

Why Inequality Keeps Rising ?

Thomas Piketty

Paris School of Economics

World Bank, ED Colloquium

March 23rd 2012

Why inequality keeps rising?

- Long run distributional trends = key question asked by 19^C 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^C, 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: ≈60% of total growth was absorbed by top 1%)
→ 19^C economists raised the right questions; we need to address these questions again; we have no strong reason to believe in balanced development path
- 2007-2011 world financial 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^C capitalism?

Convergence vs divergence

- **Convergence forces do exist:** diffusion of knowledge btw countries (fostered by econ & fin integration) & wth countries (fostered by adequate educ institutions)
- **But divergence forces can be stronger:**
 - (1) When top earners set their own pay, there's no limit to rent extraction → top income shares can diverge
 - (2) The wealth accumulation process contains several divergence forces, especially with $r > g$ → 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 wealth divergence is very likely

This talk: two issues

- **1.The rise of the working rich**

(Atkinson-Piketty-Saez, « Top Incomes in the Long Run of History », JEL 2011; new results from *World Top Incomes Database*)

(key mechanism: grabbing hand)

- **2.The return of wealth & inheritance**

(P, « On the Long Run Evolution of Inheritance », QJE 2011; P-Zucman, « Capital Accumulation in Rich Countries », WP 2012; first results from *World Wealth & Inheritance Database*) (*preliminary*)

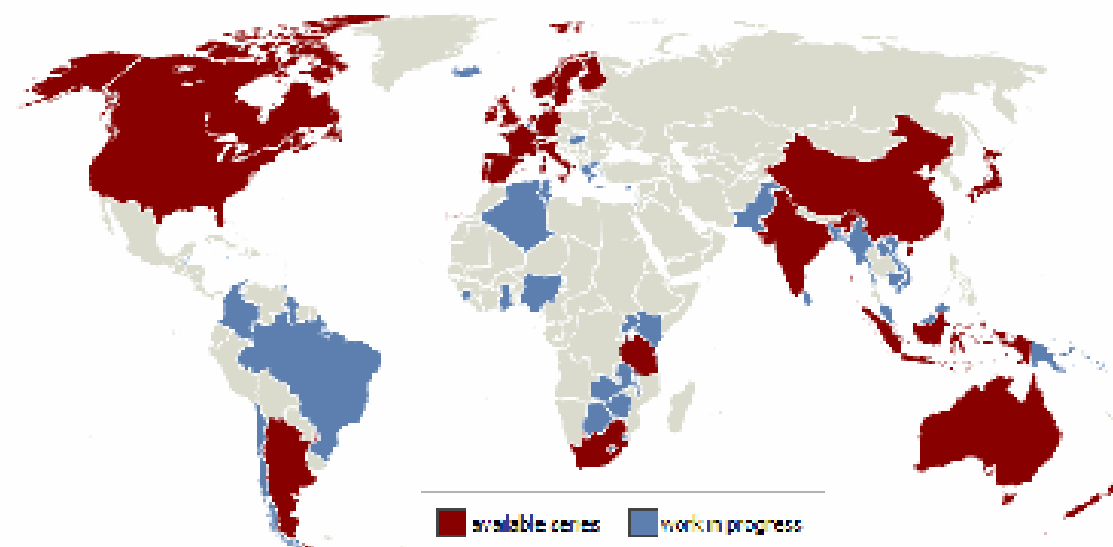
(key mechanism: $r > g$)

(r = rate of return to wealth, g = growth rate)

1. The Rise of the Working Rich

- **World top incomes database:** 25 countries, annual series over most of 20^C, largest historical data set
- **Two main findings:**
 - **The fall of rentiers:** inequality ↓ during first half of 20^C = top capital incomes hit by 1914-1945 capital shocks; did not fully recover so far (long lasting shock + progressive taxation)
 - without war-induced economic & political shock, there would have been no long run decline of inequality; nothing to do with a Kuznets-type spontaneous process
 - **The rise of working rich:** inequality ↑ since 1970s; mostly due to top labor incomes, which rose to unprecedented levels; top wealth & capital incomes also recovering, though less fast
 - **what happened?**

THE WORLD TOP INCOMES DATABASE



[Home](#)

[Introduction](#)

[The Database](#)

[Graphics](#)

[Country Information](#)

[Work In Progress](#)

[Acknowledgments](#)



PARIS SCHOOL OF ECONOMICS
FACULTY OF SOCIAL SCIENCES



CENTER FOR EQUITABLE GROWTH
UNIVERSITY OF CALIFORNIA, BERKELEY



CENTER FOR GLOBAL POLICY
UNIVERSITY OF CALIFORNIA, BERKELEY

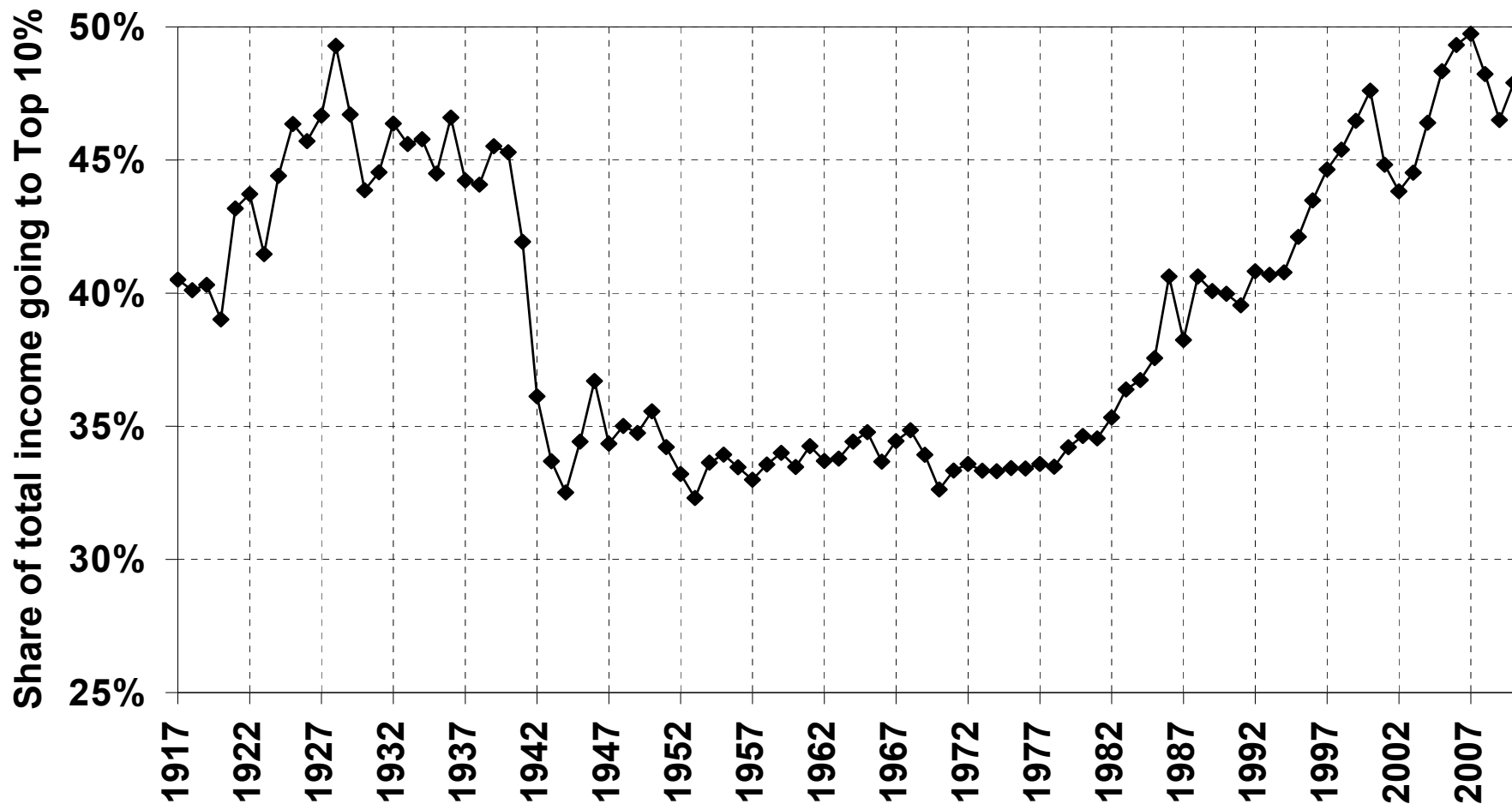


FIGURE 1

The Top Decile Income Share in the United States, 1917-2010

Source: Piketty and Saez (2003), series updated to 2010.

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

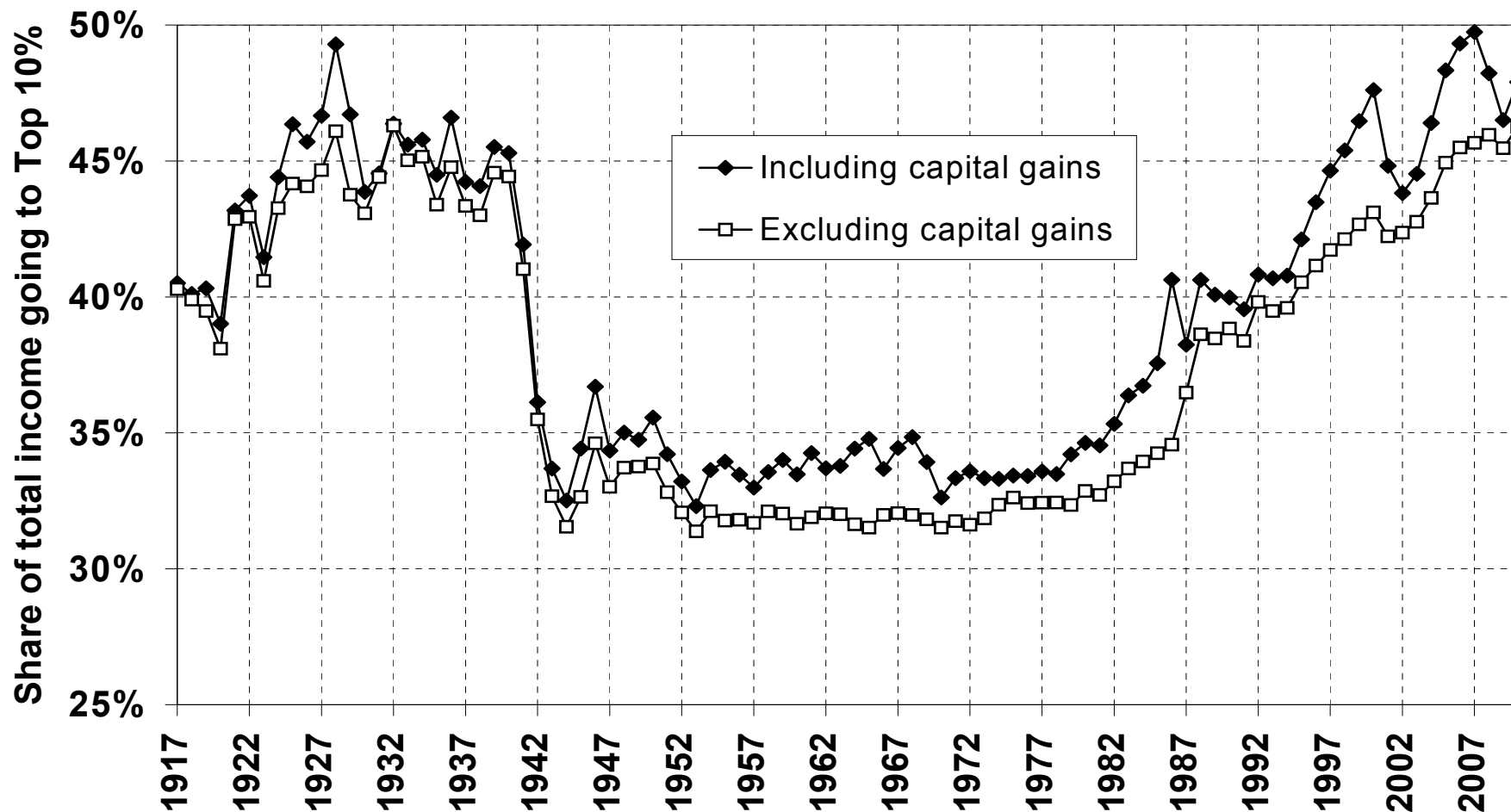


FIGURE 1

The Top Decile Income Share in the United States, 1917-2010

Source: Piketty and Saez (2003), series updated to 2010.

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

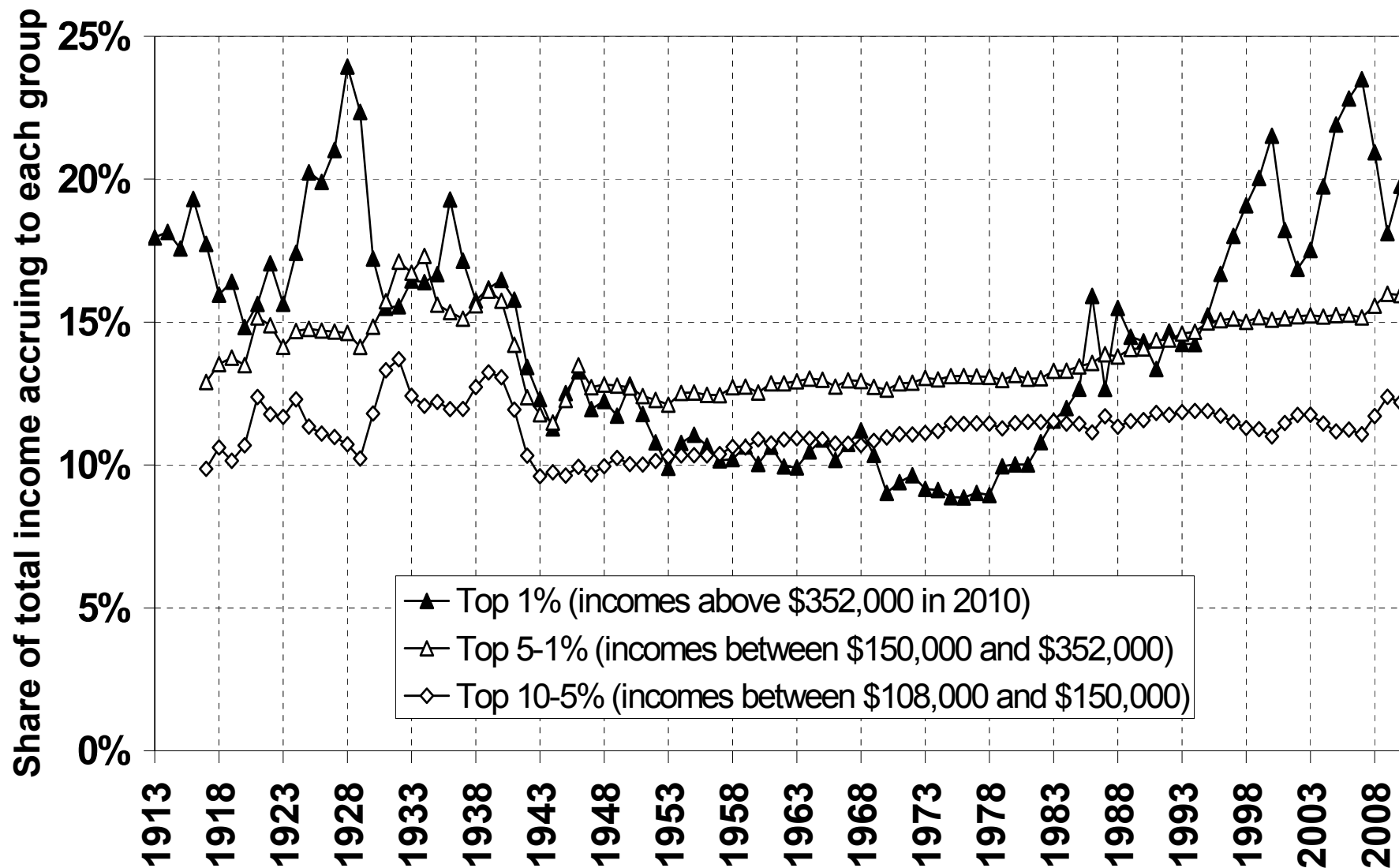
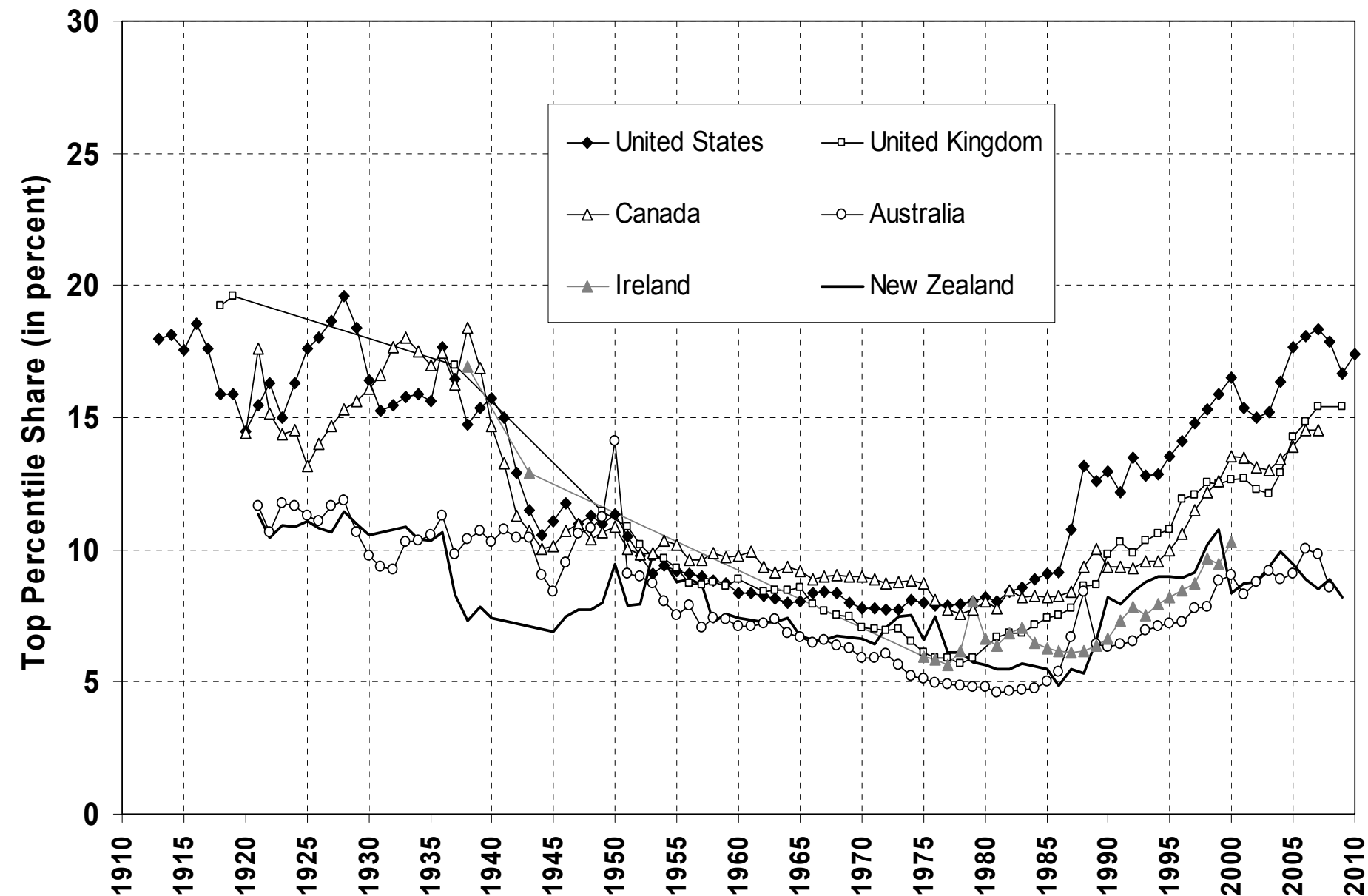


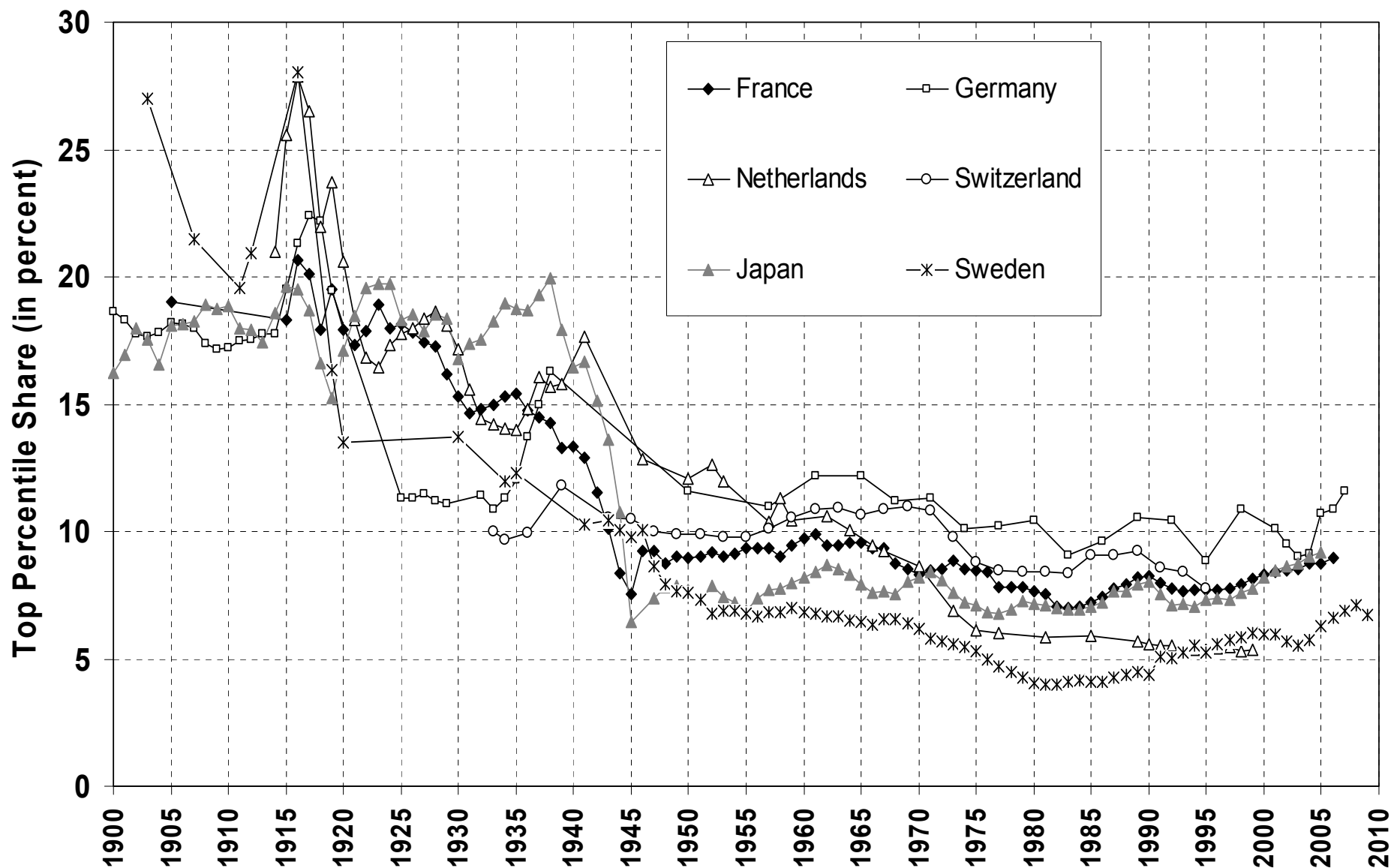
FIGURE 2

Decomposing the Top Decile US Income Share into 3 Groups, 1913-2010

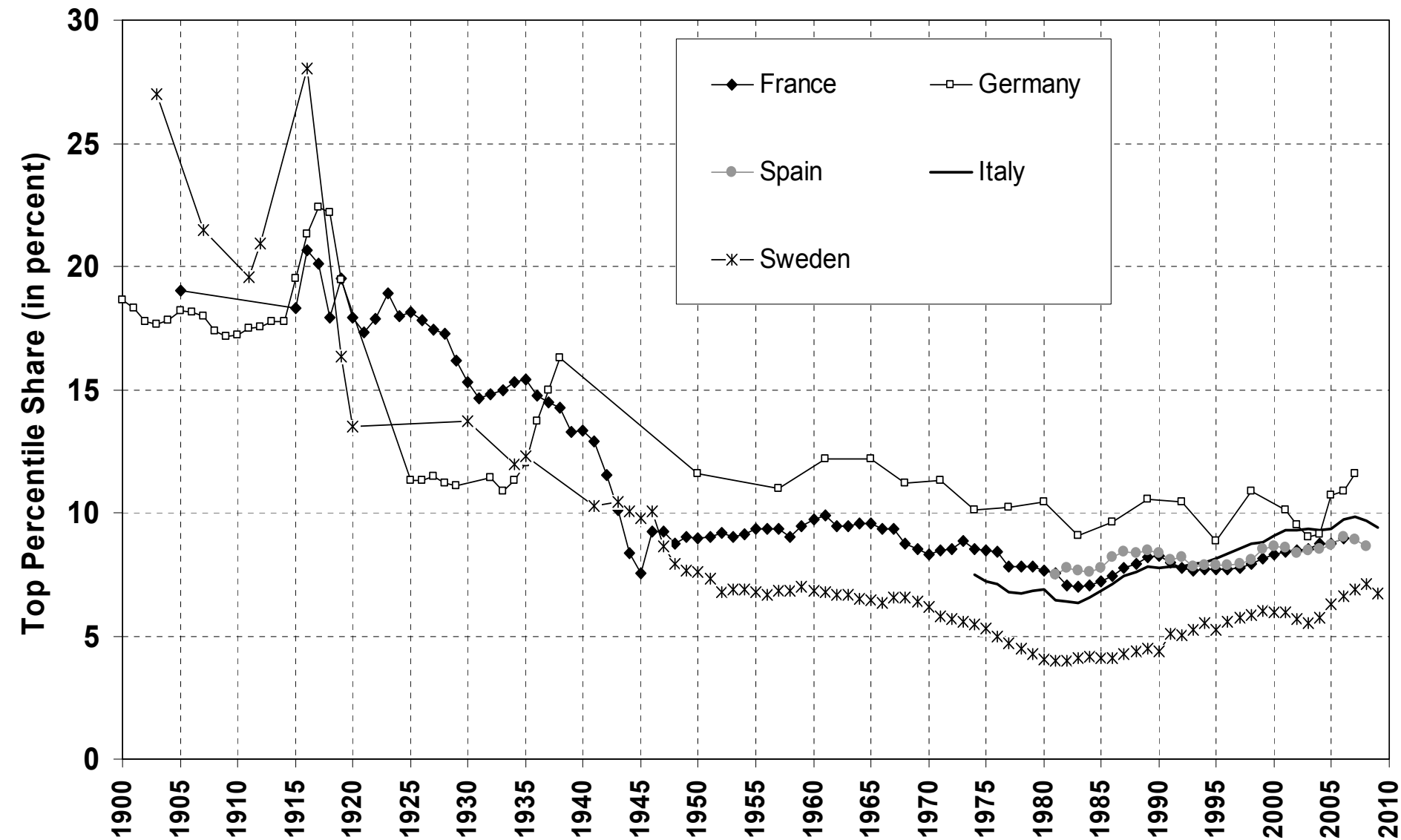
Top 1% share: English Speaking countries (U-shaped), 1910-2010



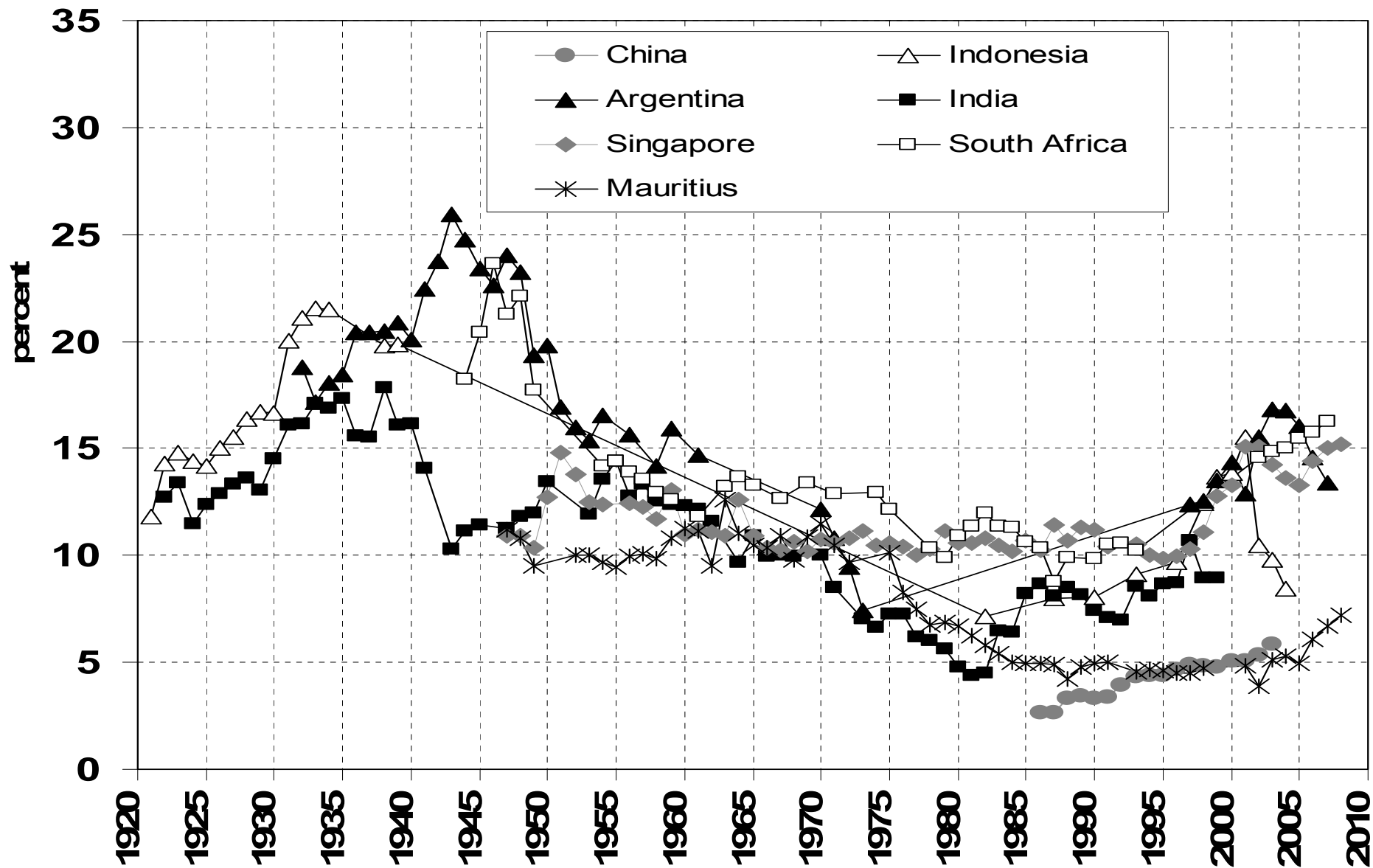
Top 1% share: Continental Europe and Japan (L-shaped), 1900-2010



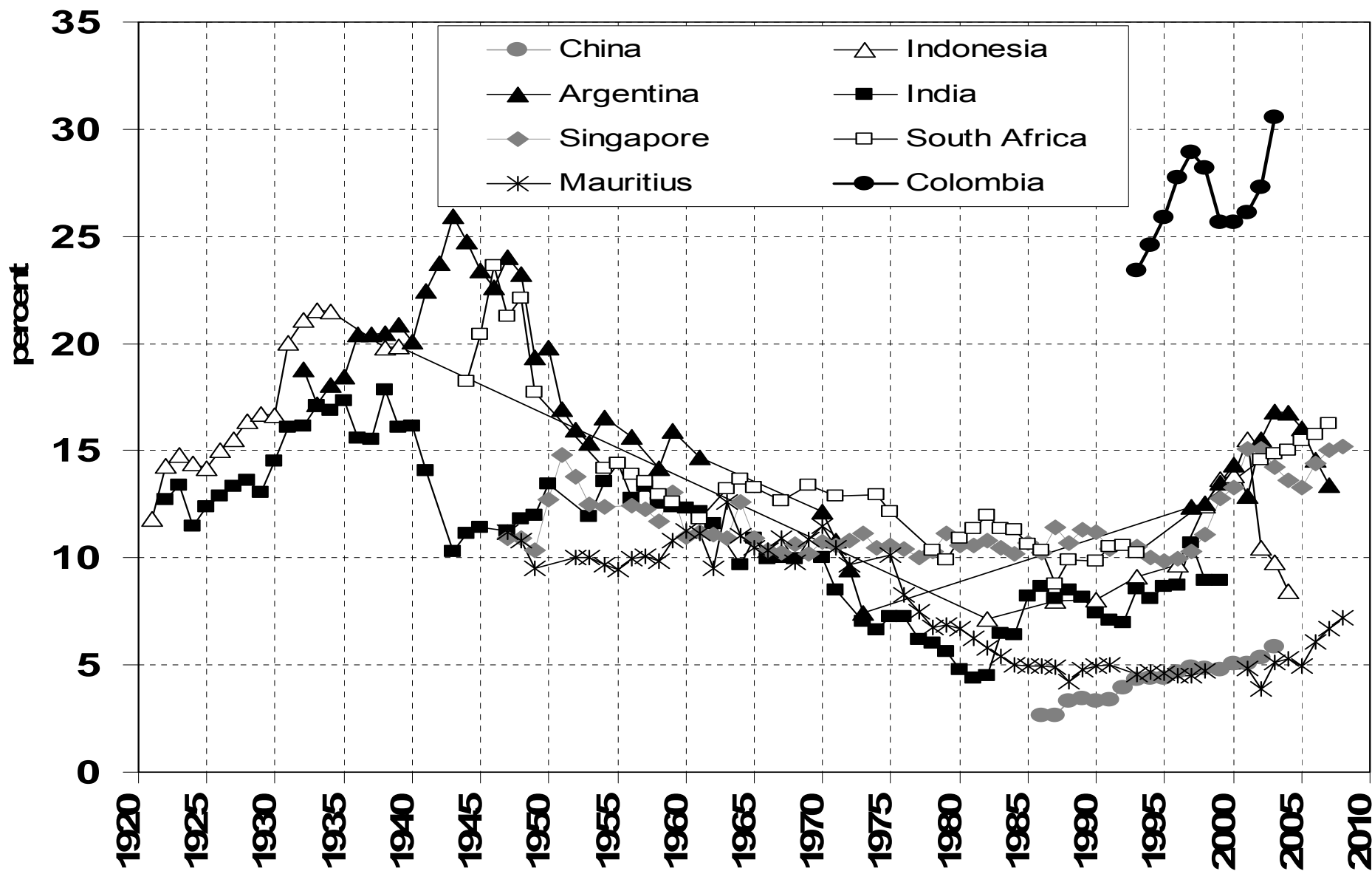
Top 1% share: Continental Europe, North vs South (L-shaped), 1900-2010



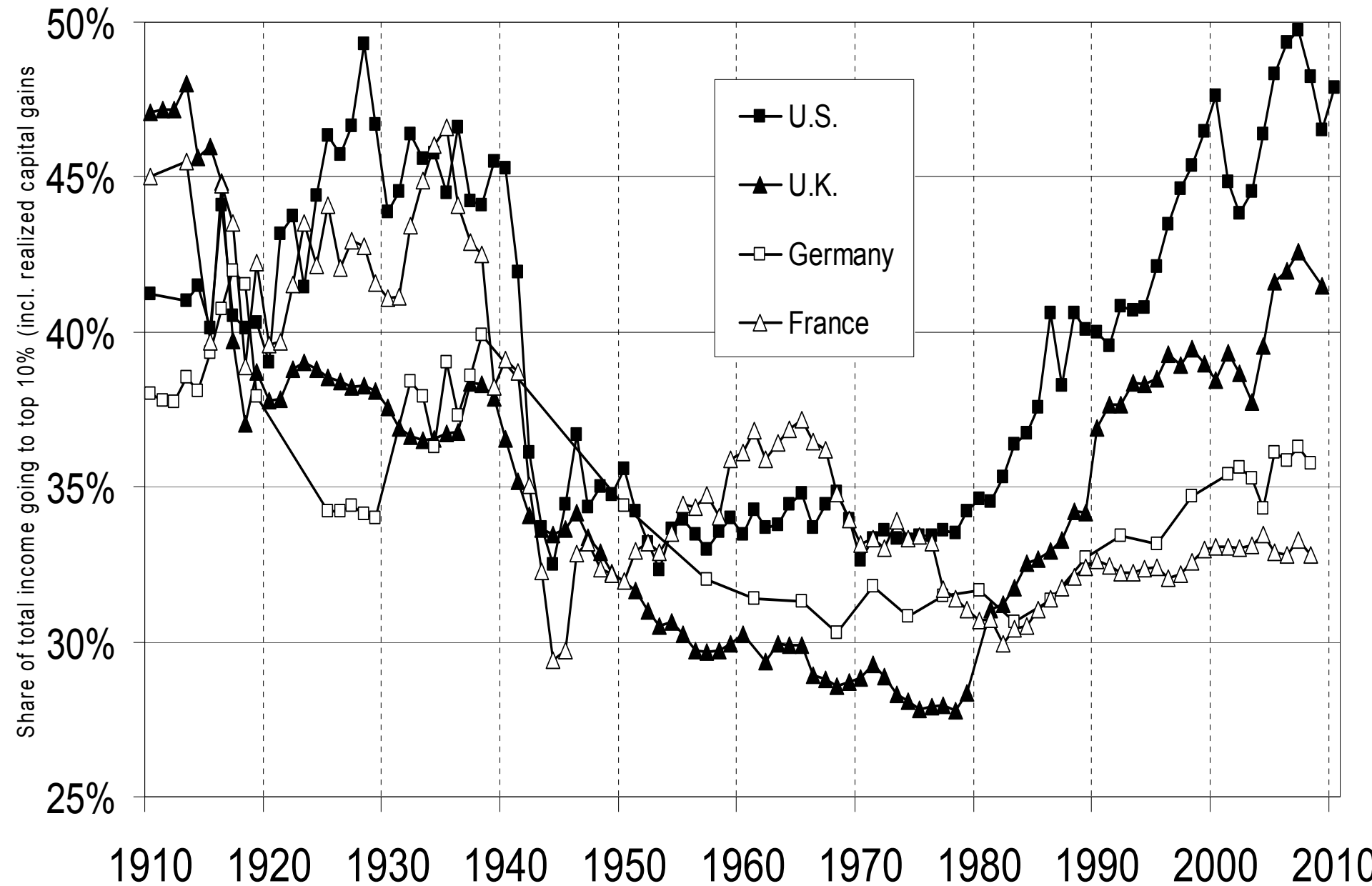
Top 1% share: Developing and emerging countries, 1920-2010



Top 1% share: Developing and emerging countries, 1920-2010



Top Decile Income Shares 1910-2010



Source: World Top Incomes Database, 2012. Missing values interpolated using top 5% and top 1% series.

Why did top incomes rise so much?

- Hard to account for observed cross-country 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 end labor market...
- & very ideological: we have zero evidence on the marginal product of top executives; it could well be that prices are distorted upwards...

- A more realistic 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 → **competition not enough**)

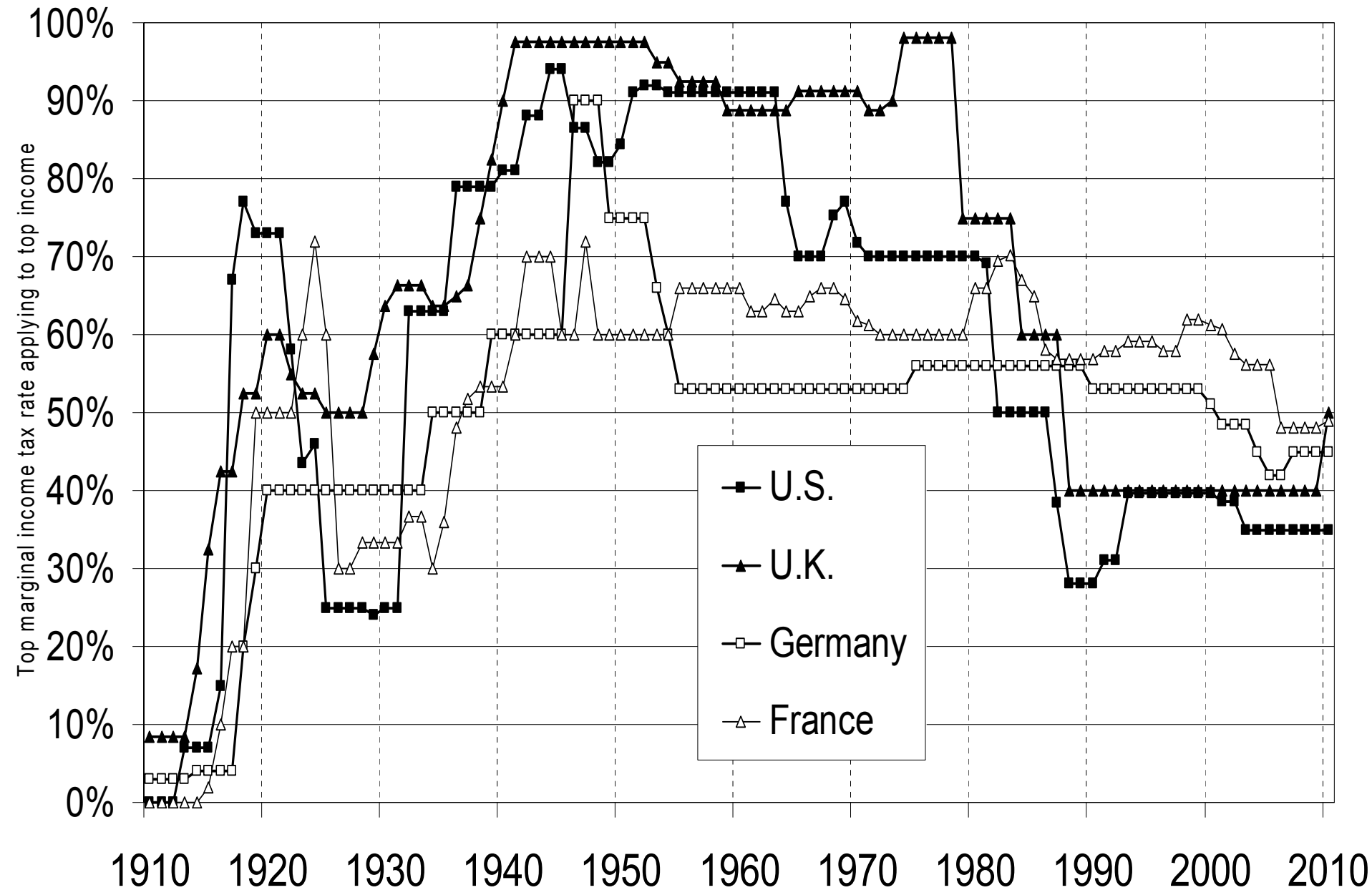
→ when pay setters set their own pay, there's no limit to rent extraction... **unless confiscatory tax rates at the very top**

(memo: US top tax rate (1m\$+) 1932-1980 = 82%)

(no more fringe benefits than today)

(see Piketty-Saez-Stantcheva, NBER WP 2011)

Top Income Tax Rates 1910-2010

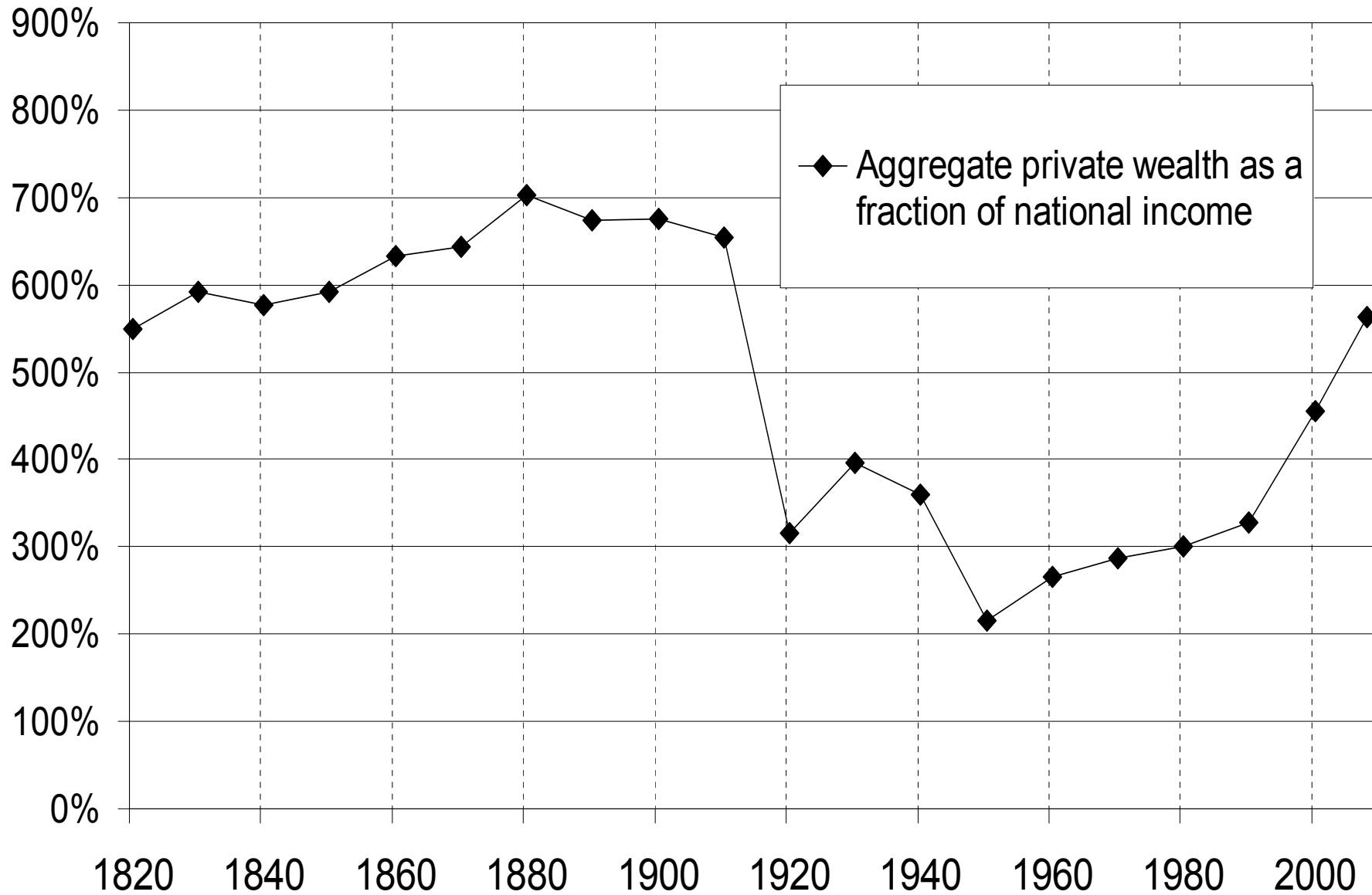


Source: World Top Incomes Database, 2012.

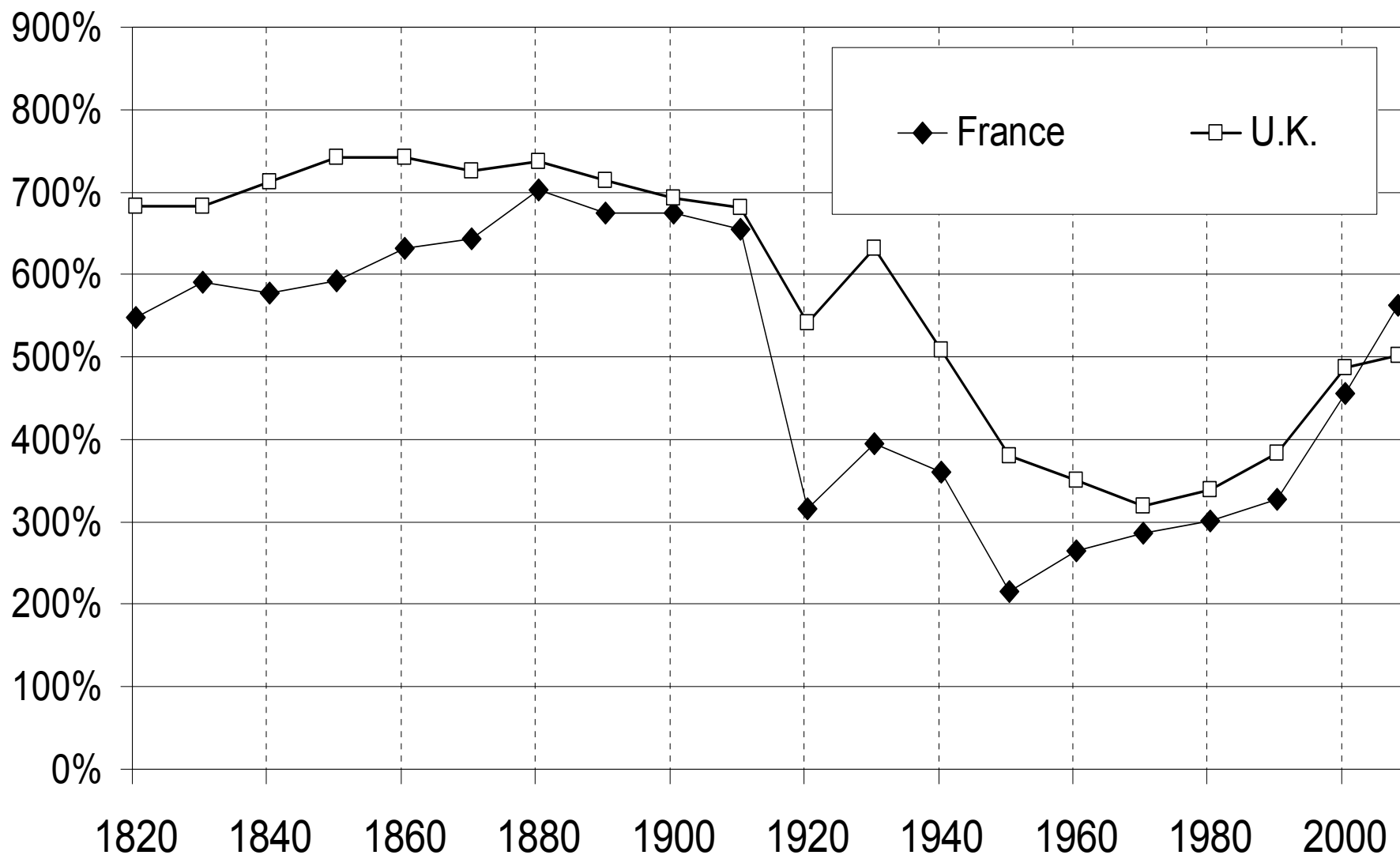
2. The return of wealth & inheritance

- The rise of top incomes should fuel the rise of top wealth
- But there are other long-run effects explaining the return of wealth & inheritance:
 - it took a long time to recover from world war shocks
(1913 stock mkt & real estate cap recovered only during 2000s)
 - financial deregulation & tax competition → rising capital shares and wealth-income ratios
 - growth slowdown in rich countries: $r > g$
 - rise of wealth-income and inheritance-income ratios
 - + rise of wealth inequality (amplifying mechanism)
 - (r = rate of return to wealth, g = productivity growth + pop growth)
- Harrod-Domar-Solow formula: $\beta^* = s/g$
 - (β^* = wealth-income ratio, s = saving rate)
 - (i.e. $s=10\%$, $g=2\%$ → $\beta^*=500\%$; if $g=1\%$, then $\beta^*=1000\%$)

Wealth-income ratio in France 1820-2010



Wealth-income ratio: France vs UK 1820-2010



Sources: France: Piketty 2011; UK: Atkinson 2012, Giffen 1878, Goldsmith 1985

Private wealth-national income ratios, 1970-2010

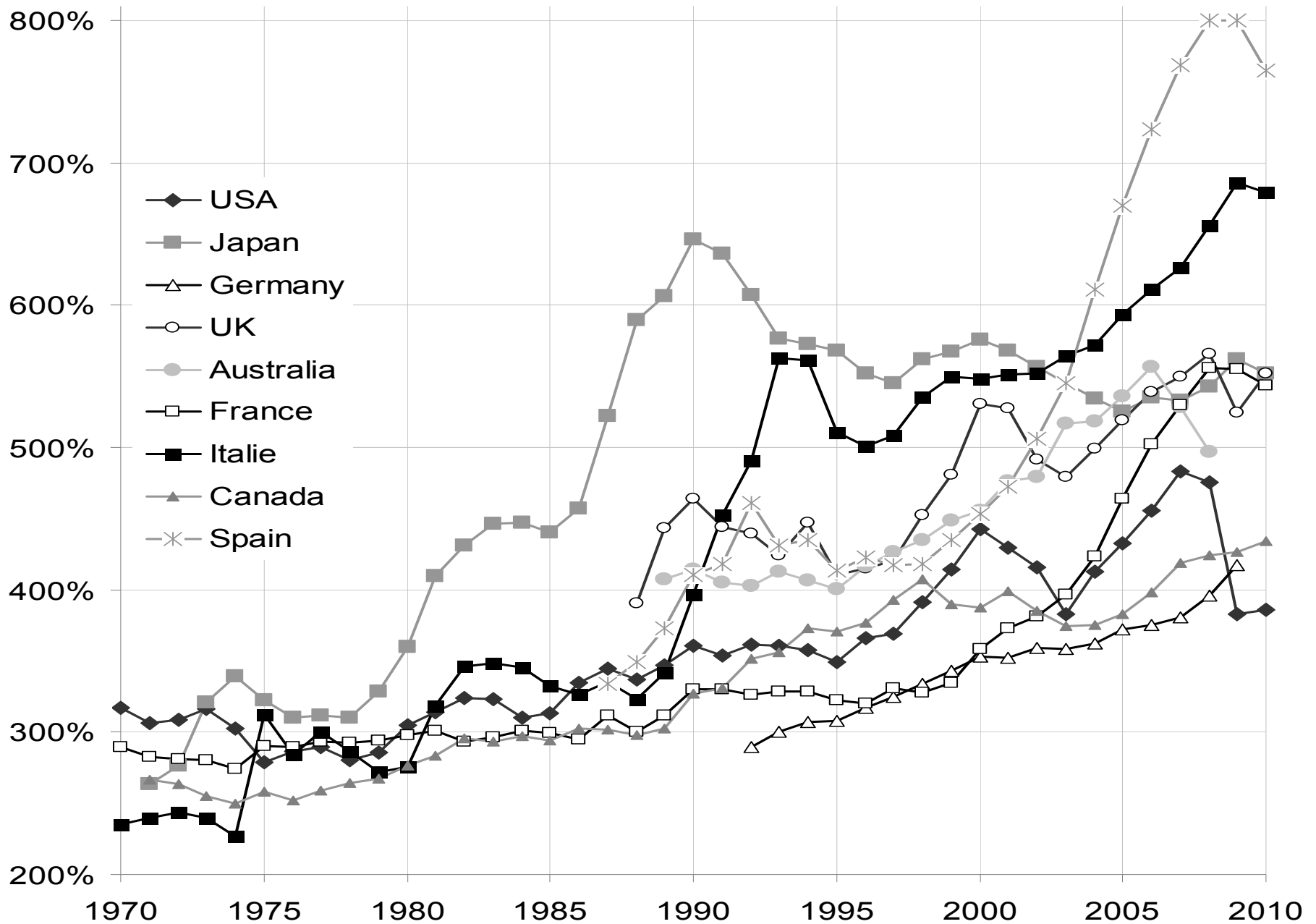
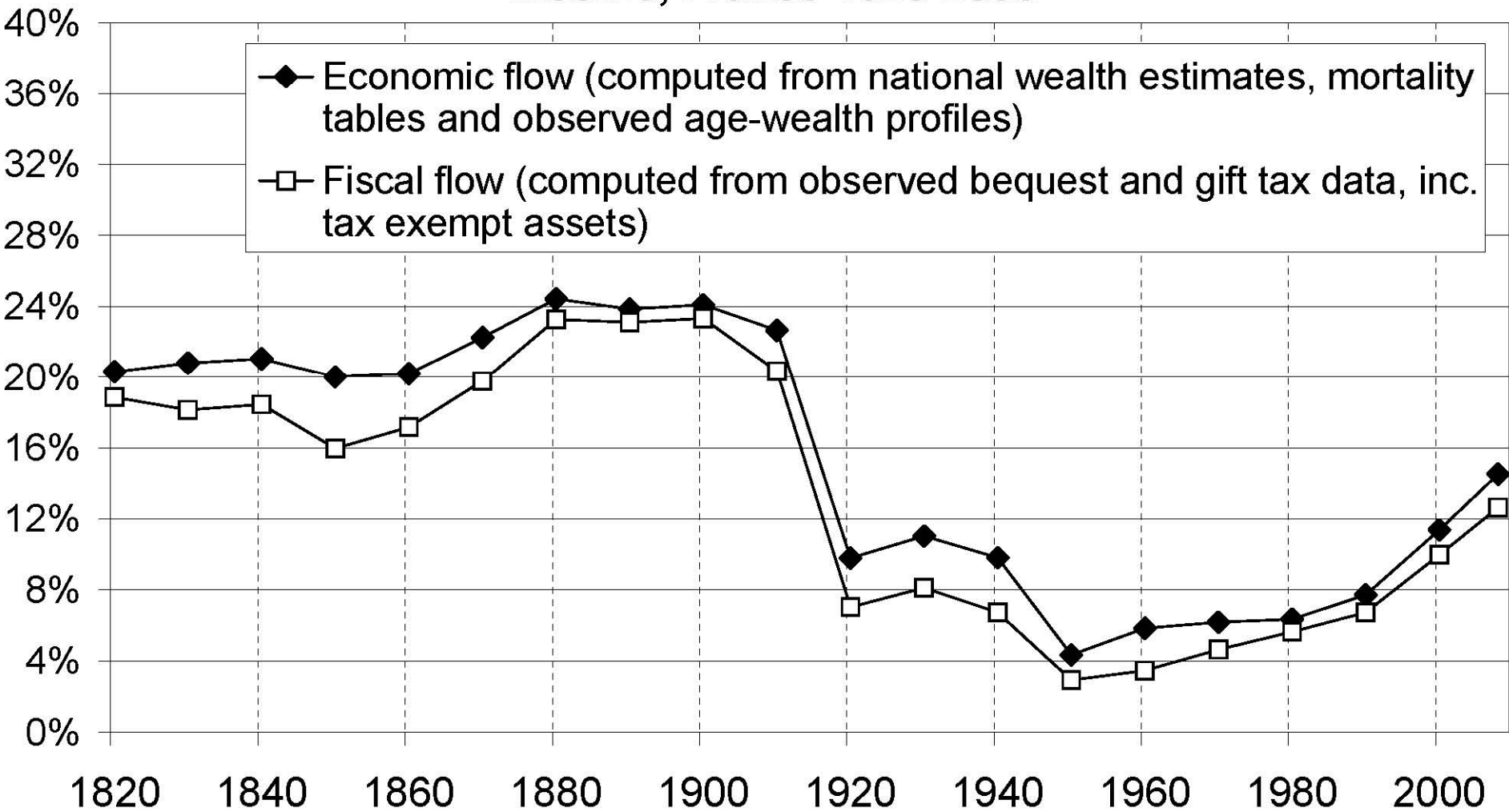


Figure 1: Annual inheritance flow as a fraction of national income, France 1820-2008



- **Main lesson: with $r > g$, inheritance is bound to dominate new wealth; the past eats up the future**

Note: r = rate of return to capital = (net profits + rents)/(net financial + real estate wealth) ; g = growth rate ($g+n$)

- **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 $\rightarrow b_y = \beta/H$ (with $\beta = W/Y$)
 \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)

What have we learned?

- A world with g low & $r > g$ is gloomy for workers with zero initial wealth... especially if global tax competition drives capital taxes to 0%... especially if top labor incomes take a rising share of aggregate labor income
- A world with $g=1-2\%$ (=long-run world technological frontier?) is not very different from a world with $g=0\%$ (Marx-Ricardo)
- From a r -vs- g viewpoint, 21^c maybe not too different from 19^c – but still better than Ancien Regime... except that nobody tried to depict AR as meritocratic...

- **More competitive & efficient markets won't help to curb divergence forces:**

(1) Competition and greed fuel the grabbing hand mechanism; with imperfect information, competitive forces not enough to get pay = marginal product; **only confiscatory top rates can calm down top incomes**

(2) 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

- **$r > g$ = nothing to do with market imperfections**
- Standard model: $r = \delta + \sigma g > g$ (Golden rule)

→ The important point about capitalism is that r is large ($r > g$ → tax capital, otherwise society is dominated by rentiers), volatile and unpredictable (→ financial crisis)

Supplementary slides

OXFORD

TOP INCOMES OVER THE 20TH CENTURY

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

Edited by A. B. ATKINSON & T. PIKETTY

Copyrighted Material

OXFORD

TOP INCOMES GLOBAL PERSPECTIVE

Edited by A. B. ATKINSON & T. PIKETTY

Copyrighted Material

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

	Average Income Real Annual Growth	Top 1% Incomes Real Annual Growth	Bottom 99% Incomes Real Annual Growth	Fraction of total growth captured by top 1%
	(1)	(2)	(3)	(4)
Period				
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).

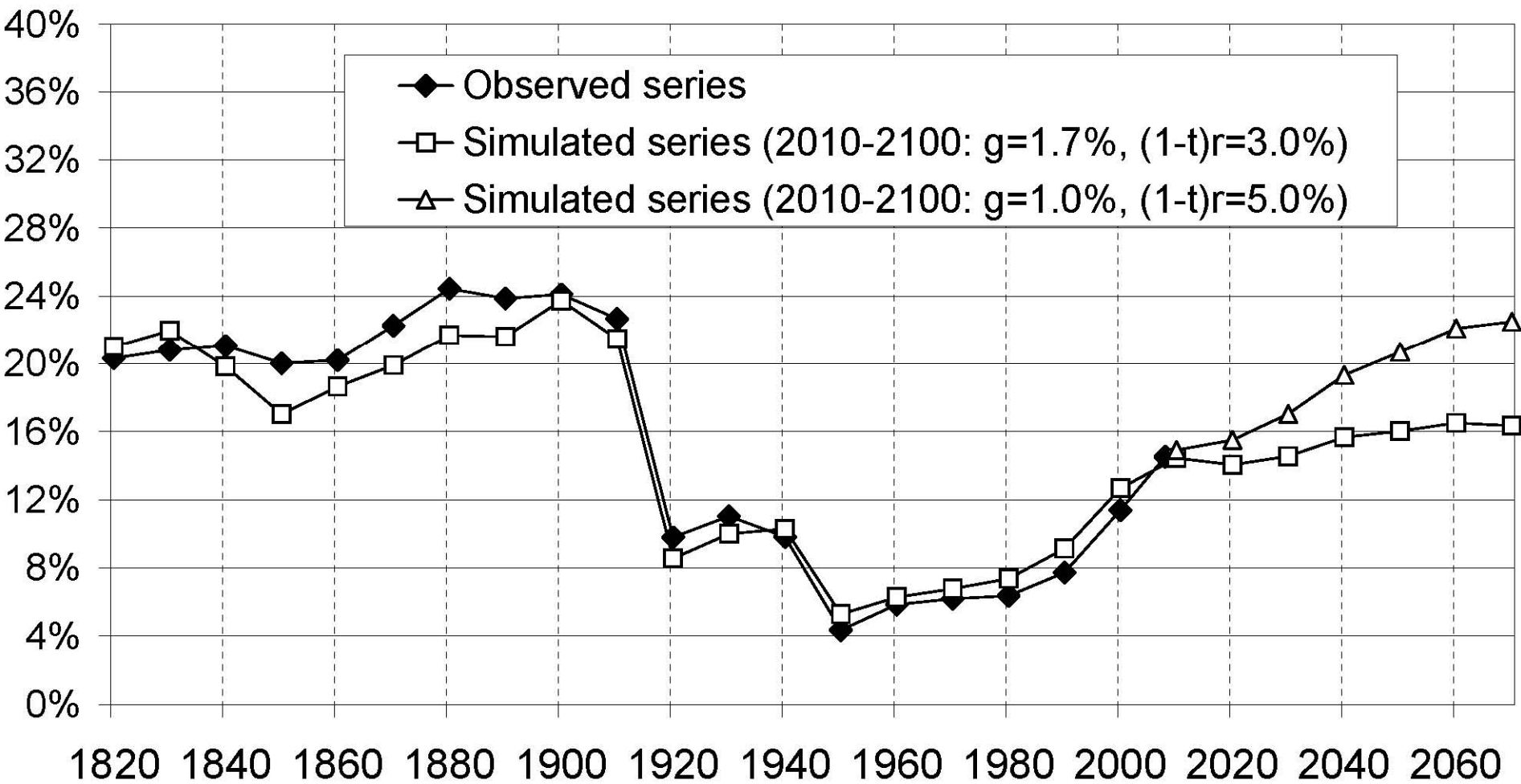
Incomes are deflated using the Consumer Price Index (and using the CPI-U-RS before 1992).

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 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^c: top successors dominate top labor earners
→ rentier society (Balzac, Jane Austen, etc.)
- For cohorts born in 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^c class structure will be intermediate between 19^c rentier society than to 20^c meritocratic society – and possibly closer to the former
- The rise of human capital & meritocracy was an illusion .. especially with a labor-based tax system

The meritocratic illusion

Democracies rely on meritocratic values: in order to reconcile the principle of political equality with observed socio-economic inequalities, they need to justify inequality by merit and/or common utility

- But effective meritocracy does not come naturally; it requires specific policies & institutions
- Two (quasi-)illusions: (1) human K didn't replace financial K
(2) war of ages didn't replace war of classes
- (1) Technocractic model : Parsons, Galbraith, Becker
(unidimensional class structure based upon human K)
- But no long run decline of capital share in national income
- (2) Lifecycle wealth model: Modigliani
- But no long run decline of inherited share in national wealth

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
- **Bottom line:** international inequalities even less meritocratic than domestic inequalities; e.g. oil price level has nothing to do with merit; the fact that Greece pays interest rate $r=10\%$ on its public debt has nothing to do with merit; the price system has nothing to do with merit...

- 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 very 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

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
Top 10% "Upper Class"	30%	90%	60%
<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>
Middle 40% "Middle Class"	40%	5%	35%
Bottom 50% "Poor"	30%	5%	5%

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

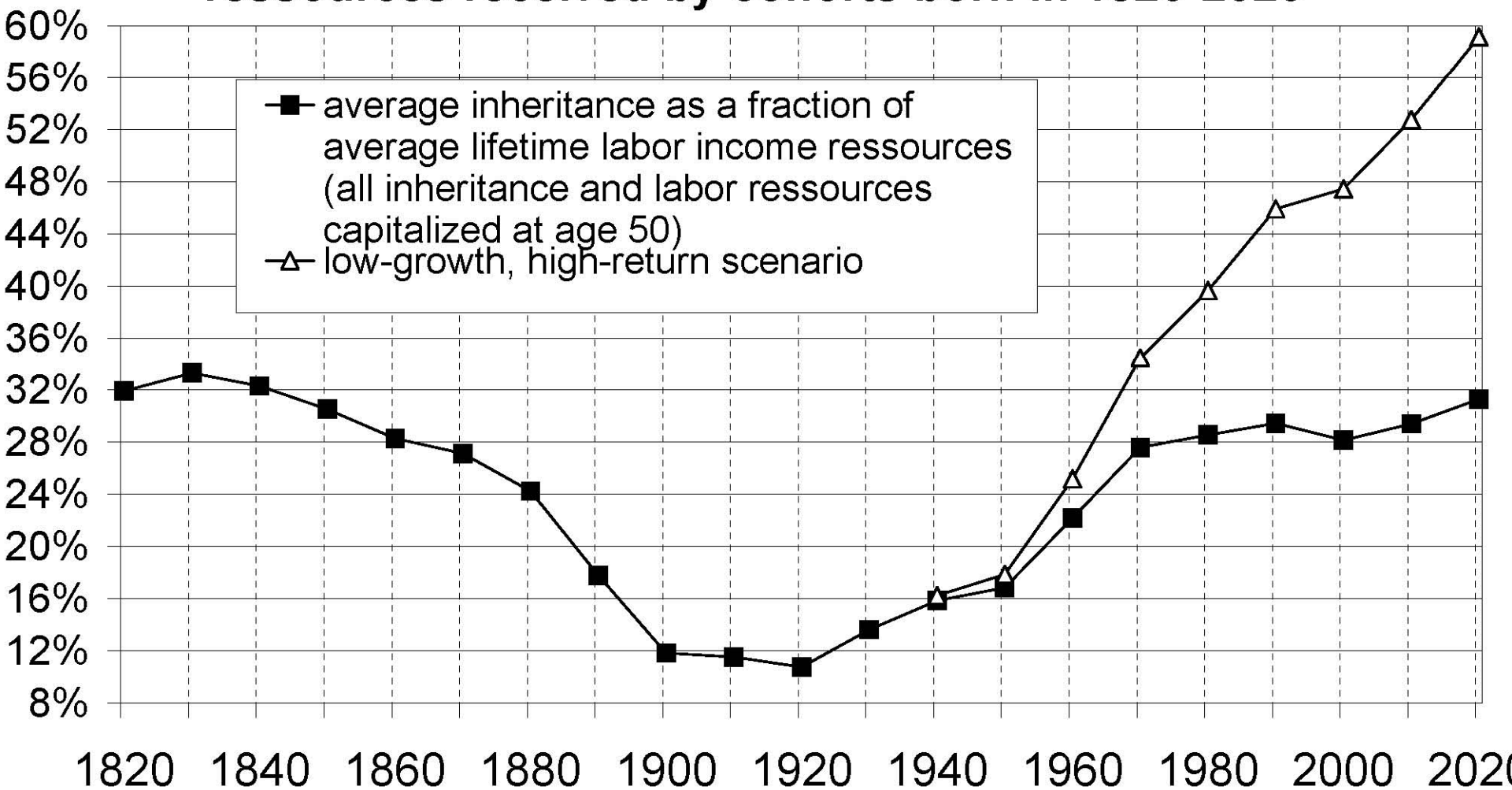


Figure 17: Cohort fraction inheriting more than bottom 50% lifetime labor resources (cohorts born in 1820-2020)

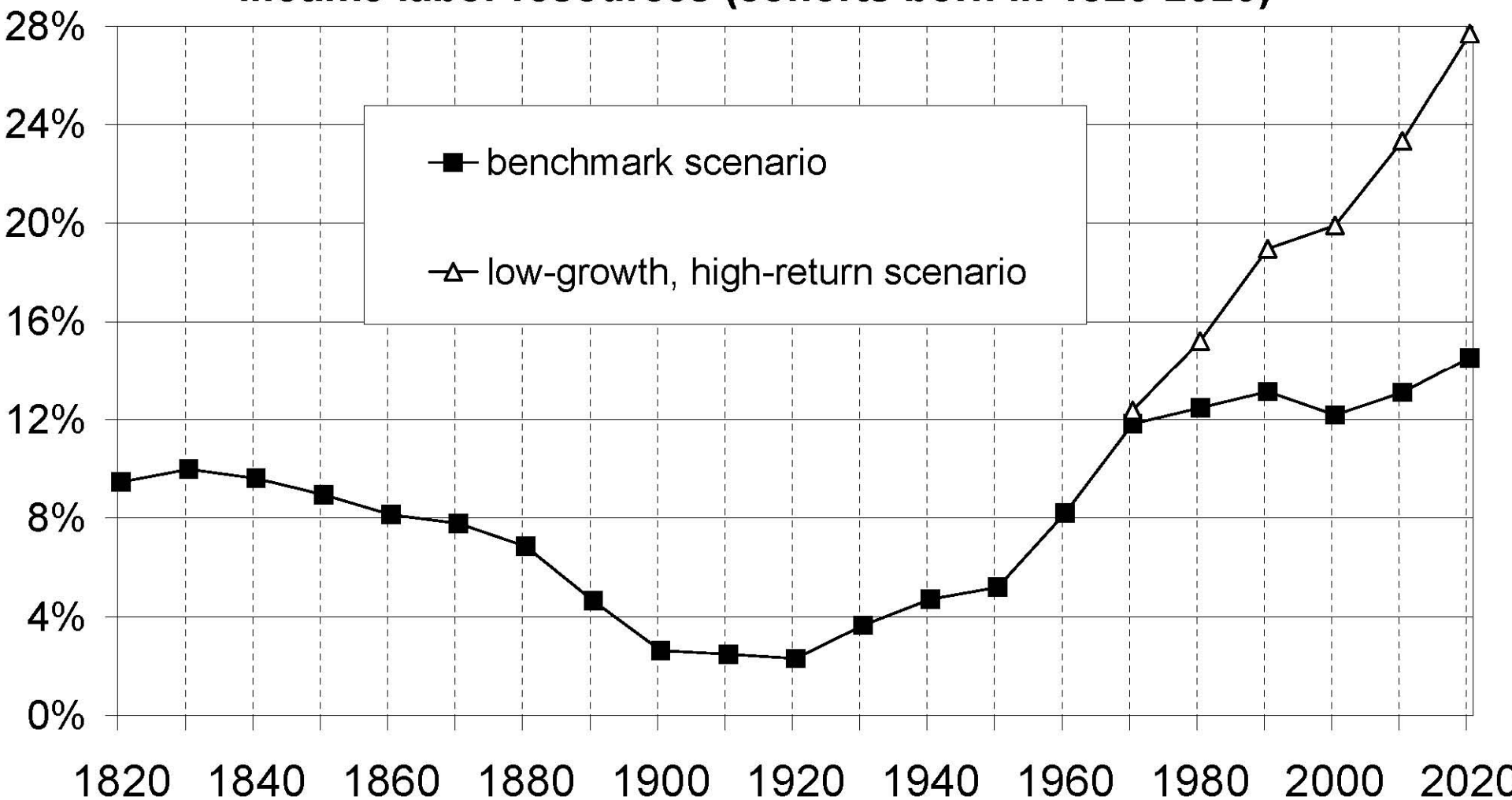
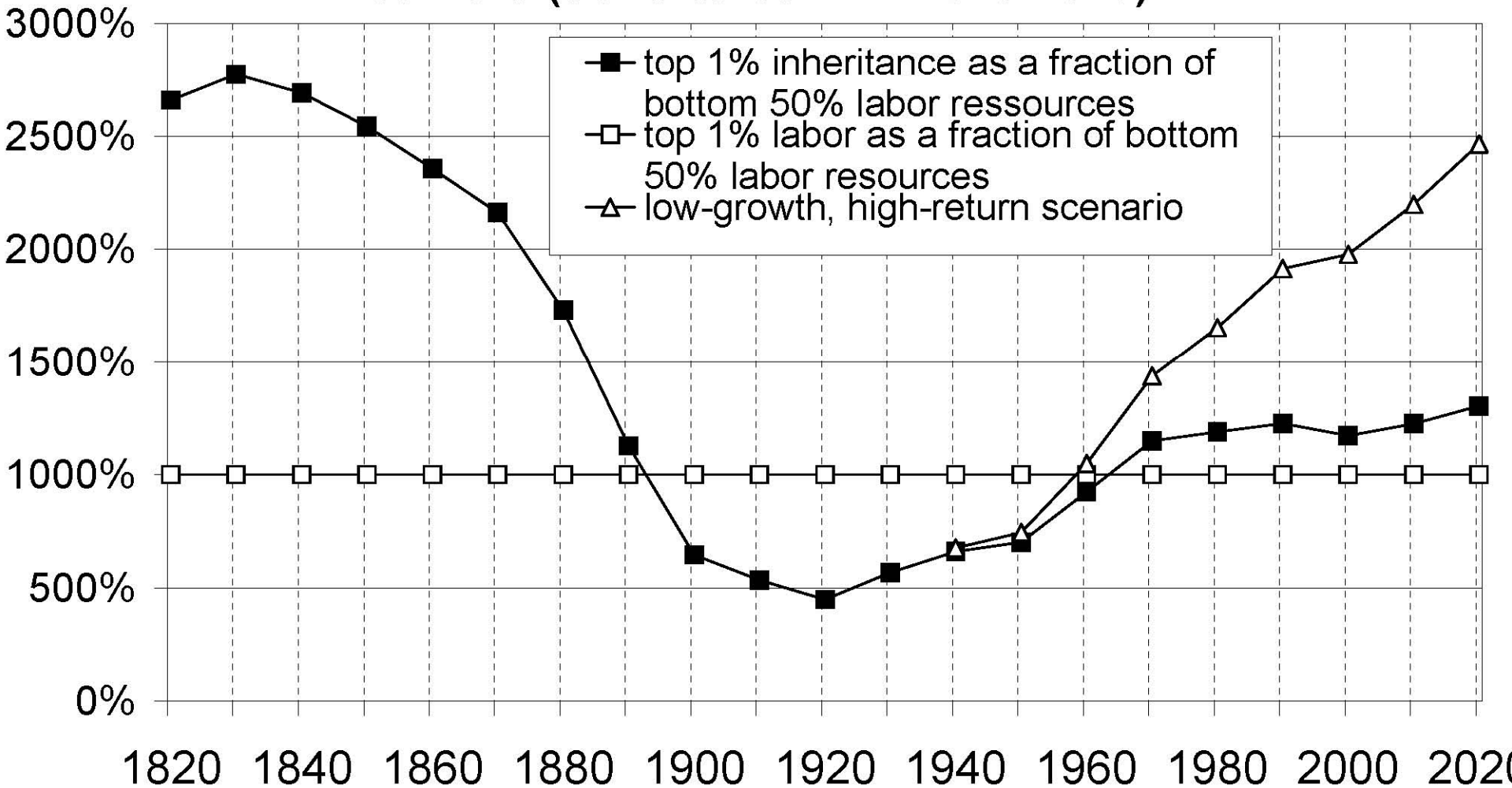


Figure 16: Top 1% successors vs top 1% labor income earners (cohorts born in 1820-2020)



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
 - μ_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

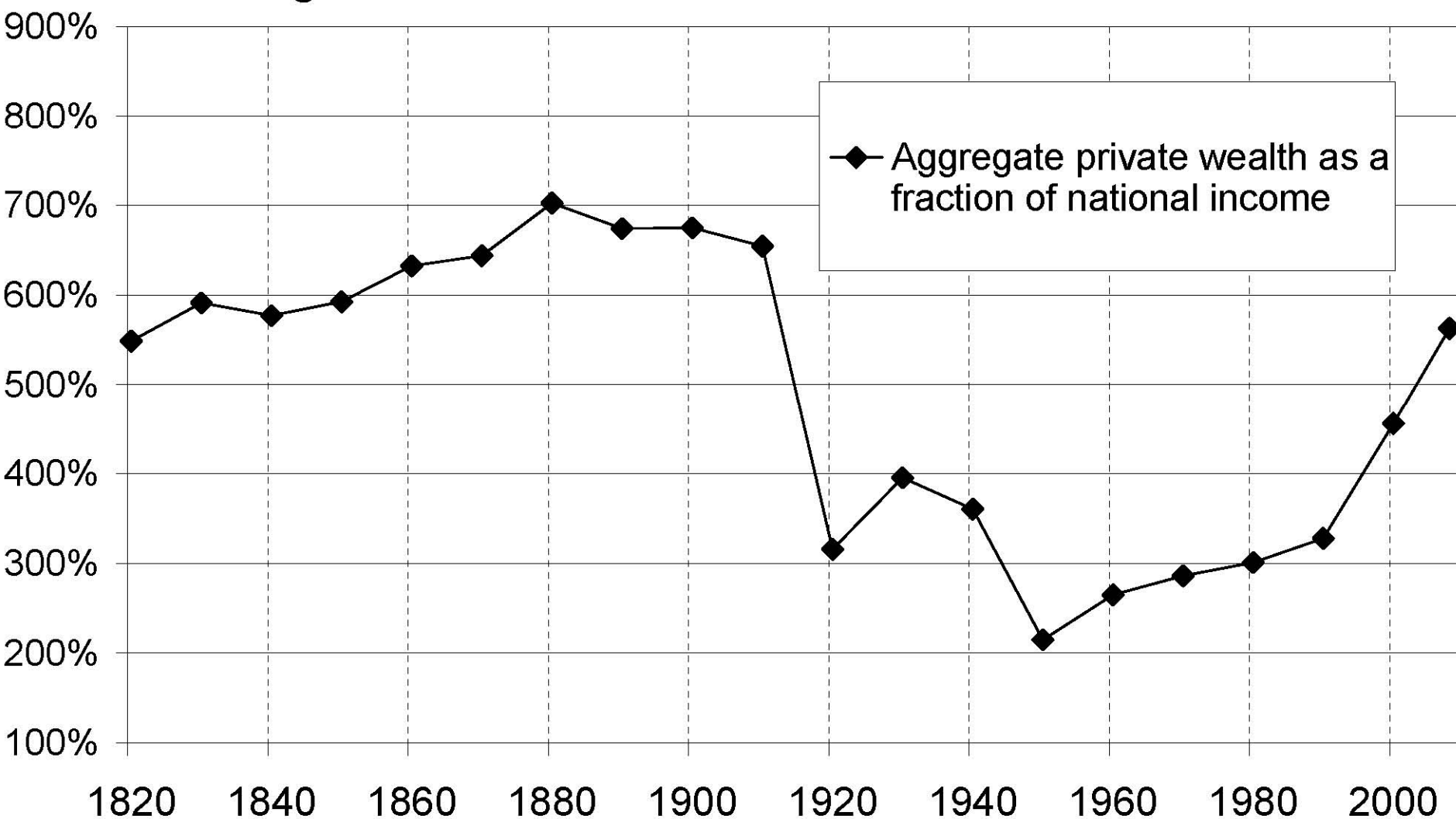


Table 1: Accumulation of private wealth in France, 1820-2009

	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> <i>Consumer</i> <i>price inflation</i> <i>p</i>
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

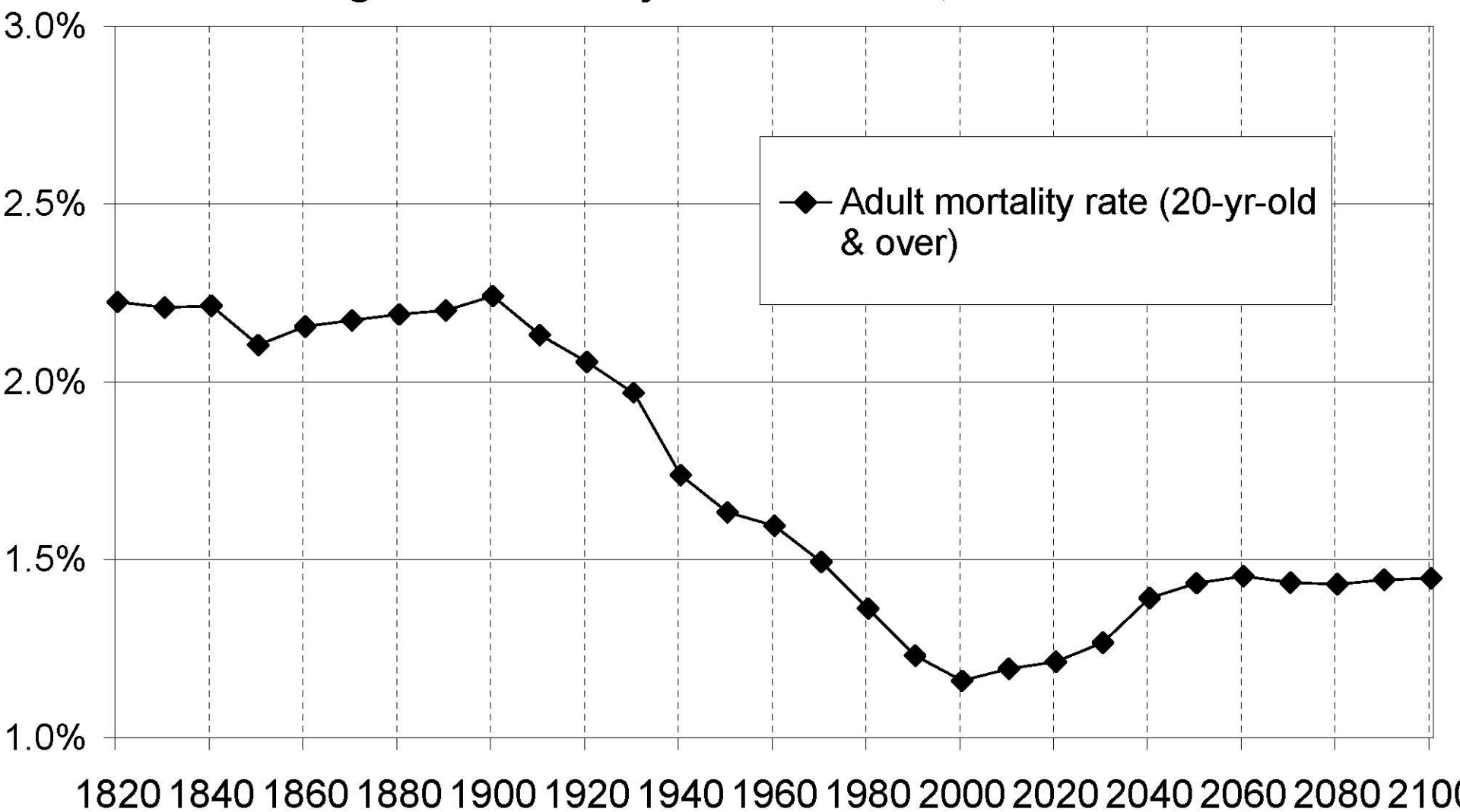


Figure 4: The ratio between average wealth of decedents and average wealth of the living France 1820-2008

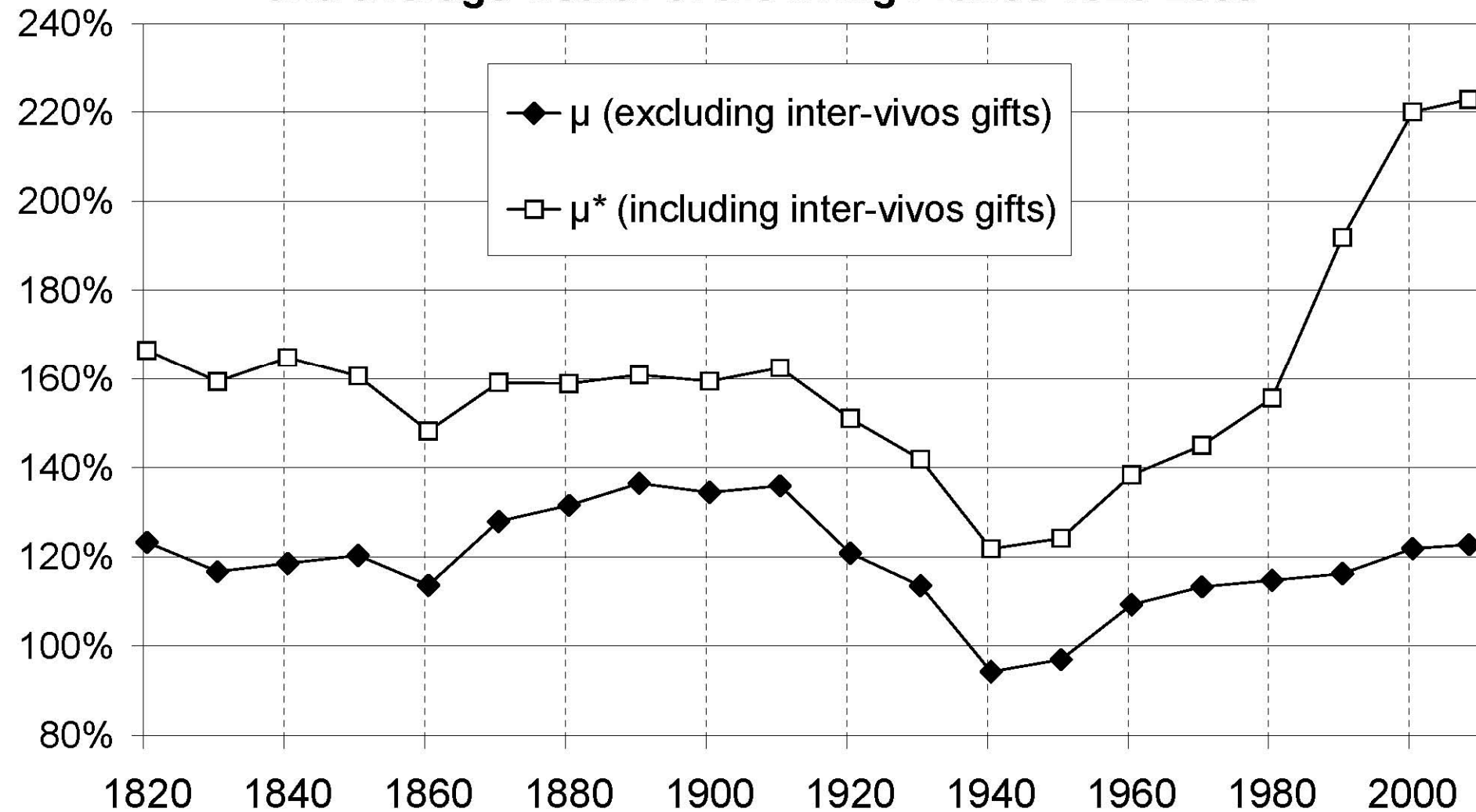
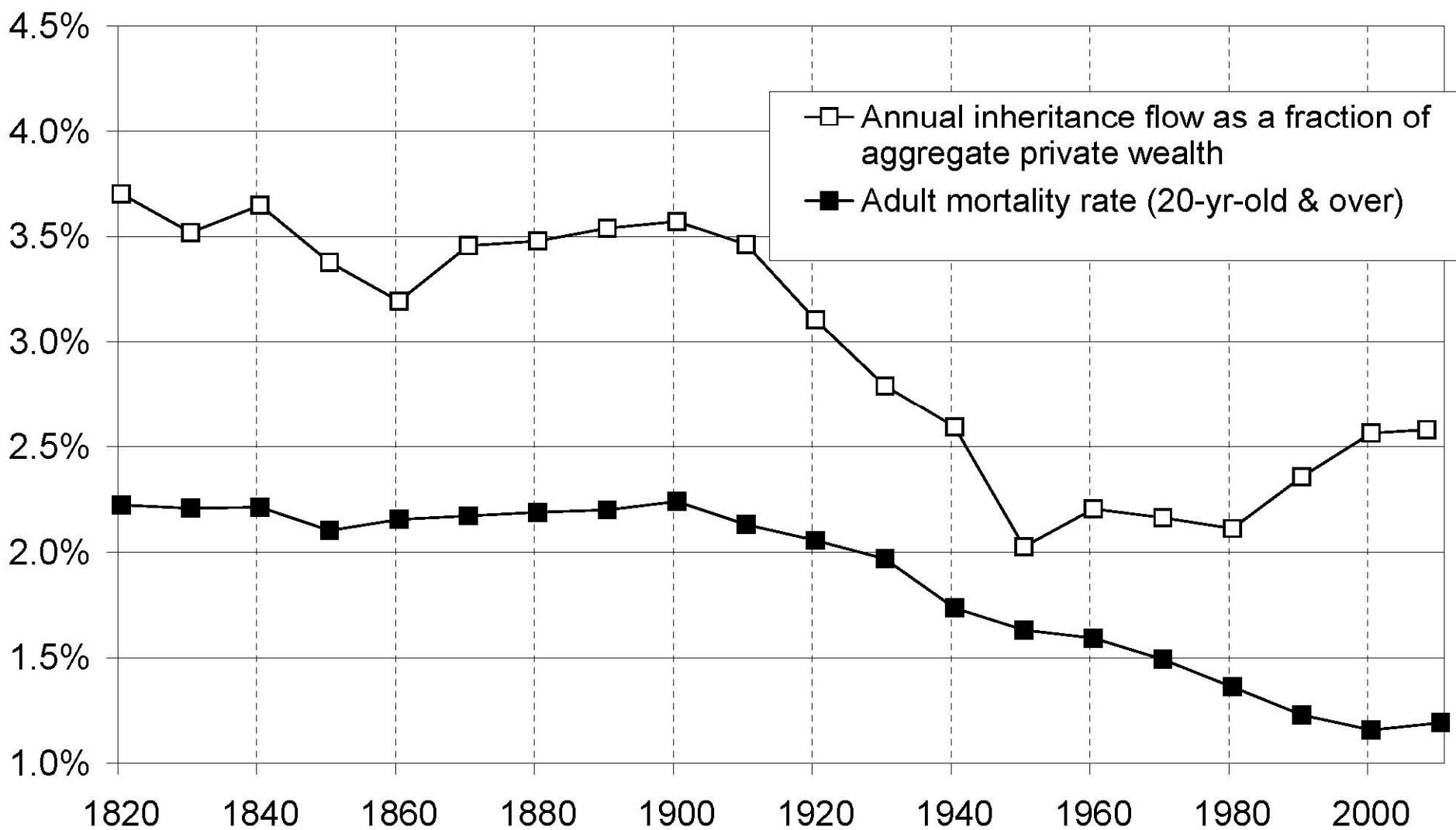


Figure 5: Inheritance flow vs mortality rate in France, 1820-2008



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 ($s_L=0$, $s_K>0$)**

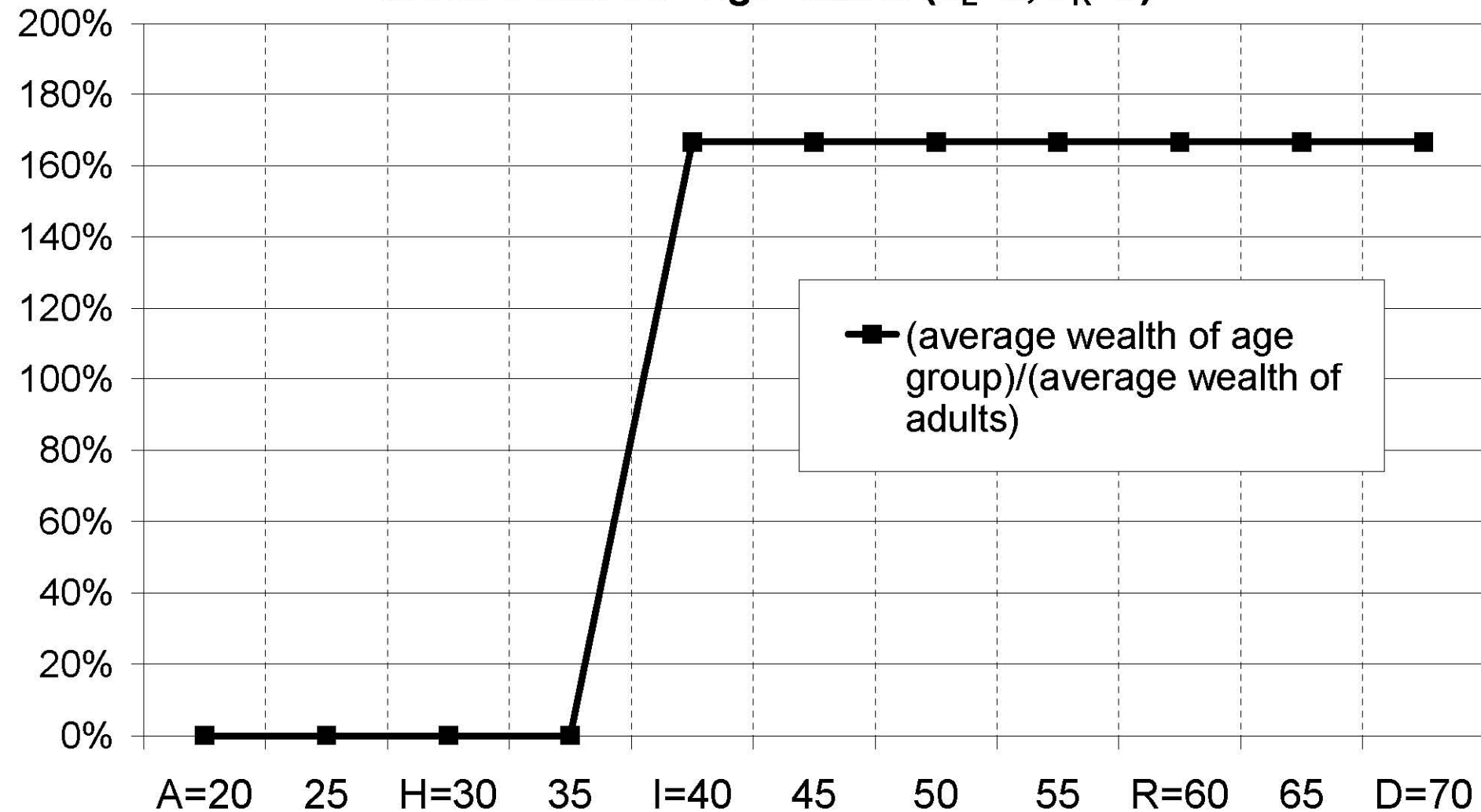


Figure 7: Steady-state cross-sectional age-wealth profile in the class savings model with demographic noise

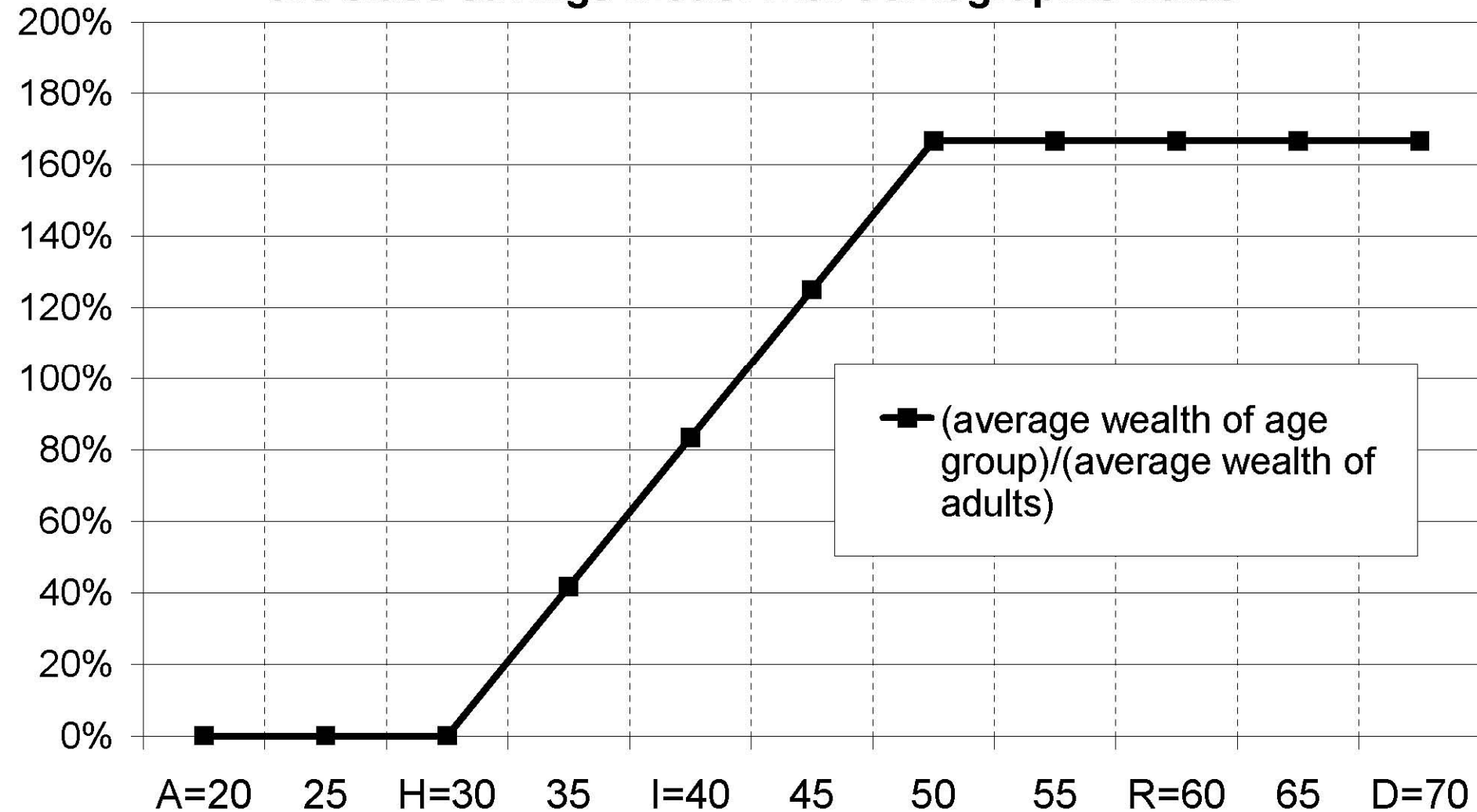
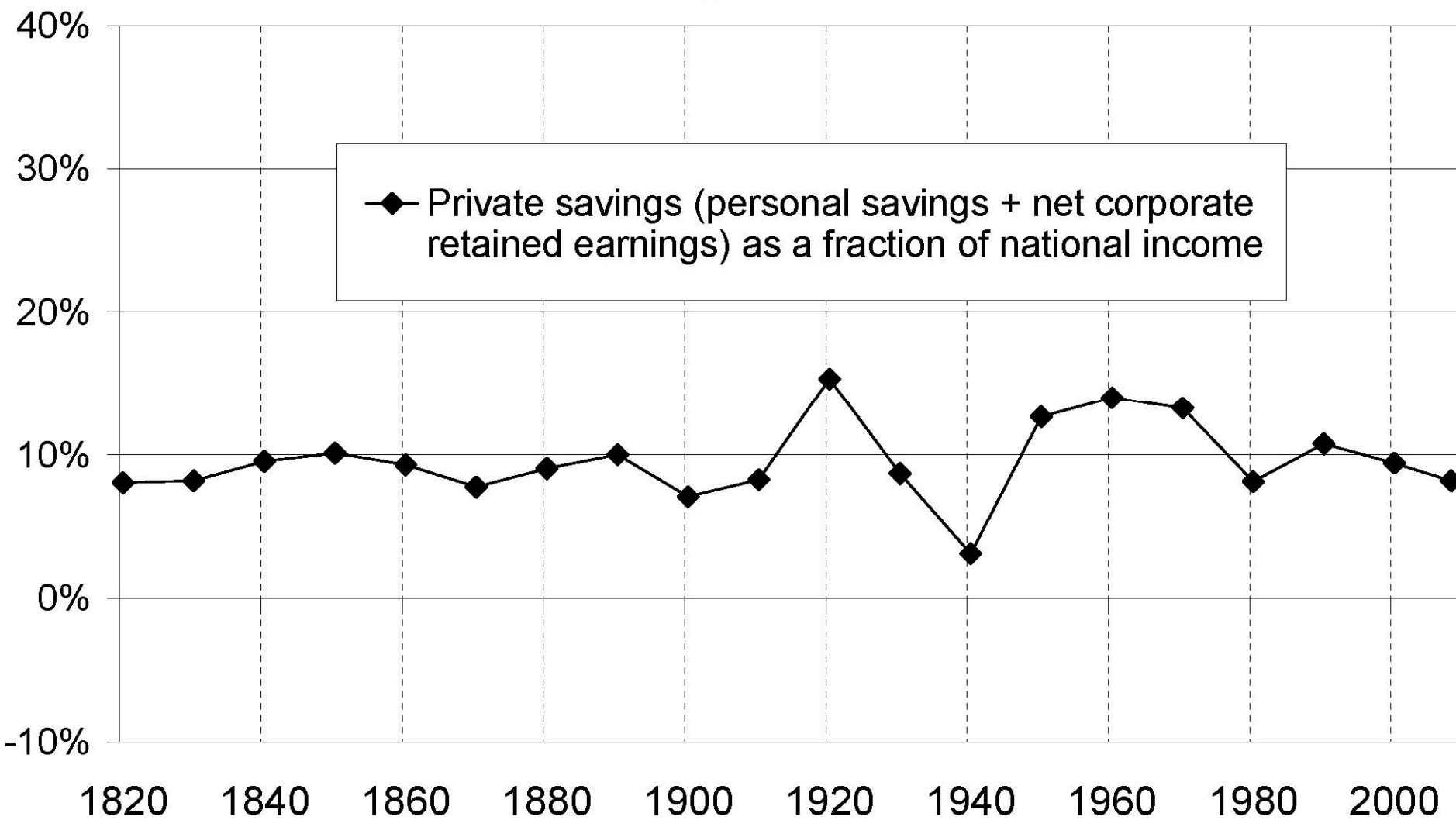


Figure 8: Private savings rate in France 1820-2008



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

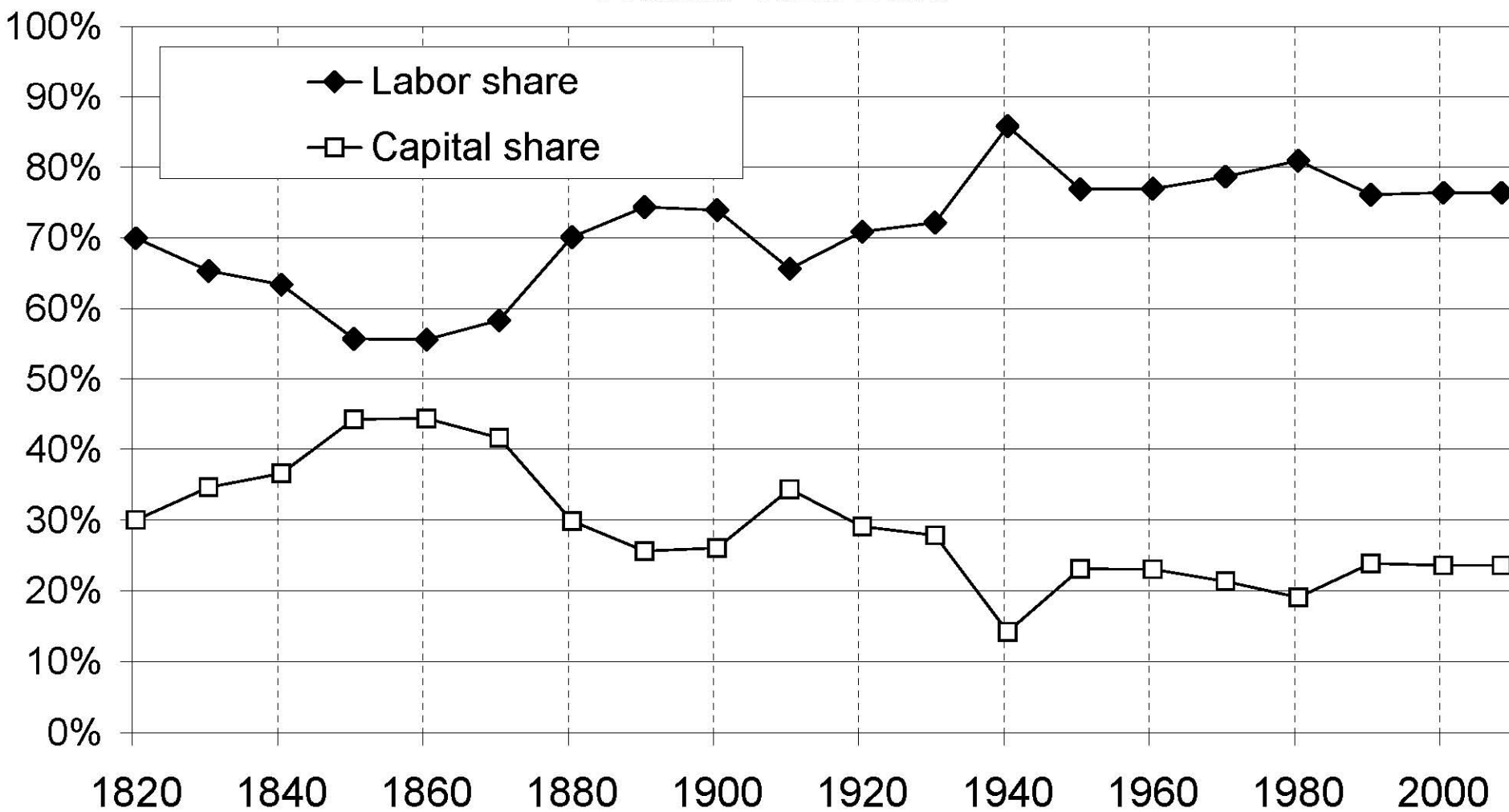


Figure 11: Rate of return vs growth rate France 1820-1913

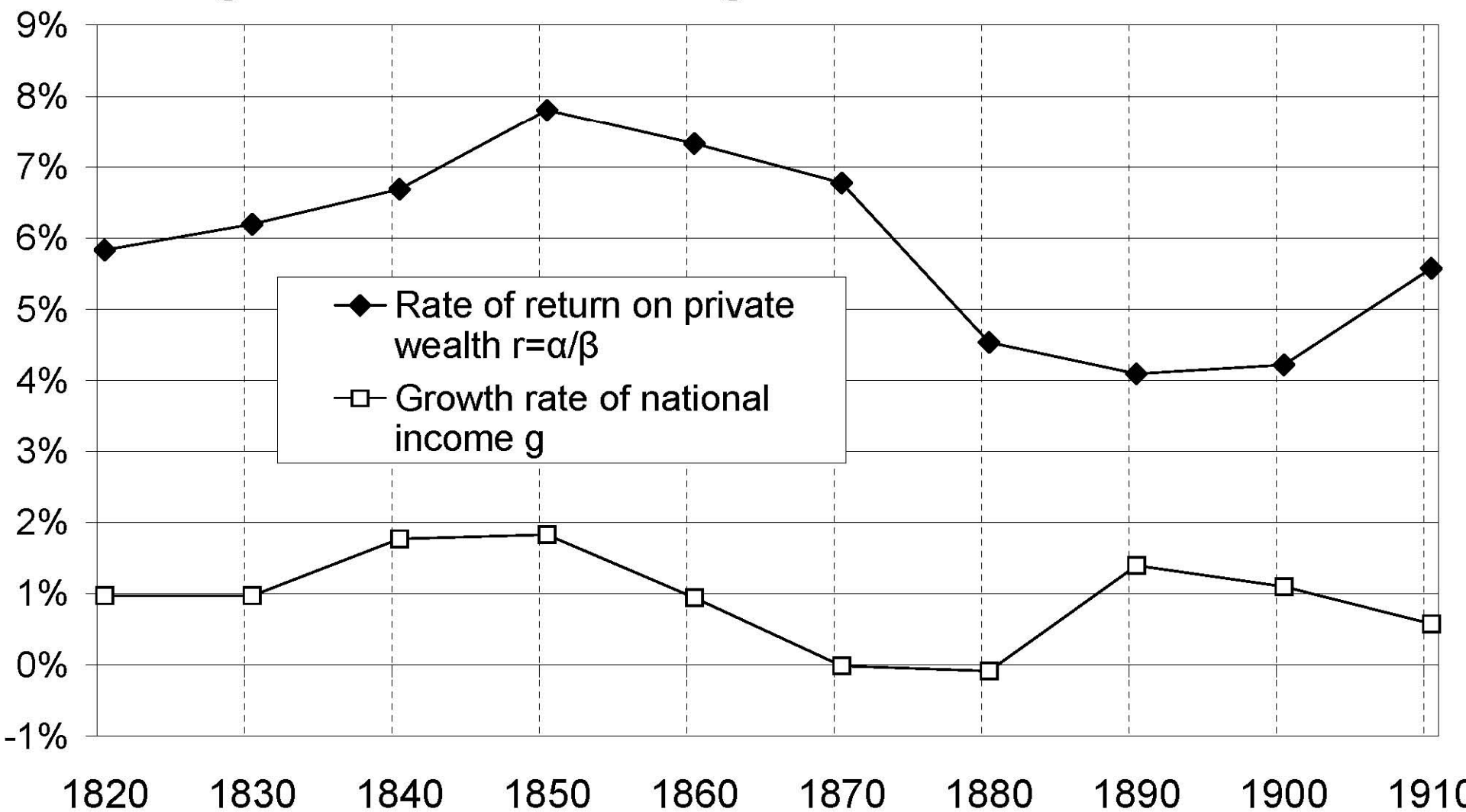


Figure 12: Capital share vs savings rate France 1820-1913

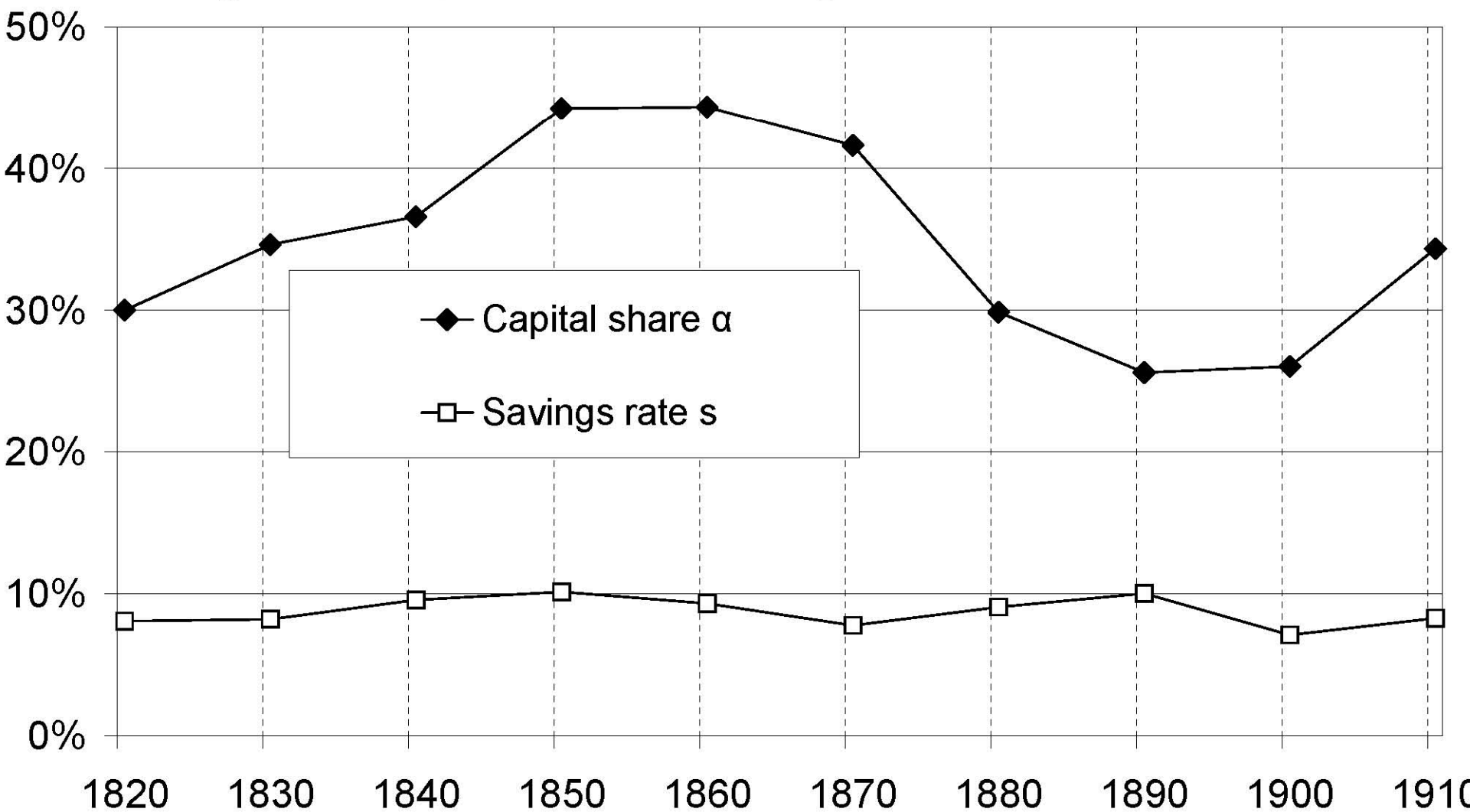


Figure 18: The share of non-capitalized inheritance in aggregate wealth accumulation , France 1850-2100

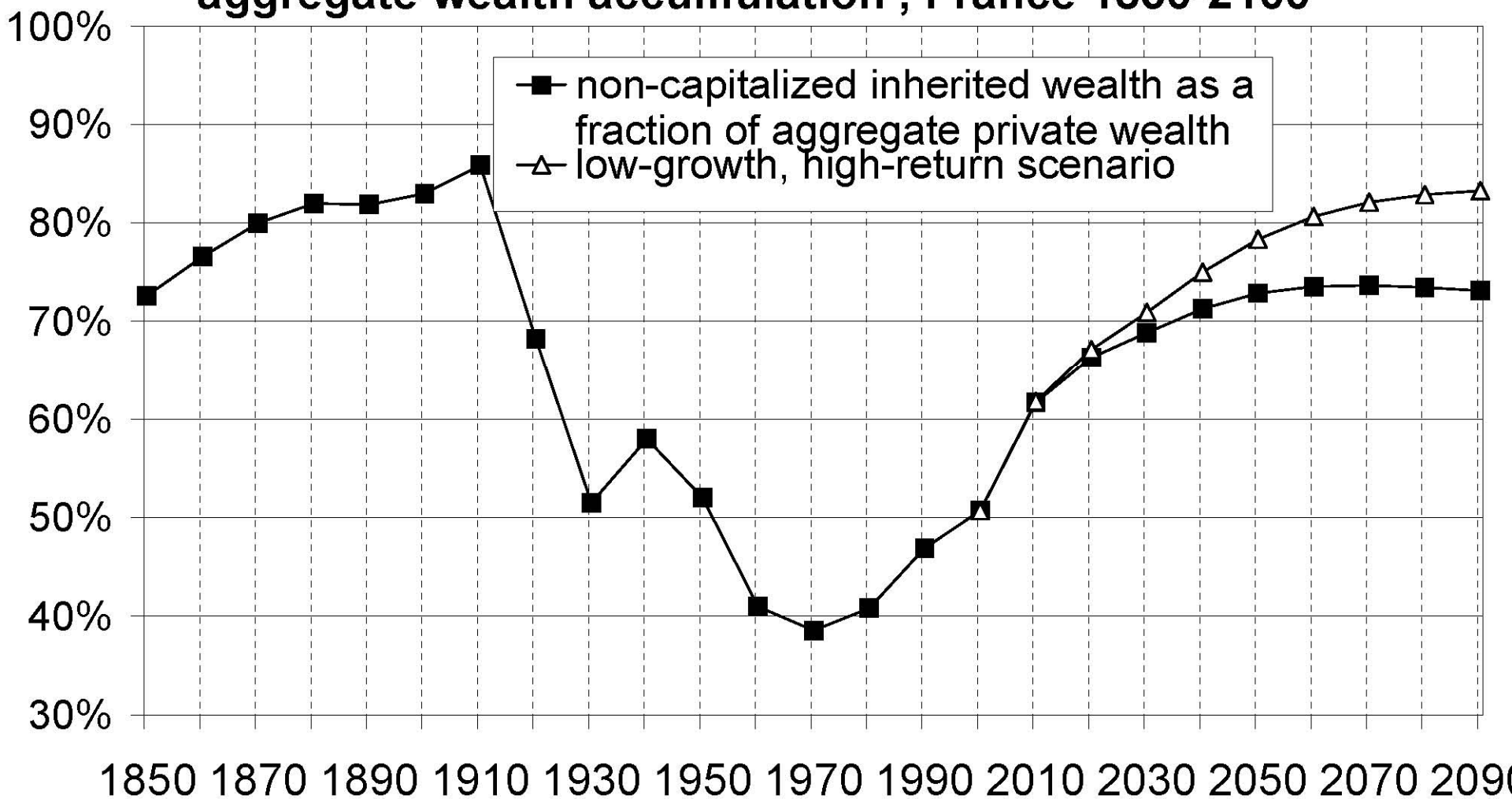


Figure 19: The share of capitalized inheritance in aggregate wealth accumulation , France 1900-2100

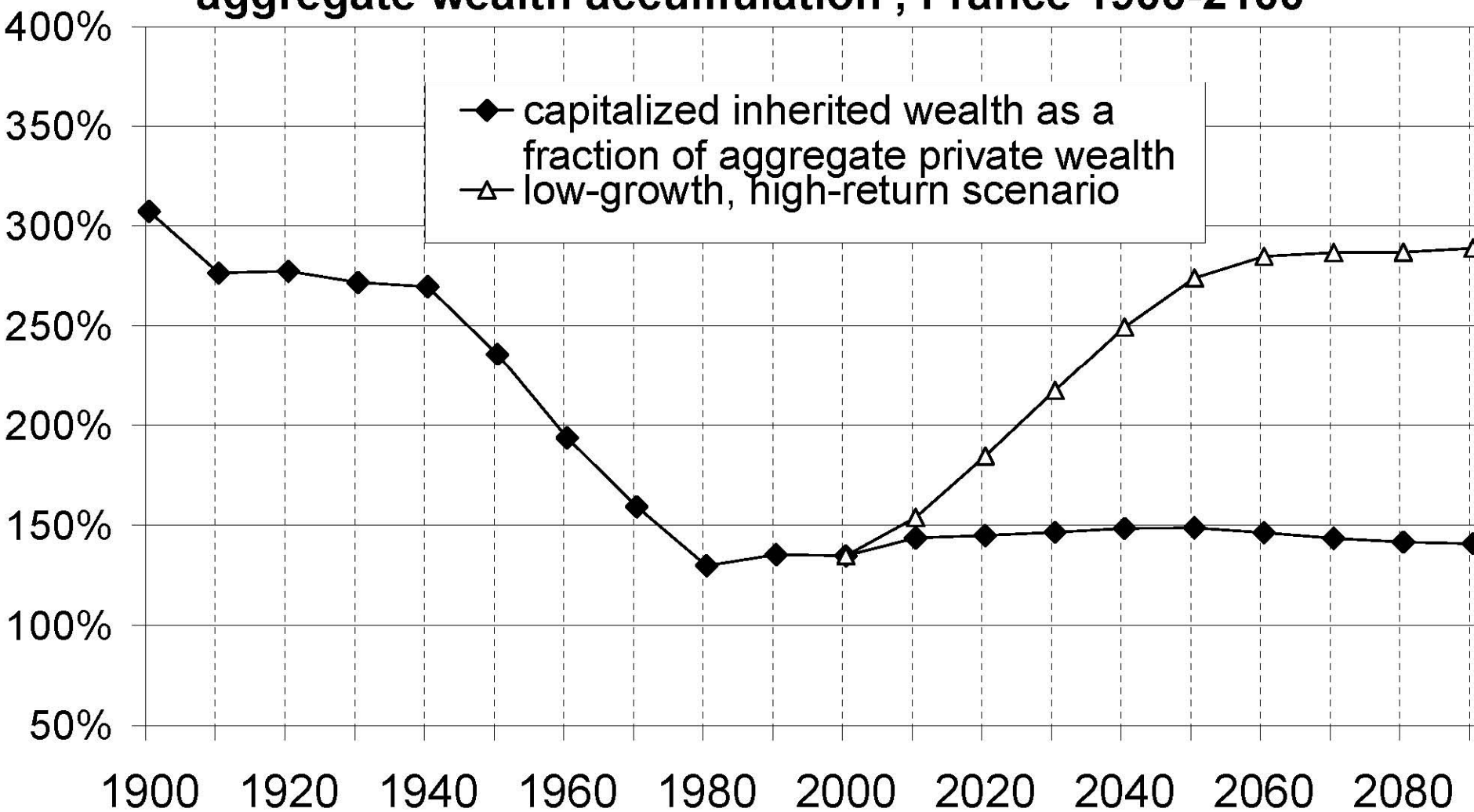


Table 2: Rates of return vs growth rates in France, 1820-2009

	Growth rate of national income g	Rate of return on private wealth $r = \alpha/\beta$	Capital tax rate τ_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	1.8%	6.8%	19%	5.4%	-0.1%	-0.3%	5.0%
1820-1913	1.0%	5.9%	8%	5.4%	-0.1%	0.0%	5.3%
1913-2009	2.6%	7.8%	31%	5.4%	-0.1%	-0.7%	4.6%
1913-1949	1.3%	7.9%	21%	6.4%	-2.6%	-2.0%	1.8%
1949-1979	5.2%	9.0%	34%	6.0%	0.8%	0.0%	6.8%
1979-2009	1.7%	6.9%	39%	4.3%	1.0%	0.0%	5.3%