Inequality and Growth

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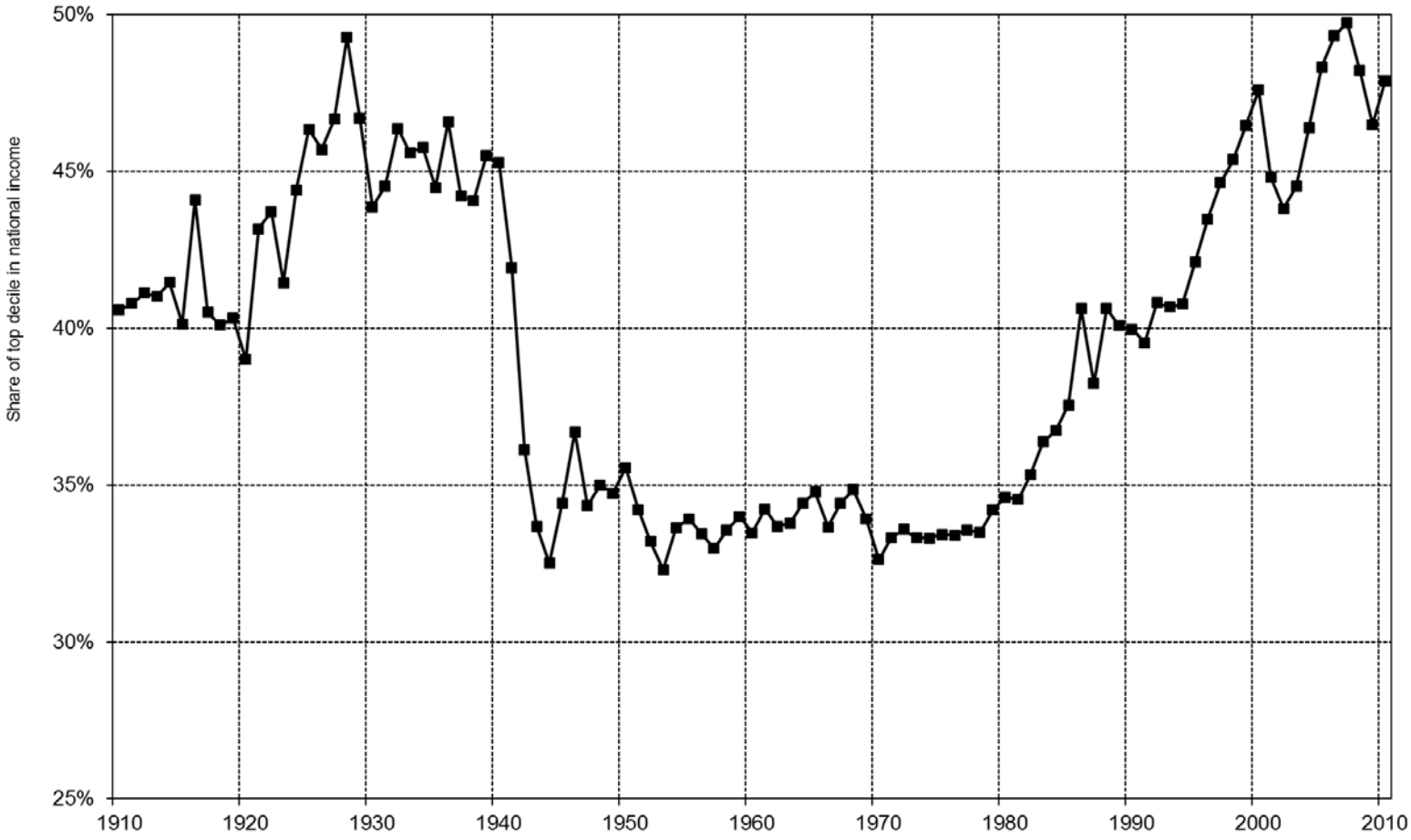
What we're discussing

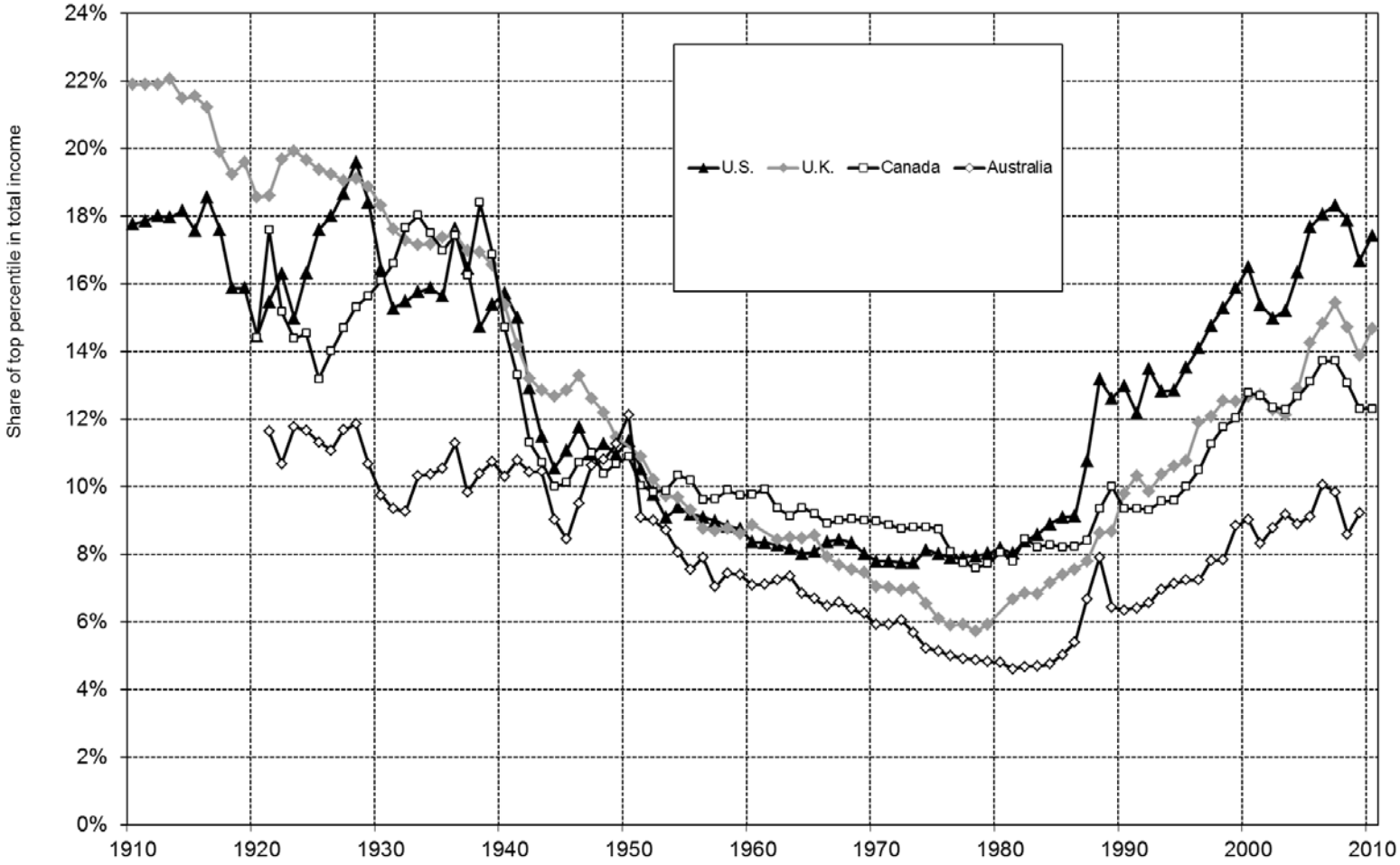
Income inequality is rising

Figure I.1. Income inequality in the United States, 1910-2010



The top decile share in U.S. national income dropped from 45-50% in the 1910s-1920s to less than 35% in the 1950s (this is the fall documented by Kuznets); it then rose from less than 35% in the 1970s to 45-50% in the 2000s-2010s. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 9.2. Income inequality in Anglo-saxon countries, 1910-2010



The share of top percentile in total income rose since the 1970s in all Anglo-saxon countries, but with different magnitudes. Sources and series: see piketty.pse.ens.fr/capital21c.

Wealth inequality

Figure 10.5. Wealth inequality in the U.S., 1810-2010

The top 10% wealth holders own about 80% of total wealth in 1910, and 75% today.
Sources and series: see piketty.pse.ens.fr/capital21c.

Outline

- The facts:
  Inequality is rising

- Theory:
  Does $r > g$ doom us to rising inequality?

- Piketty's dire prediction

- Empirical debates

Piketty's Fundamental Laws of Capitalism

1. *<u>An identity:</u> The share of capital income in total income α, equals the rate of return on wealth, r, multiplied by the wealth-to-income ratio, β:*

$$\alpha \equiv r \times \beta$$

2. *<u>A long-run model:</u> The ratio of wealth-to-income β, equals the savings rate out of national output s, divided by the growth rate of the economy, g:*

$$\beta = \frac{s}{g}$$

3. *<u>An empirical observation:</u> The rate of return on wealth r, systematically exceeds the rate of growth, g:*

$$r > g$$

The process causing rising inequality: *r>g*

- "His argument is that capital or wealth grows at the rate of return to capital, a rate that normally exceeds the economic growth rate. Thus, economies will tend to have ever-increasing ratios of wealth to income, barring huge disturbances like wars and depressions. Since wealth is highly concentrated, it follows that inequality will tend to increase without bound until a policy change is introduced or some kind of catastrophe interferes with wealth accumulation." —Larry Summers, "The Inequality Puzzle"

From *r*>*g* to Rising Inequality

- Step one: Capital (wealth) grows faster than national income:

$$\dot{K} > g$$

- Step two: Wealth-to-income ratio (β) rises:

$$\uparrow \frac{K}{Y}$$

- Step three: Capital's share of national income rises:

$$\alpha = \uparrow \frac{K}{Y} \times r$$

- Step four: Income concentrated in the hands of the wealthy

Step 1: The Process of Capital Accumulation

- $r > g$
  - r is the *level* of capital income
  - g is the *growth rate* of national income
- Implies that wealth grows faster than income, only if:
  - $\dot{K} = r$: All capital income is reinvested (and no labor income is)
- An implausible assumption:
  - "The largest single component of capital in the United States is owner-occupied housing. Its return comes in the form of the services enjoyed by the owners—what economists call "imputed rent"—which are all consumed rather than reinvested since they do not take a financial form."
  - Other capital is consumed, to some degree
  - Implies $r > g$ can be consistent with stable wealth-to-income ratio

Source: Larry Summers (2014), "The Inequality Puzzle"

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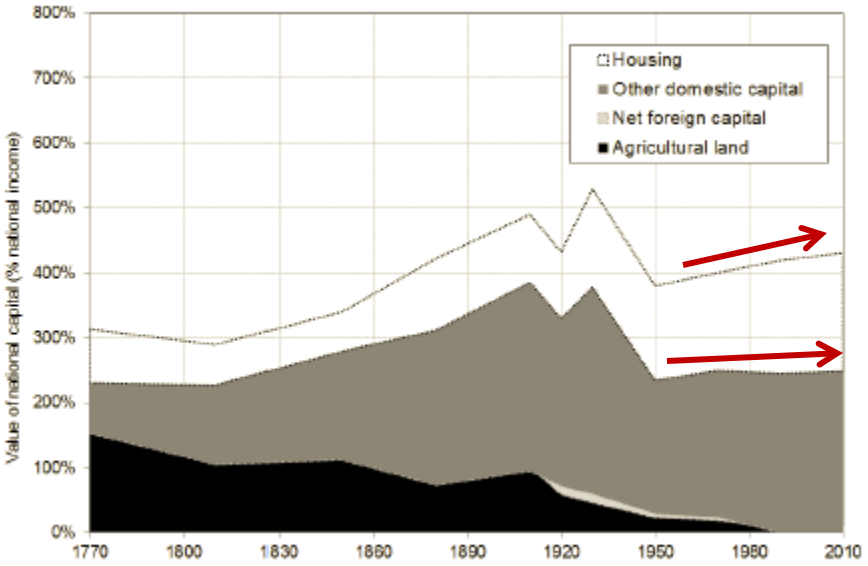
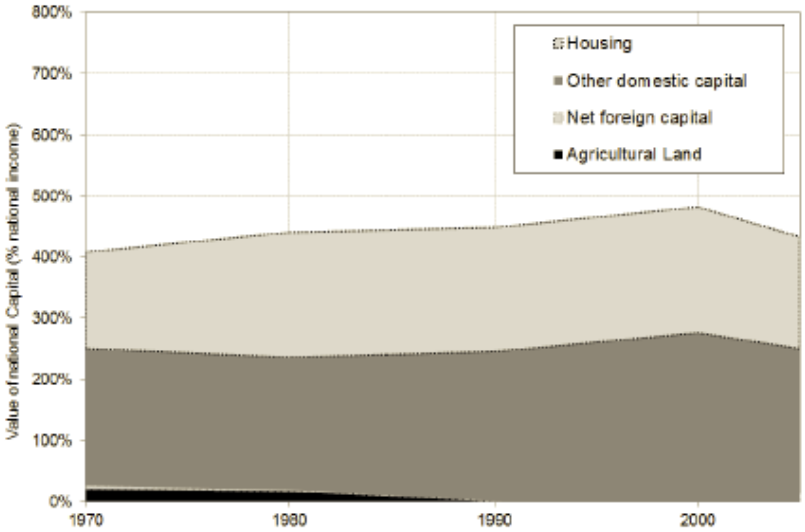
Step 2: Has the wealth-to-income ratio been rising?

The recent rise in wealth is entirely due to housing



(a) Capital in the United States, 1770-2010

And that rise in housing is due to house prices, not rents



Sources: National accounts (decenial average), Thomas Piketty's database (figure 4.10 of the French edition of the book- See http://piketty.pse.ens.fr/en/capital21c) modified after the correction discussed in the text. Here, housing capital is calculated based on rents. The value of housing capital is deflated from a price index of real estate and then multiplied by an index of rents (index = 1 in 2010) from OECD data. The choice of a base year different from 2010 would not affect the relative evolutions after correction.

Figure 4. Capital in **the United States** with a corrected measure of housing capital based on rental price of housing

Source: Odran Bonnet, Pierre-Henri Bono, Guillaume Chapelle and Etienne Wasmer (2014), "Does housing capital contribute to inequality? A comment on Thomas Piketty's Capital in the 21st Century"

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Step 3: Rising Wealth and the Capital Share

- If wealth to income ratio ($\frac{K}{Y} \uparrow$) rises, does the capital share of national income ($\frac{K}{Y} \times r$) also rise?
  - Competing effects:
    - Increasing capital: Capital-output ratio rises: $\frac{K}{Y} \uparrow$
    - Diminishing returns: Rate of return to capital falls: $r \downarrow$
  - Net effect depends on the elasticity of substitution
    - If $\eta > 1 \Rightarrow$ diminishing returns set in slowly $\Rightarrow$ capital share rises
    - If $\eta = 1$ capital share remains constant
    - If $\eta < 1 \Rightarrow$ diminishing returns set in quickly $\Rightarrow$ capital share falls
- Larry Summers:
  - "But I think he misreads the literature by conflating gross and net returns to capital. It is plausible that as the capital stock grows, the increment of output produced declines slowly, but there can be no question that depreciation increases proportionally. And it is the return net of depreciation that is relevant for capital accumulation. I know of no study suggesting that measuring output in net terms, the elasticity of substitution is greater than 1, and I know of quite a few suggesting the contrary."

Source: Larry Summers (2014), "The Inequality Puzzle"

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Step 4: Rising inequality has nothing to do with *r>g*

- The argument, totally omitting *r>g*
  - Inequality will:
    - increase if the rich save more than the poor
    - stay constant if the rich save at the same rate as the poor
    - decline if the rich save at a lower rate than the poor
- Debraj Ray:
  - "$r > g$ has nothing, absolutely nothing, to do with whether inequality goes up or down."
  - The key force driving rising inequality is "the savings propensities of the rich, and not the *form* in which they save their income."
- Semantics, or substance?

Source: Debraj Ray (2014), "Nit-Piketty"

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Piketty's Dire Prediction

- What will happen if economic growth rates halve?
  - "1st law": Capital share $\alpha = \beta \times r$
  - "2nd law": Wealth to income ratio $\beta = \frac{s}{g}$
  - Implies: Capital share $\alpha = r\frac{s}{g}$ will rise sharply
  - Assuming:
    - Savings rate, *s*, stays constant
    - Return on capital, *r*, doesn't decline a lot ($\eta > 1$)
    - Digging deeper into that savings rate…

Source: Per Krusell and Tony Smith "Is Piketty's 'Second Law of Capitalism Fundamental?"

Net versus Gross Savings Rates

	Piketty	Solow Model
Assume	Constant *net* savings rate: $I - \delta K = s^*(Y - \delta K)$	Constant *gross* savings rate $I = s'Y$
Steady state:	$\frac{K}{Y^{net}} = \frac{s^*}{g}$	$\frac{K}{Y} = \frac{s'}{g+\delta}$
If g halves:	$\uparrow \frac{K}{Y}$ 100%	$\uparrow \frac{K}{Y}$ 11% (assuming $\delta = .08$)

Which is more realistic?

Gross savings rate	$\frac{s^*(g+\delta)}{g + s^*\delta}$ (Increases when g falls)	s'
As $g \to 0$:	$\frac{K}{Y} \to \infty$ Consumption$\to 0$	$\frac{K}{Y} \to 3$ (assuming $s = .24$) Consumption$=(1 - s')Y$

Source: Per Krusell and Tony Smith "Is Piketty's 'Second Law of Capitalism Fundamental?"

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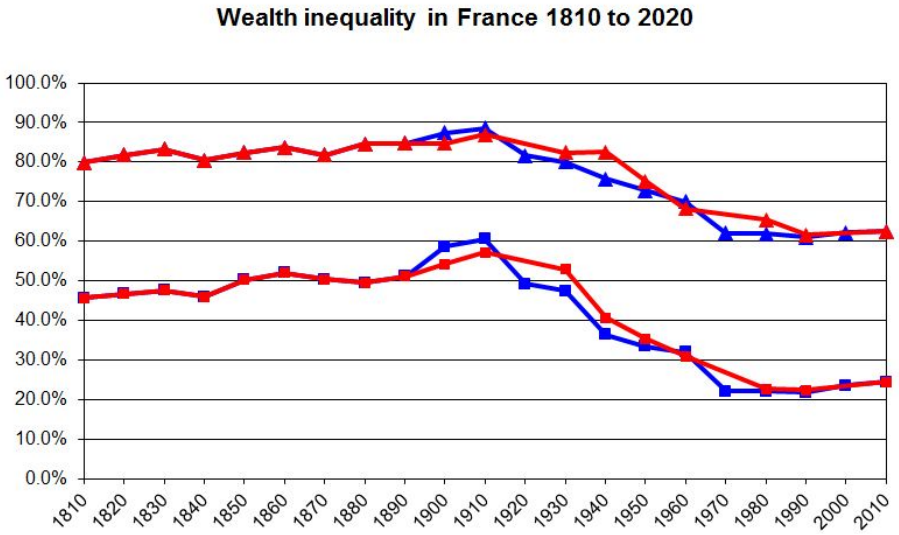
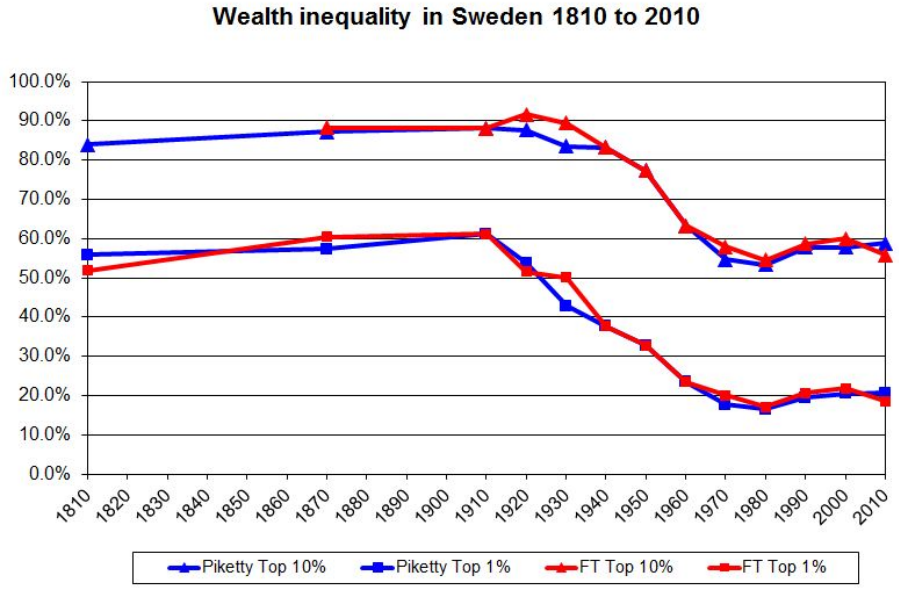
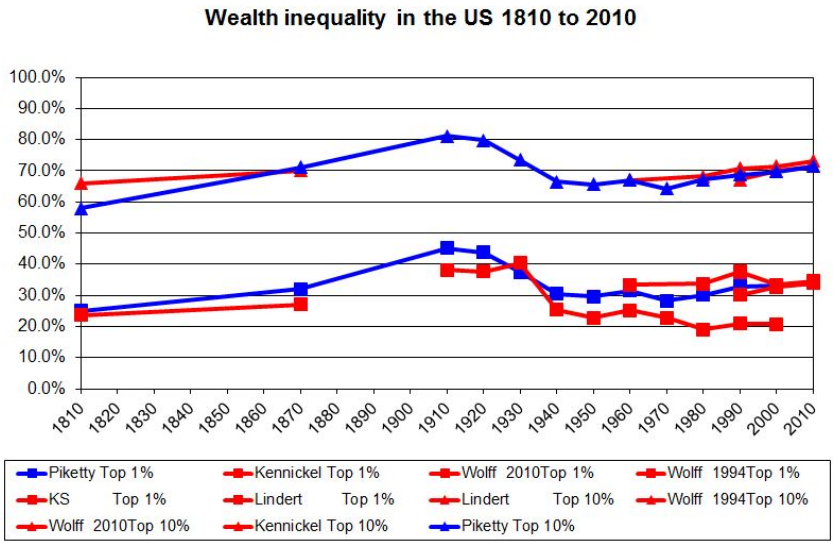
  - Silly and serious

Empirical Quibbles (The FT plays cop)



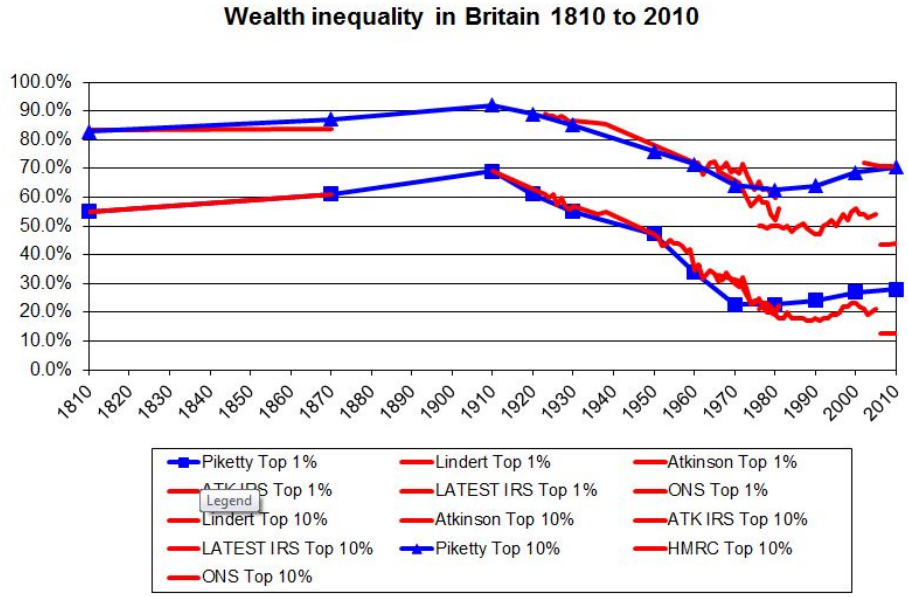
Lots of nitpicking, which yielded few differences that are quantitatively important.

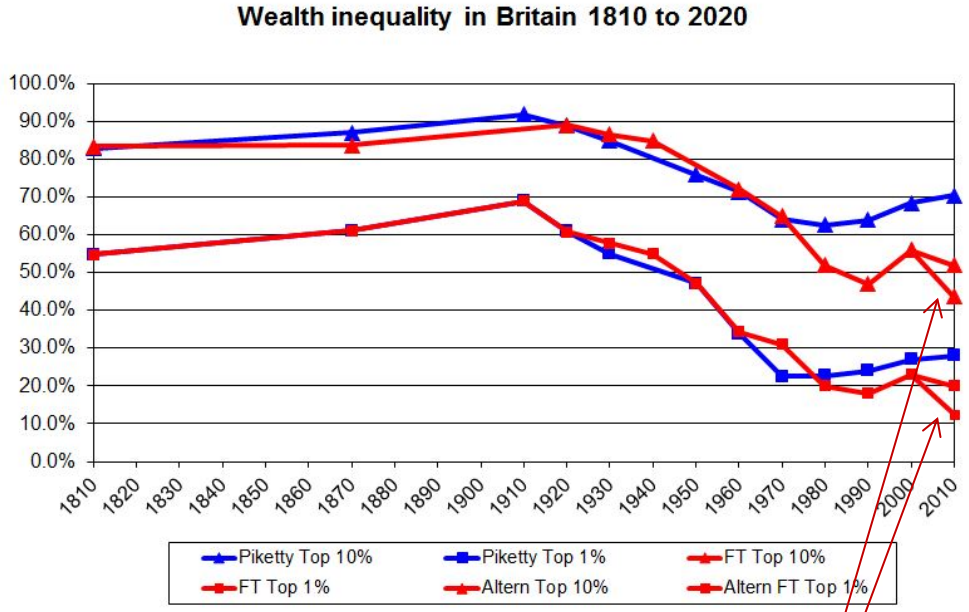




Source: Chris Giles, "Data problems with Capital in the 21st Century"

Wealth Inequality in Britain





FT re-analysis doesn't take sufficient account of differences across datasets.
- Comparing estate records with surveys makes little sense.

Source: Chris Giles, "Data problems with Capital in the 21st Century" and Thomas Piketty "Response to FT"

Serious empirical critique: Is this the US story?

Table 1 . Increase in Income Share Accounted for by Inequality Within Labor Income

	Top 10%	*Top 1%*	*Top 0.1%*	*Top 0.01%*
Income Excluding Capital Gains				
1970-2010 (Piketty-Saez)	83%	68%	53%	39%
1980-2010 (Piketty-Saez)	71%	54%	59%	35%
1990-2010 (Piketty-Saez)	64%	51%	53%	37%
1980-2010* (CBO)	73%	48%	–	–
1990-2010* (CBO)	73%	43%	–	–
Income Including Capital Gains				
1970-2010 (Piketty-Saez)	80%	63%	47%	33%
1980-2010 (Piketty-Saez)	67%	50%	52%	30%
1990-2010 (Piketty-Saez)	61%	45%	44%	30%
1980-2010* (CBO)	70%	42%	–	–
1990-2010* (CBO)	64%	31%	–	–

Note:Values for any given year calculated as a centered three-year moving average.

** CBO estimates for 2010 are of that year alone.*

"Overall, the 9 percentage point increase the share of income Piketty and Saez find going to the top 1 percent from 1970 to 2010 is accounted for by:

- 68 percent increased inequality within labor income
- 32 percent increased inequality within capital income and
- 0 percent a shift in income from labor to capital."

Source: Jason Furman (2014), "Global Lessons for Inclusive Growth"