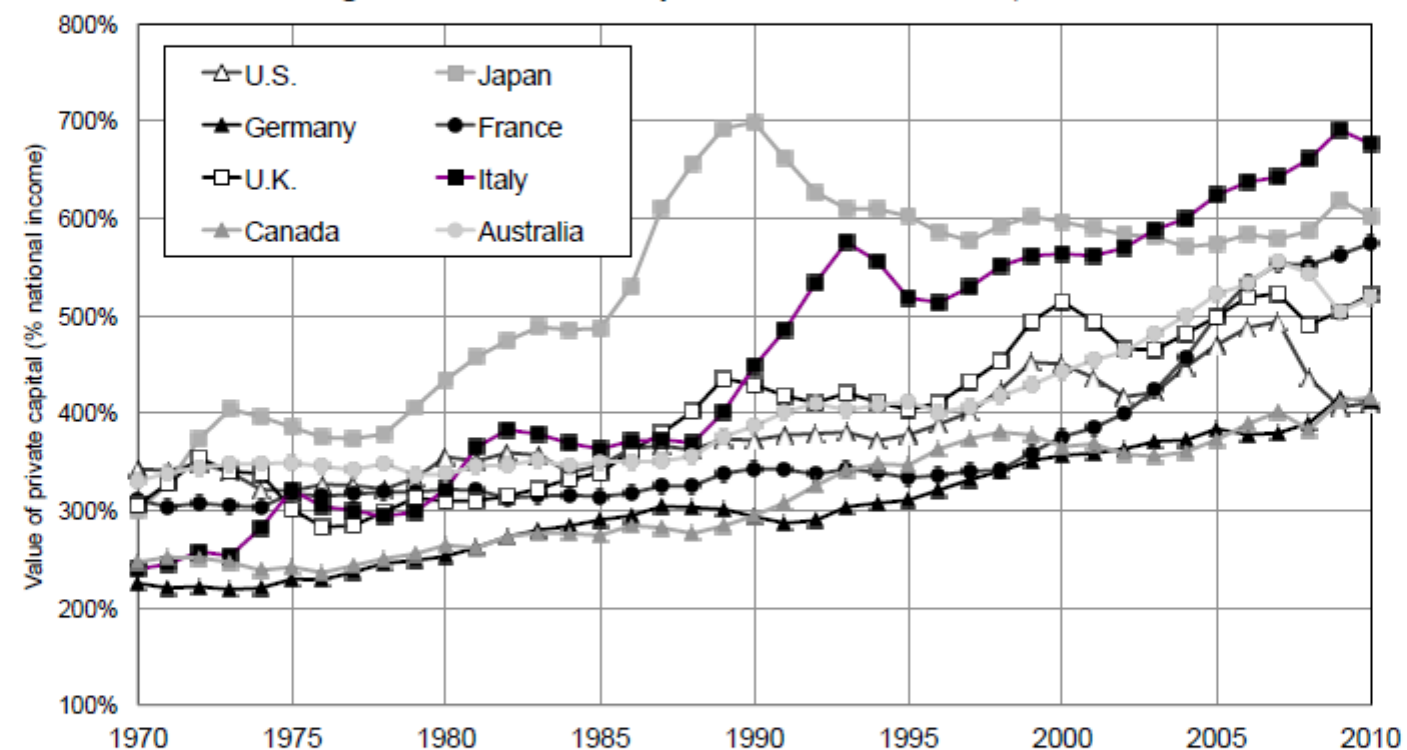
100 = median income

100 = median wealth



# Piketty

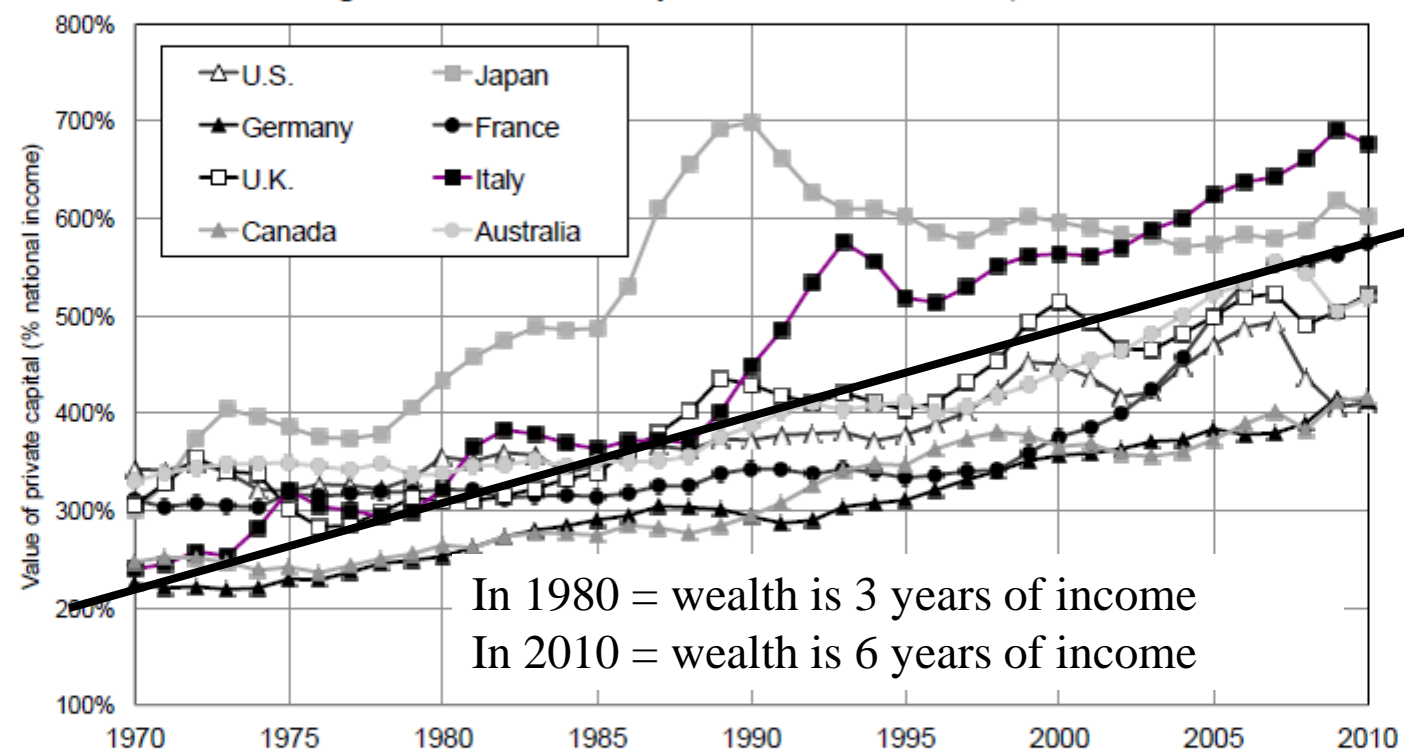
Figure 5.3. Private capital in rich countries, 1970-2010



Private capital is worth between 2 and 3.5 years of national income in rich countries in 1970, and between 4 and 7 years of national income in 2010. Sources and series: see [piketty.pse.ens.fr/capital21c](http://piketty.pse.ens.fr/capital21c).

# Piketty

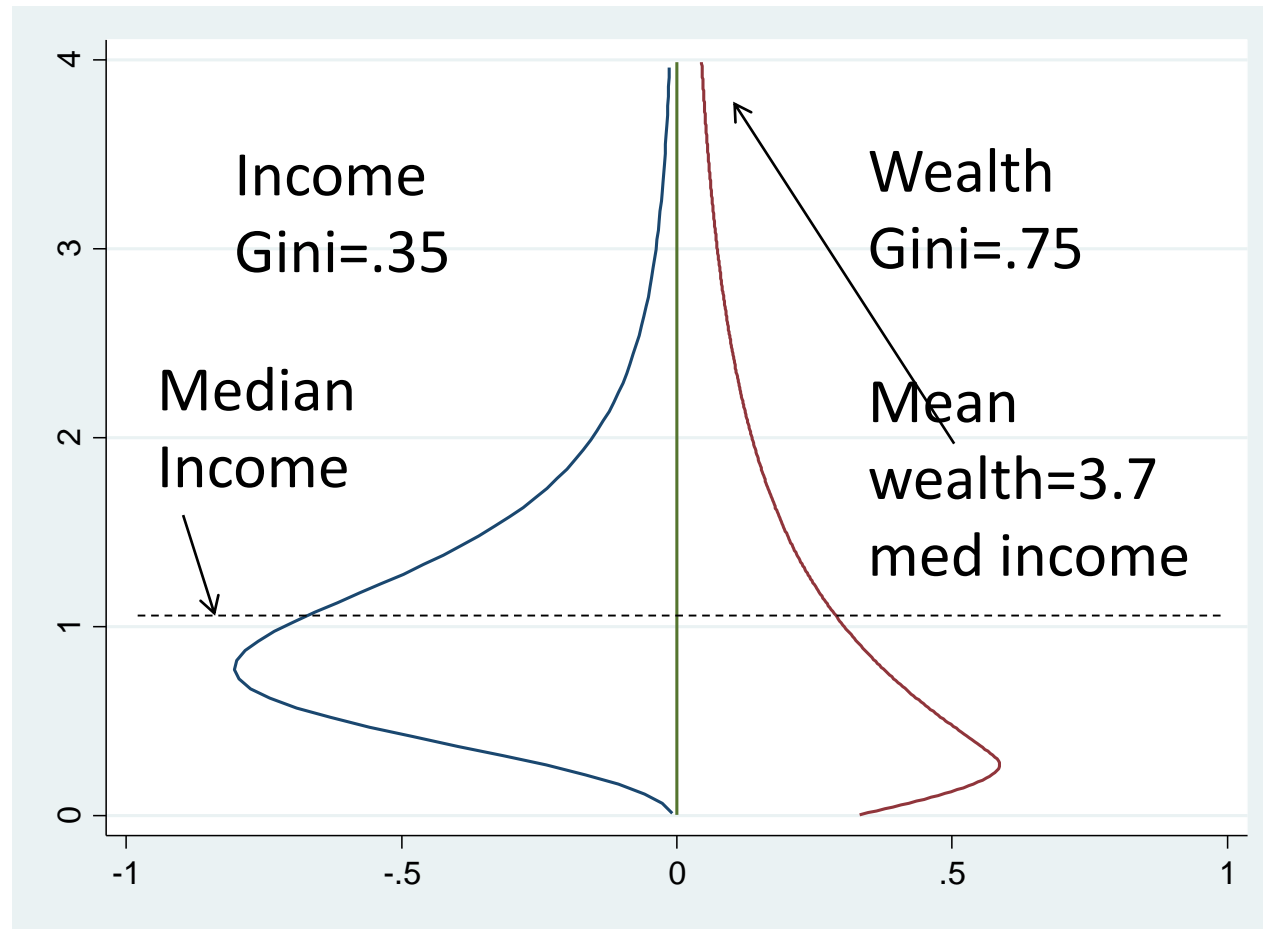
Figure 5.3. Private capital in rich countries, 1970-2010



In 1980 = wealth is 3 years of income  
In 2010 = wealth is 6 years of income

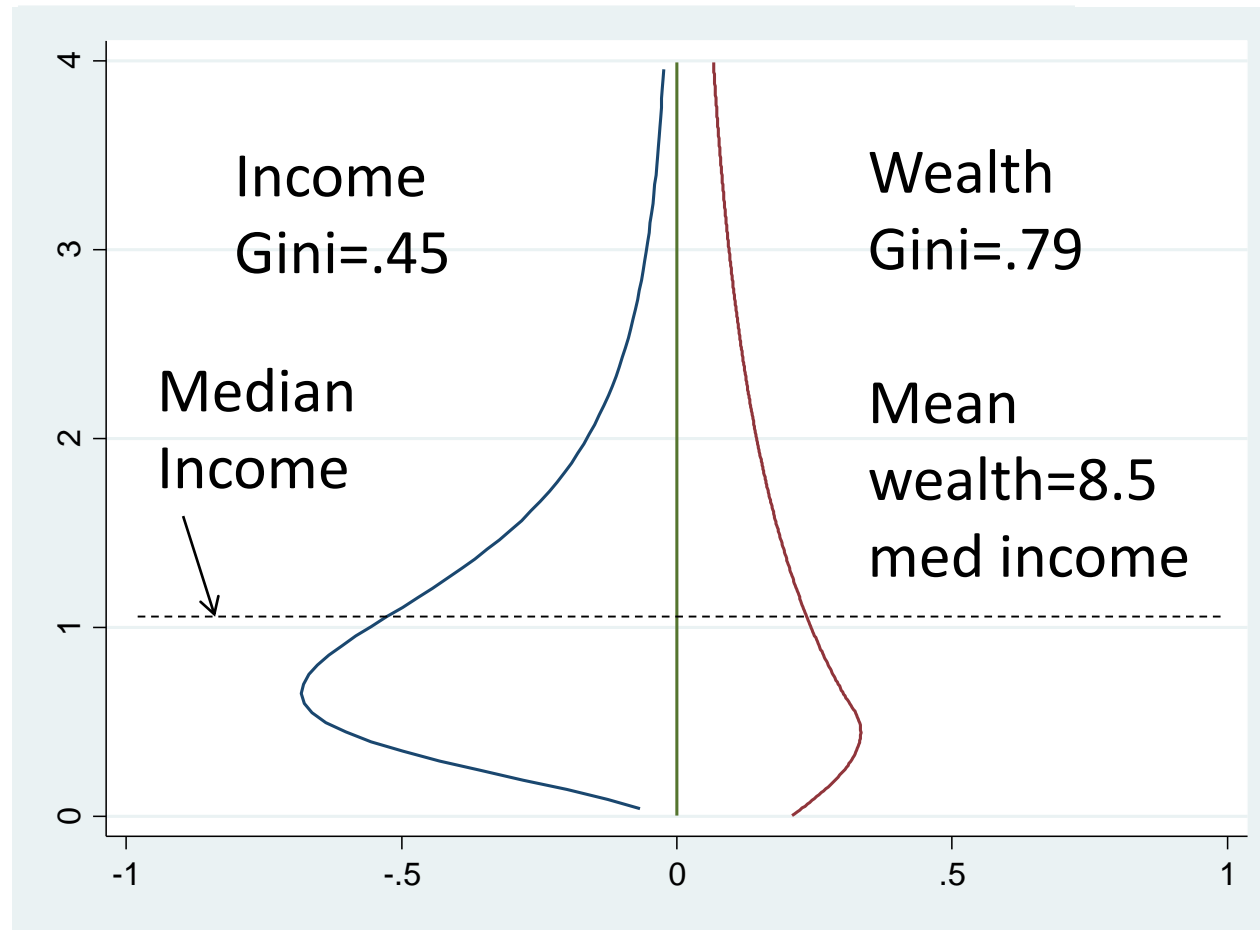
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US 1980



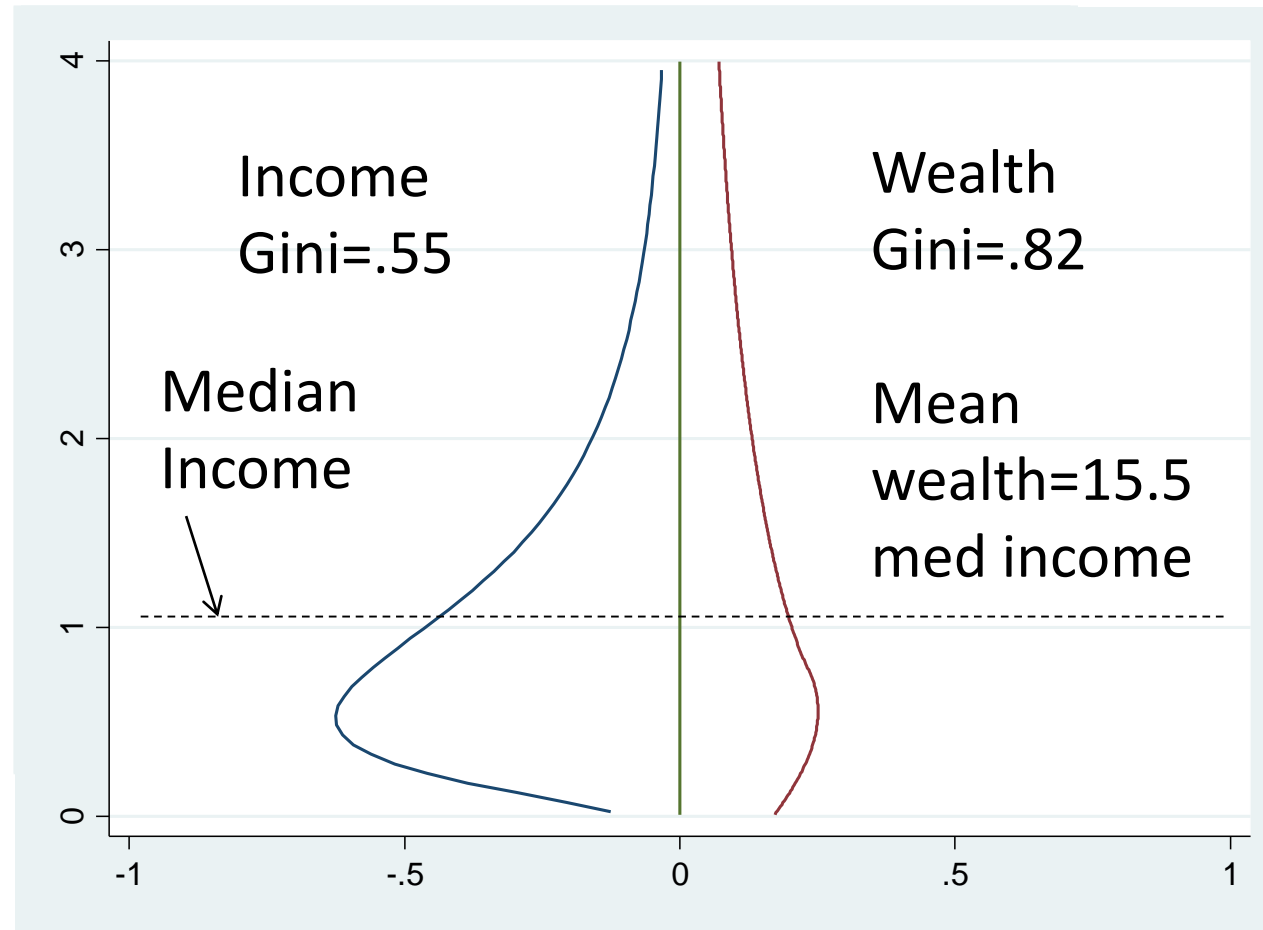


## US 2010



US 2040

Central Scenario

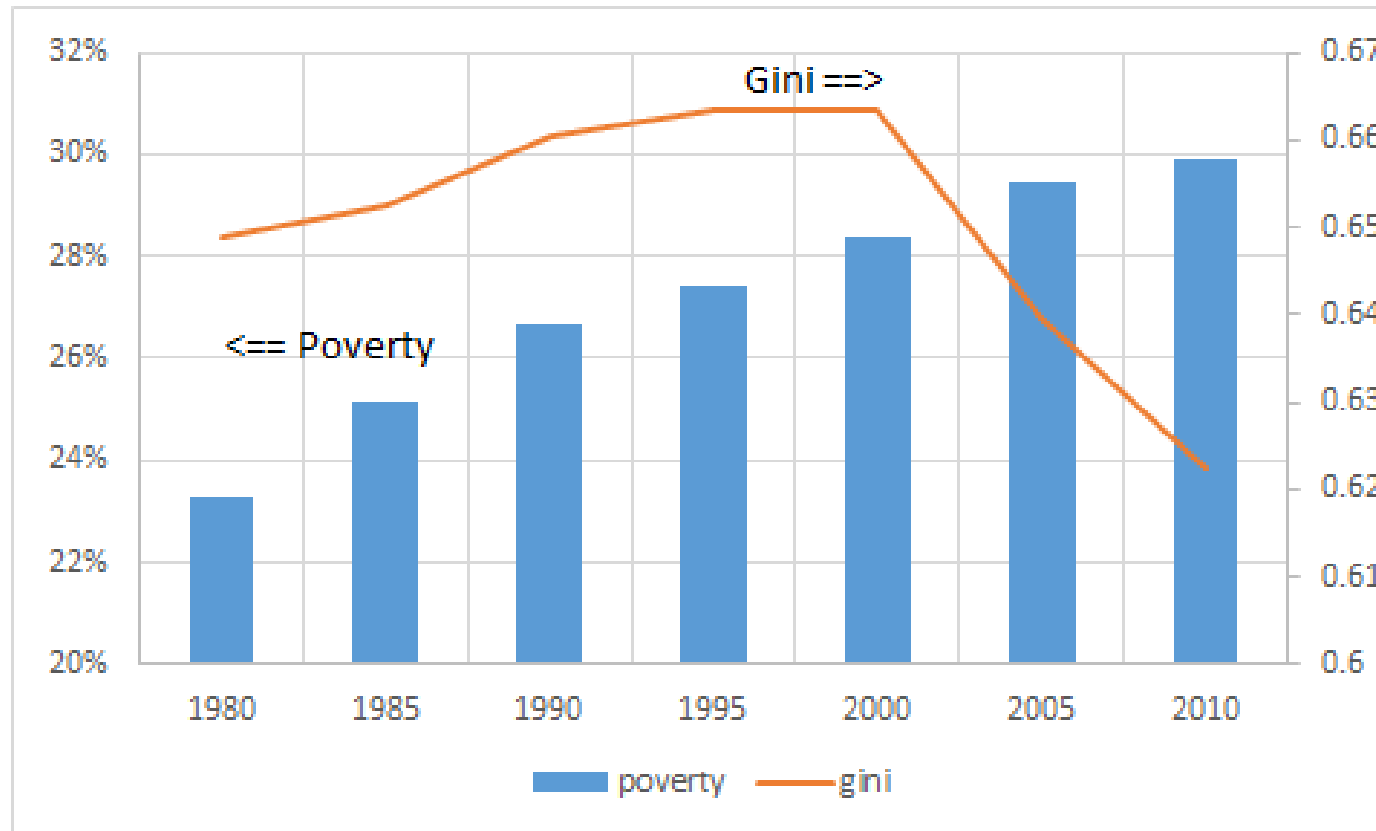


## 4- Extreme consequences in the world

# Even worse news: World level inequality

- ▶ Overall world income inequality is massive
- ▶ It declines (Branko Milanovic) in terms of Gini (China, the Empire of the median, is richer)
- ▶ But world relative poverty increase (China is farther and farther above Africa)

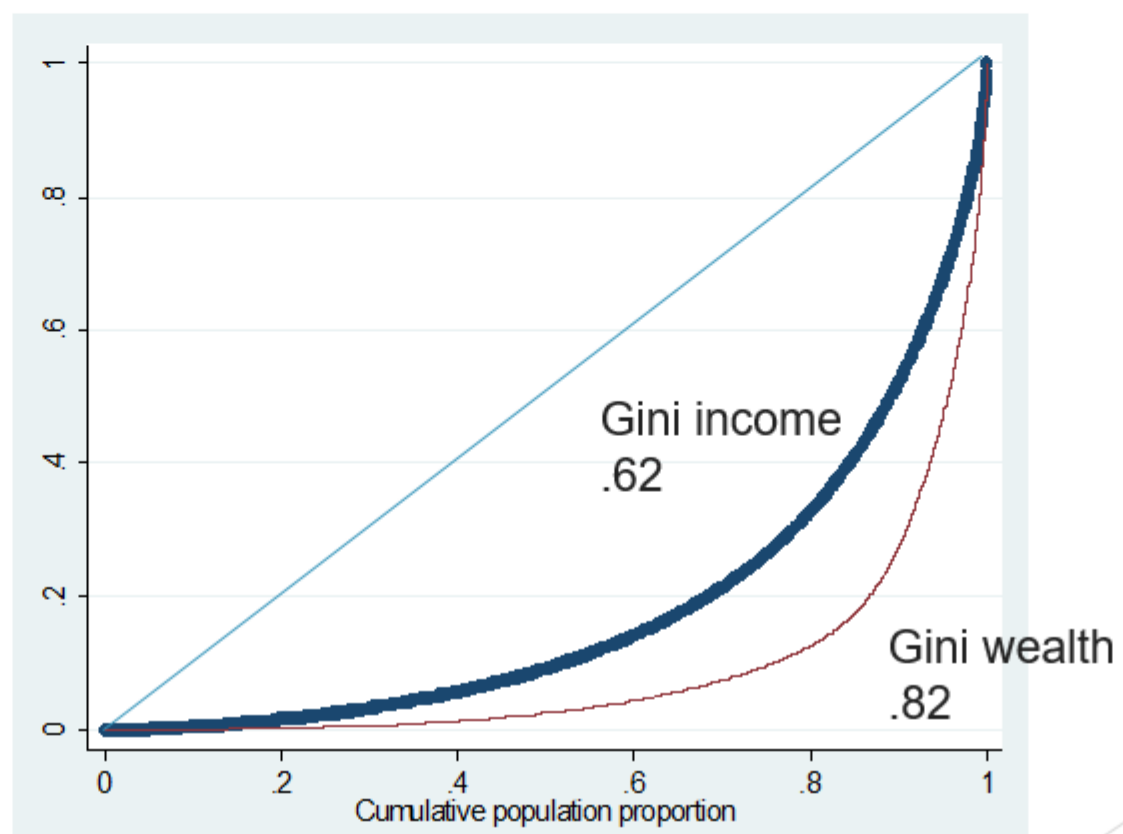
Gini (line) and relative poverty rate (bars) (below 50% the world median)



# Even worse news: World level inequality

- ▶ Overall world income inequality is massive; world wealth is pharaonic

Lorenz curve of income (bold) and of wealth 2015 (thin)





# Consequences and side effects

More income and wealth homogeneity

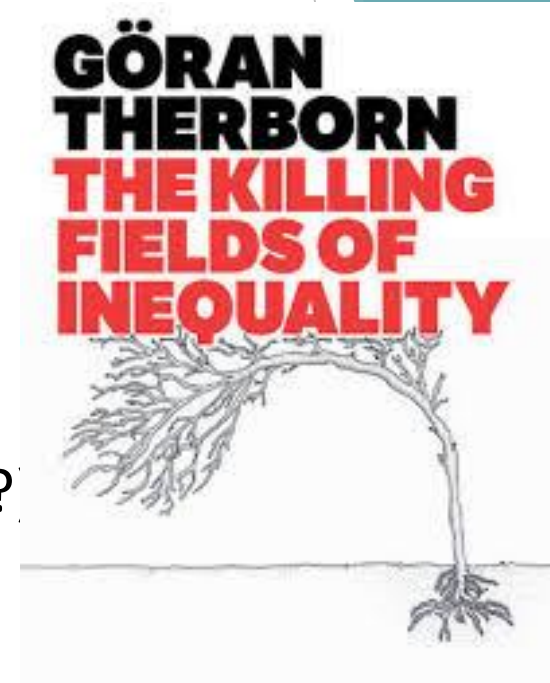
Less mobility

More opportunities for top quantile groups

Less for the others (even the upper middle class?)

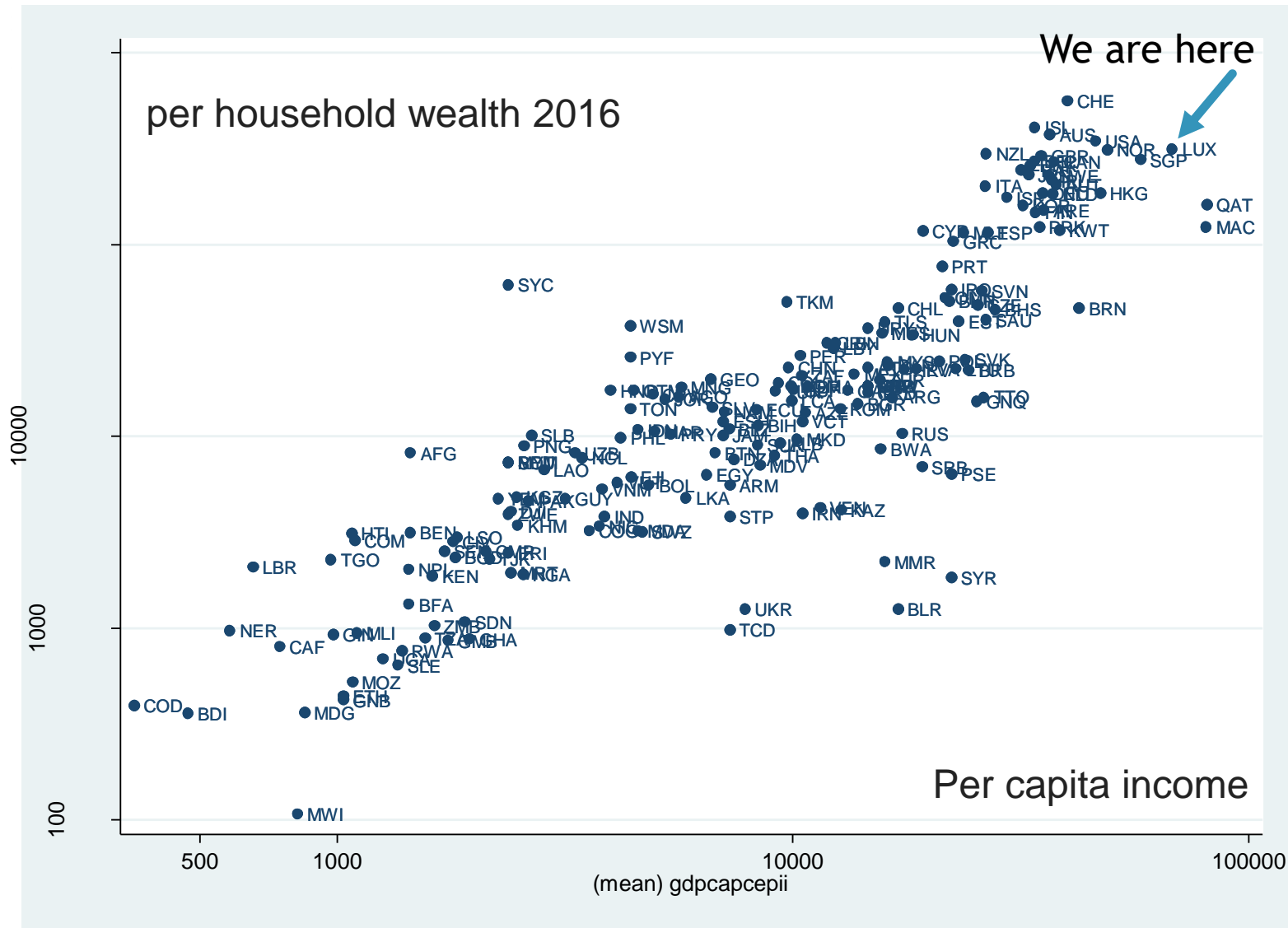
Health, lack of human development, violence, ...

**“Inequality kills...” (Therborn, 2014)**



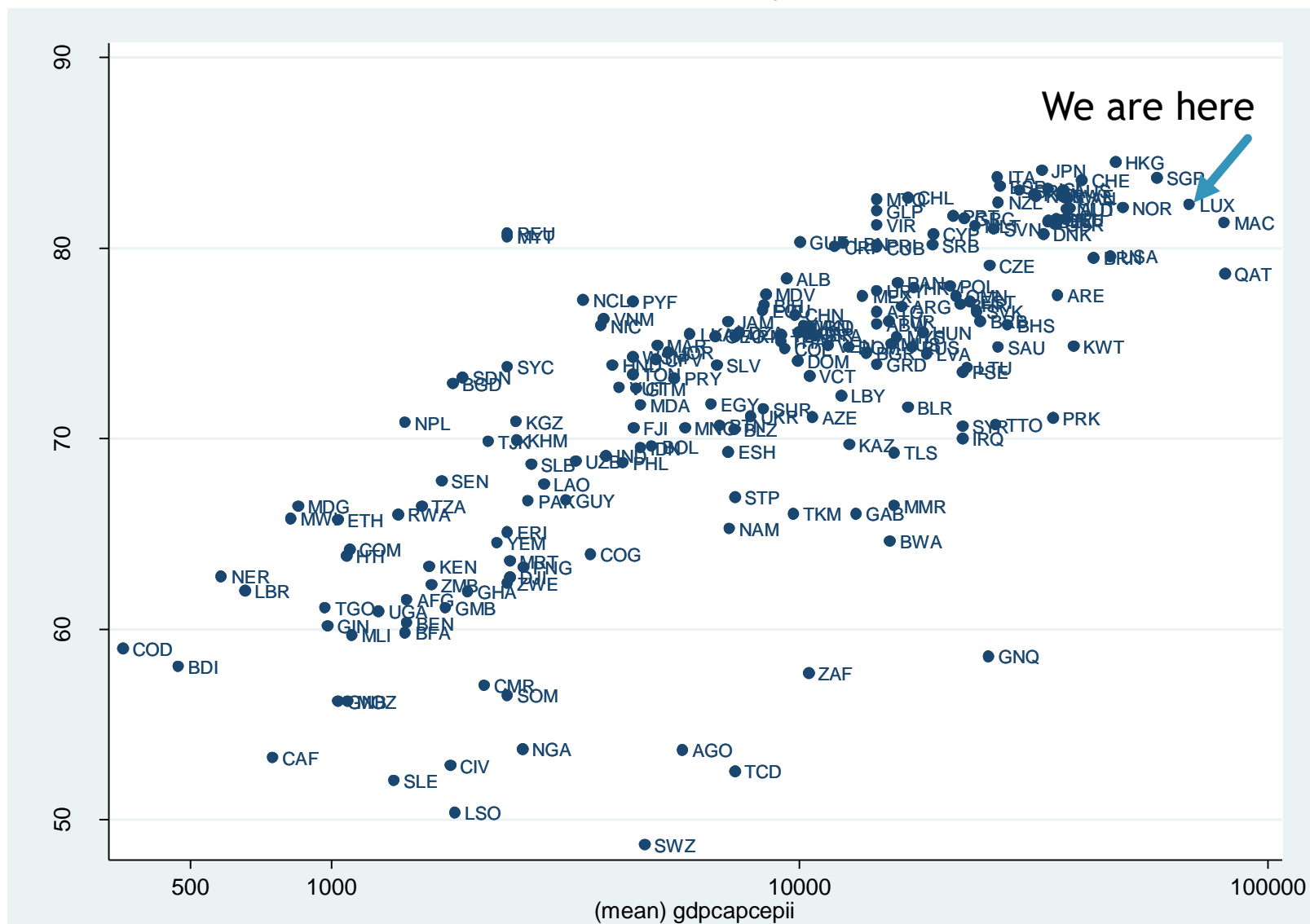
# Even worse news: World level inequality

Per capita income and per household wealth 2016



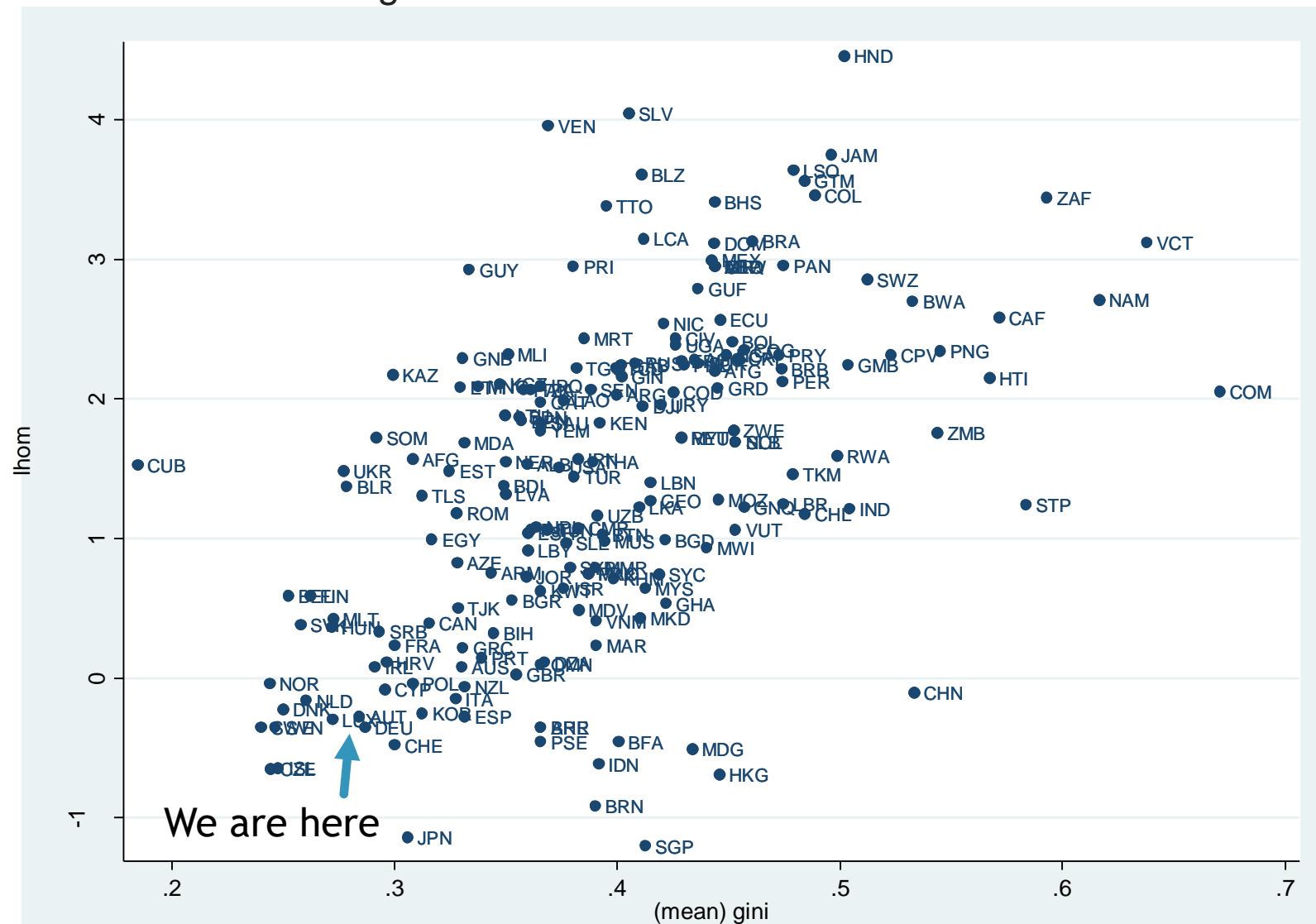
# Even worse news: World level inequality

Per capita income and life expectancy 2015



# Even worse news: World level inequality

Gini and log homicide rates

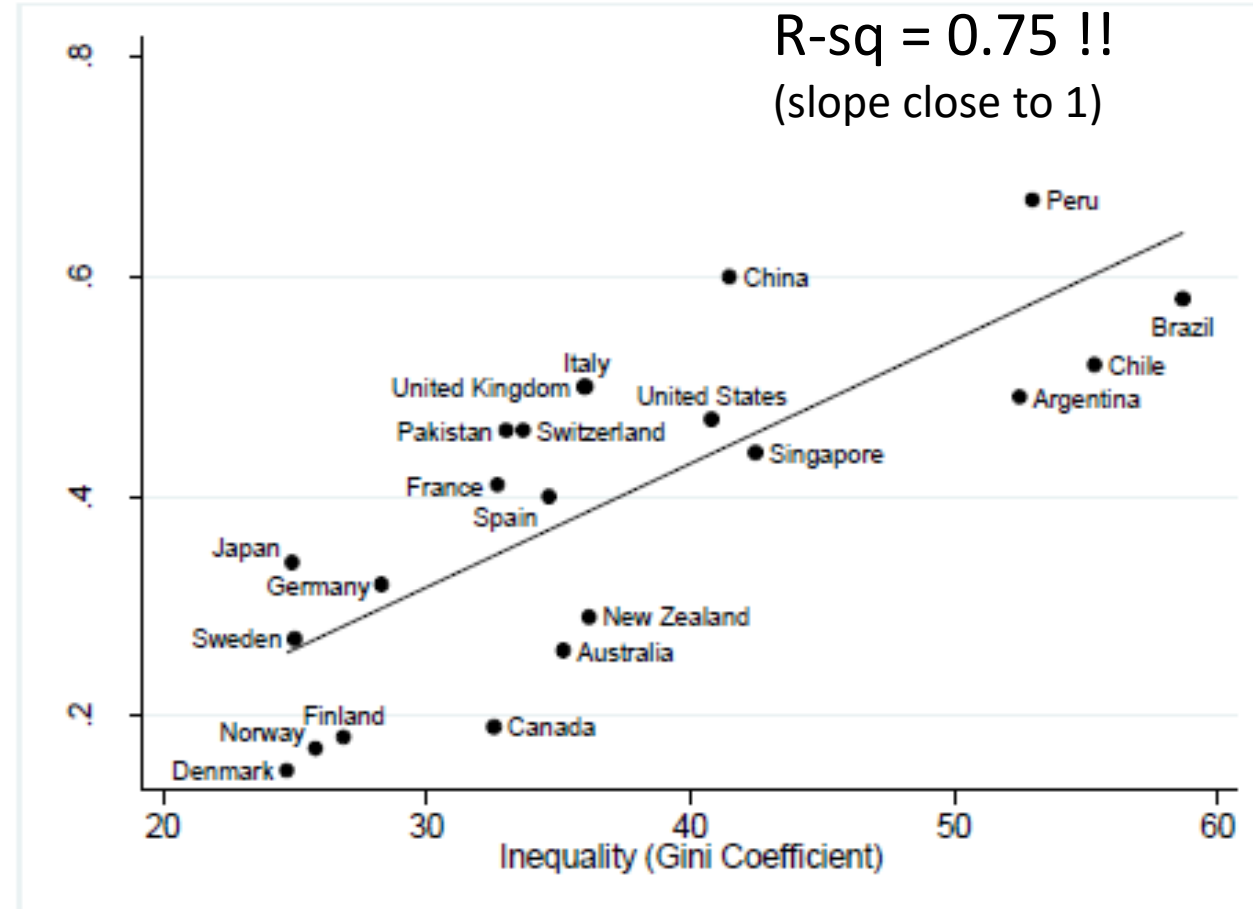


# “Great Gatsby” Curve

More inequality at a point in time is associated with less generational earnings mobility in twenty two countries with comparable estimates of the intergenerational elasticity between father and son earnings

**Corak, Miles.** 2013.  
“Inequality from  
Generation  
to Generation: The  
United States in  
Comparison.”  
Chap. 6 in *The  
Economics of Inequality,  
Poverty, and  
Discrimination in the  
21st Century*, edited by  
Robert  
S. Rycroft. Santa  
Barbara, CA: ABC - CLIO.

Generational earnings elasticity (less mobility) ↑



Source: Published estimates collected by the author as presented in Figure 1, and information from the World Bank for the Gini coefficient. Note that data points for Italy and the United Kingdom overlap, and that the upward sloping line is the least squares fitted regression line.

Conclusion:  
The treats of the 21st century and a new hope



## **Conclusive remarks: Brace! Brace !...**

Hobsbawm / Arrighi / Scheidel and a new age of extremes

The self-sustaining inequality spiral

The differences with the 19<sup>th</sup> century capitalism:

From material to symbolic starvation?

Which frustrations in Europe after de-middlization?

What is the new class structure?

## Conclusive Re-Marx, other solutions and hopes

Atkinson: Reconsider Progress (the 15 proposals)

Piketty: Tax Them All! Zucman: Let's be transparent

Wright: universal minimum income and real utopia

Therborn: let's have a real democracy

Chauvel: let's read (again) Spinoza, and Jonas

*Sedulo curavi, humanas actiones non ridere, non lugare, neque detestari, sed intelligere.*

I have striven not to laugh at human actions, not to weep at them,  
nor to hate them, but to understand them.

Baruch Spinoza, 1675/1676 *Tractatus Politicus* (A Political Treatise)

“Act so that the effects of your action are compatible with the permanence  
of genuine human life”; or expressed negatively: “Act so that the effects  
of your action are not destructive of the future possibility of such life”

The Imperative of Responsibility (Das Prinzip Verantwortung)

Hans Jonas (1979). (University of Chicago Press)



# On the way to extreme inequalities: how income and wealth research highlights the challenges for the 21<sup>st</sup> century?

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