

# **Inequality & Capitalism in the Long Run**

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# Will 21<sup>c</sup> Capitalism be as Unequal as 19<sup>c</sup> Capitalism?

- Long run distributional trends = key question asked by 19<sup>c</sup> economists
- Many came with apocalyptic answers
- Ricardo-Marx: a small group in society (land owners or capitalists) will capture an ever growing share of income & wealth; no balanced development path can occur
- During 20<sup>c</sup>, a more optimistic consensus emerged: “growth is a rising tide that lifts all boats” (Kuznets 1953; cold war context)

- But inequality ↑ since 1970s destroyed this fragile consensus (US 1976-2007: >50% of total growth was absorbed by top 1%)
  - 19<sup>C</sup> economists raised the right questions; we need to address these questions again; we have no strong reason to believe in balanced development path
- 2007-2010 crisis also raised doubts about balanced devt path... will stock options & bonuses, or oil-rich countries, or China, or tax havens, absorb an ever growing share of world resources in 21<sup>C</sup> capitalism?

# This talk: three issues

- 1. The rise of the working rich

(Atkinson-Piketty-Saez, « Top Incomes in the Long Run of History », JEL 2011)

- 2. The return of inheritance

(Piketty, « On the Long Run Evolution of Inheritance – France 1820-2050 », WP PSE 2010, QJE 2011)

- 3. The future of global inequality

(Piketty-Zucman, « Will China Own the World? Essay on the Dynamics of the World Wealth Distribution », WP PSE 2011, in progress)

- **No built-in stabilizer:** inequalities can diverge during many decades (or for ever...)  
(price system knows no limit: real estate, oil,..)  
(especially if return to capital  $r >$  growth rate  $g$ )
- **No reason to expect inequalities to become more merit-based over time:**  
modern economic growth and technical progress does not necessarily need to more meritocracy; the « rise of human capital » is to a large extent an illusion

# 1. The Rise of the Working Rich

- Top income project: 23 countries, annual series over most of 20<sup>C</sup>. **Two main findings:**
  - **The fall of rentiers:** inequality ↓ during first half of 20<sup>C</sup> = top capital incomes hit by 1914-1945 capital shocks; never fully recovered, possibly because of progressive taxation  
→ no long run decline of earnings inequality; nothing to do with a Kuznets-type process
  - **The rise of working rich:** inequality ↑ since 1970s; mostly due to top labor incomes  
→ **what happened?**

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# TOP INCOMES OVER THE 20TH CENTURY

*A Contrast Between Continental European  
and English-Speaking Countries*

*Edited by A. B. ATKINSON & T. PIKETTY*

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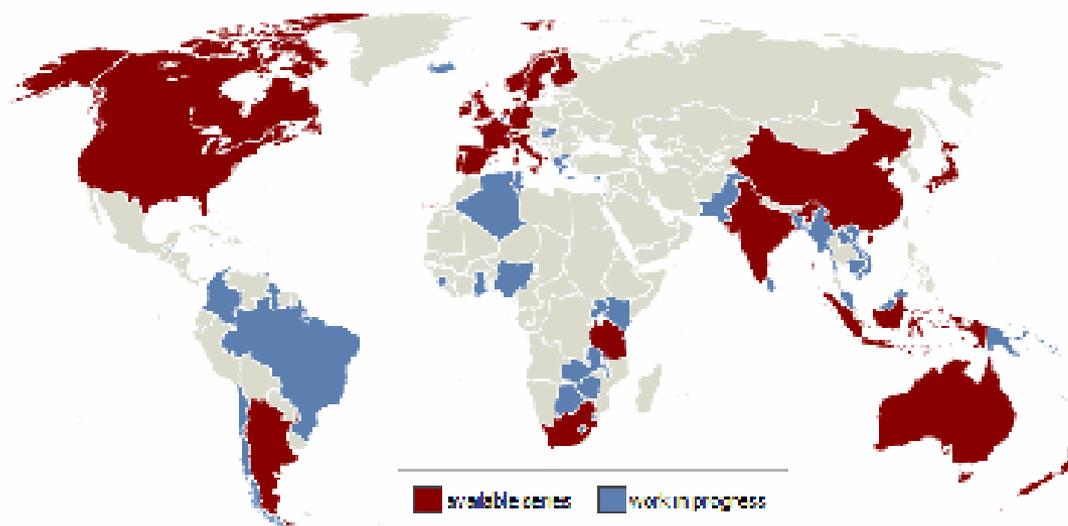
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# TOP INCOMES GLOBAL PERSPECTIVE

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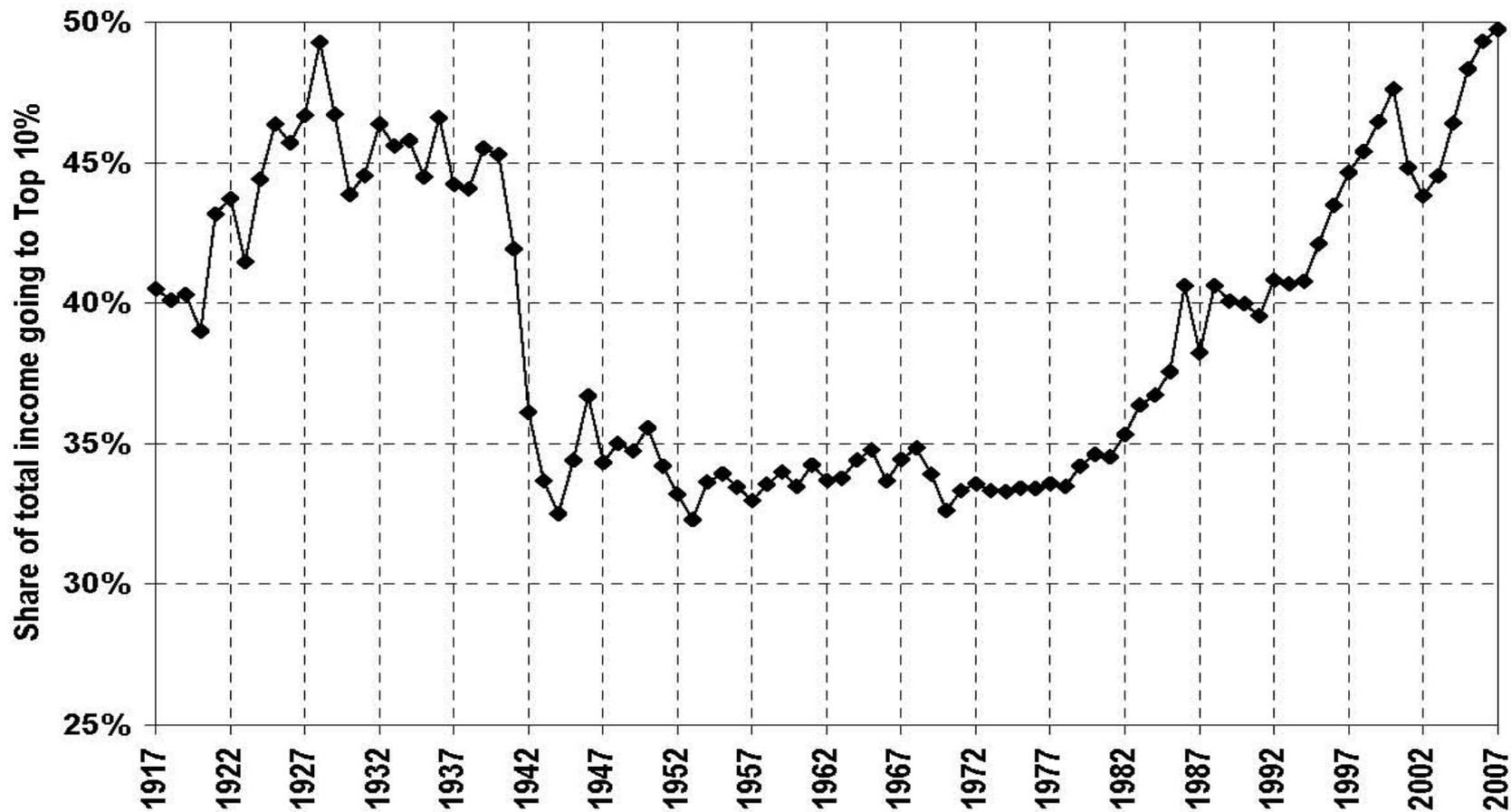
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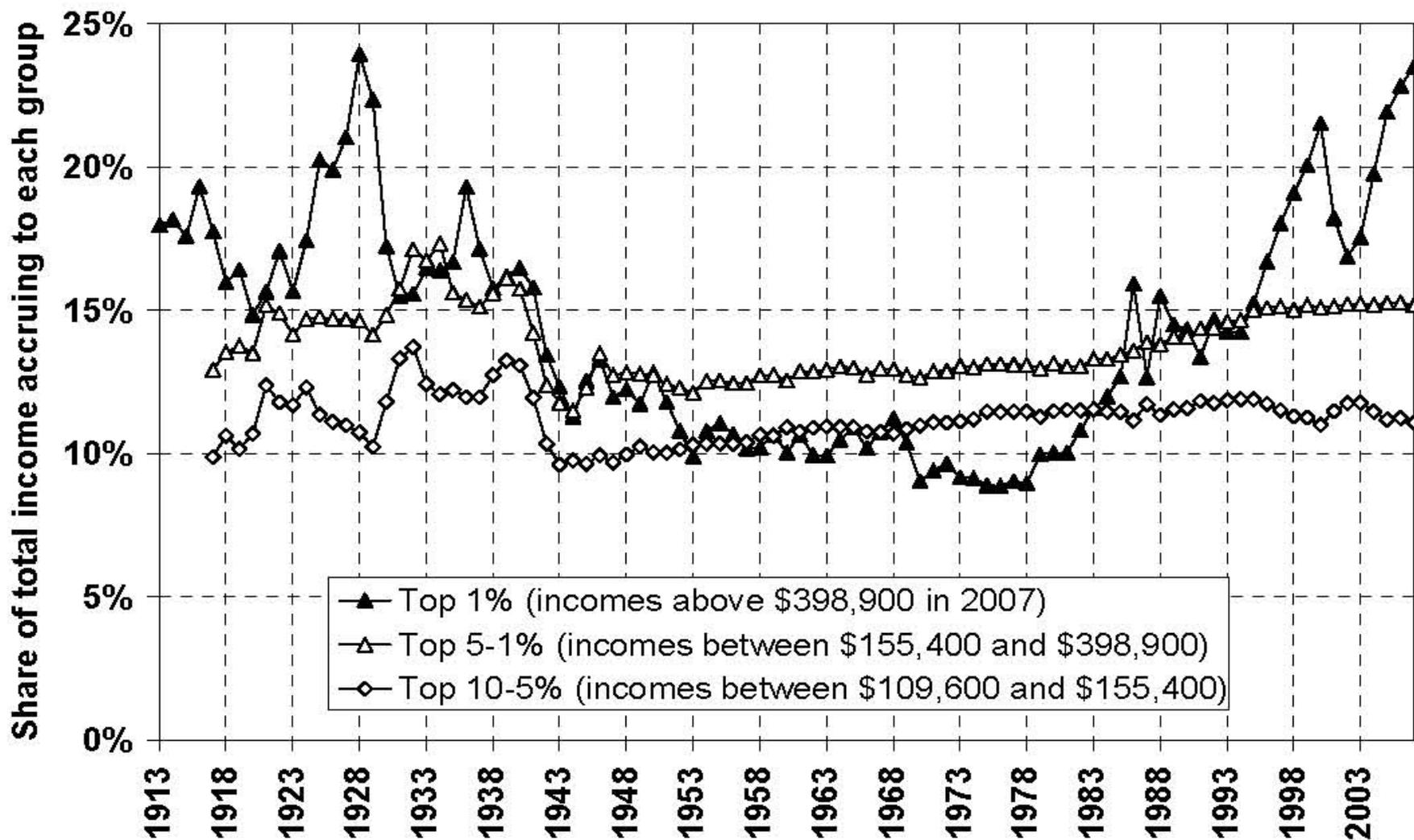


**FIGURE 1**

The Top Decile Income Share in the United States, 1917-2007

Source: Piketty and Saez (2003), series updated to 2007.

Income is defined as market income including realized capital gains (excludes government transfers).



**FIGURE 2**

Decomposing the Top Decile US Income Share into 3 Groups, 1913-2007

**Table 1. Top Percentile Share and Average Income Growth in the US**

	<b>Average Income Real Annual Growth</b>	<b>Top 1% Incomes Real Annual Growth</b>	<b>Bottom 99% Incomes Real Annual Growth</b>	<b>Fraction of total growth captured by top 1%</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>Period</b>				
1976-2007	1.2%	4.4%	0.6%	58%
Clinton Expansion 1993-2000	4.0%	10.3%	2.7%	45%
Bush Expansion 2002-2007	3.0%	10.1%	1.3%	65%

Computations based on family market income including realized capital gains (before individual taxes).

Incomes are deflated using the Consumer Price Index (and using the CPI-U-RS before 1992).

Column (4) reports the fraction of total real family income growth captured by the top 1%.

For example, from 2002 to 2007, average real family incomes grew by 3.0% annually but 65% of that growth accrued to the top 1% while only 35% of that growth accrued to the bottom 99% of US families.

Source: Piketty and Saez (2003), series updated to 2007 in August 2009 using final IRS tax statistics.

Figure 7A. Top 1% share: English Speaking countries (U-shaped), 1910-2005

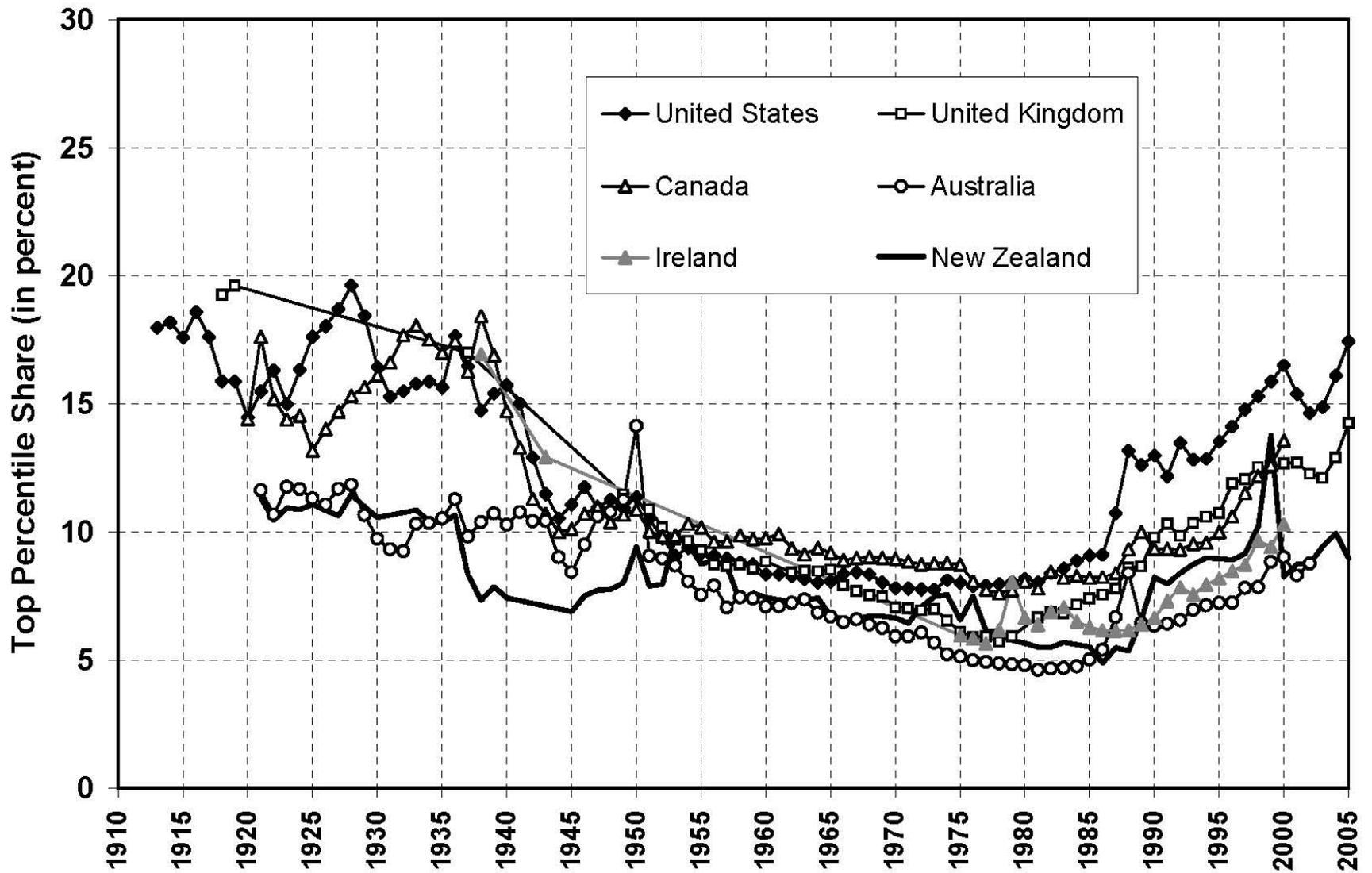
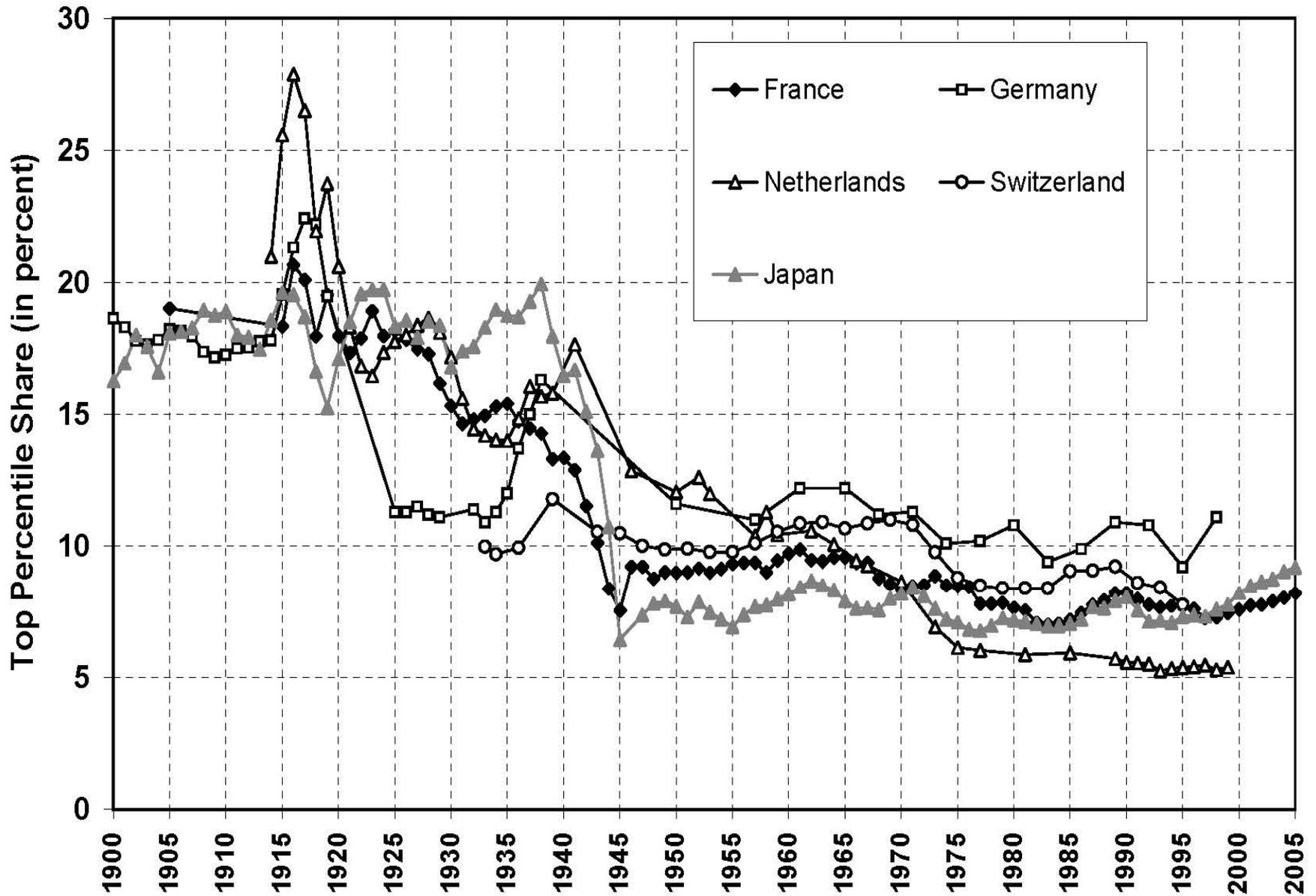


Figure 7B. Top 1% Share: Middle Europe and Japan (L-shaped), 1900-2005



# Why are US working rich so rich?

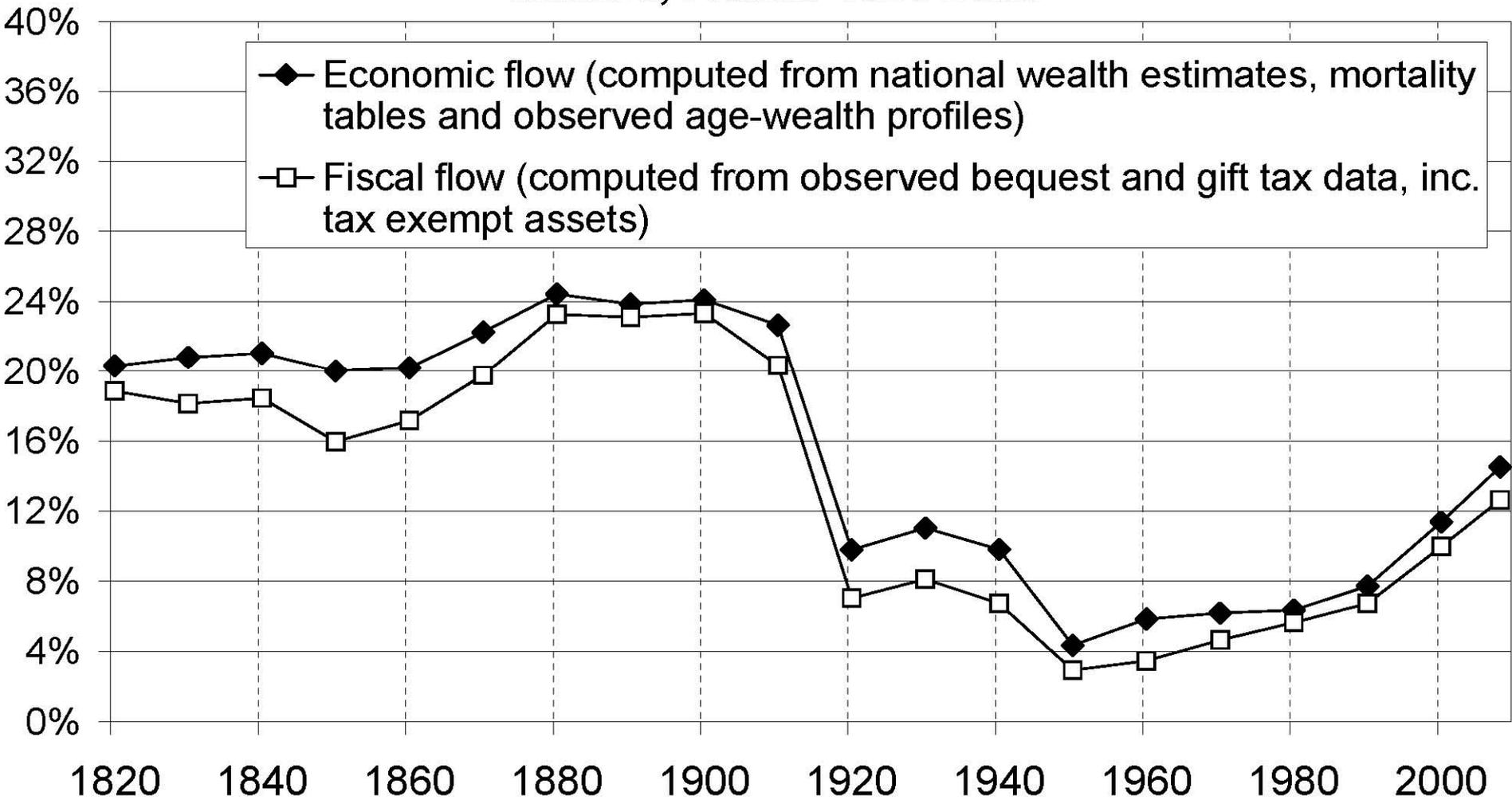
- Hard to account for observed variations with a pure technological, marginal-product story
  - One popular view: US today = working rich get their marginal product (globalization, superstars); Europe today (& US 1970s) = market prices for high skills are distorted downwards (social norms, etc.)
- very naïve view of the top labor market...
- & very ideological: we have zero evidence on the marginal product of top executives; it could well be that prices are distorted upwards...

- Another view: grabbing hand model = marginal products are unobservable; top executives have an obvious incentive to convince shareholders & subordinates that they are worth a lot; no market convergence because constantly changing corporate & job structure (& costs of experimentation)  
→ when pay setters set their own pay, there's no limit to rent extraction... unless confiscatory tax rates at the very top  
(memo: US top rate (1m\$+) 1932-1980 = 82%)
  - Not much to do with merit...

## 2. The return of inheritance

- **Distributional issue:** wealth inequality ↓ during 20<sup>C</sup>.. but not that much: in 2010, top 10% wealth share ≈ 70-75% (US), 60-65% (EU), vs ≈ 80-90% around 1900 & in 19<sup>C</sup>
  - **Macro issue:** aggregate inheritance flow vs aggregate labor income: much larger historical variations → long lasting « human K » illusion
- this is the issue explored in « On the Long Run Evolution of Inheritance – France 1820-2050 », WP PSE 2010, QJE 2011

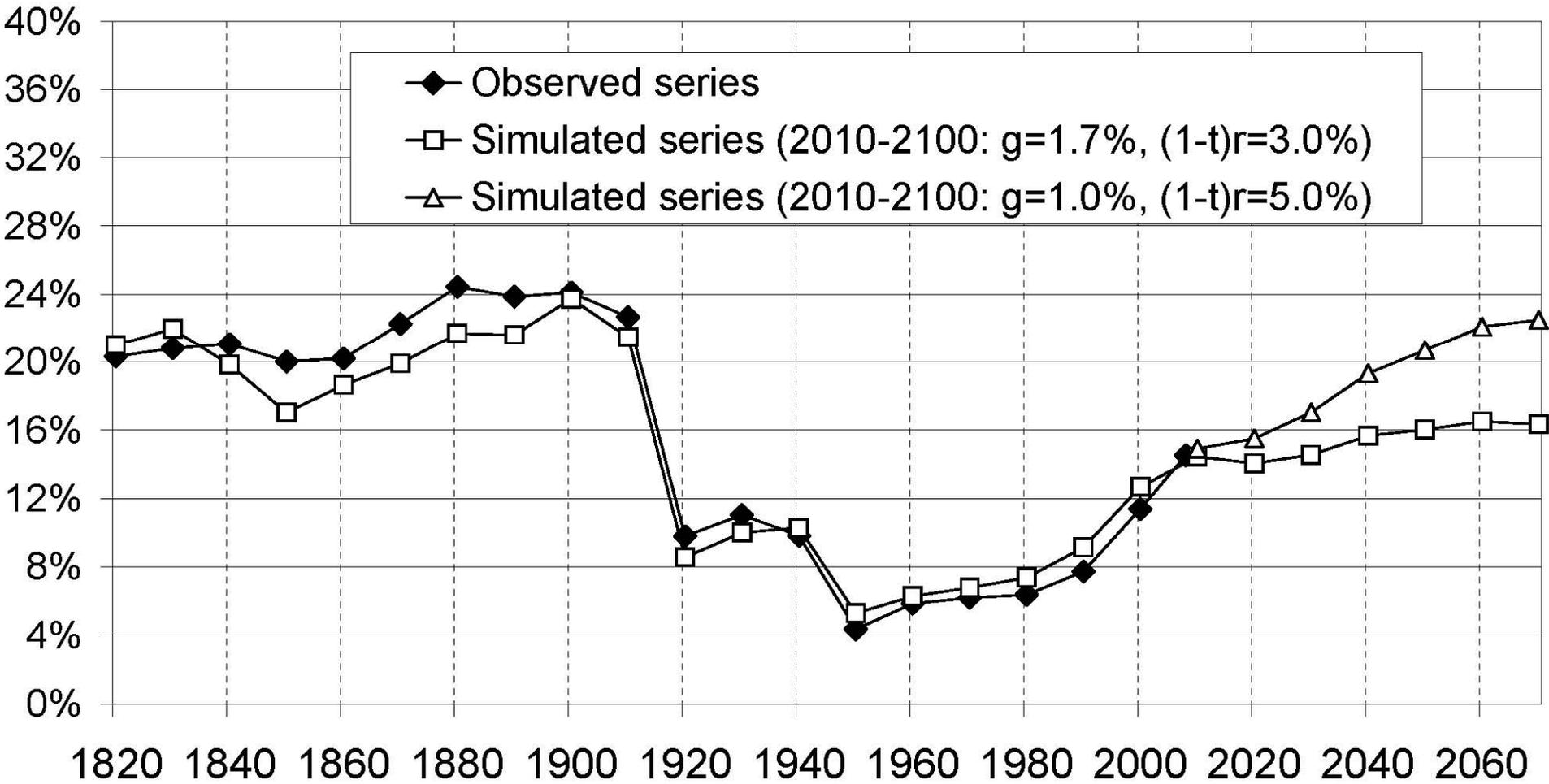
**Figure 1: Annual inheritance flow as a fraction of national income, France 1820-2008**



# What this paper does

- Documents this fact; develops a simple theoretical model explaining & reproducing this fact
- **Main lesson: with  $r > g$ , inheritance is bound to dominate new wealth; the past eats up the future**
- **Intuition:** with  $r > g$  &  $g$  low (say  $r = 4\% - 5\%$  vs  $g = 1\% - 2\%$ ), wealth coming from the past is being capitalized faster than growth; heirs just need to save a fraction  $g/r$  of the return to inherited wealth  $\rightarrow b_y = \beta/H$   
 $\rightarrow$  with  $\beta = 600\%$  &  $H = 30$ , then  $b_y = 20\%$
- It is only in countries & time periods with  $g$  exceptionally high that self-made wealth dominates inherited wealth (OECD in 1950s-70s or China today)

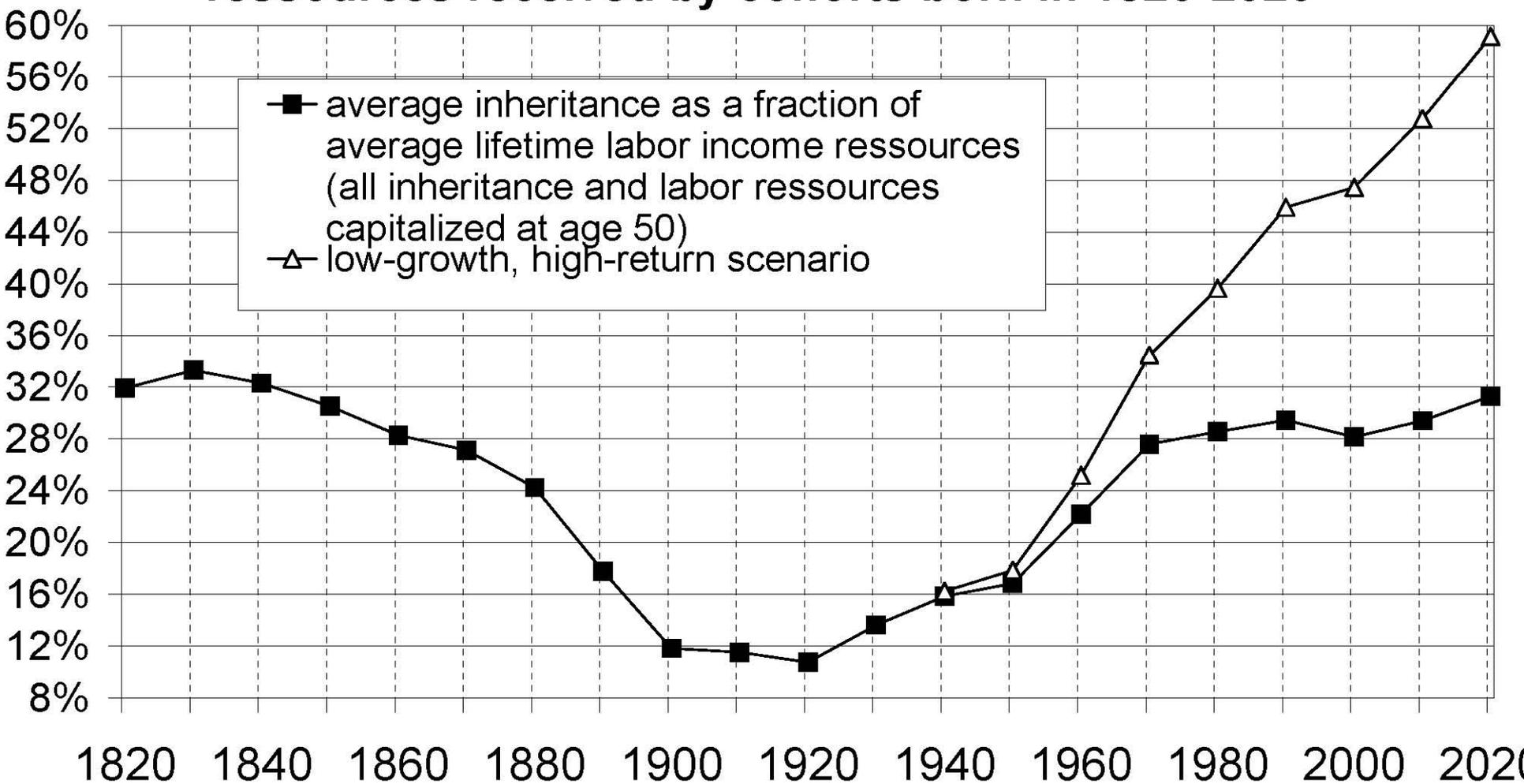
**Figure 9: Observed vs simulated inheritance flow B/Y, France 1820-2100**



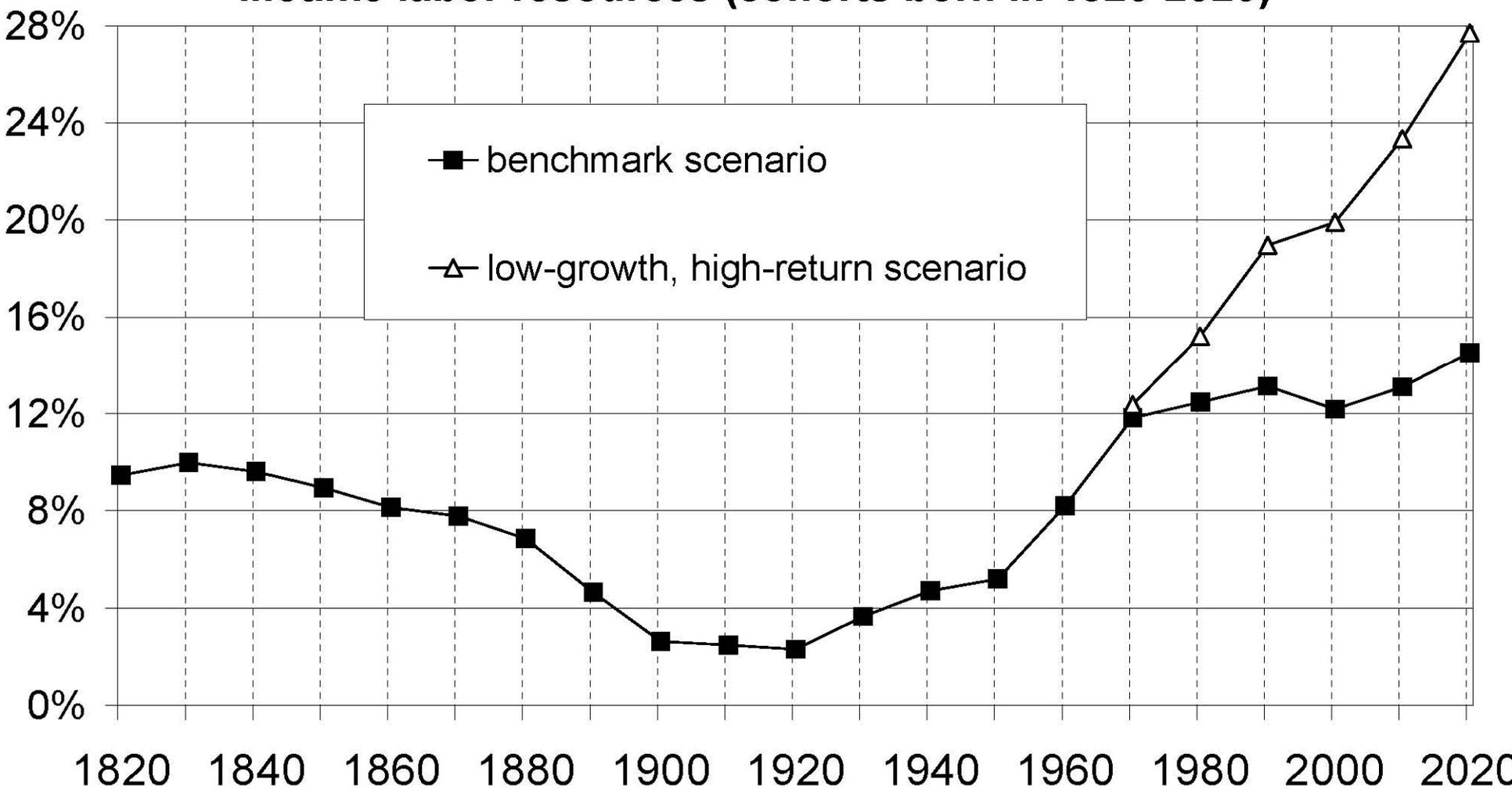
# Back to distributional analysis: macro ratios determine who is the dominant social class

- 19<sup>c</sup>: top successors dominate top labor earners  
→ rentier society (Balzac, Jane Austen, etc.)
- For cohorts born in the 1910s-1950s, inheritance did not matter too much  
→ labor-based, meritocratic society
- But for cohorts born in the 1970s-1980s & after, inheritance matters a lot → 21<sup>c</sup> closer to 19<sup>c</sup> rentier society than to 20<sup>c</sup> merit society
- The rise of human capital & meritocracy was an illusion .. especially with a labor-based tax system

**Figure 13: The share of inheritance in lifetime resources received by cohorts born in 1820-2020**



**Figure 17: Cohort fraction inheriting more than bottom 50% lifetime labor resources (cohorts born in 1820-2020)**



### 3. The future of global inequality

- **Around 1900-1910:** Europe owned the rest of the world; net foreign wealth of UK or France  $>100\%$  of their national income ( $>50\%$  of the rest-of-the-world capital stock)
  - **Around 2050:** will the same process happen again, but with China instead of Europe?
- this is the issue explored in Piketty-Zucman, « Will China Own the World? Essay on the Dynamics of the World Wealth Distribution, 2010-2050 », WP PSE 2011; highly exploratory & preliminary calibrations...

- Assume global convergence in per capita output  $Y$  & in capital intensity  $K/Y$
- With large differences in population & fully integrated  $K$  markets & high world rate of return  $r$  (low  $K$  taxes)

Then moderate differences in savings rate (say,  $s=20\%$  in China vs  $s=10\%$  in Europe+US, due to bigger pay-as-you-go pensions in Old World, traumatized by past financial crashes) can generate v. large net foreign asset positions → under these assumptions, China might own a large part of the world by 2050

- Likely policy response in the West: K controls, public ownership of domestic firms, etc.
- But this is not the most likely scenario: a more plausible scenario is that global billionaires (located in all countries... and particularly in tax havens) will own a rising share of global wealth
- A lot depends on the net-of-tax global rate of return  $r$  on large diversified portfolios
- If  $r=5\%-6\%$  in 2010-2050 (=what we observe in 1980-2010 for large Forbes fortunes, or Abu Dhabi sovereign fund, or Harvard endowment), then global divergence is very likely

- Both scenarios can happen
- But the « global billionaires own the world » scenario is more likely than the « China own the world » scenario
- And it is also a lot harder to cope with: we'll need a lot of international policy coordination; without a global crackdown on tax havens & a coordinated world wealth tax on the global rich, individual countries & regions will keep competing to attract billionaires, thereby exacerbating the trend
- Free, untaxed world K markets can easily lead to major imbalances & global disasters

# What have we learned?

- A world with  $g$  low &  $r > g$  is gloomy for workers with zero inherited wealth
  - ... especially if global tax competition drives capital taxes to 0%
  - ... especially if top labor incomes take a rising share of aggregate labor income
- let's unite to tax capital & top labor; otherwise the future looks gloom...
- A world with  $g=1-2\%$  (=long-run world technological frontier) is not very different from a world with  $g=0\%$  (Marx-Ricardo)

- More efficient markets won't help...
- The more efficient the markets, the sharper the capital vs labor distinction; with highly developed k markets, any dull successor can get a high rate of return
- **$r > g$  = the true evil law of capitalism**
- = nothing to do with market imperfections**
- Standard model:  $r = \theta + \sigma g > g$  (Golden rule)
- The important point about capitalism is that  $r$  is large ( $r > g \rightarrow$  tax capital, otherwise society is dominated by rentiers), volatile and unpredictable (crisis)

Supplementary slides

# **IEA World Congress, Beijing, July 6 2011**

## **Invited Session: « Income & Wealth Inequality in 21<sup>C</sup> Capitalism »**

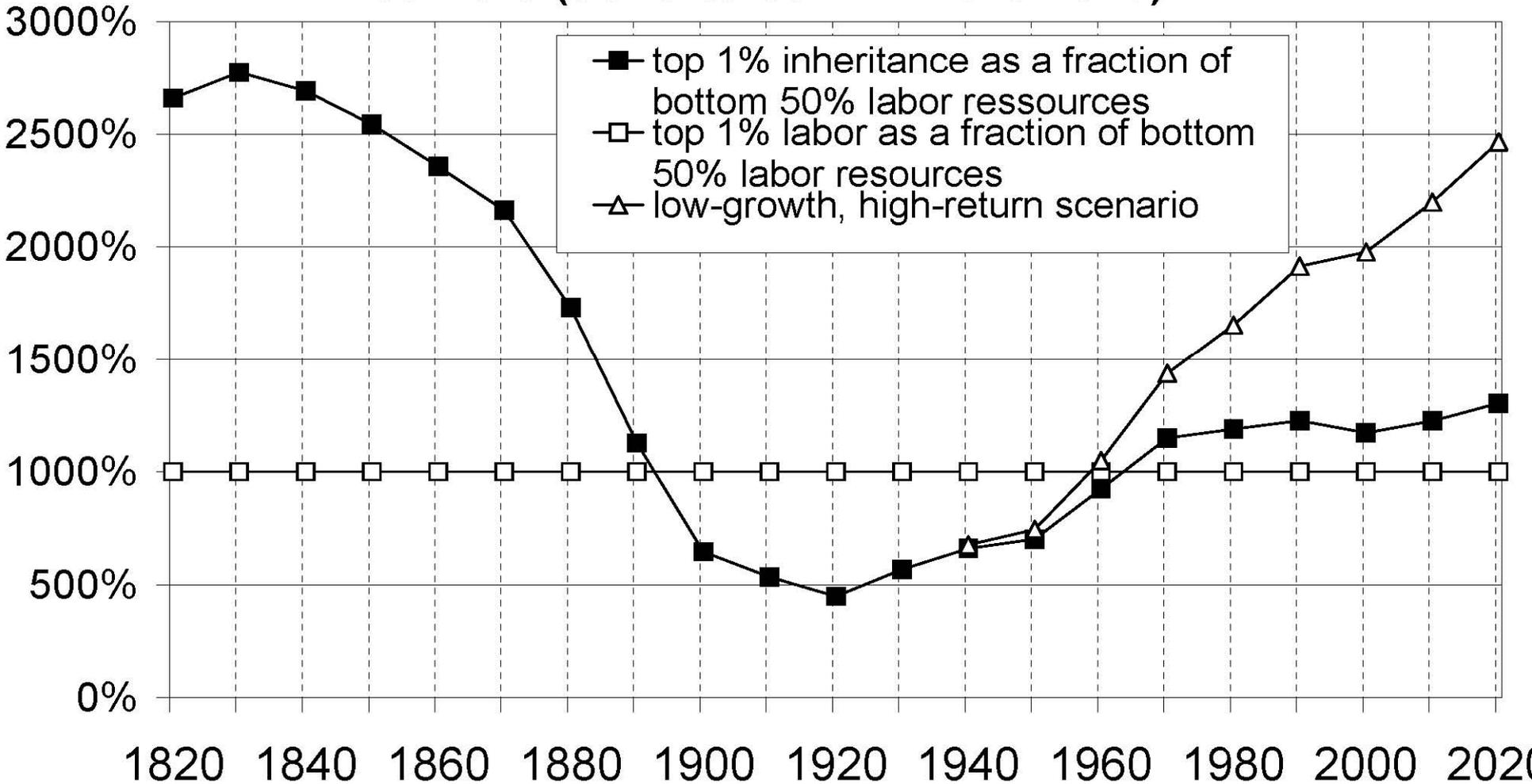
- **J. Davies**, « The Level & Distribution of Global Household Wealth, 2000-2010 »
- **G. Zucman**, « The Missing Wealth of Nations: Are EU & US Net Debtors or Net Creditors? »
- **T. Piketty**, « Will 21<sup>C</sup> Capitalism Be As Unequal as 19<sup>C</sup> Capitalism? »

(Chair: T. Piketty, PSE)

**Table 3: Intra-cohort distributions of labor income and inheritance, France, 1910 vs 2010**

Shares in aggregate labor income or inherited wealth	Labor income 1910-2010	Inherited wealth	
		1910	2010
<b>Top 10% "Upper Class"</b>	<b>30%</b>	<b>90%</b>	<b>60%</b>
<i>incl. Top 1% "Very Rich"</i>	<i>6%</i>	<i>50%</i>	<i>25%</i>
<i>incl. Other 9% "Rich"</i>	<i>24%</i>	<i>40%</i>	<i>35%</i>
<b>Middle 40% "Middle Class"</b>	<b>40%</b>	<b>5%</b>	<b>35%</b>
<b>Bottom 50% "Poor"</b>	<b>30%</b>	<b>5%</b>	<b>5%</b>

**Figure 16: Top 1% successors vs top 1% labor income earners (cohorts born in 1820-2020)**

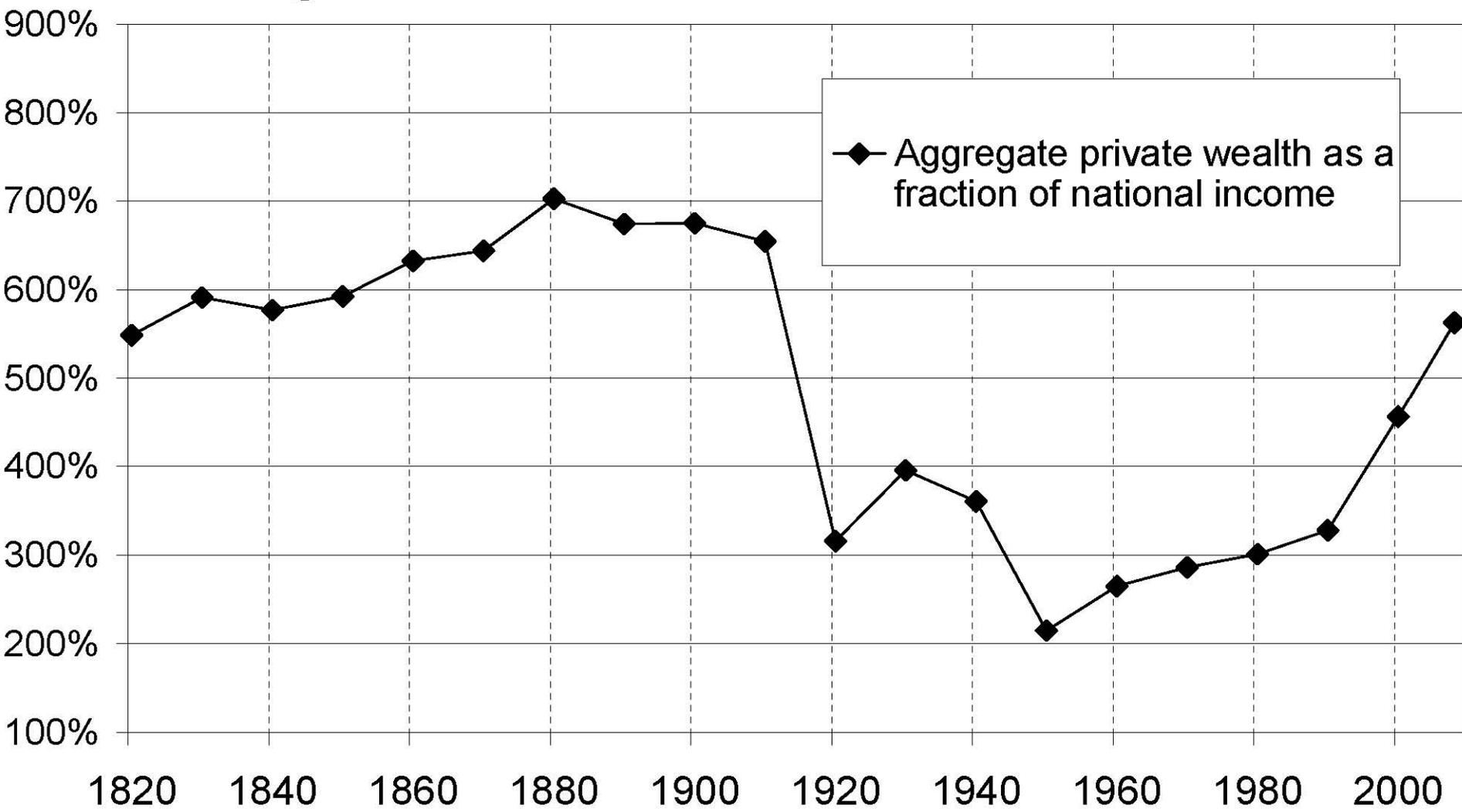


# Computing inheritance flows: simple macro arithmetic

$$B_t/Y_t = \mu_t m_t W_t/Y_t$$

- $W_t/Y_t$  = aggregate wealth/income ratio
  - $m_t$  = aggregate mortality rate
  - $\mu_t$  = ratio between average wealth of decedents and average wealth of the living (= age-wealth profile)
- The U-shaped pattern of inheritance is the product of three U-shaped effects

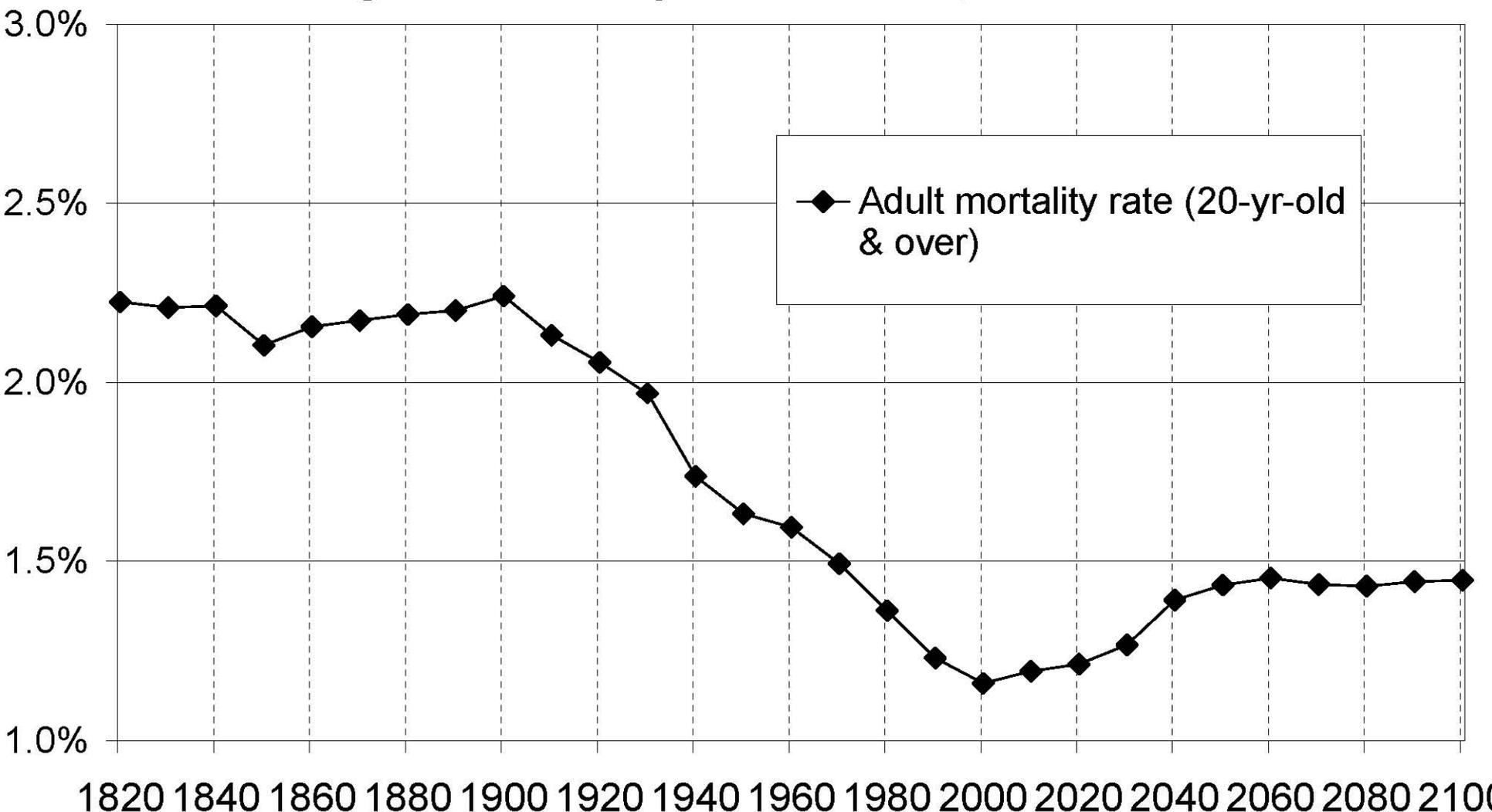
**Figure 2: Wealth-income ratio in France 1820-2008**



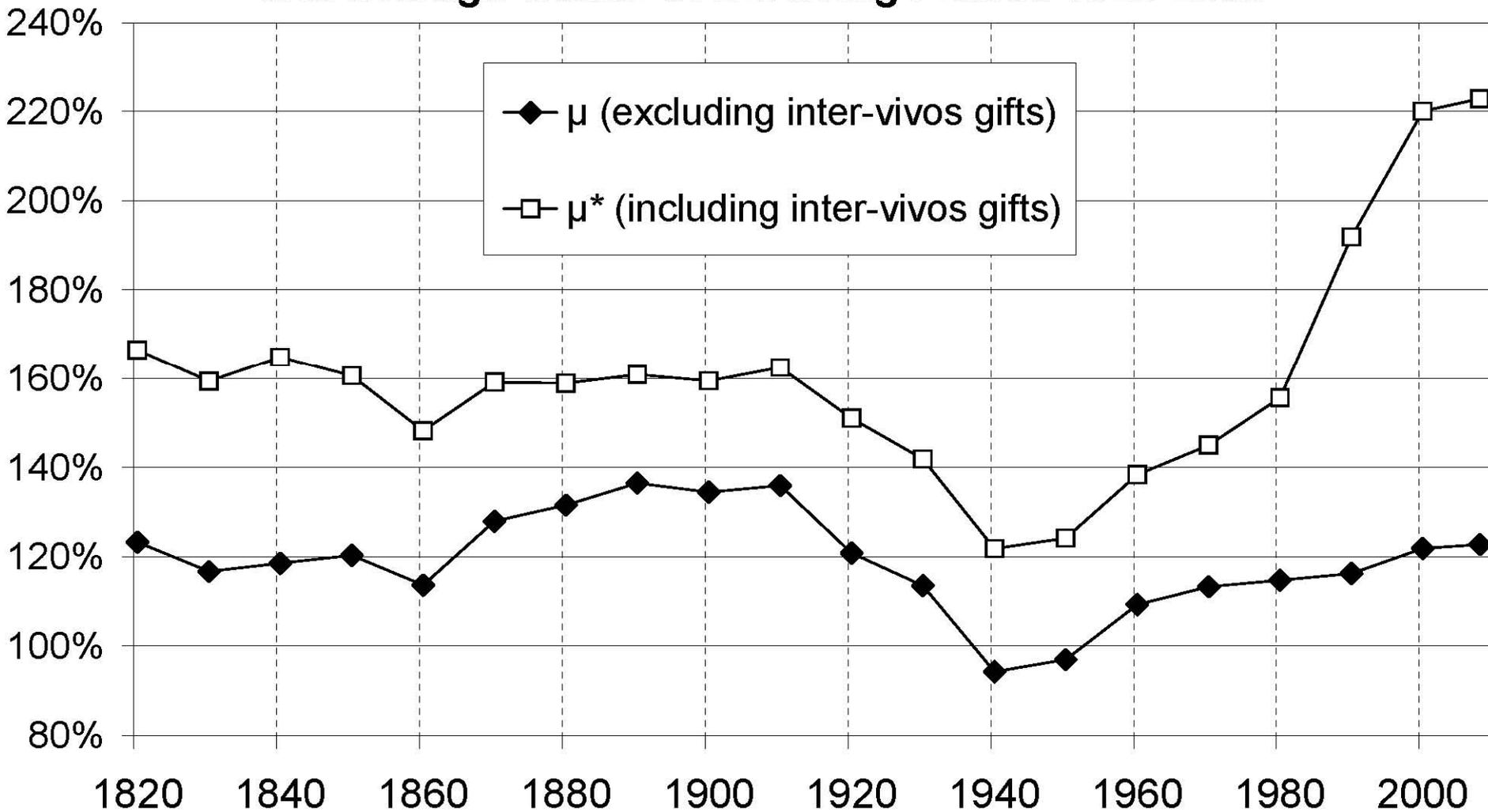
**Table 1: Accumulation of private wealth in France, 1820-2009**

	Real growth rate of national income $g$	Real growth rate of private wealth $g_w$	Savings-induced wealth growth rate $g_{ws} = s/\beta$	Capital-gains-induced wealth growth rate $q$	<i>Memo:</i> Consumer price inflation $p$
1820-2009	1.8%	1.8%	2.1%	-0.3%	4.4%
1820-1913	1.0%	1.3%	1.4%	-0.1%	0.5%
1913-2009	2.6%	2.4%	2.9%	-0.4%	8.3%
1913-1949	1.3%	-1.7%	0.9%	-2.6%	13.9%
1949-1979	5.2%	6.2%	5.4%	0.8%	6.4%
1979-2009	1.7%	3.8%	2.8%	1.0%	3.6%

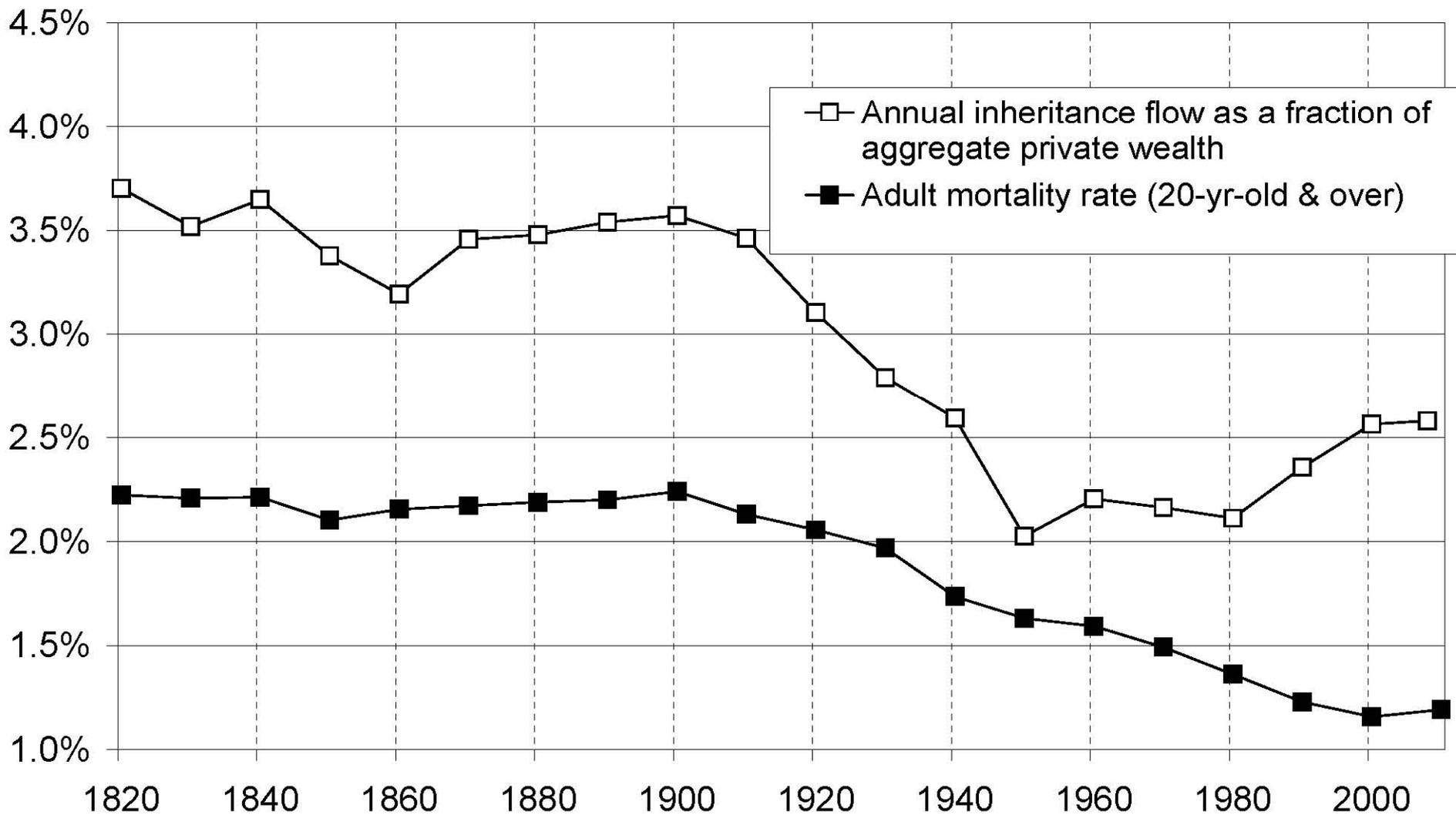
**Figure 3: Mortality rate in France, 1820-2100**



**Figure 4: The ratio between average wealth of decedents and average wealth of the living France 1820-2008**



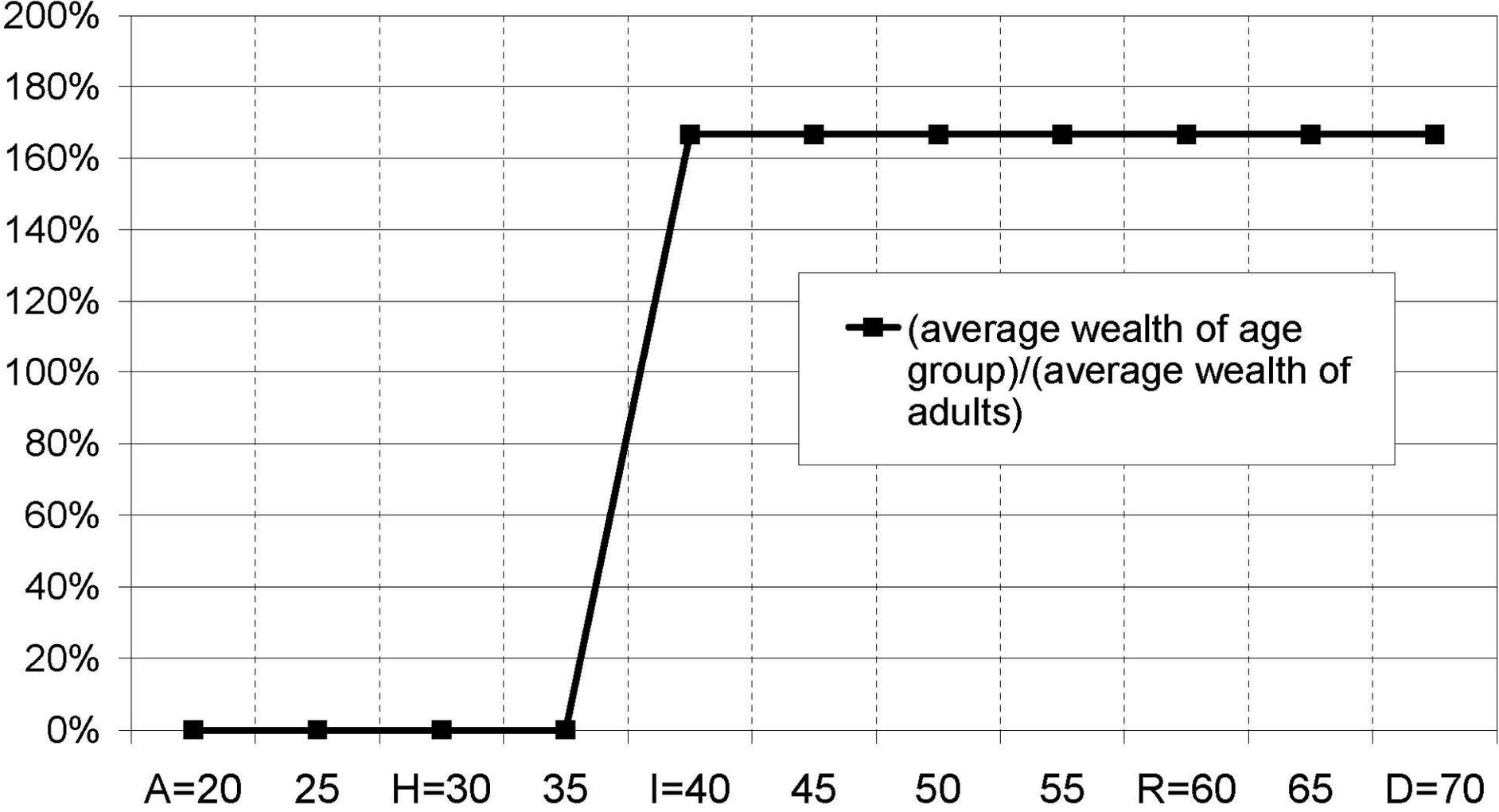
**Figure 5: Inheritance flow vs mortality rate in France, 1820-2008**



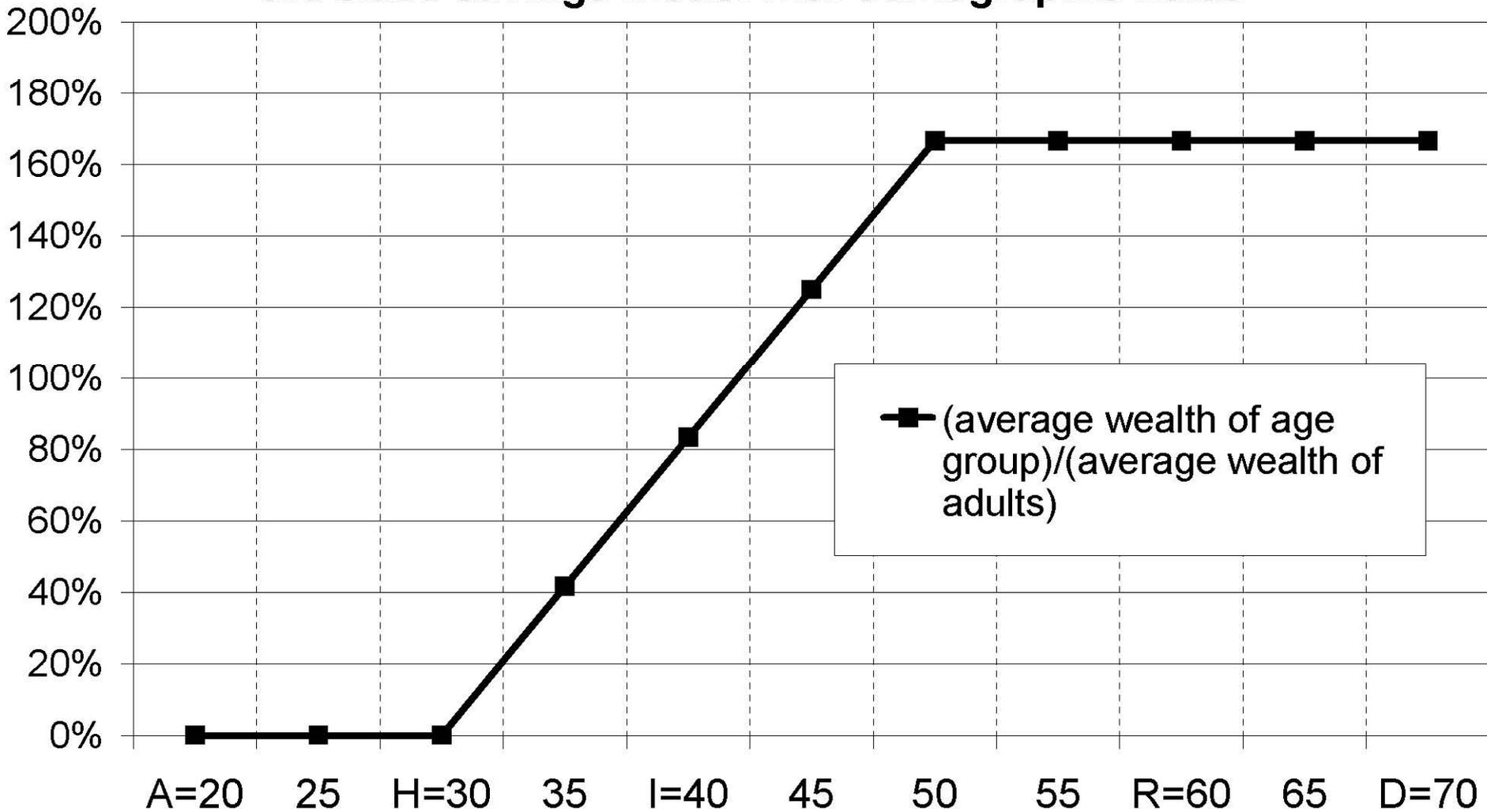
# Steady-state inheritance flows

- Standard models:  $r = \theta + \sigma g = \alpha g/s$  ( $>g$ )
- Everybody becomes adult at age  $A$ , has one kid at age  $H$ , inherits at age  $I$ , and dies at age  $D \rightarrow I = D-H$ ,  $m = 1/(D-A)$
- Dynastic or class saving:  $\mu = (D-A)/H$   
 $\rightarrow b_y = \mu m \beta = \beta/H$
- **Proposition:** As  $g \rightarrow 0$ ,  $b_y \rightarrow \beta/H$

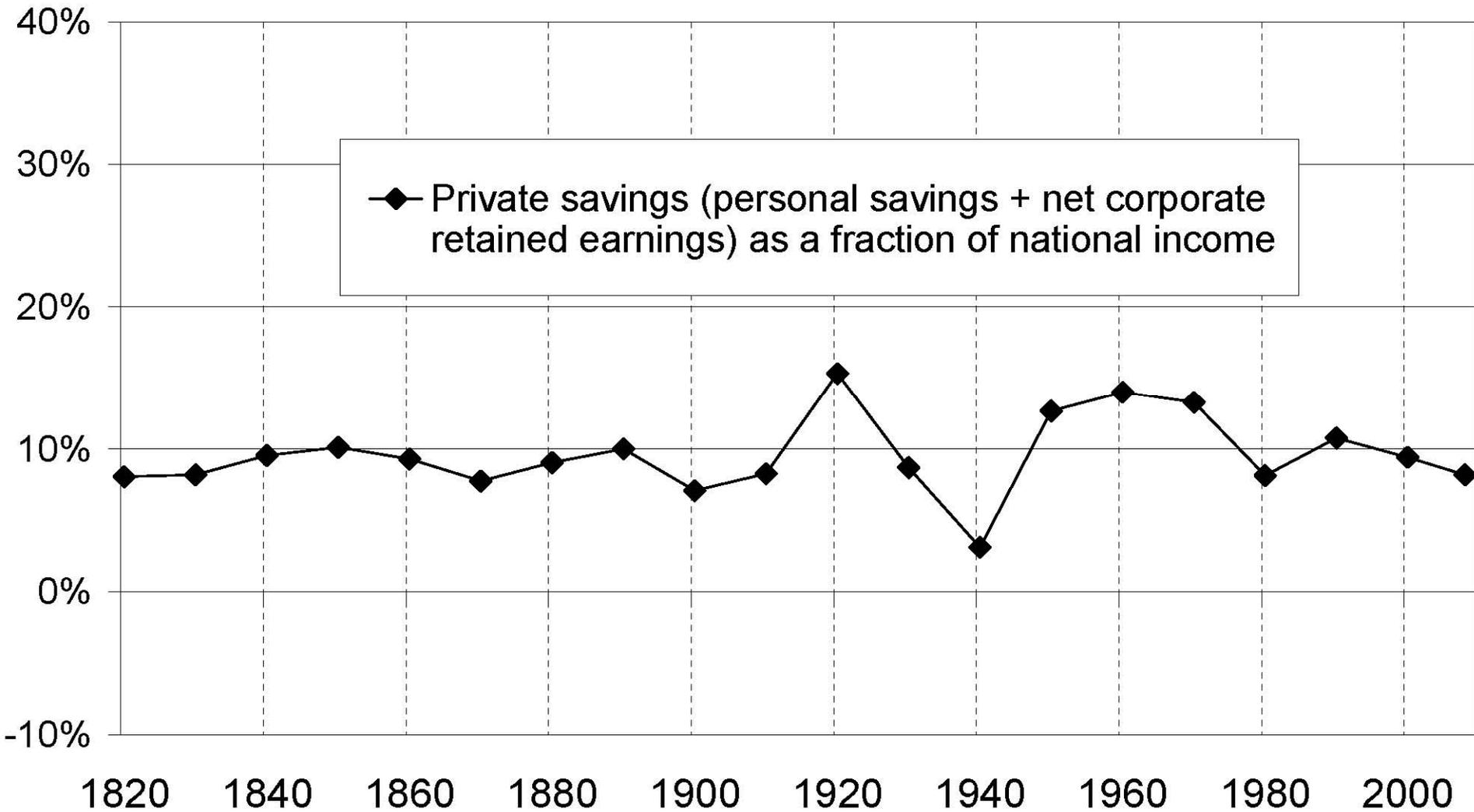
**Figure 6: Steady-state cross-sectional age-wealth profile in the class savings model ( $s_L=0, s_K>0$ )**



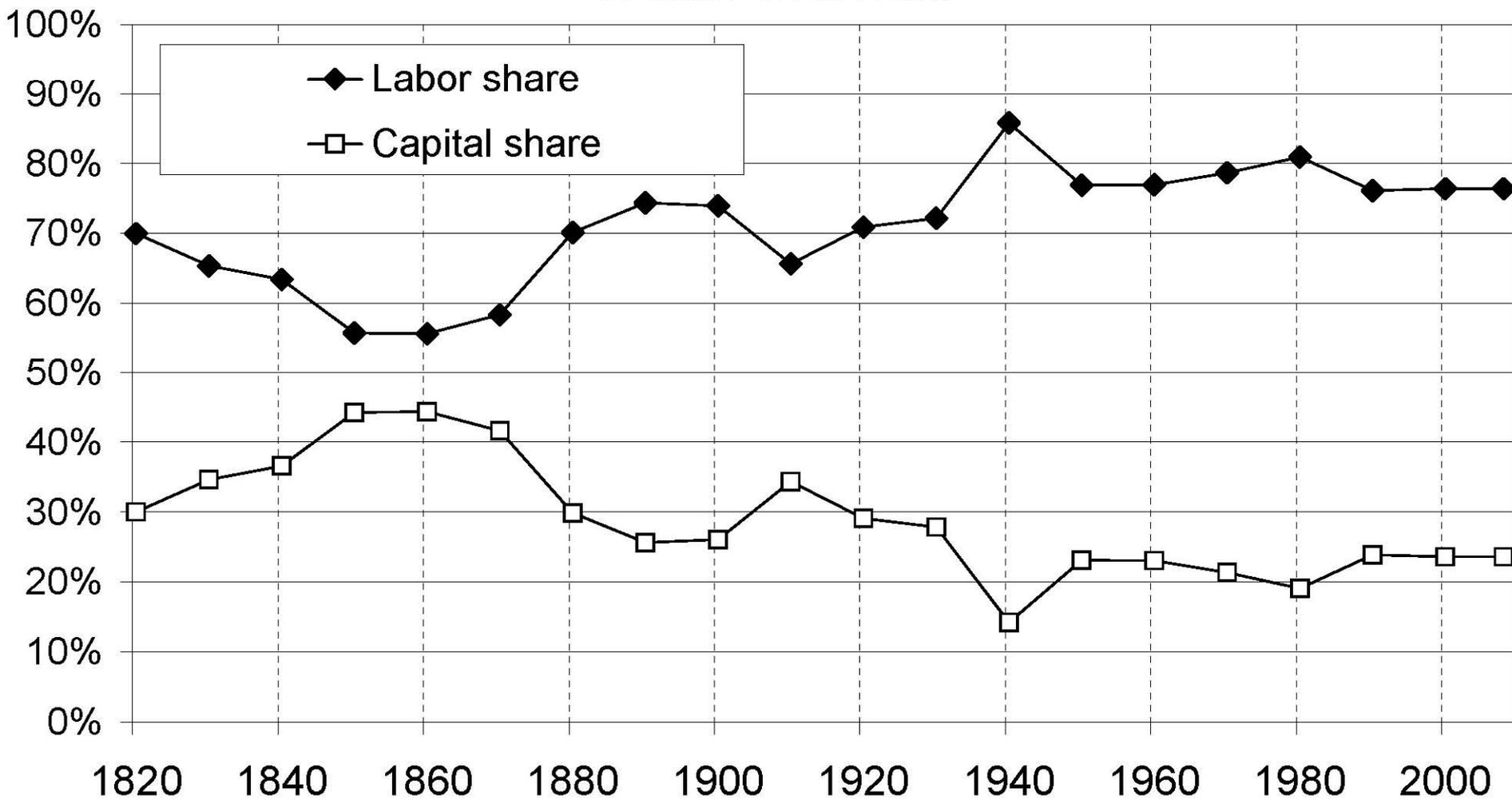
**Figure 7: Steady-state cross-sectional age-wealth profile in the class savings model with demographic noise**



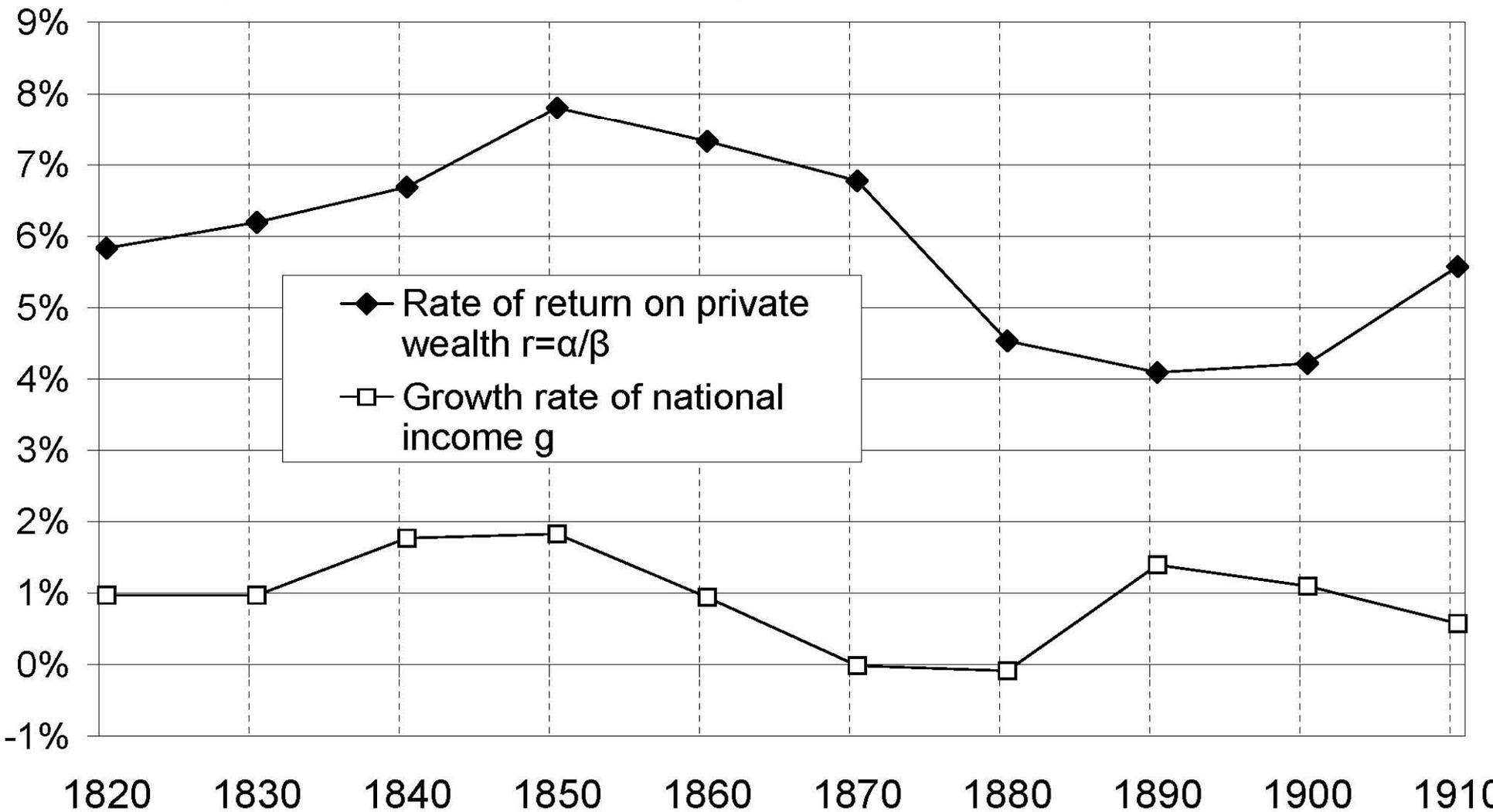
**Figure 8: Private savings rate in France 1820-2008**



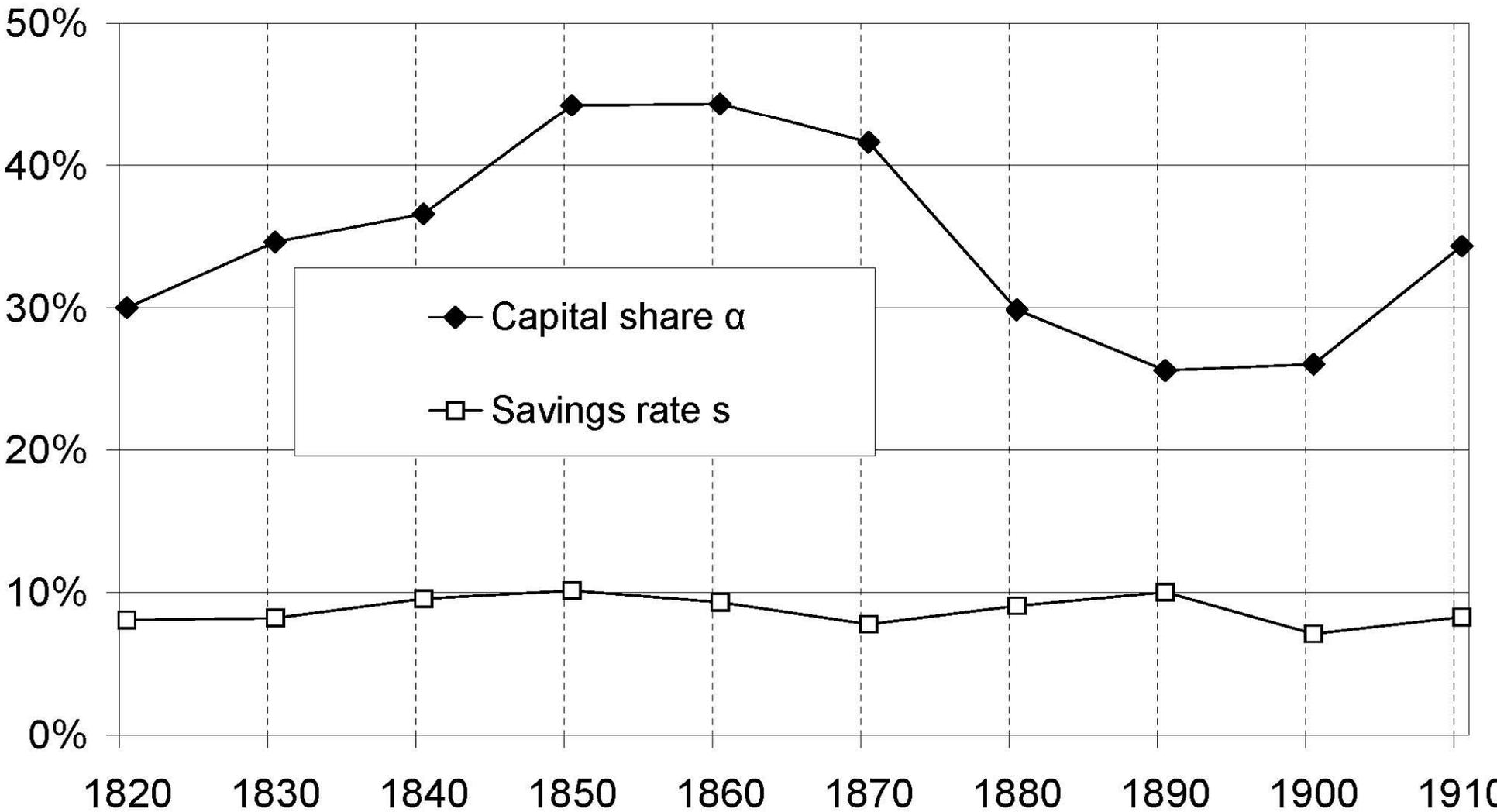
**Figure 10: Labor & capital shares in national income, France 1820-2008**



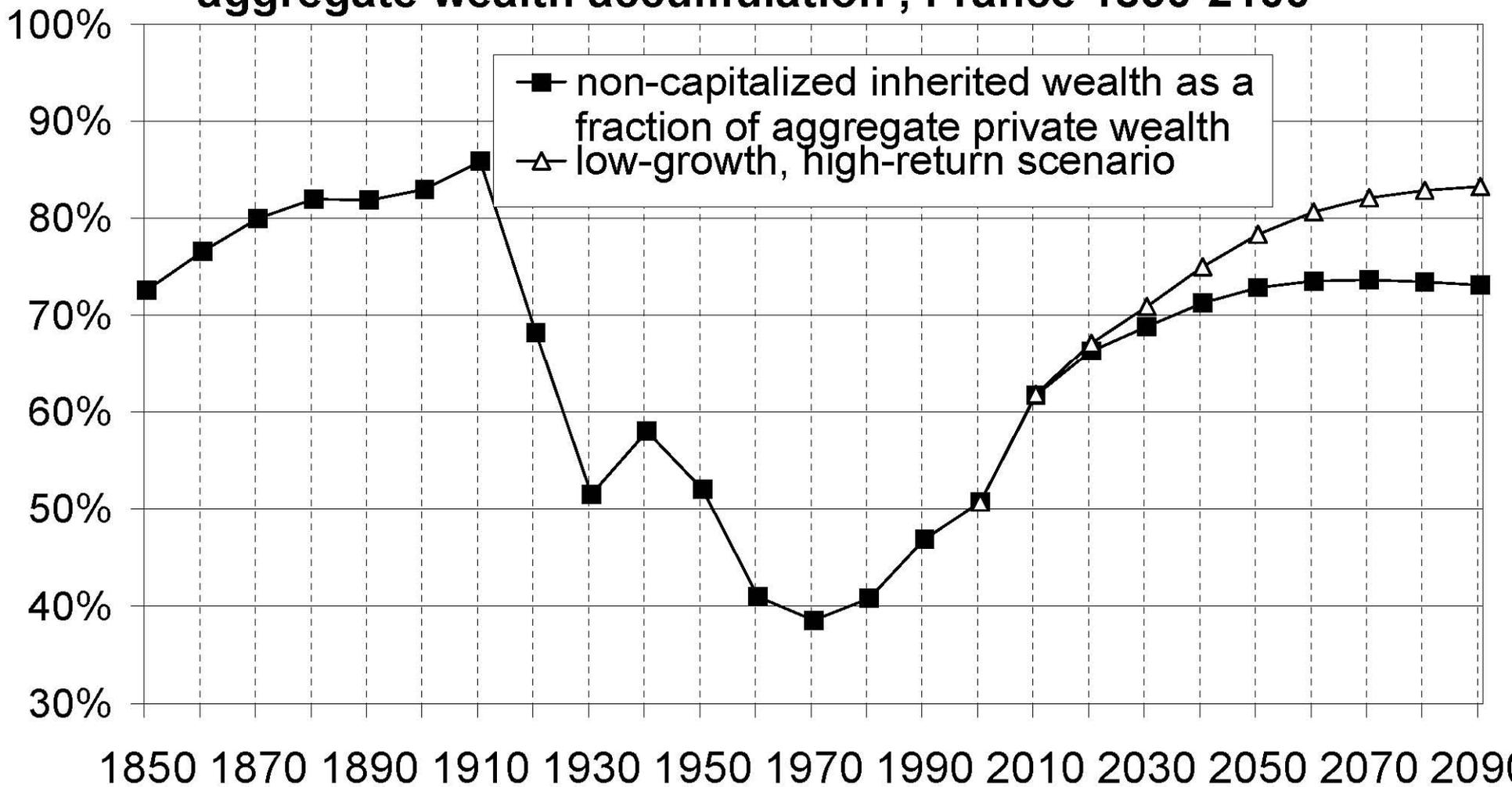
**Figure 11: Rate of return vs growth rate France 1820-1913**



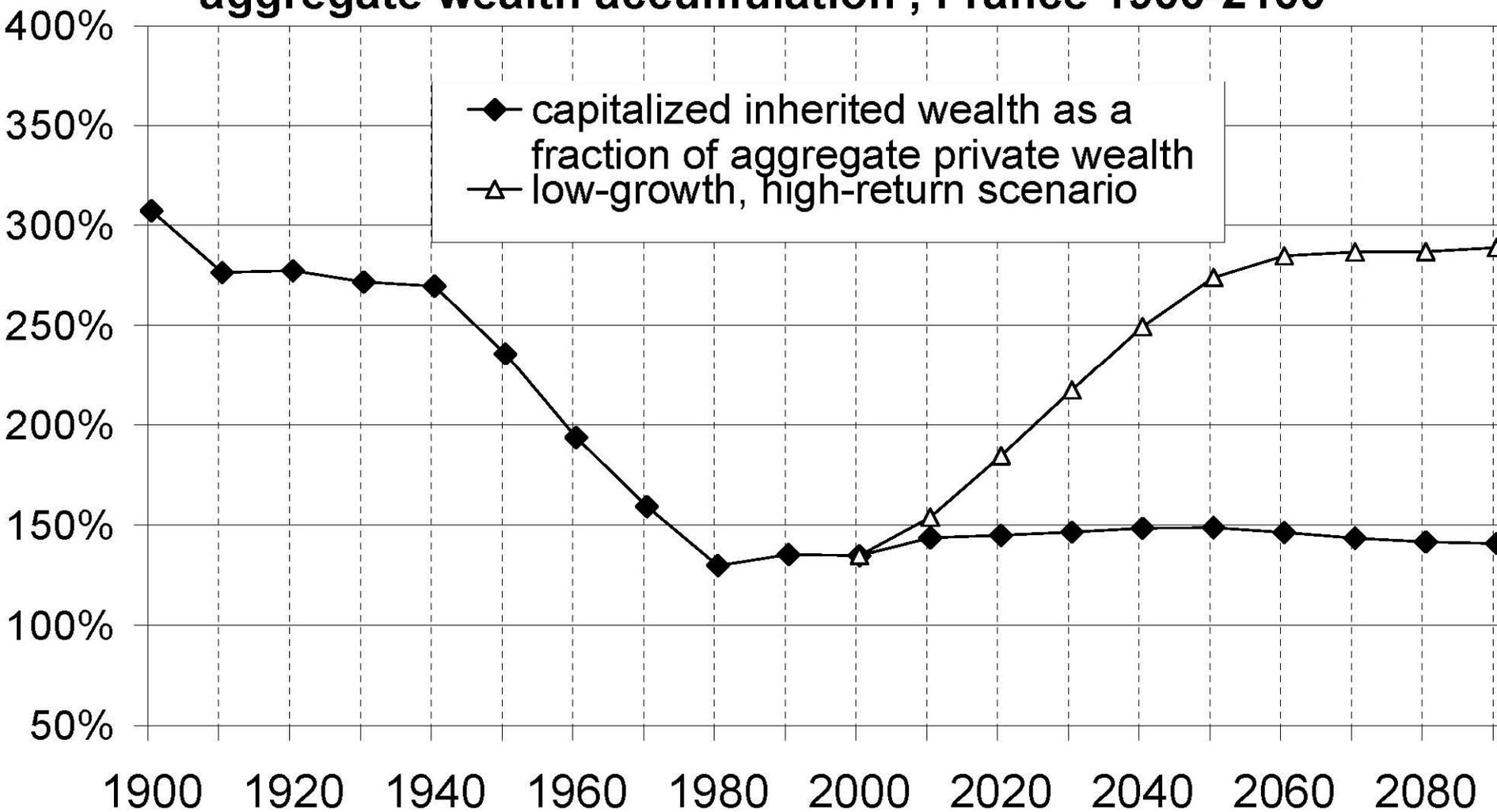
**Figure 12: Capital share vs savings rate France 1820-1913**



**Figure 18: The share of non-capitalized inheritance in aggregate wealth accumulation , France 1850-2100**



**Figure 19: The share of capitalized inheritance in aggregate wealth accumulation , France 1900-2100**



**Table 2: Rates of return vs growth rates in France, 1820-2009**

	Growth rate of national income  g	Rate of return on private wealth  $r = \alpha/\beta$	Capital tax rate  $\tau_K$	After-tax rate of return  $r_d = (1-\tau_K)\alpha/\beta$	Real rate of capital gains  q	Rate of capital destruct. (wars)  d	After-tax real rate of return (incl. k gains & losses)  $r_d = (1-\tau_K)\alpha/\beta + q + d$
1820-2009	<b>1.8%</b>	<b>6.8%</b>	19%	<b>5.4%</b>	-0.1%	-0.3%	<b>5.0%</b>
1820-1913	<b>1.0%</b>	<b>5.9%</b>	8%	<b>5.4%</b>	-0.1%	0.0%	<b>5.3%</b>
1913-2009	<b>2.6%</b>	<b>7.8%</b>	31%	<b>5.4%</b>	-0.1%	-0.7%	<b>4.6%</b>
1913-1949	<b>1.3%</b>	<b>7.9%</b>	21%	<b>6.4%</b>	-2.6%	-2.0%	<b>1.8%</b>
1949-1979	<b>5.2%</b>	<b>9.0%</b>	34%	<b>6.0%</b>	0.8%	0.0%	<b>6.8%</b>
1979-2009	<b>1.7%</b>	<b>6.9%</b>	39%	<b>4.3%</b>	1.0%	0.0%	<b>5.3%</b>