

# The Macroeconomics of Top Income and Wealth Inequality

Charles I. Jones (2015, JEP)

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- Inequality takes multiple forms:
  - **Within-labor inequality:** variation in wages among workers.
  - **Within-wealth inequality:** dispersion in household wealth holdings.
  - **Between-inequality:** how income is divided between capital owners and workers.
- The **Goal** of this paper is to provide a simple macro framework linking growth, turnover, and returns to explain different forms of inequality.
- **Data source:** Piketty (2014) documenting long-run U-shaped trends in top income shares and capital ratios.

# Research Question

## Main question:

*What macroeconomic forces explain the long-run U-shaped evolution of income and wealth inequality?*

## Sub-questions:

- How do simple growth and replacement mechanisms produce Pareto tails? (Pareto tail:  $\Pr(Y > y) \propto y^{-\eta}$ , where  $\eta = \mu/\delta$  or  $(r - g - \tau - \alpha)/(n + d)$ .)
- How do population dynamics or policy affect steady-state inequality?
- Why did capital regain importance after 1980 (rise in between-inequality)?

# Theoretical Answers: Three Inequalities

	Within-labor	Within-wealth
<b>Representation</b>	Wage dispersion across workers	Wealth dispersion across households
<b>Core mechanism</b>	Income grows at rate $\mu$ for random duration $\sim \text{Exp}(\delta)$	Wealth compounds at rate $(r - g - \tau - \alpha)$ , replaced at $(n + d)$
<b>Intuition</b>	Faster income growth or longer career $\Rightarrow$ thicker tail	Higher returns or slower dynastic turnover $\Rightarrow$ thicker tail
<b>Determinants</b>	Talent, skill, innovation, job destruction	Return on capital, saving, population growth, taxes

$$\underbrace{\eta_{\text{income}} = \frac{\mu}{\delta}}_{\text{within-labor}}$$

$$\underbrace{\eta_{\text{wealth}} = \frac{r - g - \tau - \alpha}{n + d}}_{\text{within-wealth}} \quad (\text{GE special case: } \eta = \frac{n}{n+d})$$

## Between-Inequality: Capital vs. Labor

- **Between-Inequality:** Income split between factors

$$Y = wL + rK, \quad \alpha_K = \frac{rK}{Y} = r \cdot \frac{K}{Y}.$$

- **Production function:** CES form

$$Y = A \left[ aK^{\frac{\sigma-1}{\sigma}} + (1-a)L^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}}.$$

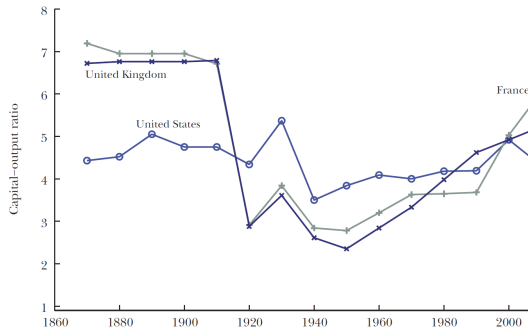
**Special case:**  $\sigma = 1$  (Cobb–Douglas)  $\Rightarrow$  constant  $\alpha_K$ ; if  $\sigma > 1$ ,  $r$  falls slowly as  $K/Y$  rises  $\Rightarrow \alpha_K$  increases.

- **Empirical fact:** Since the 1980s,  $\alpha_K$  rose as  $K/Y$  increased while  $r$  declined only slightly.
- **Intuition:** Automation & cheap IT  $\Rightarrow$  capital replaces labor easily  $\Rightarrow$  higher between-inequality.  
(When  $\sigma > 1$ ,  $MPK = aA(\frac{K}{Y})^{-1/\sigma}$  falls slowly as  $K/Y \uparrow \Rightarrow \alpha_K \uparrow$ .)

# Illustration: Capital–Output Ratio and Housing

Figure 5

The Capital–Output Ratio

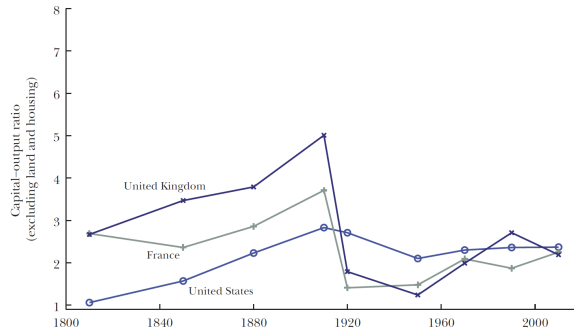


Source: Supplementary table S4.5 for chapter 4 of Piketty (2014), available at: <http://piketty.pse.ens.fr/capital21c>.

Strong U-shape: collapse after WWII, surge post-1980.

Figure 6

The Capital–Output Ratio Excluding Land and Housing



Source: Supplementary tables S3.1, S3.2, and S4.2 for chapters 3 and 4 of Piketty (2014), available at: <http://piketty.pse.ens.fr/capital21c>.

More muted rise: productive capital stable since 1950.

# Positioning and Conclusion

## Positioning:

- Links Piketty's empirical " $r > g$ " narrative to simple macro steady states.
- Shows demographic and asset-type distinctions (productive vs. housing) are crucial.
- Extends Pareto logic to both income and wealth tails.

## Conclusions:

- Slow growth can raise  $K/Y$ , but not enough—post-1980 rebound driven by housing and high  $\sigma$  (high substitutability).
- Automation (high substitutability)  $\Rightarrow r$  falls slowly,  $\alpha_K$  rises  $\Rightarrow$  higher between-inequality.
- For modeling: distinguish between **productive capital** (growth engine) and **asset wealth** (inequality engine).