Eco L3 - Globalization, Inequality, and Redistribution

Lecture 5: The rise of capital inequality and the decline in capital taxation

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Roadmap

- Measurement of wealth inequality
- The rise of capital inequality
- Theories of the wealth distribution
- The role of capital taxation

1 How to measure wealth inequality?

Wealth inequality more difficult to measure than income inequality

- Idea data source would be annual wealth tax declarations for the entire population

- But exist in very few countries only (eg, Norway)

- For most countries, need to use indirect methods and combine data sources

1.1 Estate tax multiplier method

- Start with wealth-at-death reported on estate tax returns
- Compute mortality rate by age and gender
- Then weight wealth-at-death by inverse of mortality rate
- Limit: need to assume that conditional on age and gender, death is a random event

1.2 Capitalization of investment income

- Start with capital income reported in personal income tax returns

- Compute rate of return on each asset class

- Multiply capital income by inverse of rate of return

- Limit: does not work well if taxable rates of return vary with wealth

2 Levels and Trends in wealth concentration

2.1 Levels

Private wealth always more concentrated than income

- Top 10% owns more than 50% of wealth in China, Europe, US
- Bottom 50% owns less than 10%; middle 40% owns 40% or less

2.2 Trends in world wealth inequaltiy

Evidence points toward rise in global wealth inequality over past decades

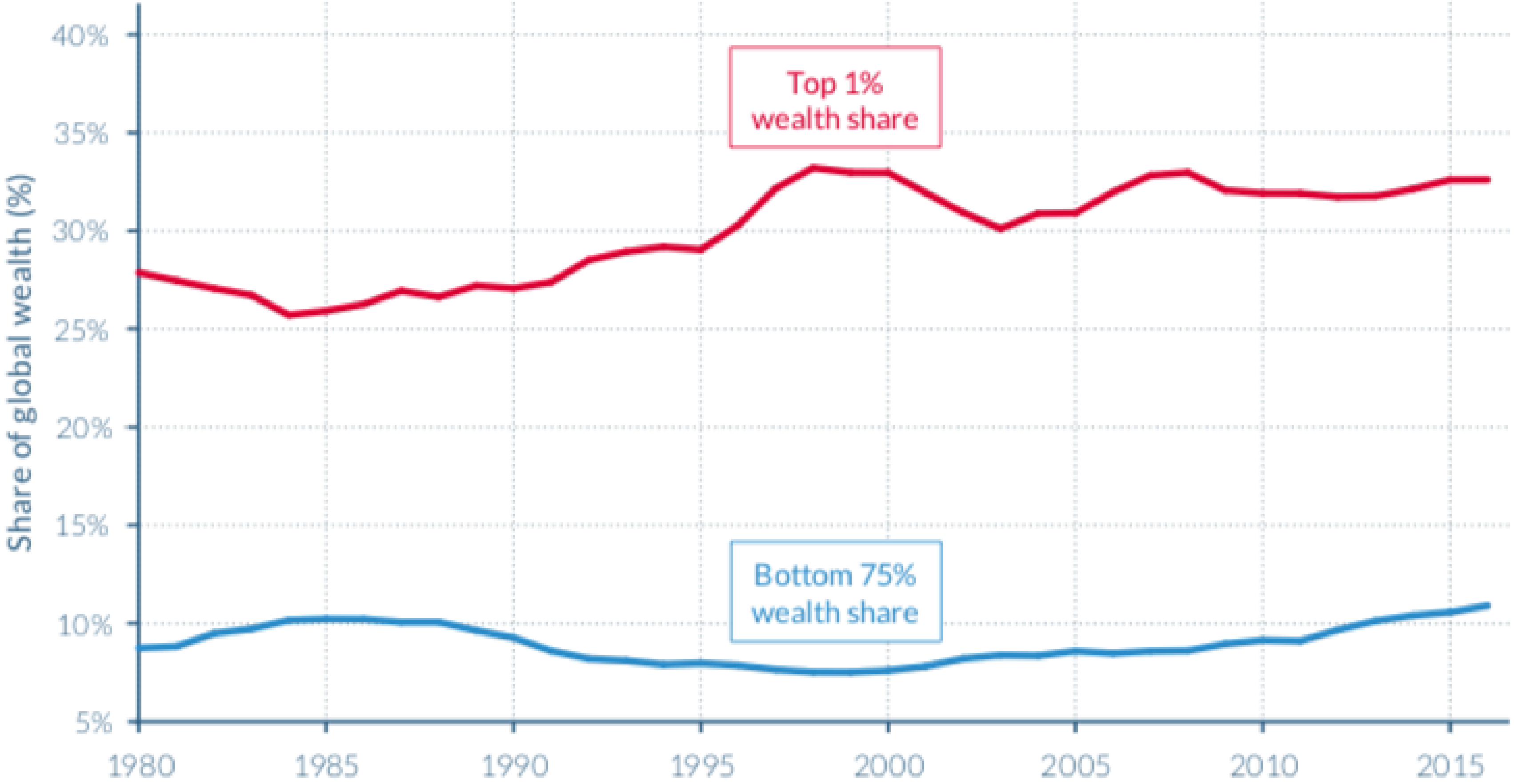
- Given data limitation, in what follows: world = Europe + China + US

- Global top 1% increased from 28% in 1980 to 33% today

- Bottom 75% share hovered around 10%

Figure 4.1.1

Top 1% and Bottom 75% shares of global wealth, 1980–2017: China, Europe and the US

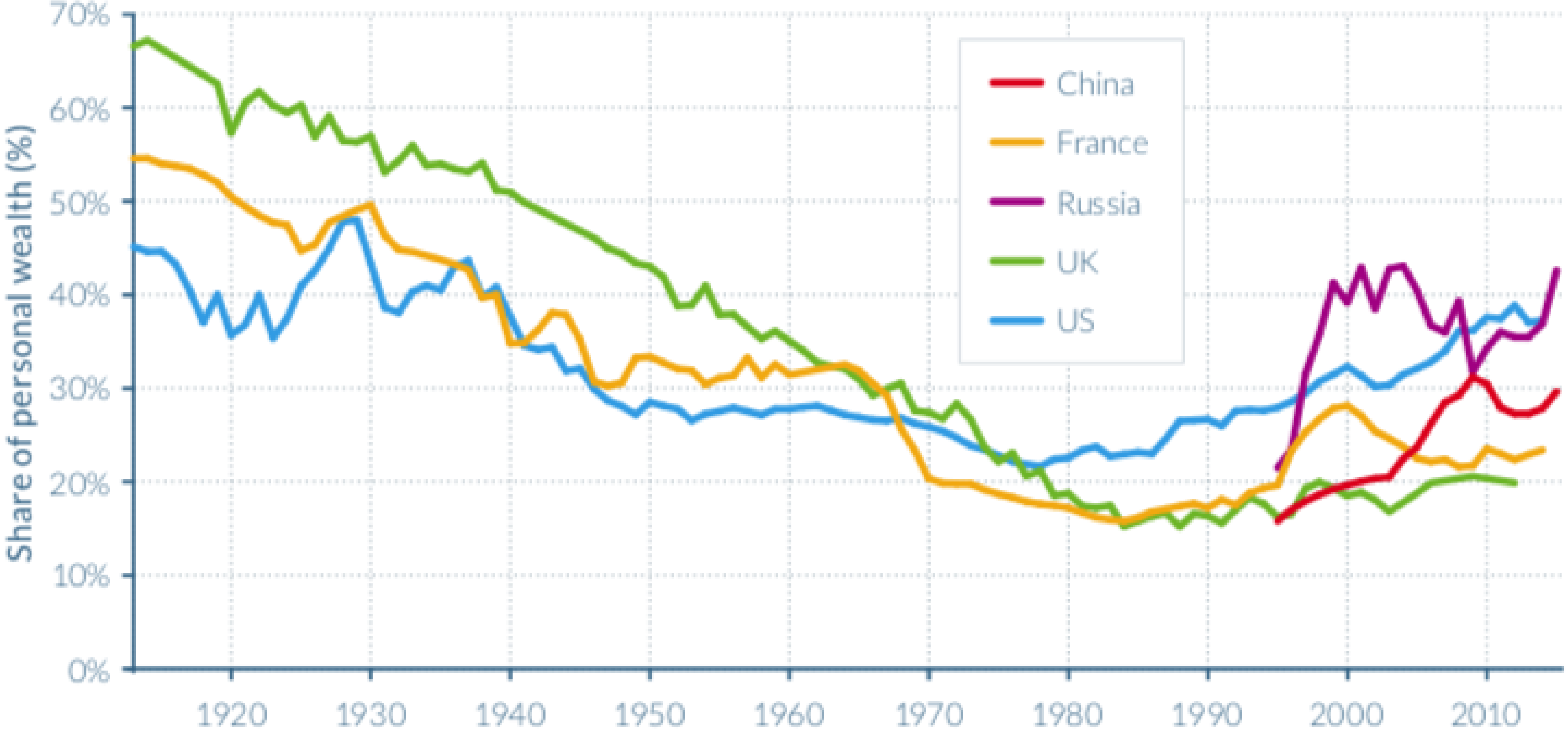


Source: WID.world (2017). See wir2018.wid.world for data series and notes.

In 2016, 33% of global wealth was owned by the Top 1%. The evolution of global wealth groups from 1980 to 2017 is represented by China, Europe and the US.

Figure E8

Top 1% wealth shares across the world, 1913–2015: the fall and rise of personal wealth inequality



Source: WID.world (2017). See wir2018.wid.world for data series and notes.

In 2015, the Top 1% wealth share was 43% in Russia against 22% in 1995.

2.3 United States

- Great reversal: the US used to be much more equal than Europe, and now is much more unequal

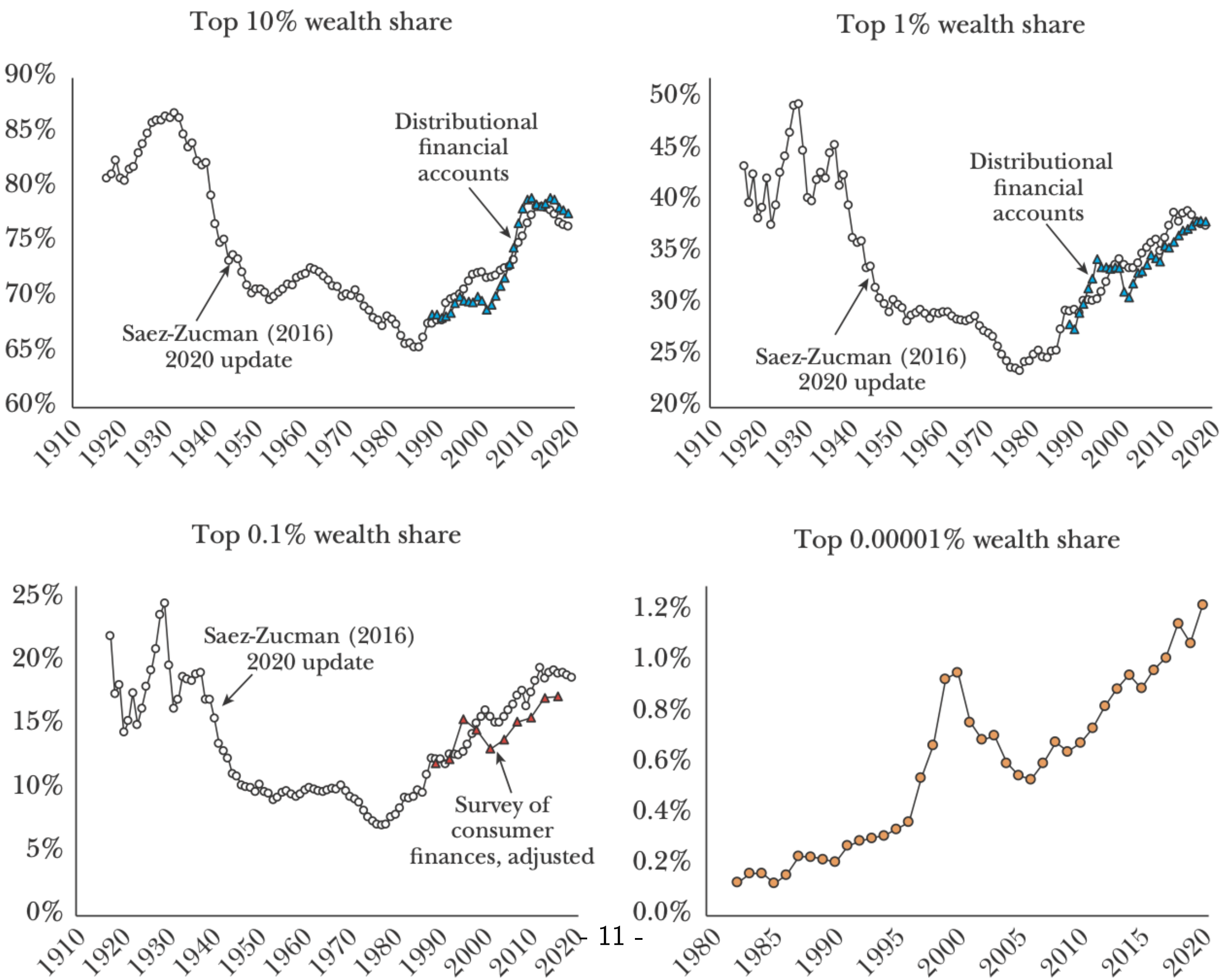
- Before World War I, wealth was less concentrated in the US than in Europe

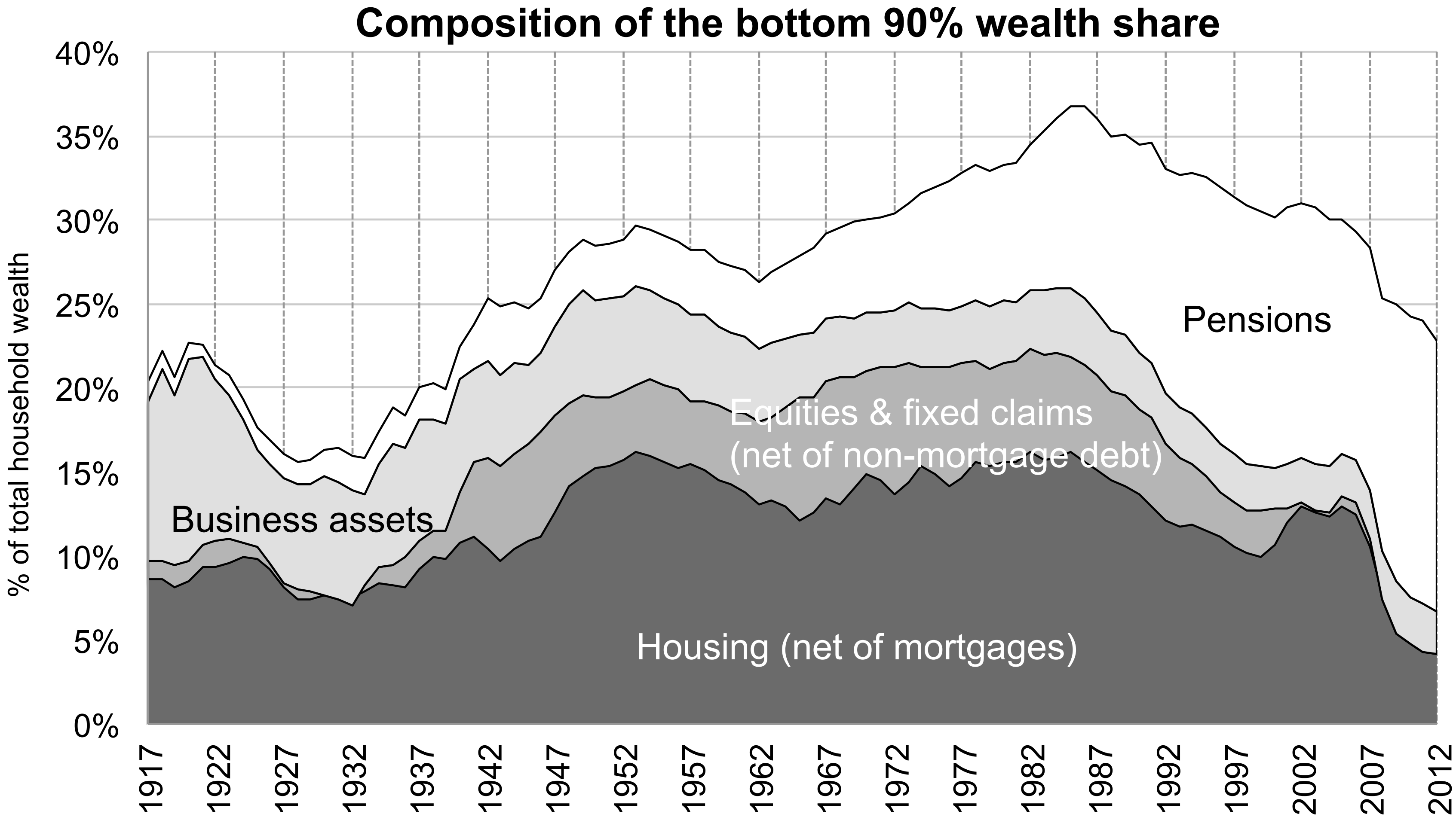
- Substantial fall in wealth inequality in the 1930s and 1940s

- Then gradual and dramatic increase since the late 1970s

Figure 1

Top Wealth Shares in the United States: Comparing Estimates





Source: Saez and Zucman (2016)

3 Theories of the wealth distribution

3.1 The role of saving rate

- Individual i wealth accumulation can always be written:

$$W_{t+1}^i = (1 + q_t^i) \cdot (W_t^i + s_t^i \cdot Y_t^i)$$

- where W_t^i is wealth, Y_t^i is income, s_t^i is net savings rate, $1 + q_t^i$ is rate of capital gains (price effect) in year t

- In a long-run steady-state without price effect, then:

$$sh^p_W = sh^p_Y \cdot \frac{s^p}{s}$$

- where sh^p_W is share of wealth owned by fractile p (e.g., top 1%), sh^p_Y share of income earned by p, and s^p/s is relative savings rate

- This is a generalization of Harrod-Domar-Solow formula $\beta = s/g$

- Shows key role of relative saving rates

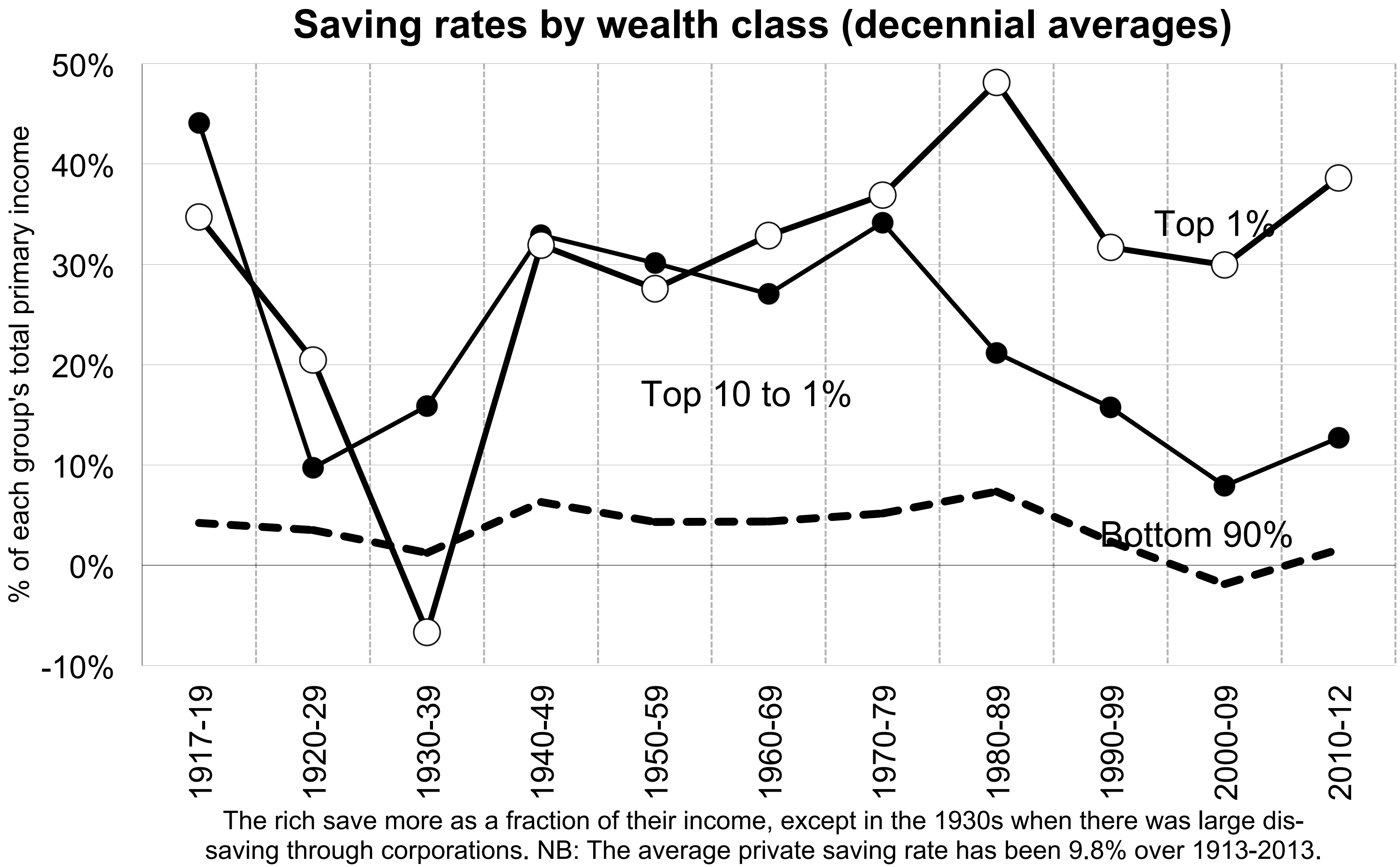
3.2 Where does s come from?

3.3 Precautionary saving model

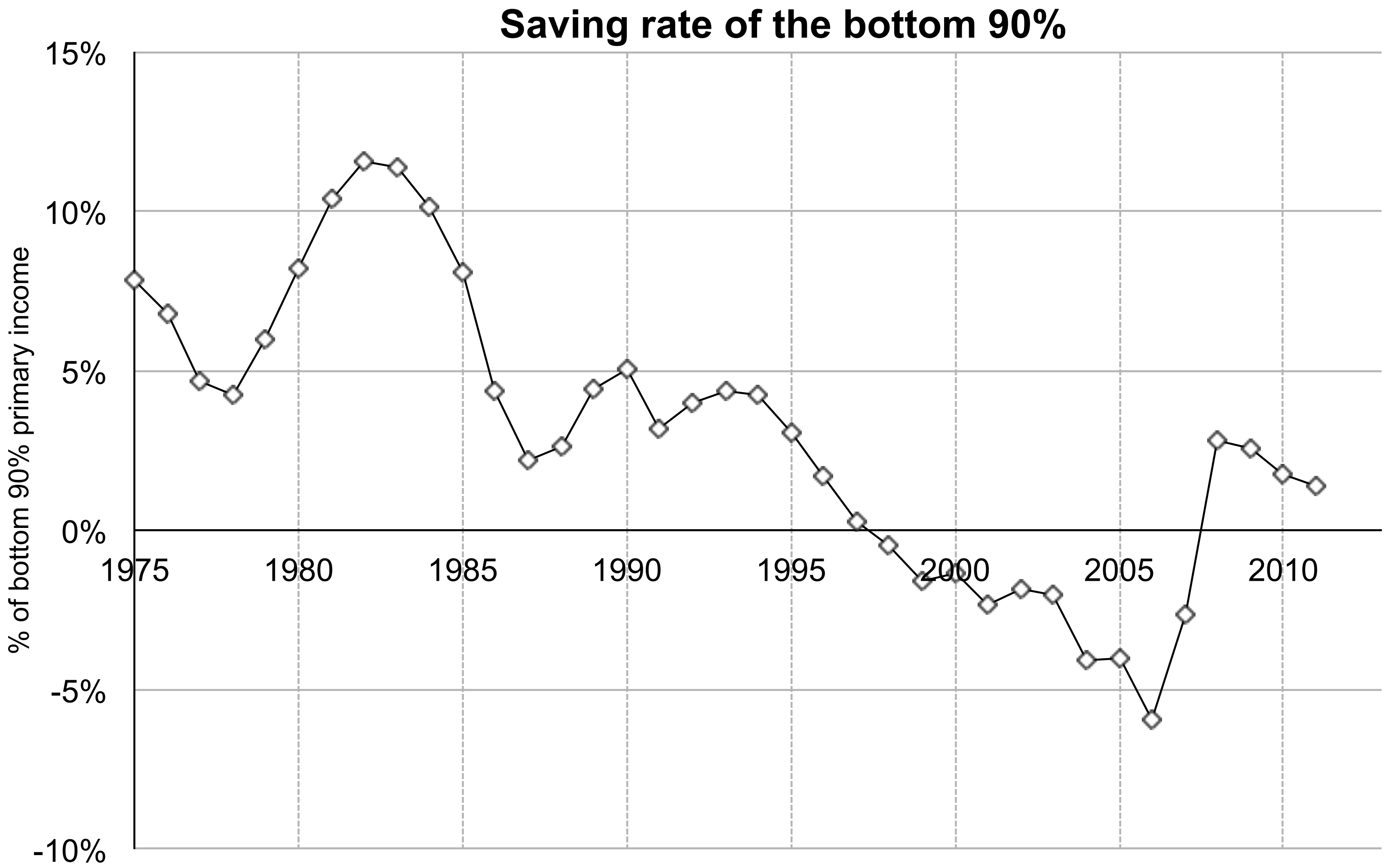
- Income is uncertain $\rightarrow$ hold wealth as precaution for "rainy days" (main uncertainty: job loss)

- As one gets richer, less need to insure against labor income risk $\rightarrow$ model predicts that saving rate falls with income

- Not consistent with the data



Source: Saez and Zucman (2016)



Source: Saez and Zucman (2016)

3.4 Life-cycle saving models

Main idea: people save to spread resources over the life-cycle

3.4.1 A simple life-cycle model

- Individuals die with 0 wealth, wealth accumulation entirely driven by need to save for retirement

- Assume that everybody starts working at age 0, works for N years, dies at age L, and that there is no growth $(n = g = r = 0)$

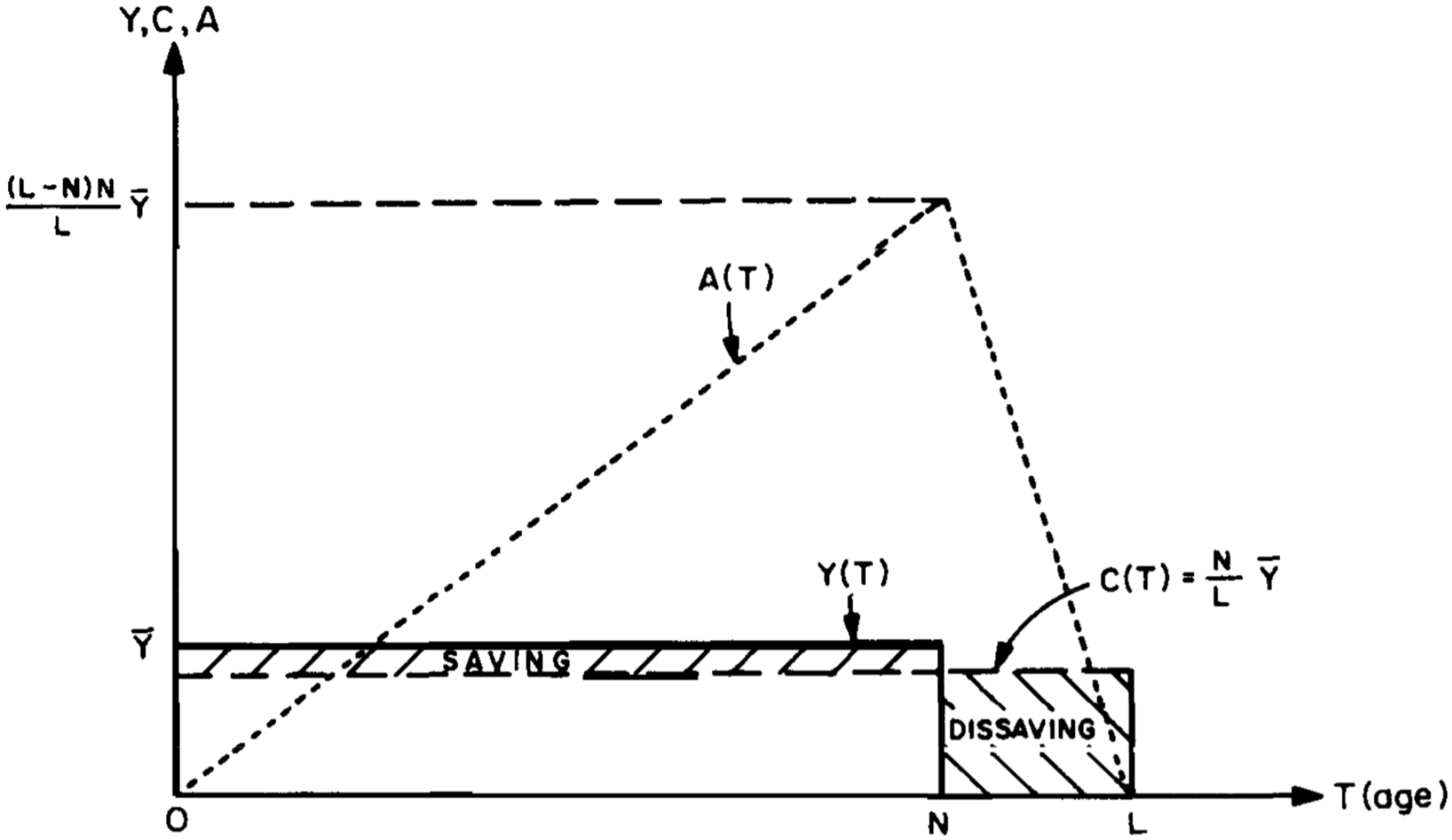
- Ex: $N = 60$, $L = 70 \rightarrow$ retirement length $L - N =$ 10 years

- Labor income is constant at $\bar{Y}$ during working age period, then 0

- Everybody fully smoothes annual consumption so that C is always equal to average per capita output: $C = \bar{Y} \cdot N/L$

- While working, people save $S = (1 - N/L) \cdot \bar{Y}$

- Then during retirement people dis-save $S = -N/L \cdot \bar{Y}$



INCOME, CONSUMPTION, SAVING AND WEALTH AS A FUNCTION OF AGE

Source: Modigliani (1985)

The Modigliani triangle formula:

Aggregate wealth/income ratio = half of retirement length

$$\frac{W}{Y} = \frac{1}{2} \cdot (L - N)$$

- If retirement length $L - N = 10$ years, then W/Y = 500% $\rightarrow$ model can generate large and reasonable wealth/income ratios

- Aggregate wealth/income ratio is independent of income level and solely depends on demographics

3.4.2 Limits of simple life-cycle model

- Social Security $\rightarrow$ reduces need to save for retirement

- What fraction of aggregate wealth comes from life-cycle savers? Modigliani vs. Kotlikoff-Summers controversey

- Main limit: life-cycle model generates too little wealth inequality: wealth inequality simply the mirror image of income inequality

3.5 Dynamic random shock models

Key question for the study of wealth inequality: why is wealth much more concentrated than labor income?

- Precautionary saving models: wealth less unequal than income
- Life-cycle saving models: wealth as unequal as labor income
- To generate a higher concentration of wealth, one needs dynamic models with cumulative shocks

Different types of shocks

- Shocks to rates of return
- Shocks to number of children
- Shocks to saving taste across generations

3.5.1 Sketch of a simple dynamic random shock model

Let's consider a model where random shock is a saving taste shock:

- Each period is a generation (30 years)

- Each individual i receives same labor income $y_{Lti} = y_{Lt}$ in period t and has same annual rate of return $r_{ti} = r_t$

- Each agent chooses c_{ti} (life-time consumption) and w_{t+1i} (bequest left to children) so as to maximize a utility function

$$U(c_{ti}, w_{ti}) = c_{ti}^{1-s_{ti}} w_{ti}^{s_{ti}}$$

- where s_{ti}: bequest taste parameter
- Budget constraint: $c_{ti} + w_{t+1i} \leq y_{Lt} + (1 + r_t) \cdot w_{ti}$
- Random shocks come from idiosyncratic variations in the saving taste parameter s_{ti}
- s_{ti} drawn from some random process with mean $s = E(s_{ti}) < 1$

Theorem: under a certain number of assumptions, wealth converges to a steady-state distribution that has the following properties:

- It follows a Pareto law at the top
- The Pareto exponent a depends on taste shocks s_{ti}
- The higher the variance of shocks, the lower a
- $a \rightarrow 1$ (and thus wealth inequality tends to infinity) if the variance of shocks goes to infinity, and $a \rightarrow \infty$ if the variance goes to zero

3.6 $r - g$ and wealth inequality

- In random shock models, wealth concentration $\nearrow$ with $r - g$

- Formally:

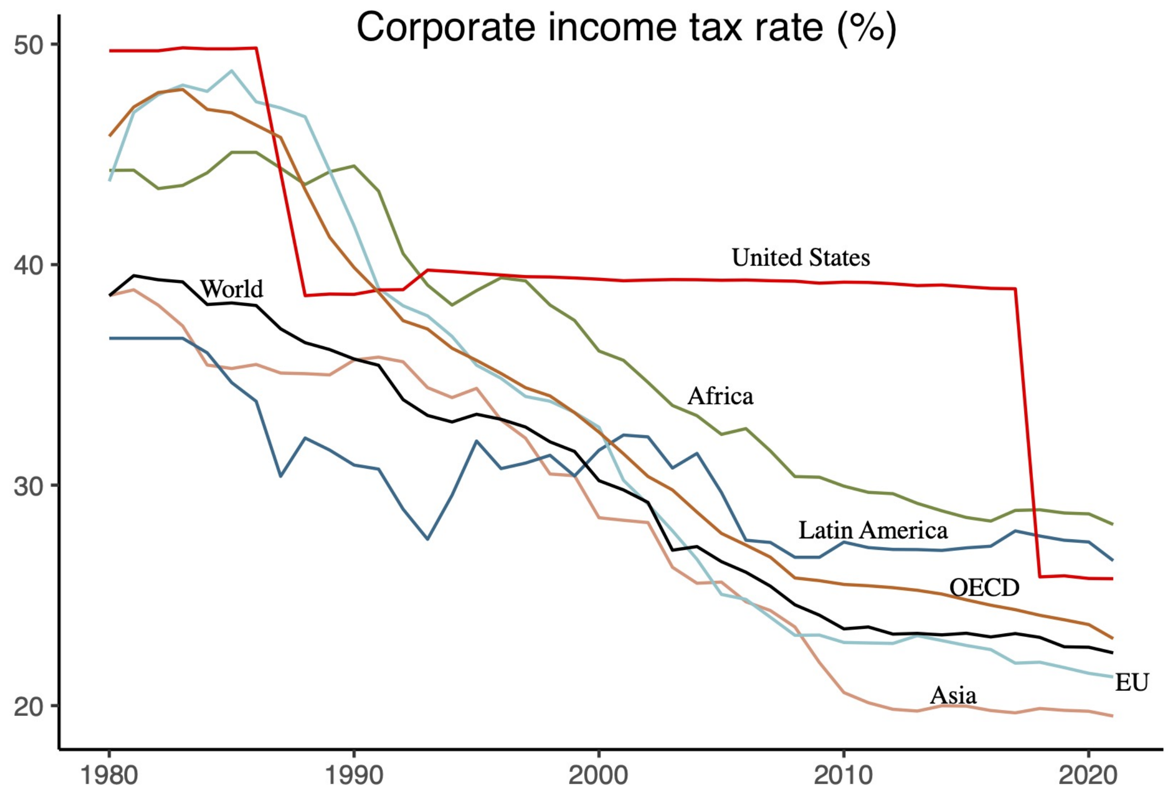
  – Random shock models generate wealth distribution that are Pareto-distributed at the top

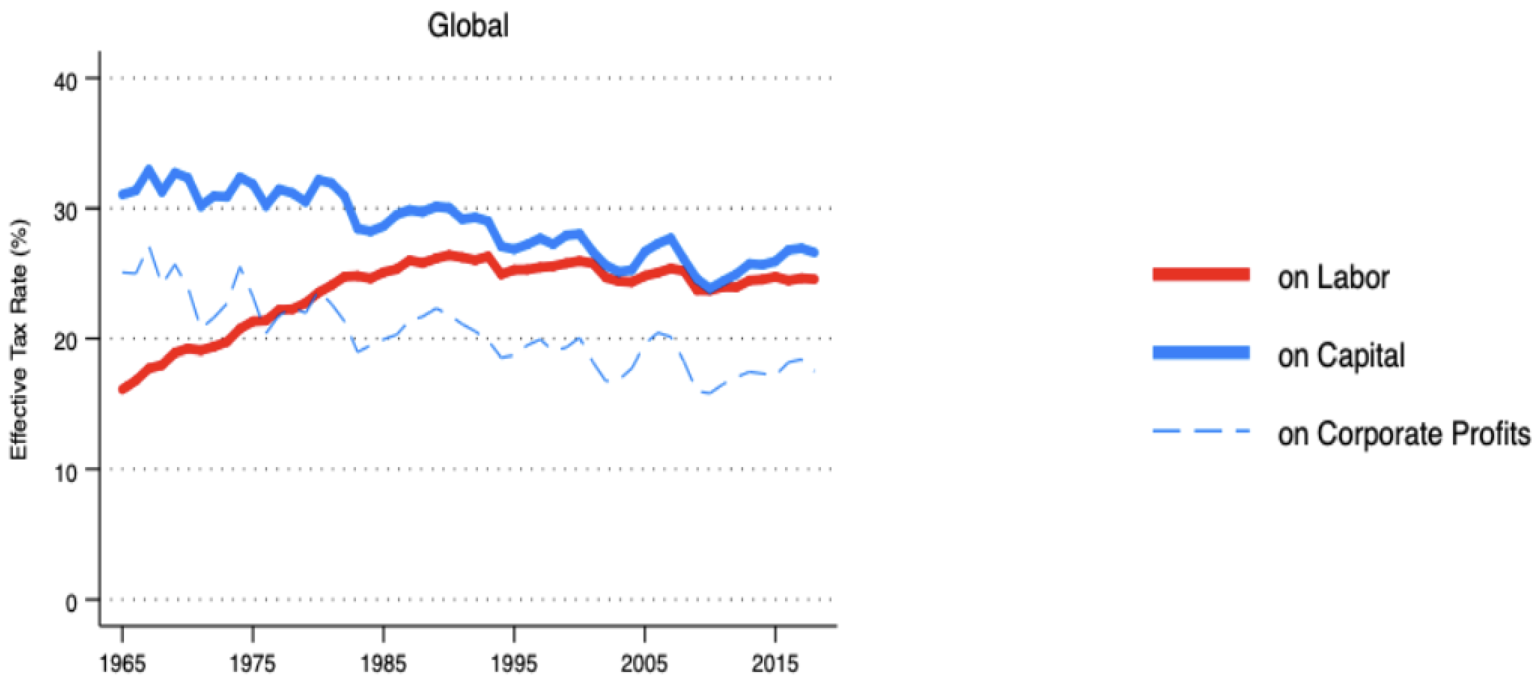
  – It can be shown that the Pareto coefficient a is a declining function of r−g

- Intuition: $r - g$ magnifies any initial wealth inequality

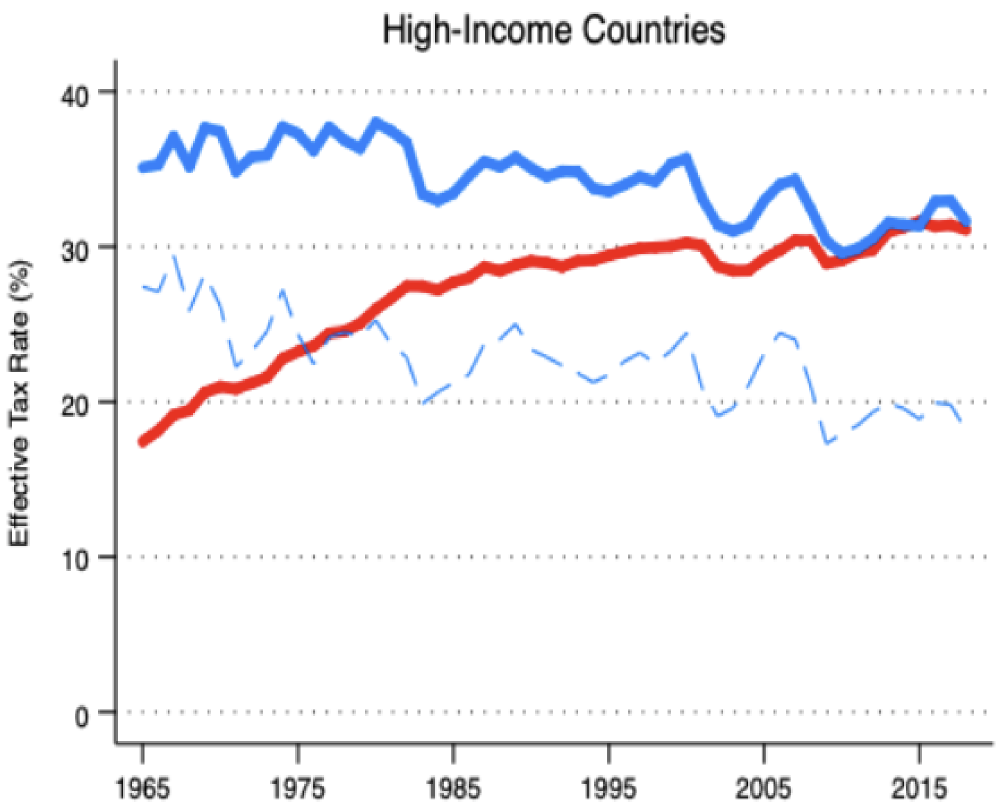
- Example: if $g = 1$ and $r = 4\%$, then a person whose income only derives from wealth K (hence has income rK) needs to save only g/r=25% for her wealth to grow as fast as the economy

4 The role of capital taxation





Source: Bachas et al. (2022)



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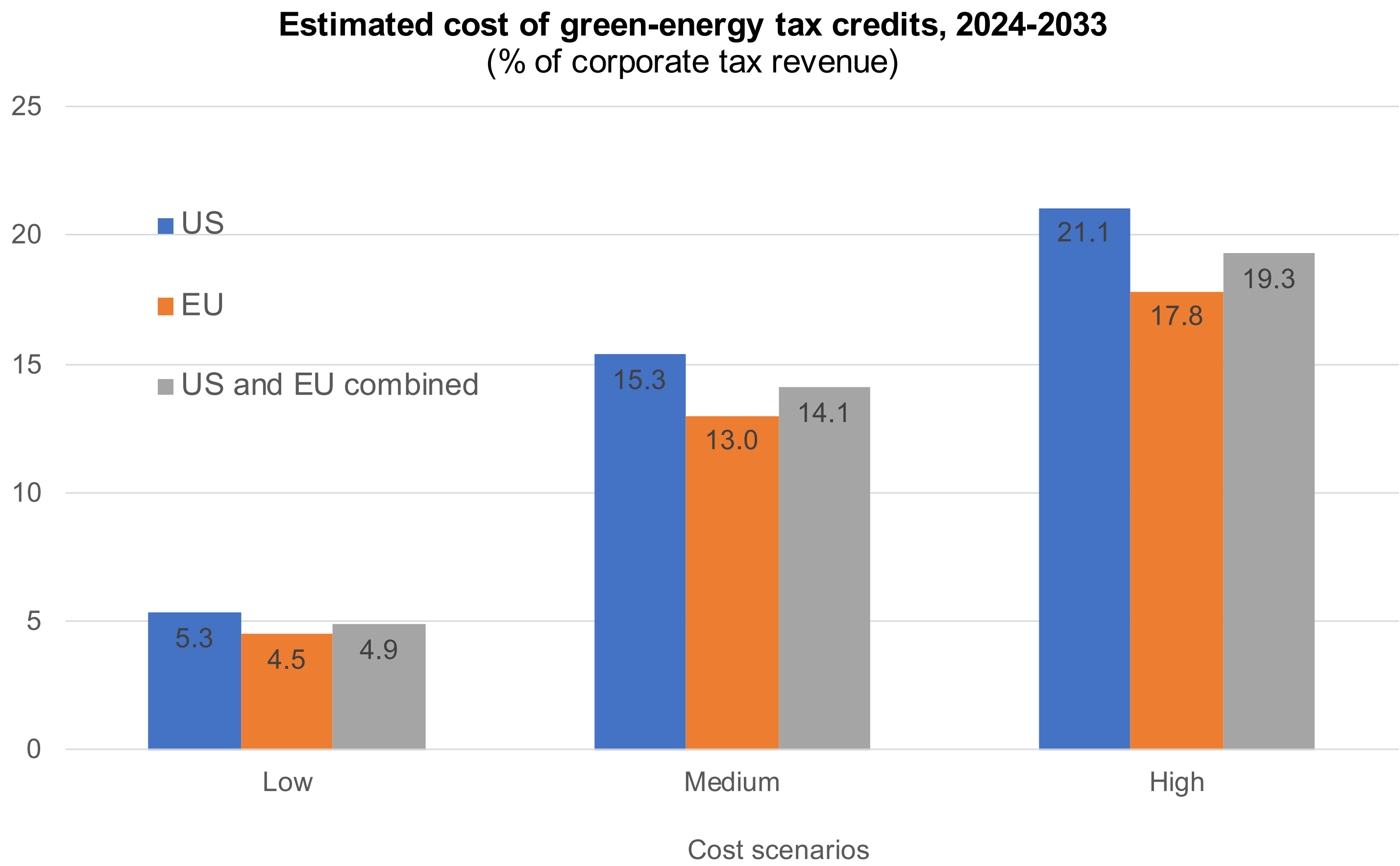

Source: Global Tax Evasion Report 2024