

Reflections on inequality and capital in the 21st century

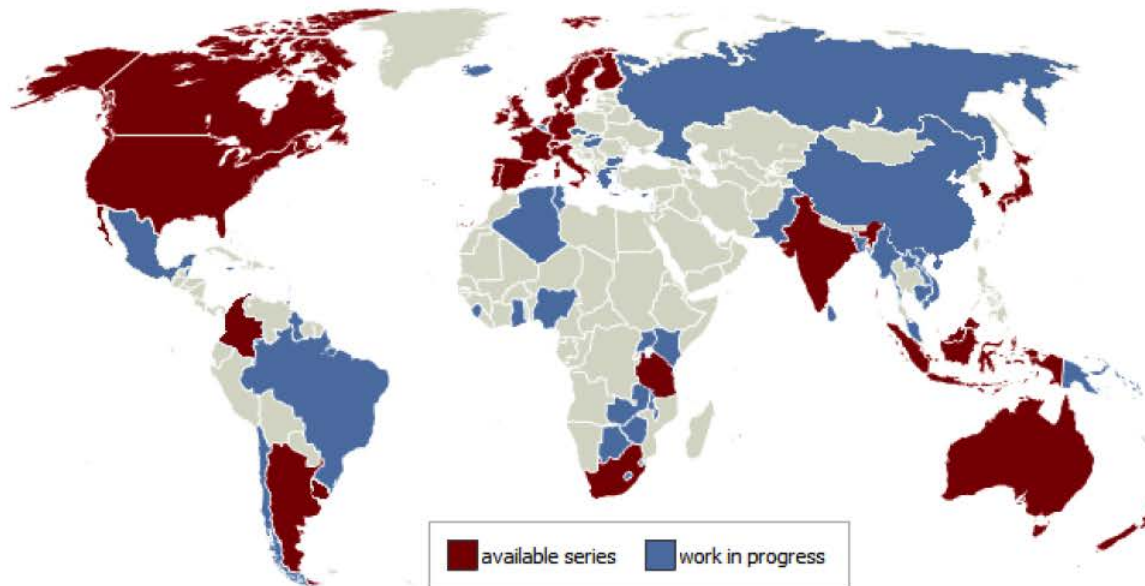
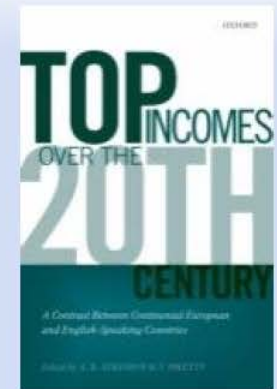
Thomas Piketty

Paris School of Economics

Cambridge, Marshall Lectures, May 3-4 2017

- These lectures are partly based upon my book ***Capital in the 21st century*** & more recent research
- In this book, I study the dynamics of income and wealth distribution since 18^c in 20+ countries (mostly Western). I use historical data collected over the past 15 years with F. Alvaredo, T. Atkinson, E. Saez, G. Postel-Vinay, J.L. Rosenthal, G. Zucman, and 50+ others. **Aim is to put distribution back at the center of political economy.**
- I attempt to develop a multidimensional global approach to capital ownership, property relations, inequality regimes, and to study beliefs systems about inequality
- **Today I will present a number of selected historical evolutions & attempt to draw lessons for the future**
- More series at <http://piketty.pse.ens.fr/capital21c> & the [World Wealth and Income Database](http://wid.world) (WID.world)

THE WORLD WEALTH AND INCOME DATABASE



- Home
- Introduction
- The Database
- Graphics
- Country Information
- Work in Progress
- Acknowledgments



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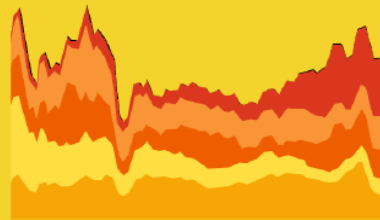


WORLD VIEW



Compare inequality between countries
on an interactive world map

COUNTRY GRAPHS



Follow the evolution of inequality within
countries with user-friendly graphs

DATA TABLES

Download our open-access datasets

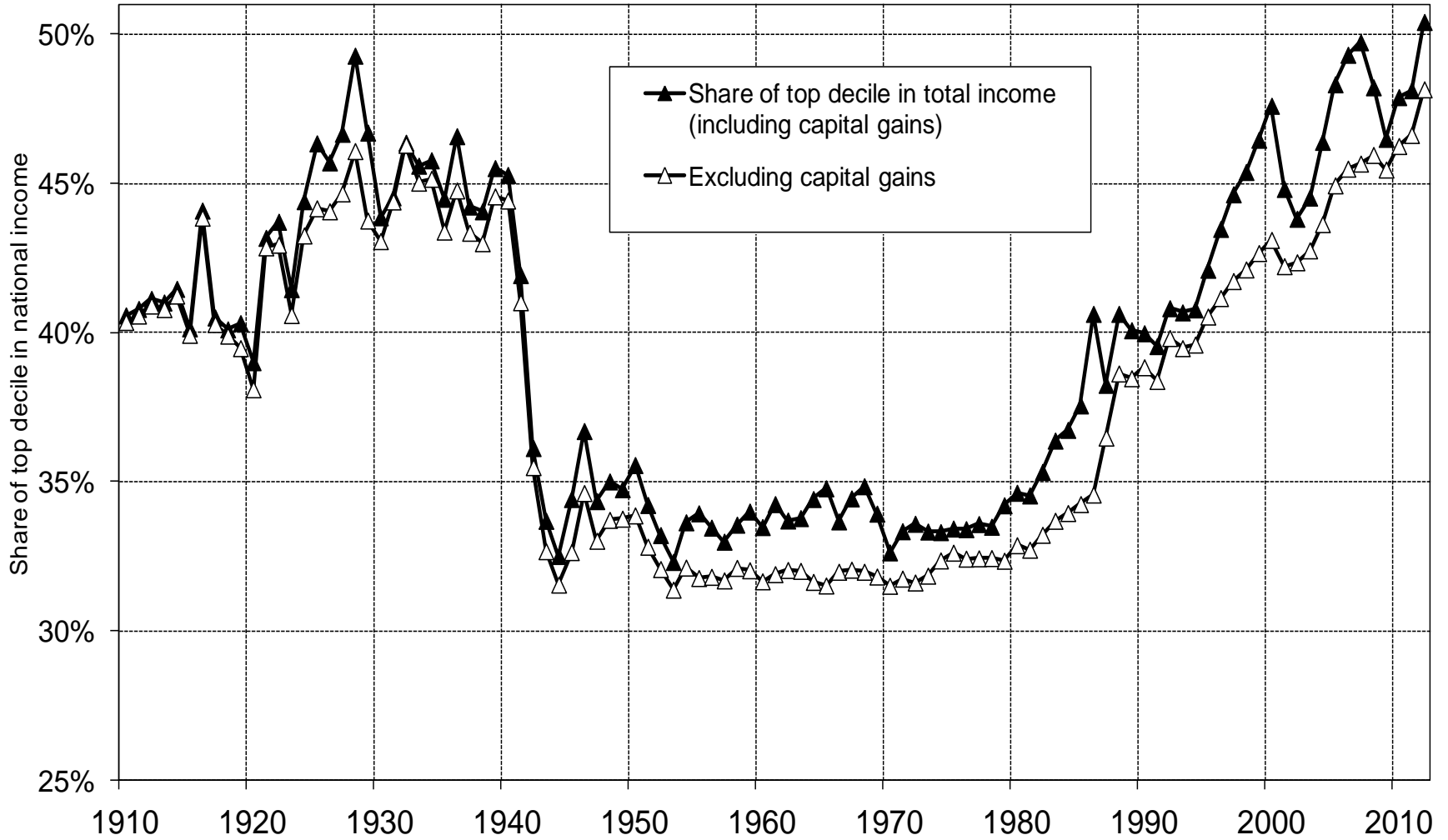
THE SOURCE FOR GLOBAL INEQUALITY DATA

These lectures: four points

- **1. The long-run dynamics of income inequality.**
In 20^c, it took major shocks (wars, depressions, revolutions) for elites to accept social and fiscal reforms & inequality reduction.
- **2. The return of a patrimonial (or wealth-based) society.**
With high $r - g$ in 21^c, wealth inequality might rise again.
Need for more democratic transparency on wealth.
- **3. Inequality in emerging countries & the post-colonial world.**
Extreme inequality regimes: Middle East, Brasil, South Africa.
Need to go beyond the Western perspective on inequality.
- **4. Rising inequality and the changing structure of political conflict.** Why do we see more xenophobic populism and identity-based politics rather than more class-based politics?

- **1. The long-run dynamics of income inequality.**
The end of the Kuznets curve, the end of universal laws.
Institutions and policies matter: education, labor, tax, etc.
- During 20c, major shocks – wars, depressions, revolutions – played a central role in the reduction of inequality.
It took these major shocks to force elites to accept the new social and fiscal institutions which they refused until then.
- Political determinants of inequality are more important than pure economic determinants

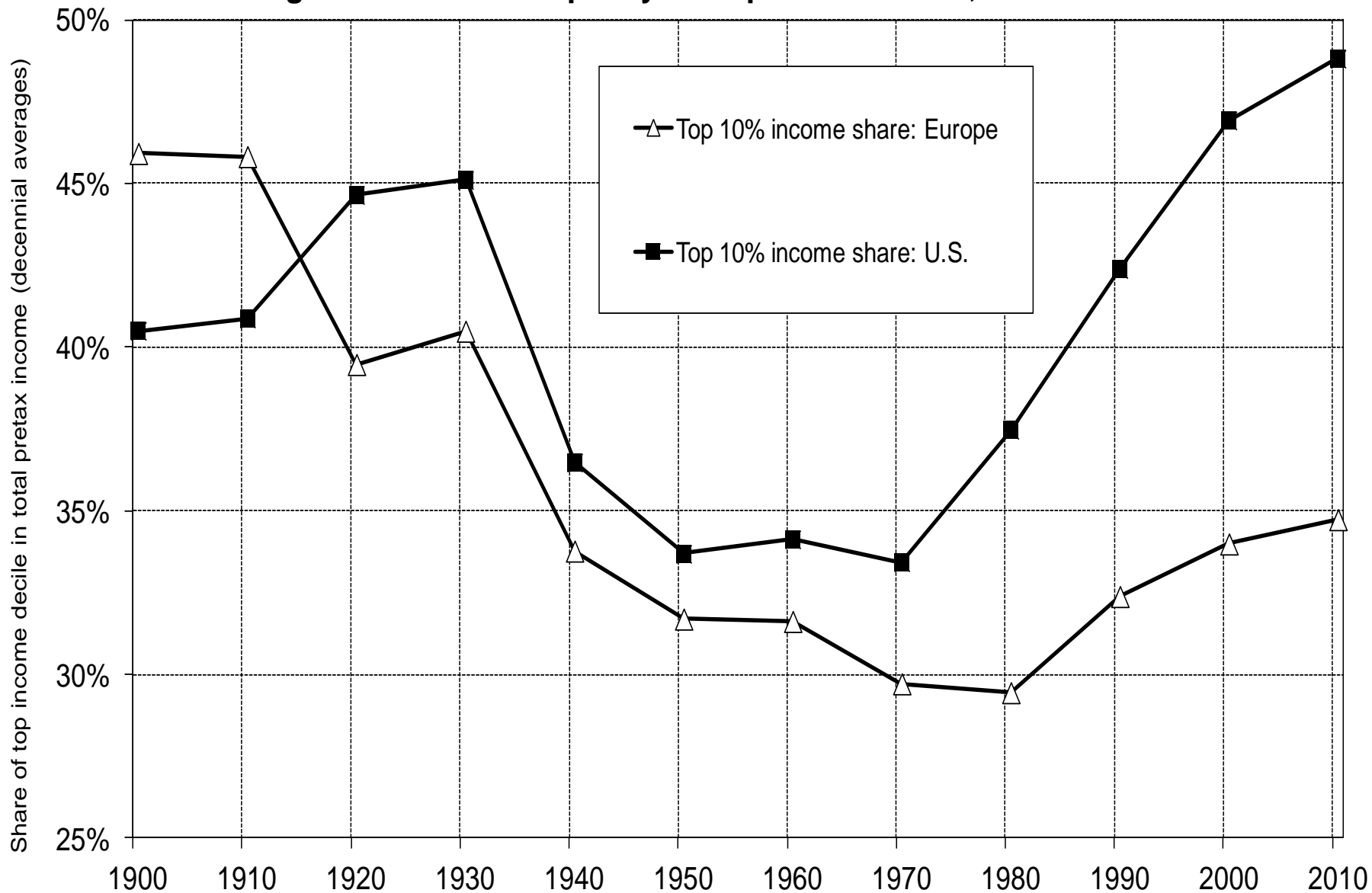
Figure I.1. Income inequality in the United States, 1910-2012



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

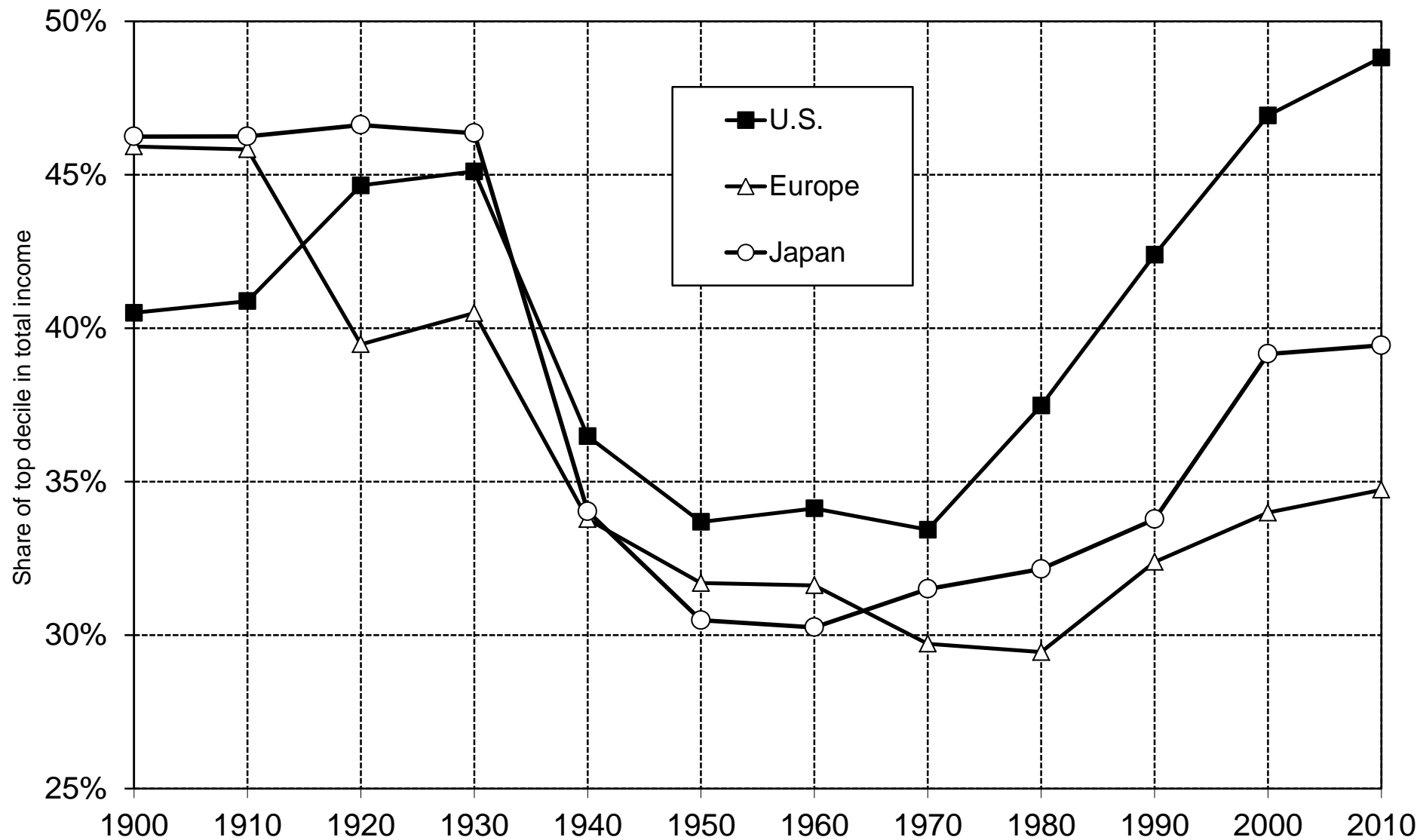
Figure 1. Income inequality: Europe and the U.S., 1900-2010



The share of total income accruing to top decile income holders was higher in Europe than in the U.S. around 1900-1910; it is a lot higher in the U.S. than in Europe around 2000-2010.

Sources and series: see piketty.pse.ens.fr/capital21c (fig.9,8)

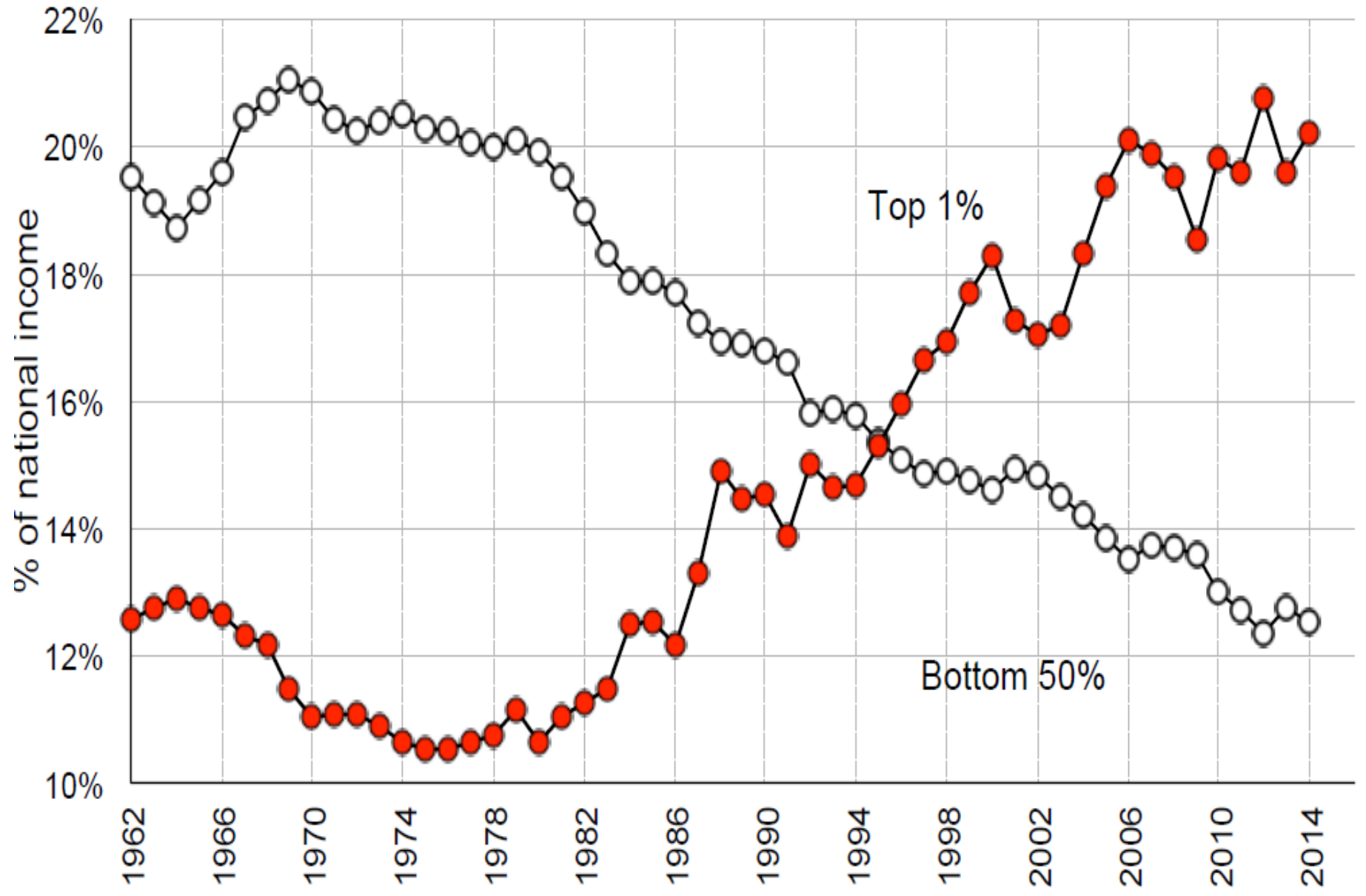
Top 10% Income Share: Europe, U.S. and Japan, 1900-2010



The top decile income share was higher in Europe than in the U.S. in 1900-1910; it is a lot higher in the U.S. in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.

- The rise in US inequality in recent decades is mostly due to rising inequality of labor income, and **a collapse of bottom 50% income share**
- It is due to a mixture of reasons: changing supply and demand for skills; race between education and technology; globalization; **very unequal to access to skills in the US** (rising tuitions, insufficient public investment); unprecedented rise of top managerial compensation in the US (changing incentives, cuts in top income tax rates); **falling minimum wage** in the US
→ institutions and policies matter

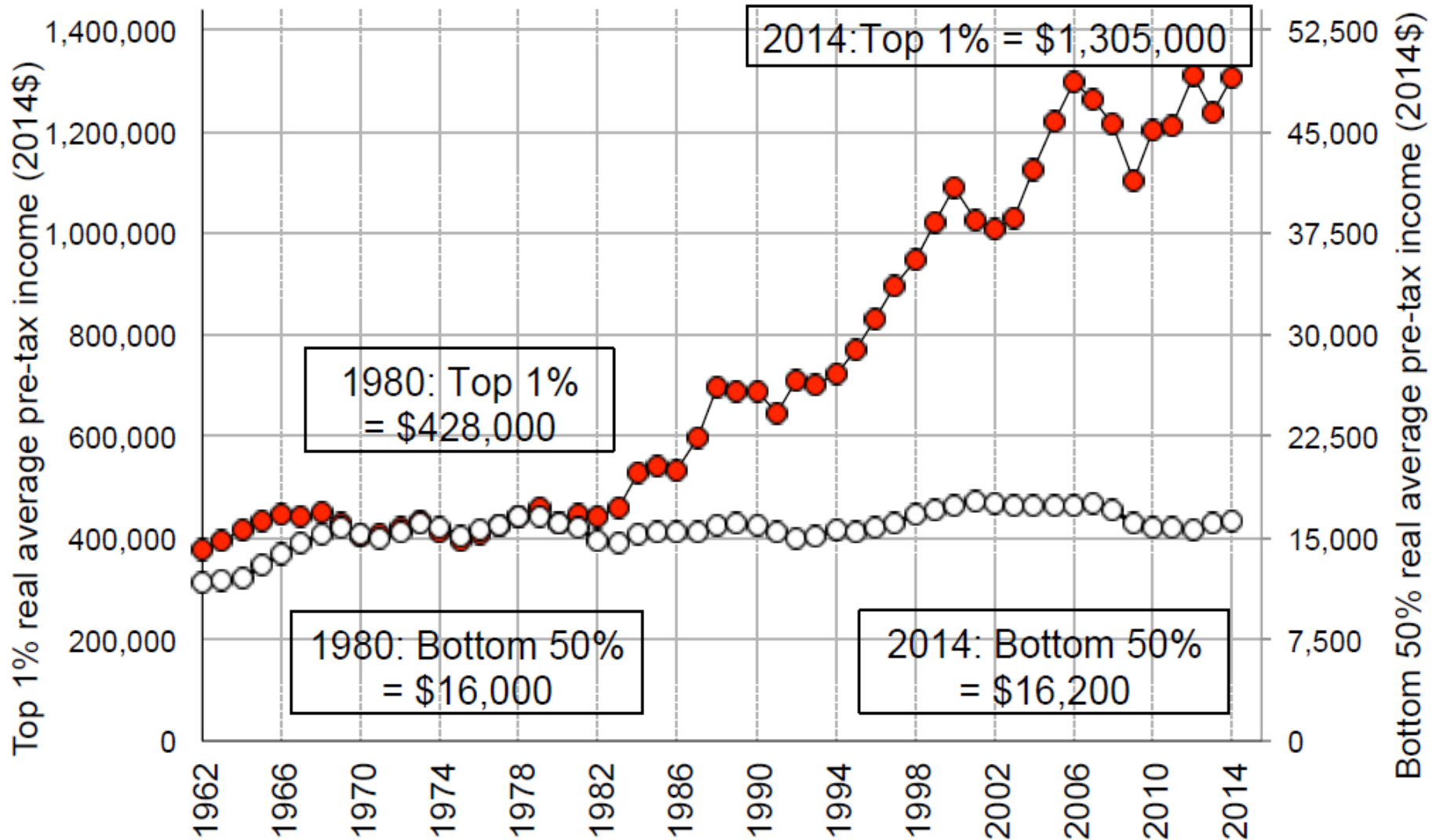
Pre-tax national income share: top 1% vs. bottom 50%



1980: Top 1% = 27 x bottom 50% income

2014: Top 1% = 81 x bottom 50% income

Real average pre-tax income of bottom 50% and top 1% adults



Real income of bottom 50%: pre-tax vs. post-tax

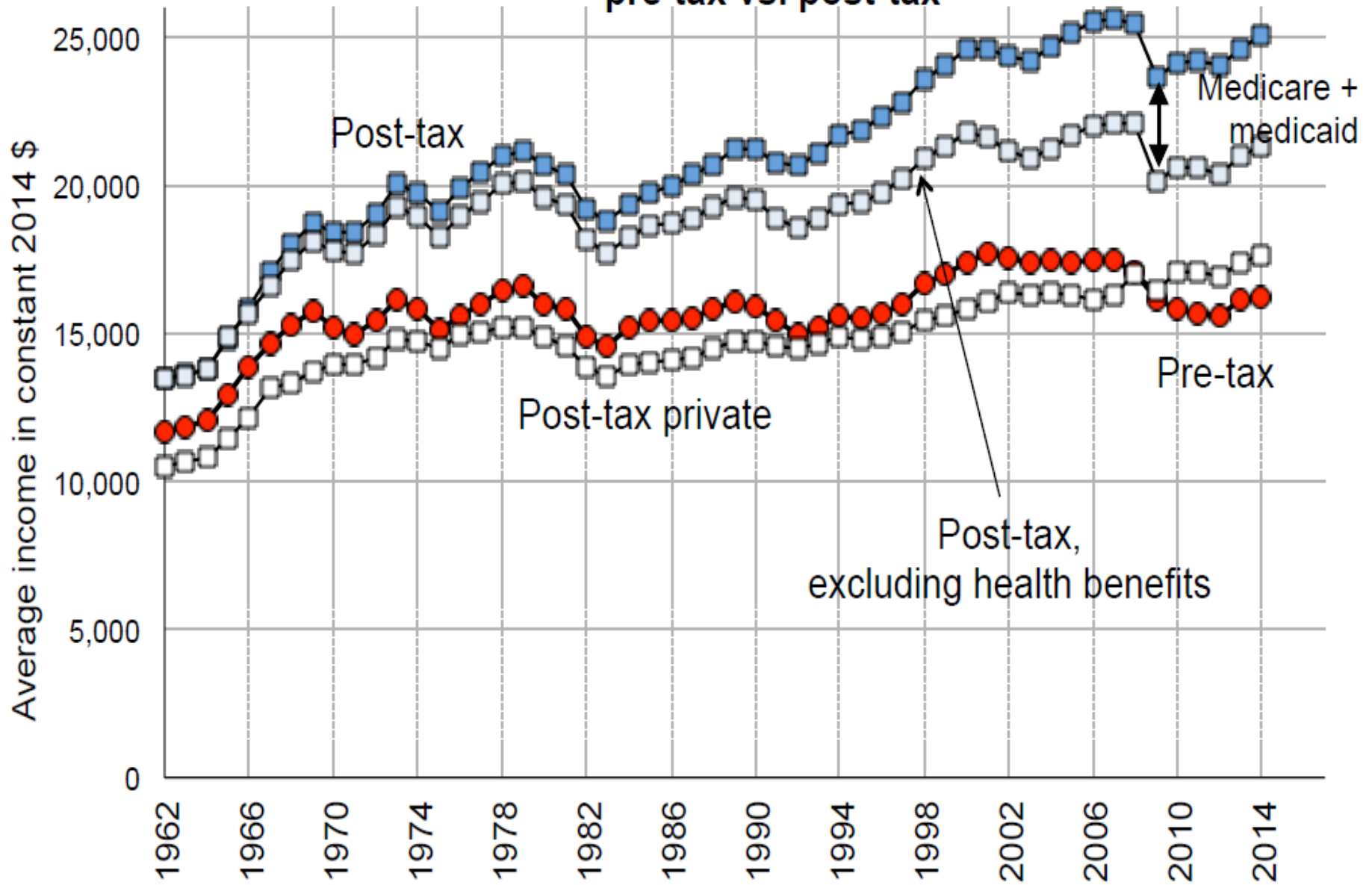
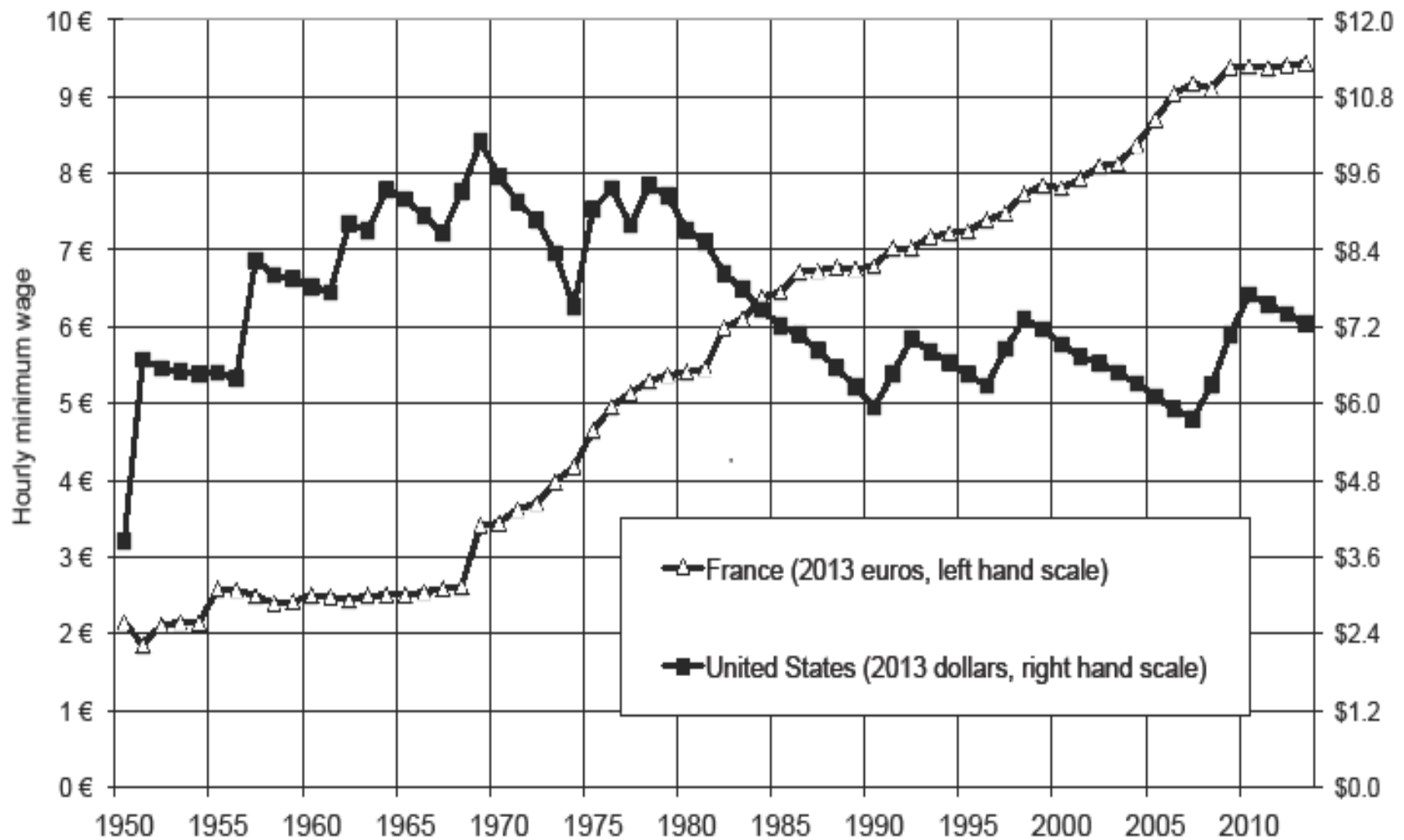


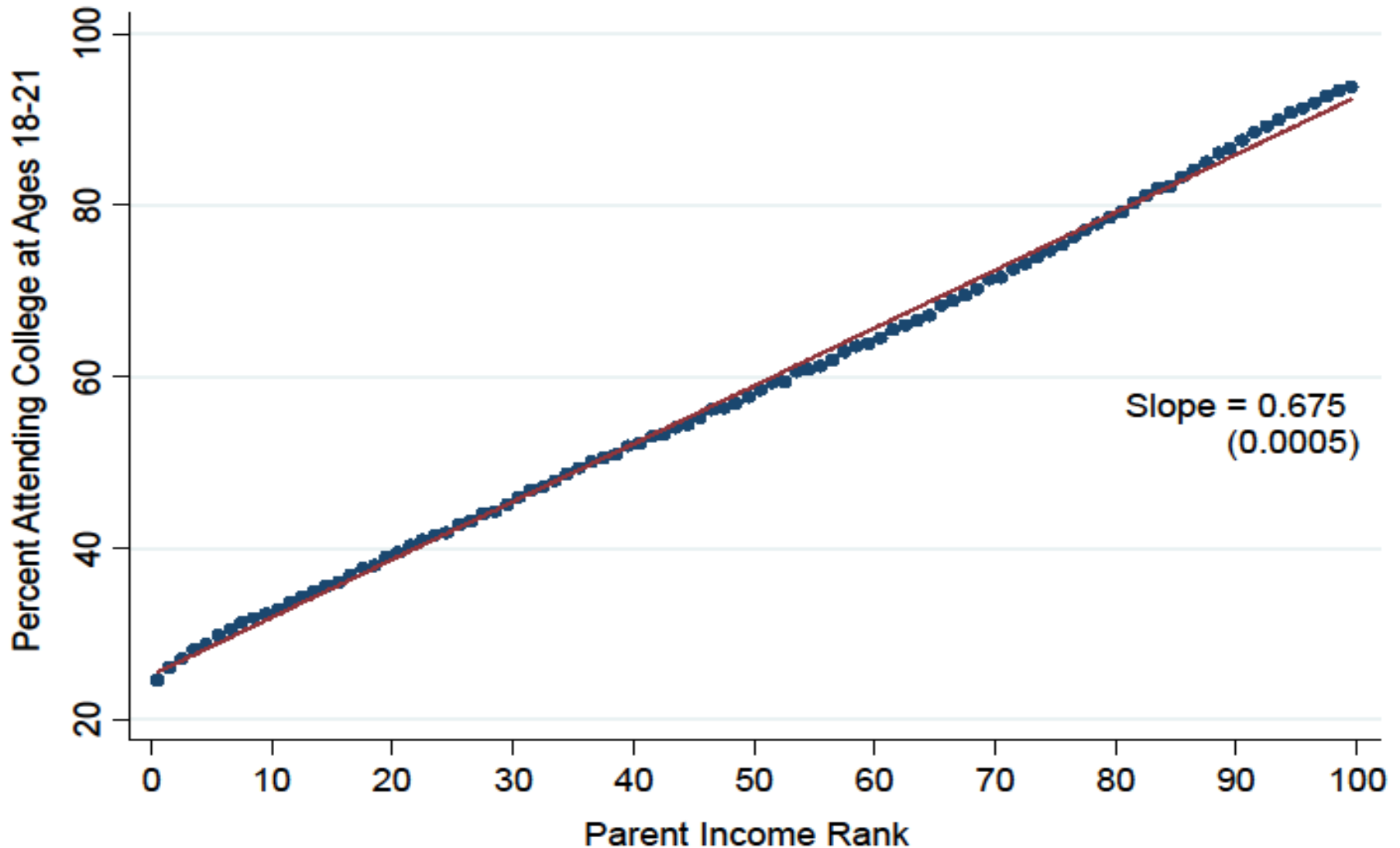
Figure 9.1. Minimum wage in France and the U.S., 1950-2013



Expressed in 2013 purchasing power, the hourly minimum wage rose from \$3.8 to \$7.3 between 1950 and 2013 in the U.S., and from €2.1 to €9.4 in France. Sources and series: see piketty.pse.ens.fr/capital21c.

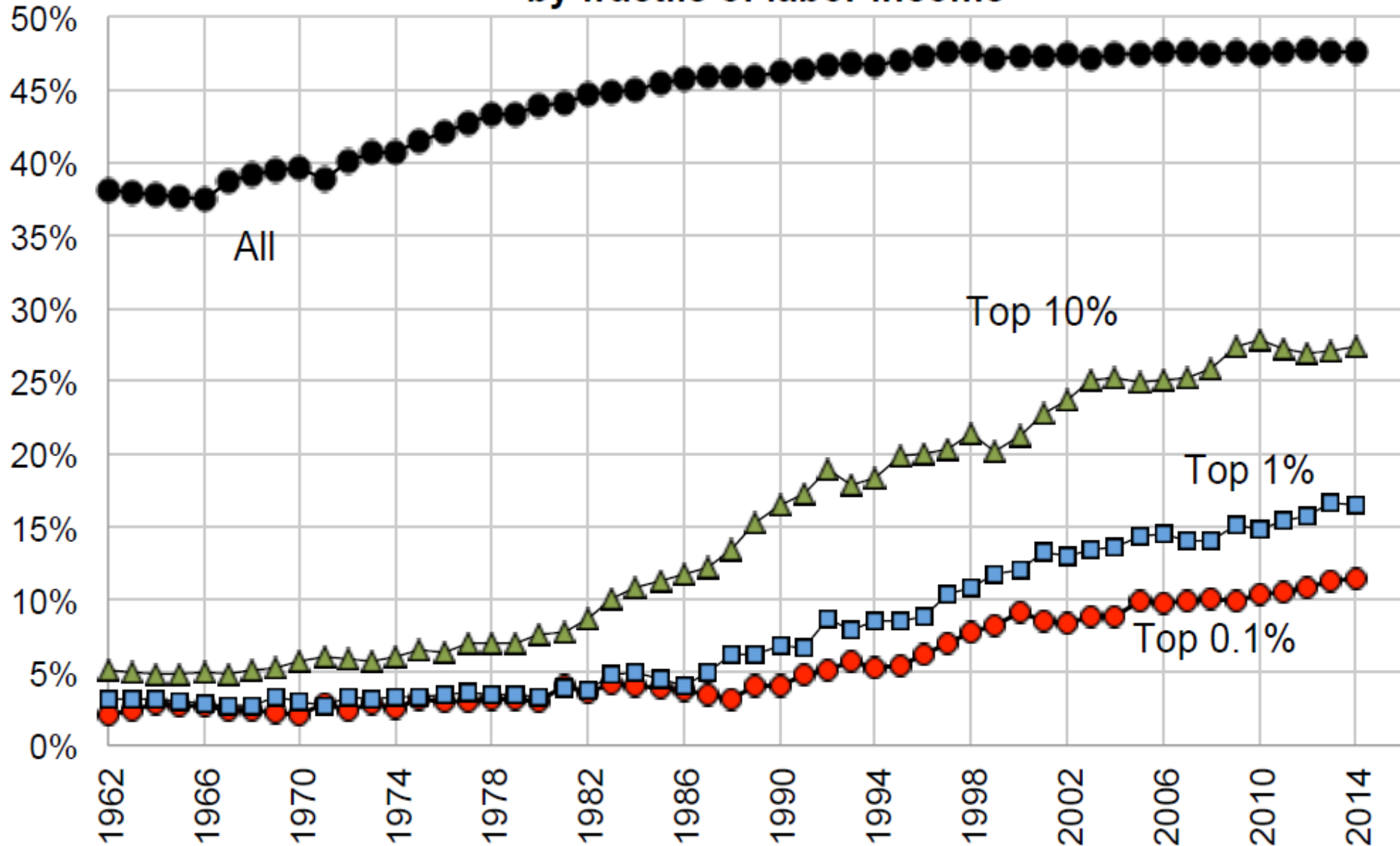
Modern inequality: the meritocratic fairy tale

College Attendance Rates vs. Parent Income Rank in the U.S.



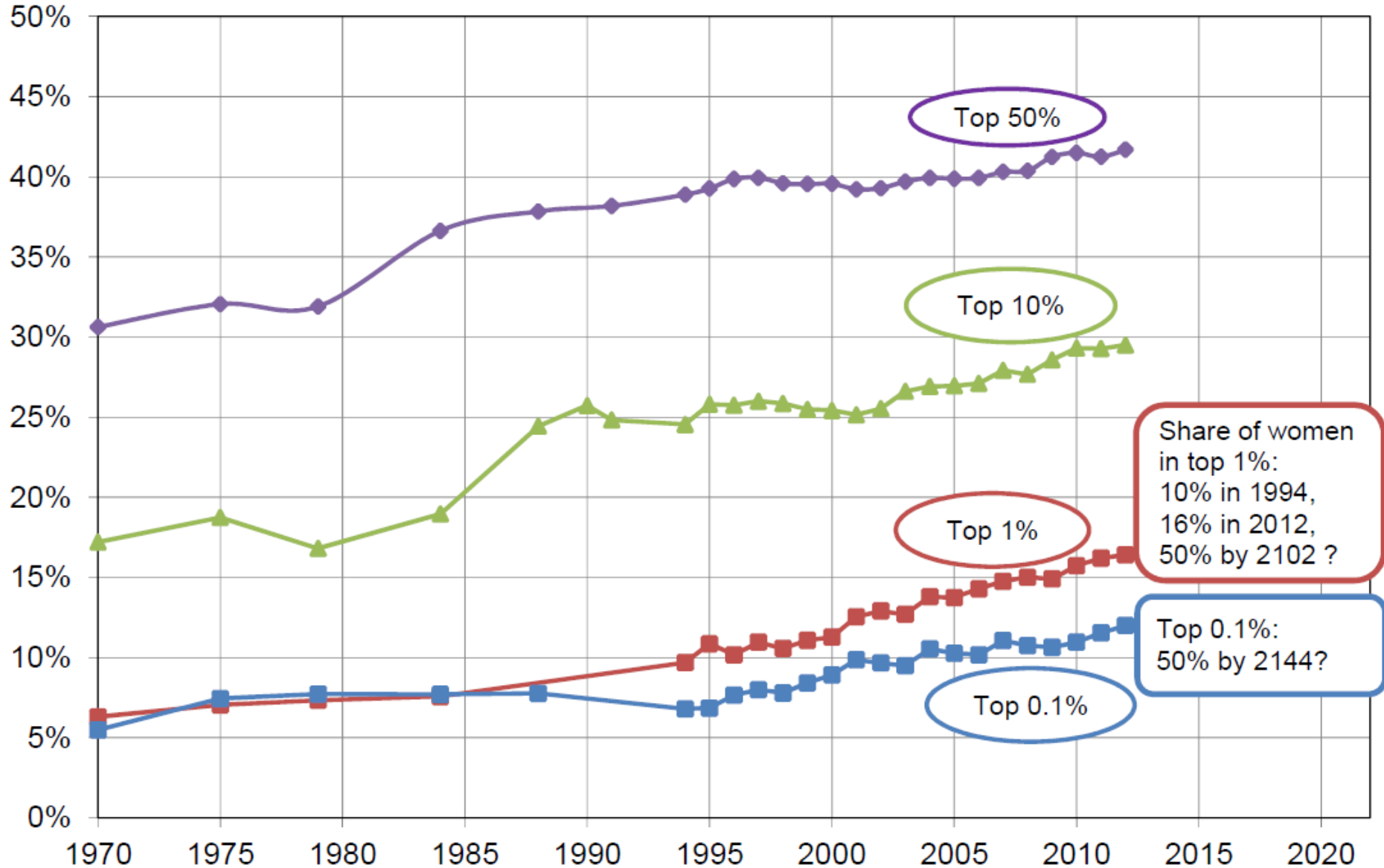
Gender inequality: men still make 85% of top 1% earners

Share of women in the employed population,
by fractile of labor income



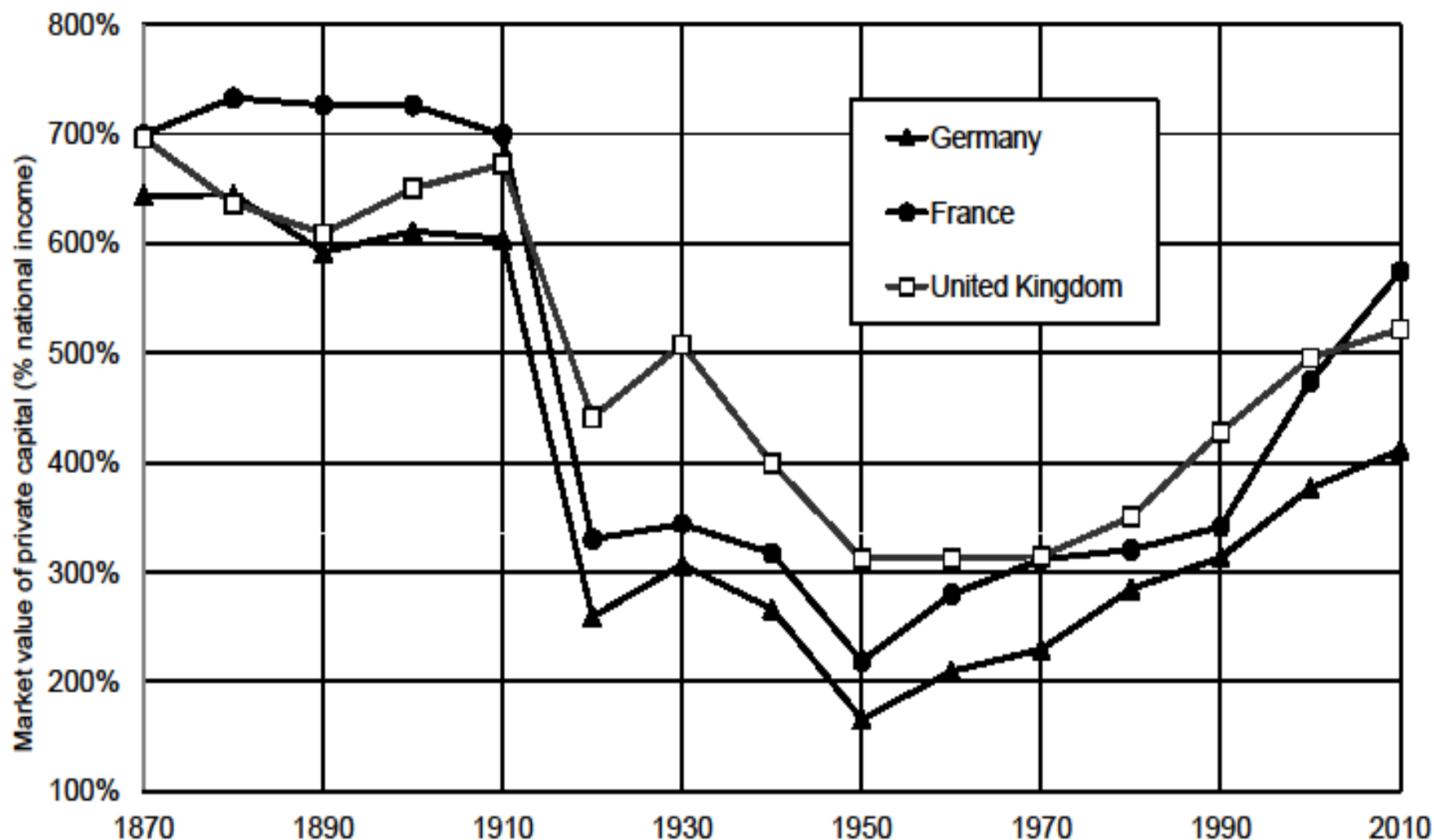
Gender inequality in France: equal pay in the 22c ?

Share of women in fractiles of top labor incomes in France, 1970-2012



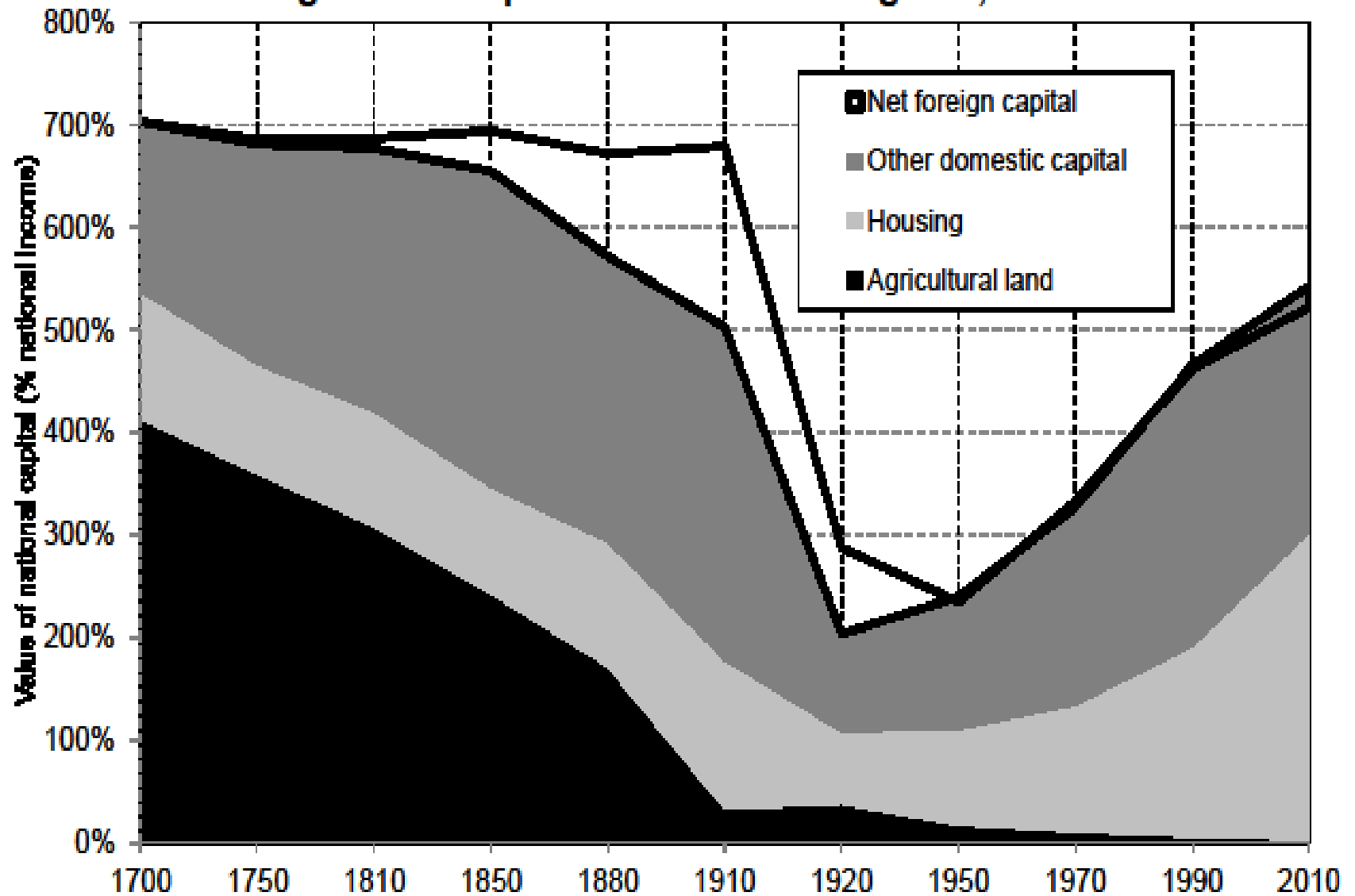
- **2. The return of a patrimonial (or wealth-based) society in 21c.** Wealth-income ratios seem to be returning to very high levels in rich countries. Intuition: in a slow-growth society, wealth accumulated in the past can naturally become very important. In the very long run, this can be relevant for the entire world. Not bad in itself, but new challenges.
- **The metamorphosis of capital call for new regulations of property relations.** The key role of the legal and political system. Democratizing capital: worker voting rights in boards, patent laws (intellectual property can be temporary, not permanent), progression wealth taxation (other way to make property rights temporary), etc.

Figure I.2. The capital/income ratio in Europe, 1870-2010



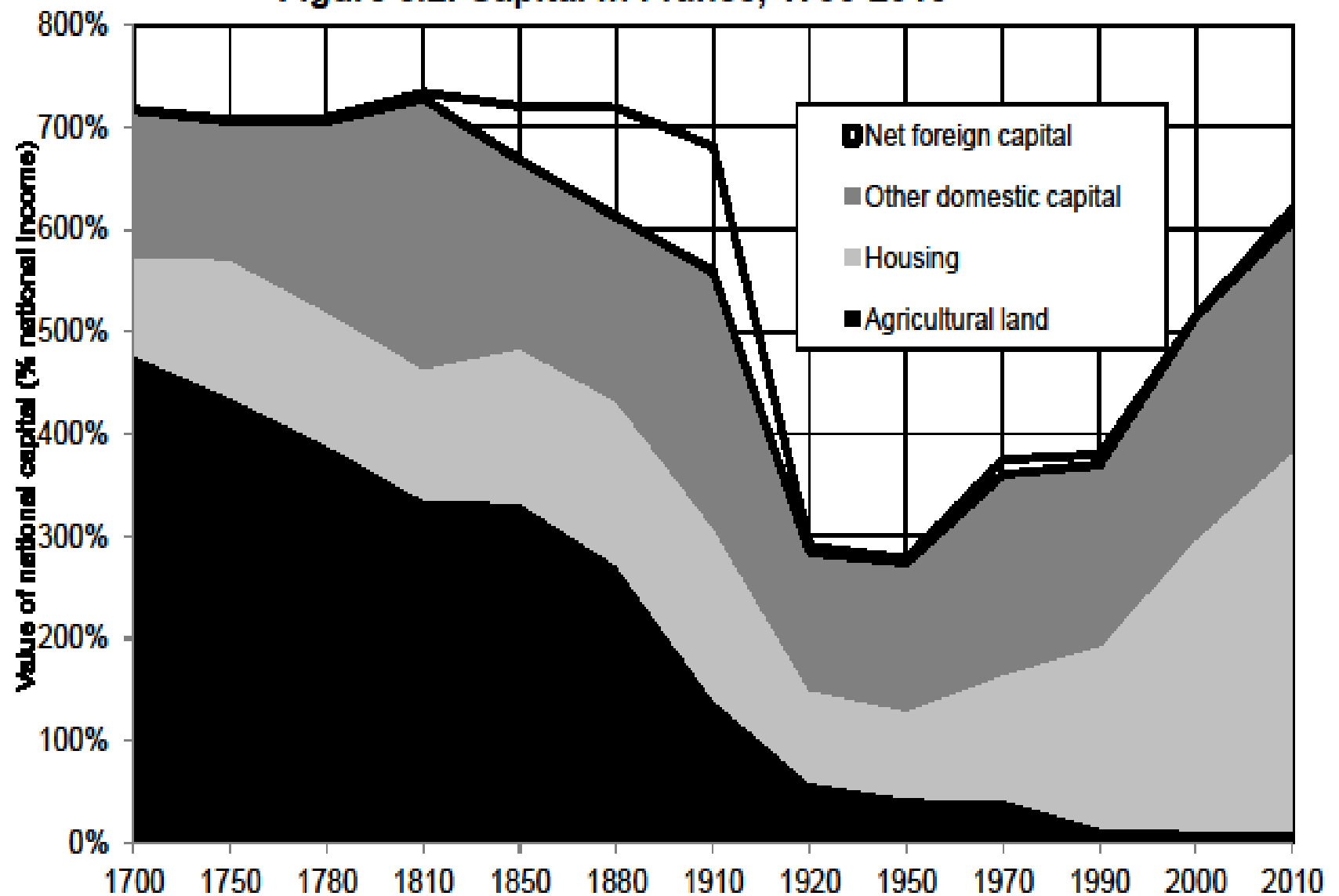
Aggregate private wealth was worth about 6-7 years of national income in Europe in 1910, between 2 and 3 years in 1950, and between 4 and 6 years in 2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 3.1. Capital in the United Kingdom, 1700-2010



National capital is worth about 7 years of national income in the United Kingdom in 1700 (including 4 in agricultural land). Sources and series: see piketty.pse.ens.fr/capital21c.

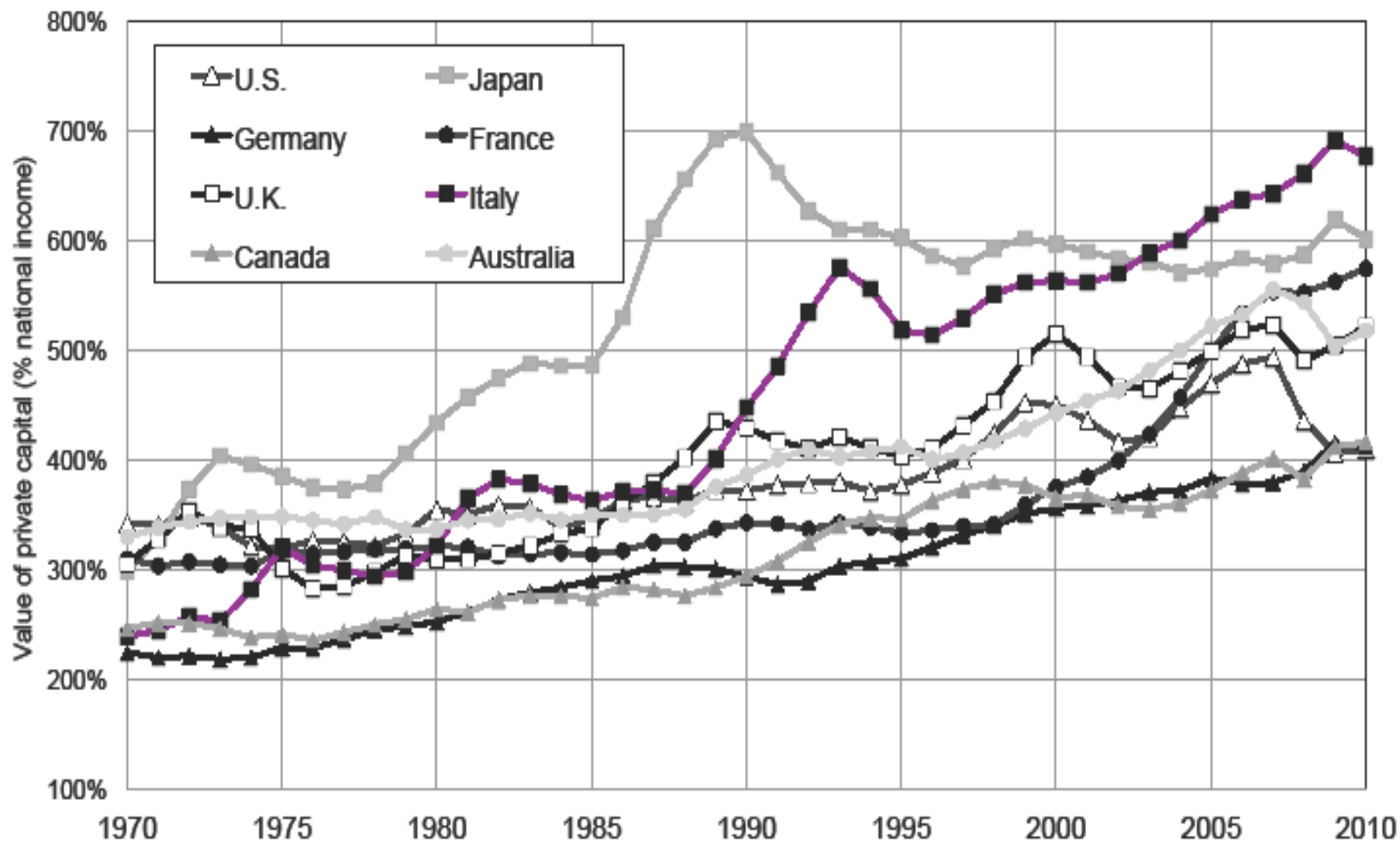
Figure 3.2. Capital in France, 1700-2010



National capital is worth almost 7 years of national income in France in 1910 (including 1 invested abroad).

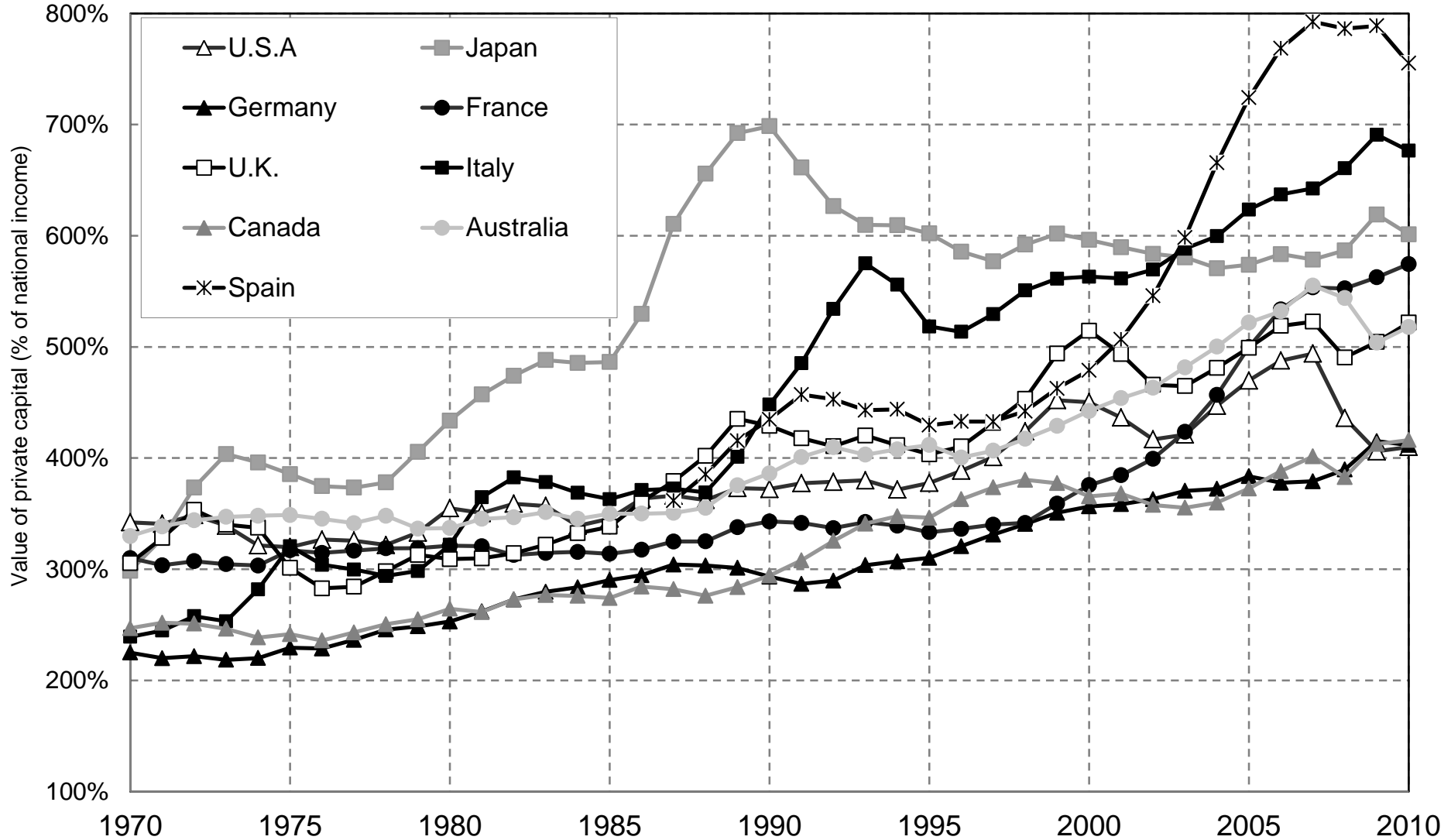
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 5.3. Private capital in rich countries, 1970-2010



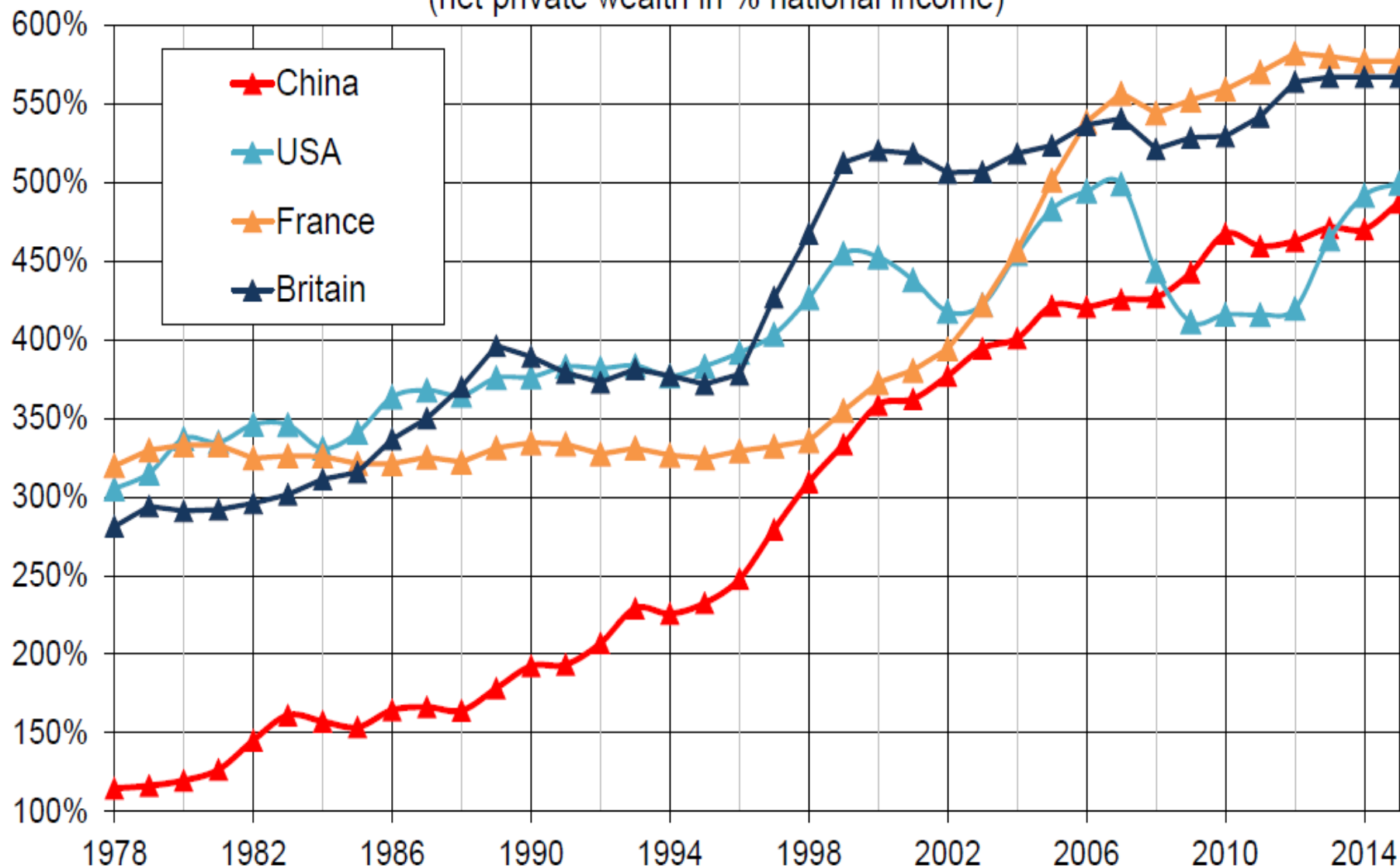
Private capital is worth between 2 and 3.5 years of national income in rich countries in 1970, and between 4 and 7 years of national income in 2010. Sources and series: see piketty.pse.ens.fr/capital21c.

**Figure S5.2. Private capital in rich countries:
from the Japanese to the Spanish bubble**



Private capital almost reached 8 years of national income in Spain at the end of the 2000s (ie. one more year than Japan in 1990). Sources and series: see piketty.pse.ens.fr/capital21c.

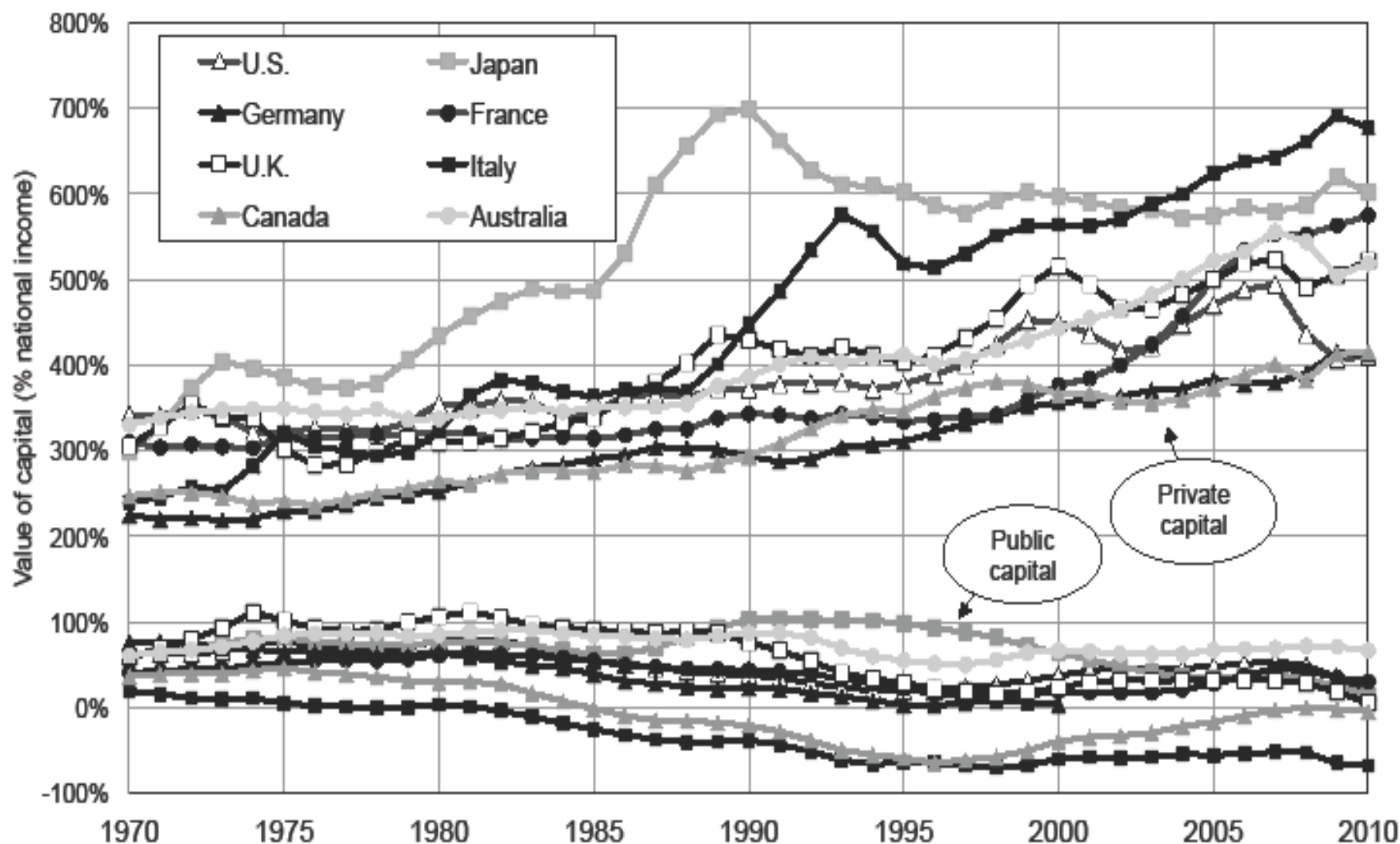
Figure 2a: The rise of wealth-income ratios
(net private wealth in % national income)



Net private wealth (personal + non-profit) as a fraction of net national income.

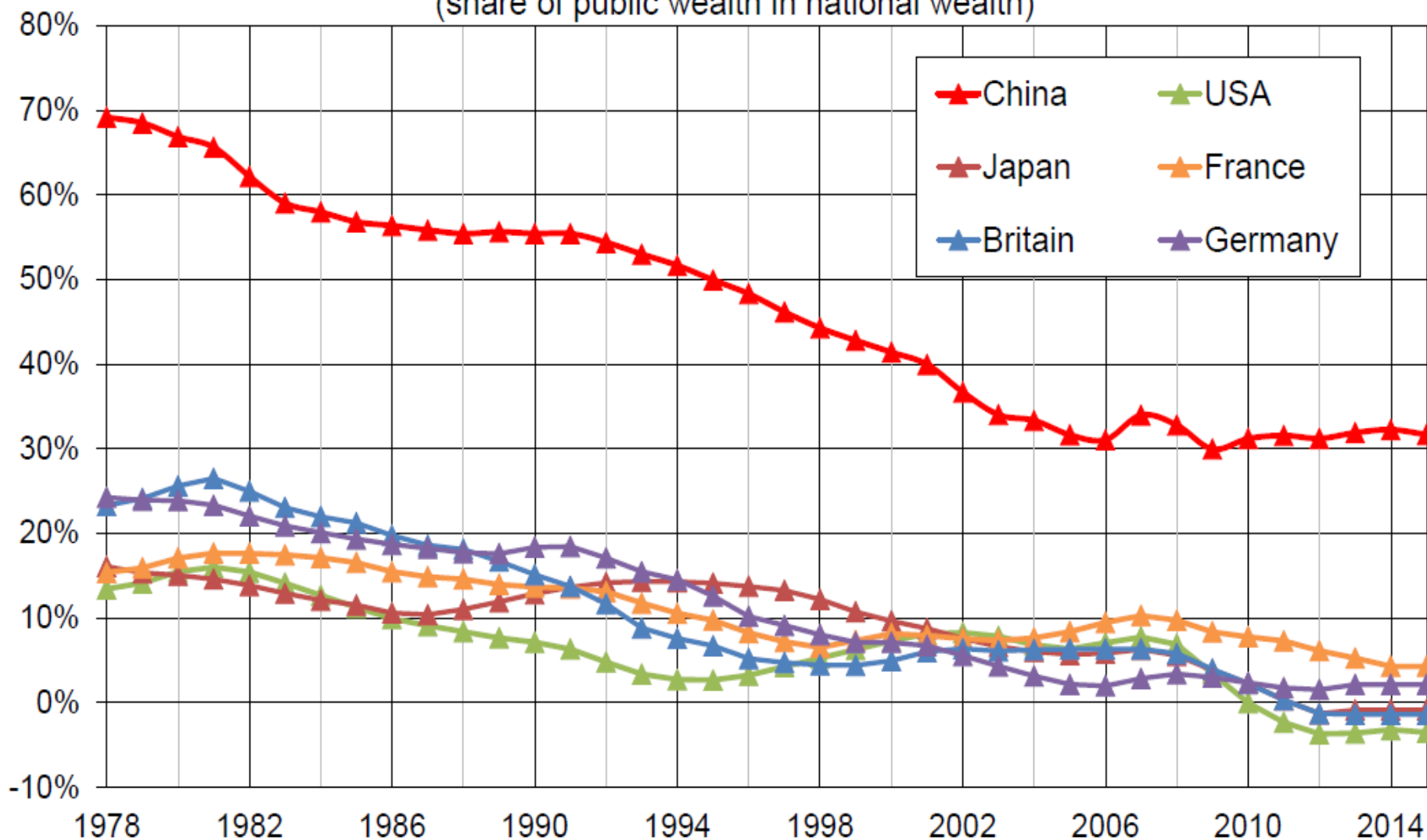
China: Piketty, Yang and Zucman (2016). Other countries: Piketty and Zucman (2014) and WID.world updates.

Figure 5.5. Private and public capital in rich countries, 1970-2010



In Italy, private capital rose from 240% to 680% of national income between 1970 and 2010, while public capital dropped from 20% to -70%. Sources and series: see piketty.pse.ens.fr/capital21c.

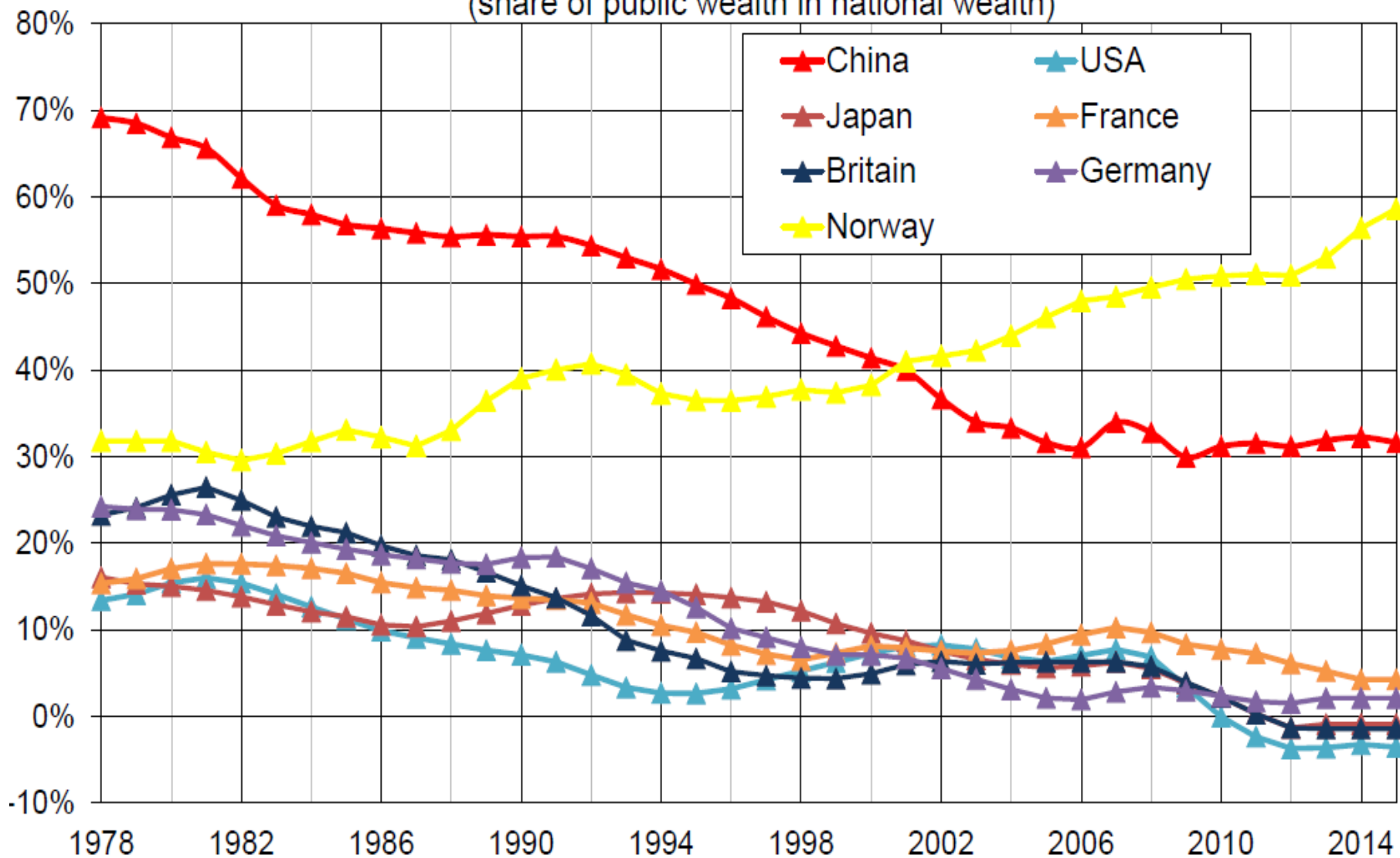
Figure 2b. The decline of public property
(share of public wealth in national wealth)



Share of net public wealth (public assets minus public debt) in net national wealth (private + public).

China: Piketty, Yang and Zucman (2016). Other countries: Piketty and Zucman (2014) and WID.world updates.

Figure 2c. The decline of public property vs. the rise of sovereign funds
 (share of public wealth in national wealth)



Share of net public wealth (public assets minus public debt) in net national wealth (private + public).

China: Piketty, Yang and Zucman (2016). Other countries: Piketty and Zucman (2014) and WID.world updates.

- **The future of wealth concentration.** With high $r - g$ during 21^c (r = net-of-tax rate of return, g = growth rate), then wealth inequality might reach or surpass 19^c oligarchic levels. Gap $r-g$ largely determined by legal system, institutions and policies. Need for more transparency about wealth. Need for progressive taxation of net wealth.

Table 12.1. The growth rate of top global wealth, 1987-2013

| <i>Average real growth rate per year (after deduction of inflation)</i> | 1987-2013 |
|--|-----------|
| The top 1/(100 million) highest wealth holders <small>(about 30 adults out of 3 billions in 1980s, and 45 adults out of 4,5 billions in 2010s)</small> | 6,8% |
| The top 1/(20 million) highest wealth holders <small>(about 150 adults out of 3 billions in 1980s, and 225 adults out of 4,5 billions in 2010s)</small> | 6,4% |
| Average world wealth per adult | 2,1% |
| Average world income per adult | 1,4% |
| World adult population | 1,9% |
| World GDP | 3,3% |

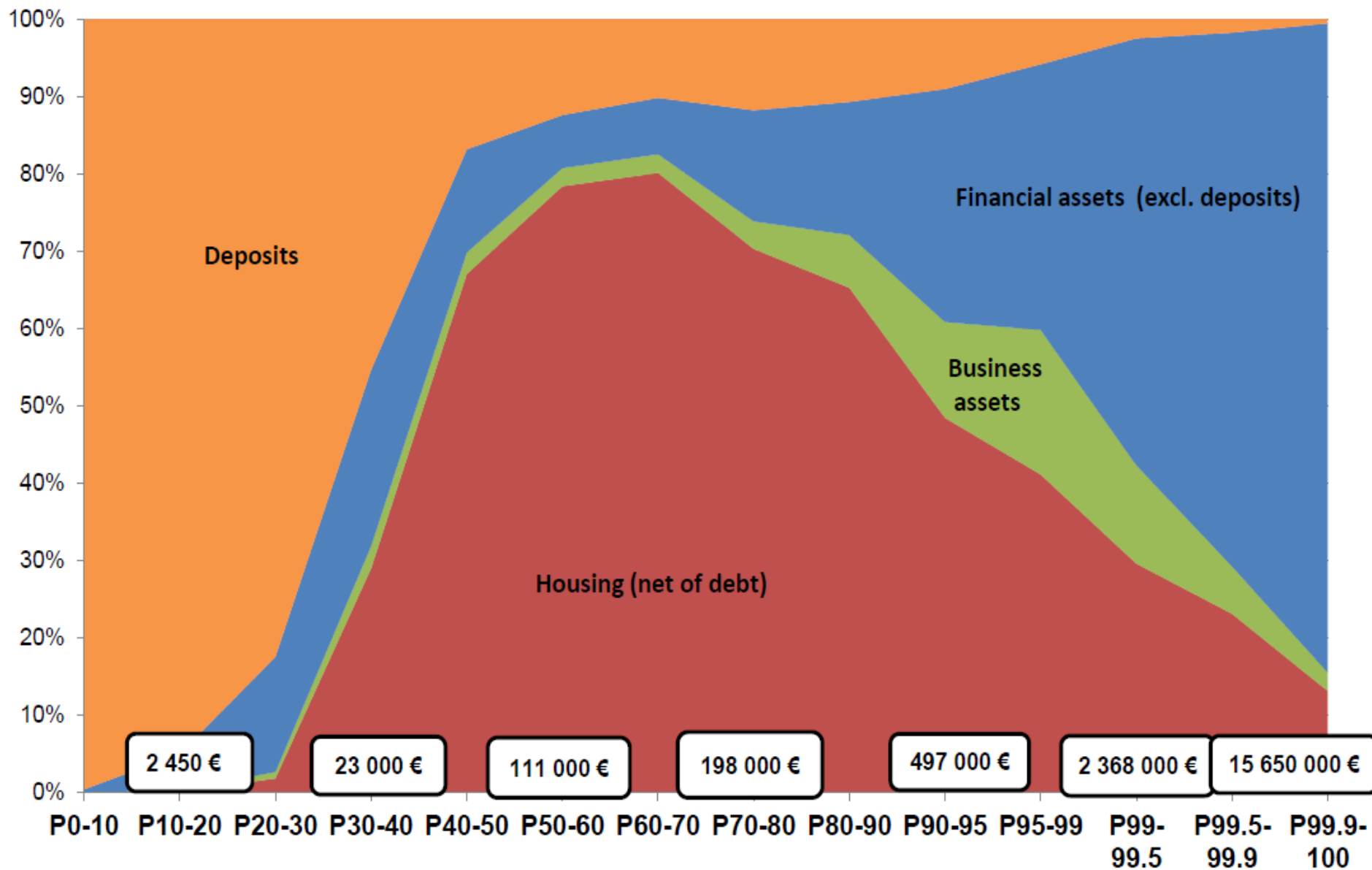
Between 1987 and 2013, the highest global wealth fractiles have grown at 6%-7% per year, vs. 2,1% for average world wealth and 1,4% for average world income. All growth rates are net of inflation (2,3% per year between 1987 and 2013). Sources: see piketty.pse.ens.fr/capital21c.

Table 12.2. The return on the capital endowments of U.S. universities, 1980-2010

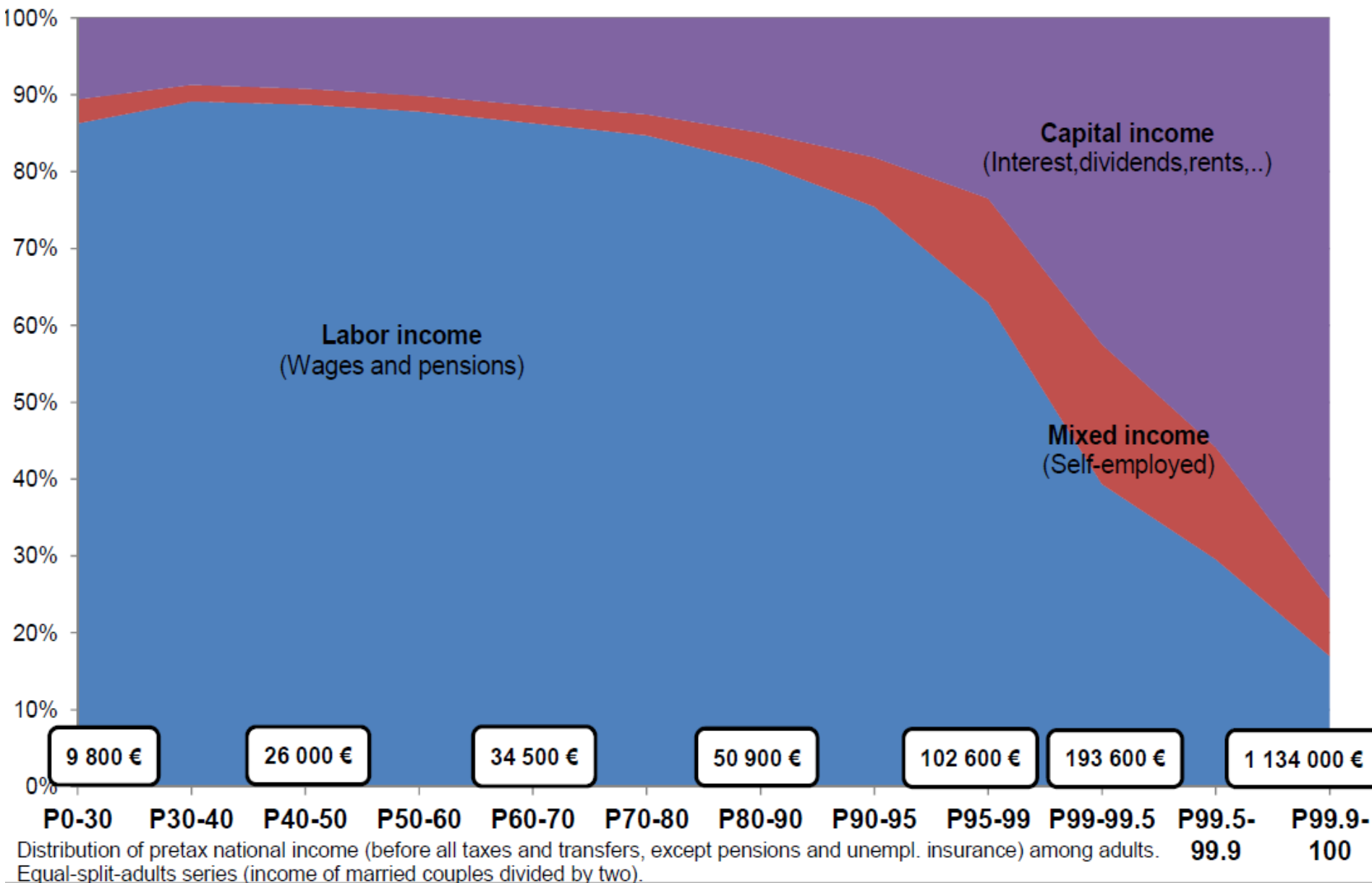
| Average real annual rate of return <i>(after deduction of inflation and all administrative costs and financial fees)</i> | Période 1980-2010 |
|---|-------------------|
| All universities (850) | 8.2% |
| incl.: Harvard-Yale-Princeton | 10.2% |
| incl.: Endowments higher than 1 billion \$ (60) | 8.8% |
| incl. Endowments between 500 millions and 1 billion \$ (66) | 7.8% |
| incl. Endowments between 100 and 500 million \$ (226) | 7.1% |
| dont: Endowments less than 100 million \$ (498) | 6.2% |

Between 1980 and 2010, U.S. universities earned an average real return of 8.2% on their capital endowments, and all the more so for higher endowments. All returns reported here are net of inflation (2.4% per year between 1980 and 2010) and of all administrative costs and financial fees.
Sources: see piketty.pse.ens.fr/capital21c.

Asset composition by wealth level, France 2012

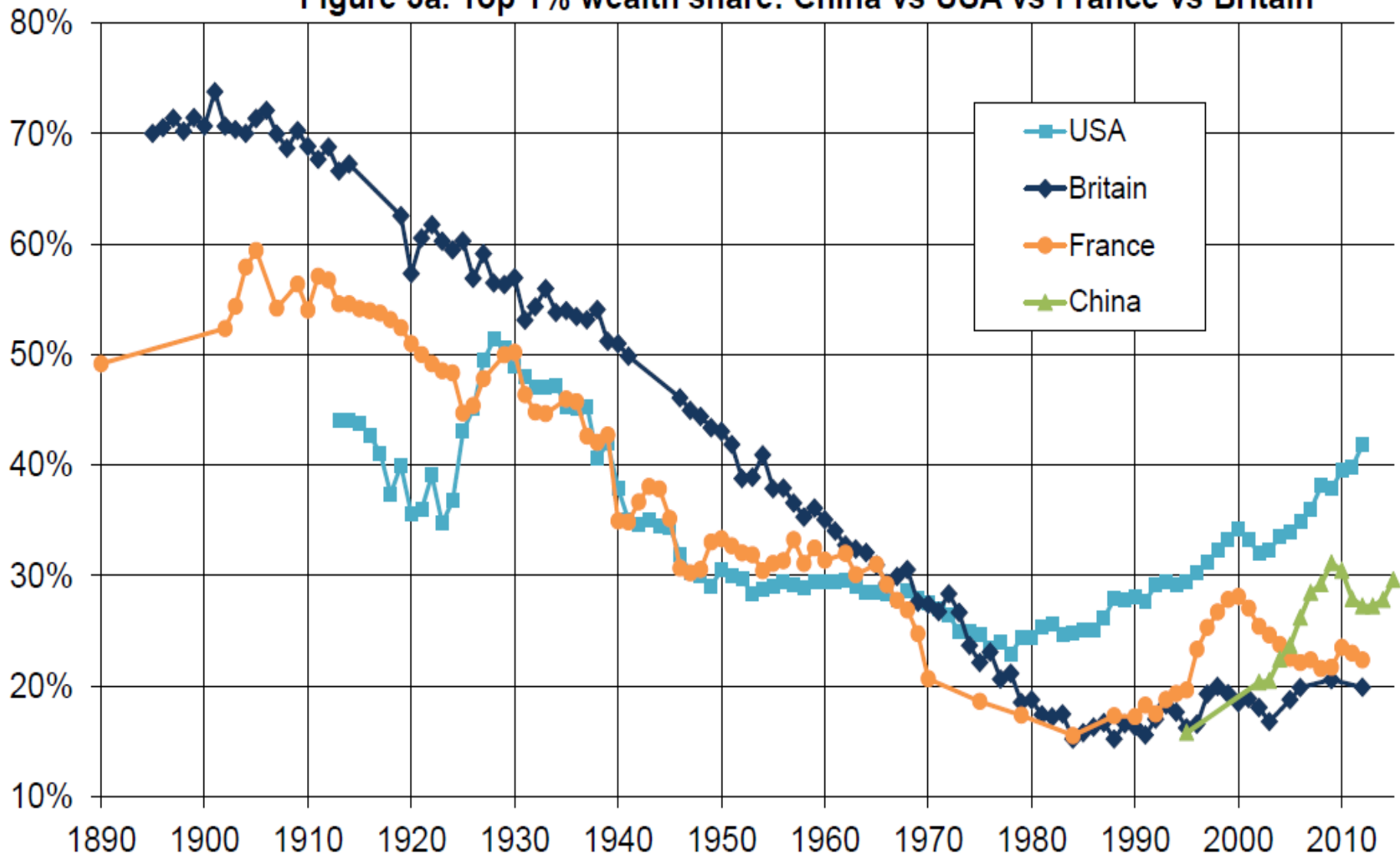


Income composition by income level, France 2012



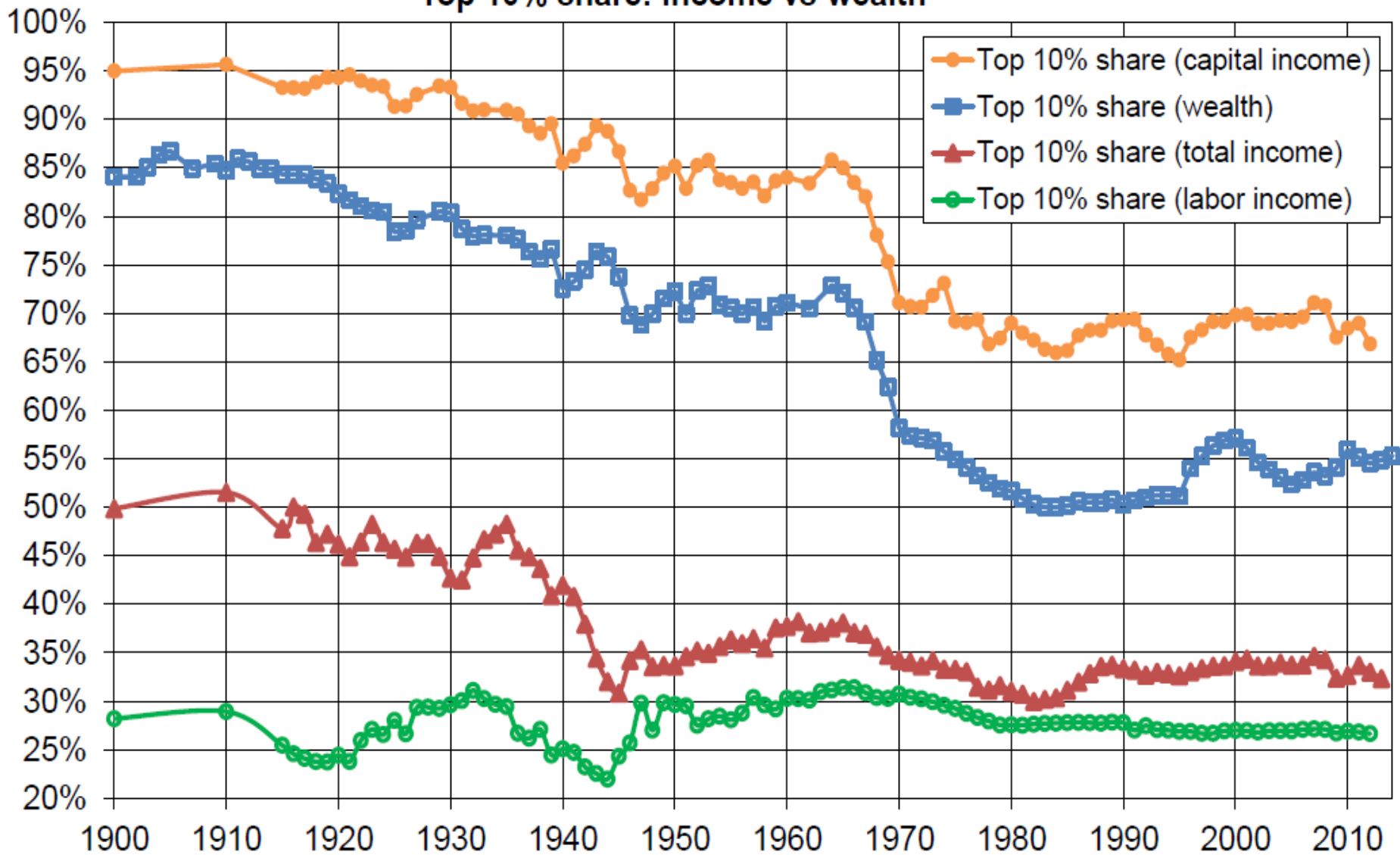
Distribution of pretax national income (before all taxes and transfers, except pensions and unempl. insurance) among adults. Equal-split-adults series (income of married couples divided by two).

Figure 3a. Top 1% wealth share: China vs USA vs France vs Britain



Distribution of net personal wealth among adults. Corrected estimates (combining survey, fiscal, wealth and national accounts data). Equal-split-adults series (wealth of married couples divided by two). USA: Saez-Zucman (2016). Britain: Alvaredo-Atkinson-Morelli (2016). France: Garbinto-Goupille-Piketty (2016). China: Piketty-Yang-Zucman (2016).

Top 10% share: income vs wealth



Distribution of total income, labor income, capital income and net wealth among adults.
Equal-split-adults series (income and wealth of married couples divided by two).

Equation of wealth accumulation at time $t + 1$ for the wealth group p
(for instance $p = \text{top } 10\% \text{ wealth group}$):

$$W_{t+1}^p = (1 + q_t^p)[W_t^p + s_t^p(Y_{Lt}^p + r_t^p W_t^p)]$$

- W^p is the aggregate wealth for the wealth group p , Y_L^p labor income
- q^p is the real rate of capital gain
- s^p is the saving rate, r^p is the after-tax rate of return (for group p)
- **We infer group-level synthetic saving rates s_t^p from the observation of W_t^{p+1} , W_t^p , Y_{Lt}^p , r_t^p , q_t^p**

From the equation of wealth accumulation, with the same notations as above:

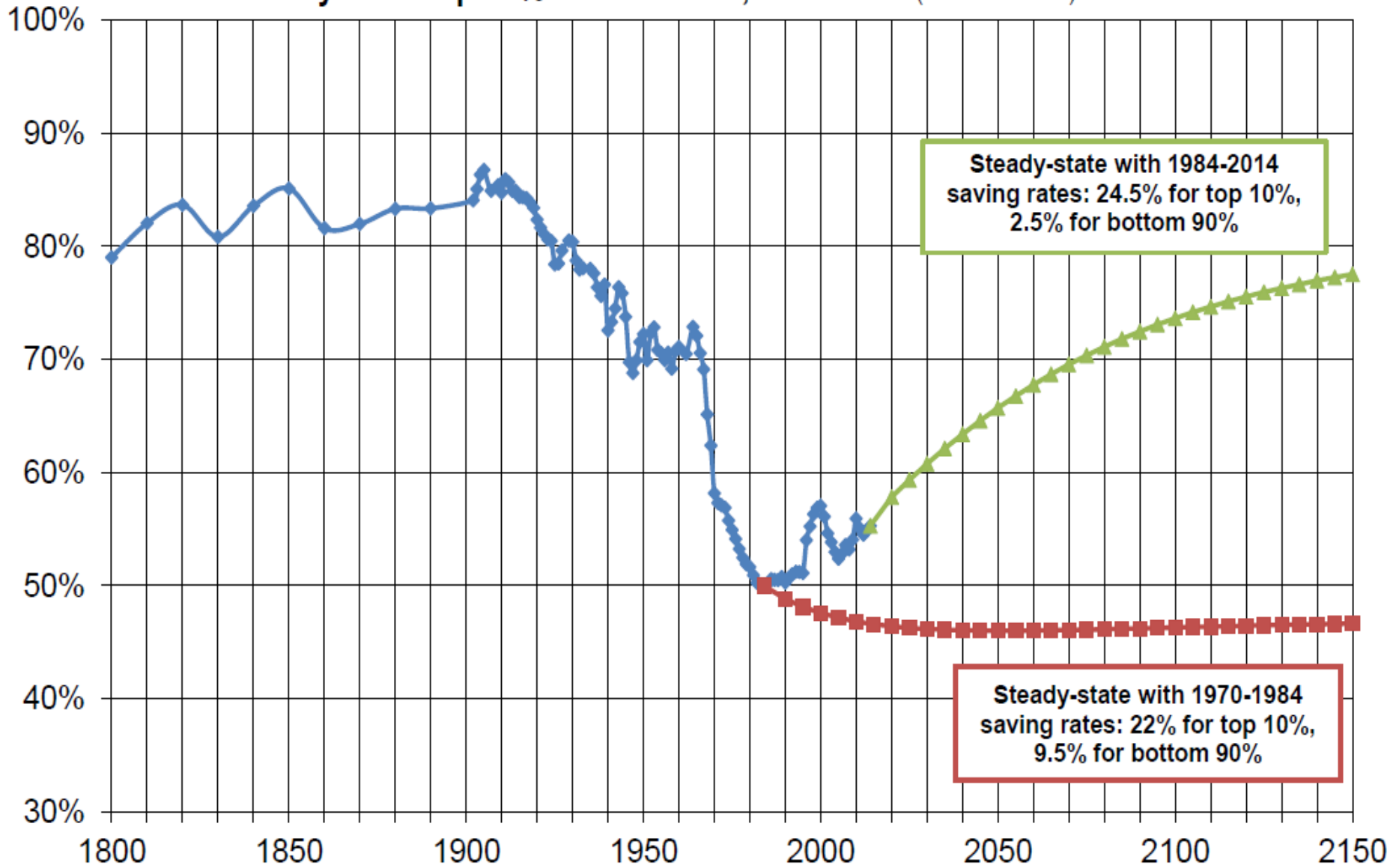
$$W_{t+1}^p = (1 + q_t^p)[W_t^p + s_t^p(Y_{Lt}^p + r_t^p W_t^p)]$$

and assuming q_t has to be equal to 0 at steady state, we directly derive:

$$sh_W^p = \left(1 + \frac{s^p r^p - sr}{g - s^p r^p}\right) \frac{s^p}{s} sh_{Y_L}^p$$

- If $s^p = s$ and $r^p = r$, then $sh_W^p = sh_{Y_L}^p$:
wealth inequality = labor income inequality
- but if $s^p > s$ and $r^p > r$, then this can generate large multiplicative effects, and lead to **very high steady-state wealth concentration**

Steady-state top 10% wealth share, 1800-2150 (% total wealth)



Conclusion of lecture 1

What we have covered today in Lecture 1:

- **1. The long-run dynamics of income inequality.**
In 20^c, it took major shocks (wars, depressions, revolutions) for elites to accept social and fiscal reforms & inequality reduction.
- **2. The return of a patrimonial (or wealth-based) society.**
With high $r - g$ in 21^c, wealth inequality might rise again.
Need for more democratic transparency on wealth.

What we will cover tomorrow in Lecture 2:

- **3. Inequality in emerging countries & the post-colonial world.**
Extreme inequality regimes: Middle East, Brasil, South Africa.
Need to go beyond the Western perspective on inequality.
- **4. Rising inequality and the changing structure of political conflict.** Why do we see more xenophobic populism and identity-based politics rather than more class-based politics?

Introduction to lecture 2

What we covered yesterday in Lecture 1:

- **1. The long-run dynamics of income inequality.**
In 20^c, it took major shocks (wars, depressions, revolutions) for elites to accept social and fiscal reforms & inequality reduction.
- **2. The return of a patrimonial (or wealth-based) society.**
With high $r - g$ in 21^c, wealth inequality might rise again.
Need for more democratic transparency on wealth.

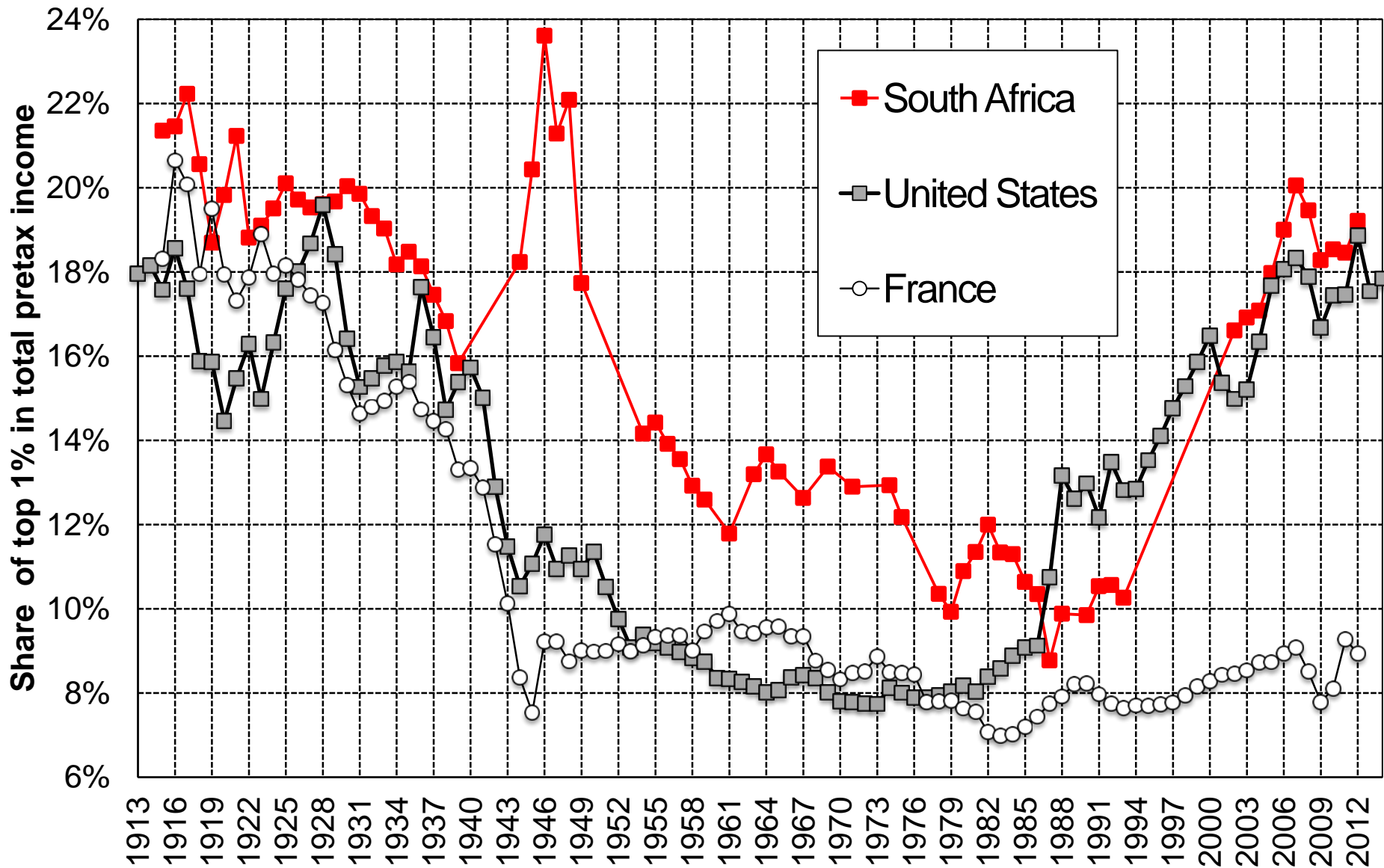
What we will cover today in Lecture 2:

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- **4. Rising inequality and the changing structure of political conflict.** Why do we see more xenophobic populism and identity-based politics rather than more class-based politics?

- **3. Inequality in developing countries & in the post-colonial world.** Need for more data access. Need to go beyond the Western-centered perspective on inequality.
- On-going work on inequality work on inequality using newly accessible data in South Africa, Brasil, Middle East, India, China suggest that **official measures vastly underestimate inequality.**

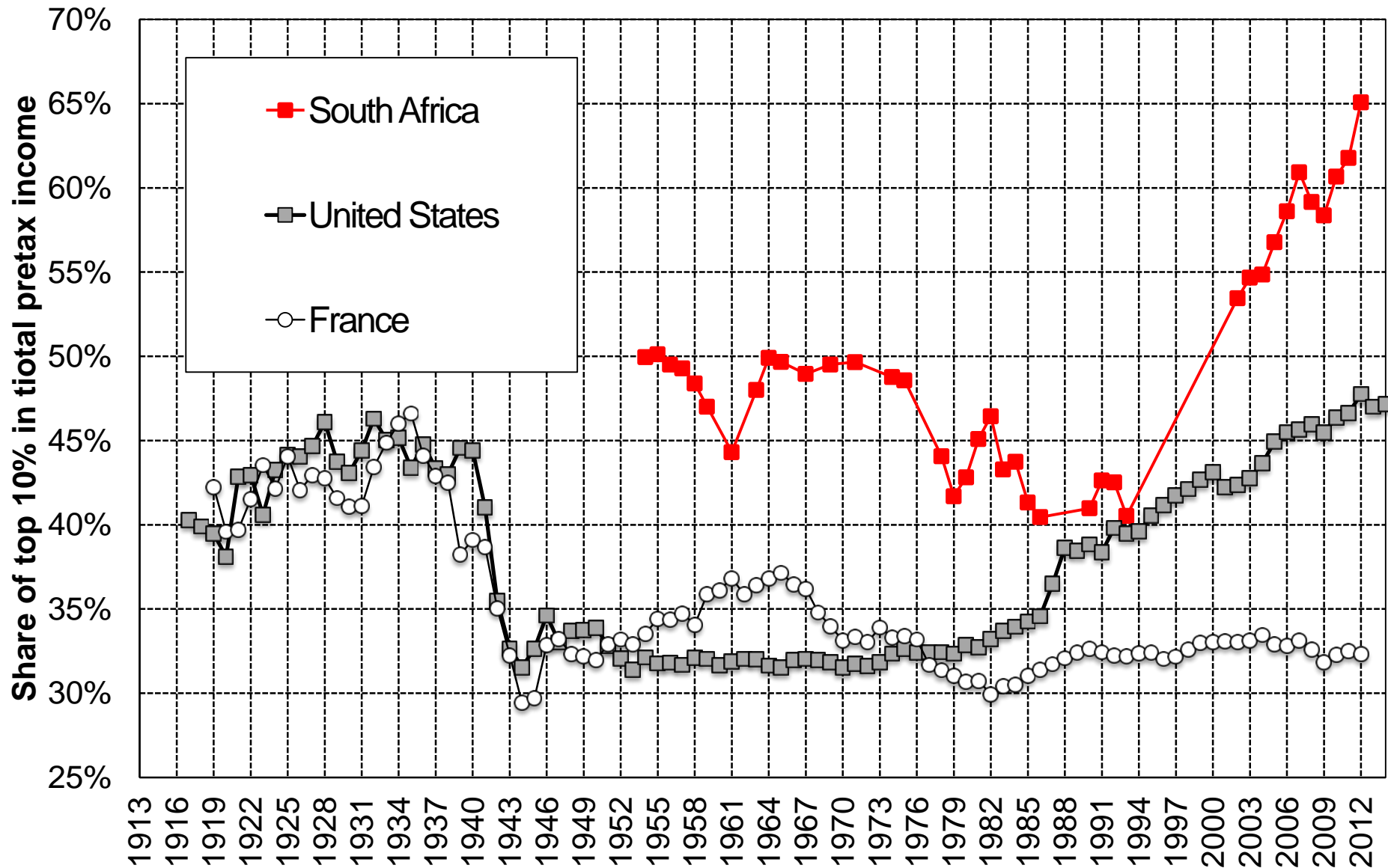
Top 1% income share

South Africa, United States, France

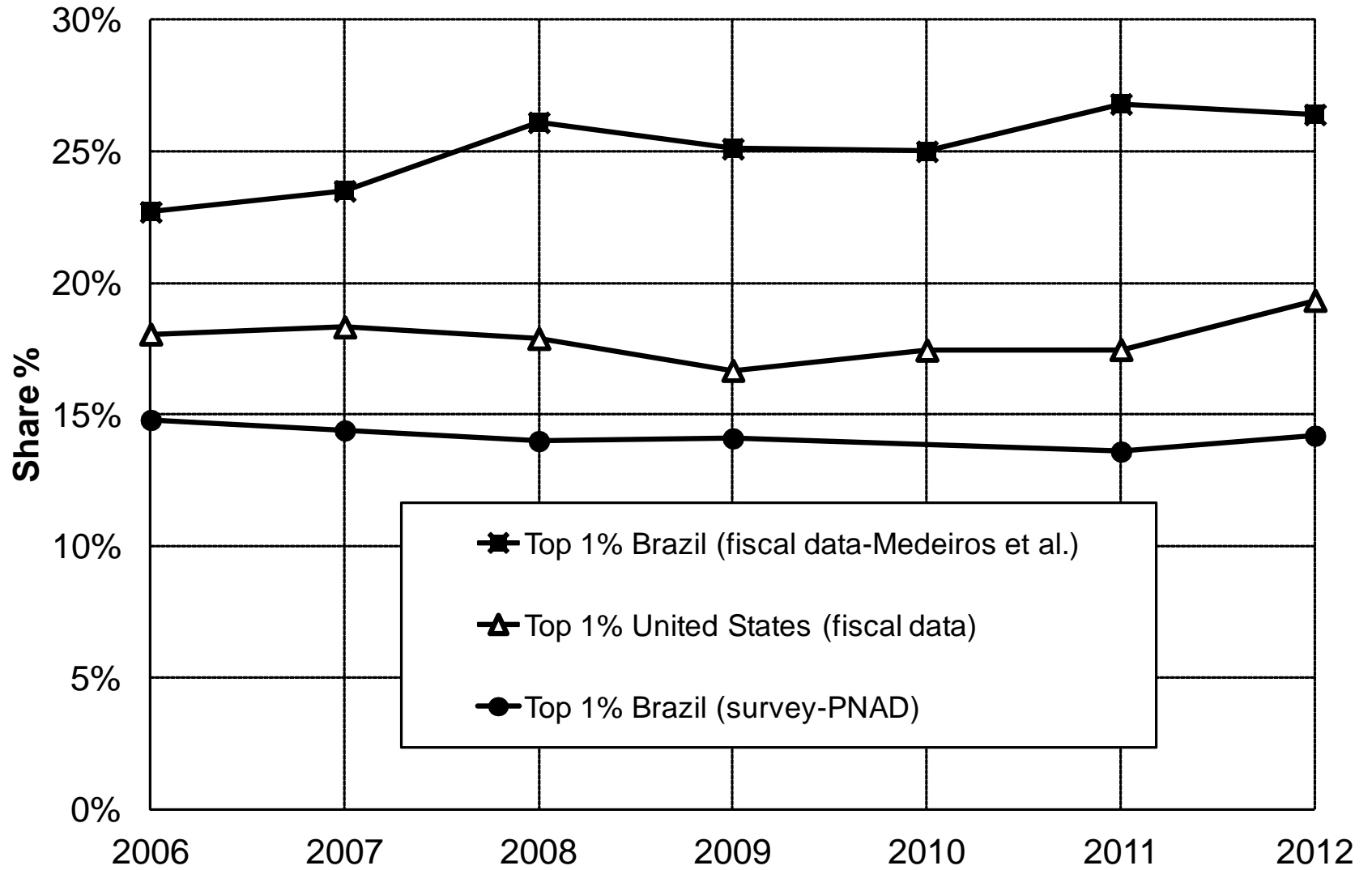


Top 10% income share

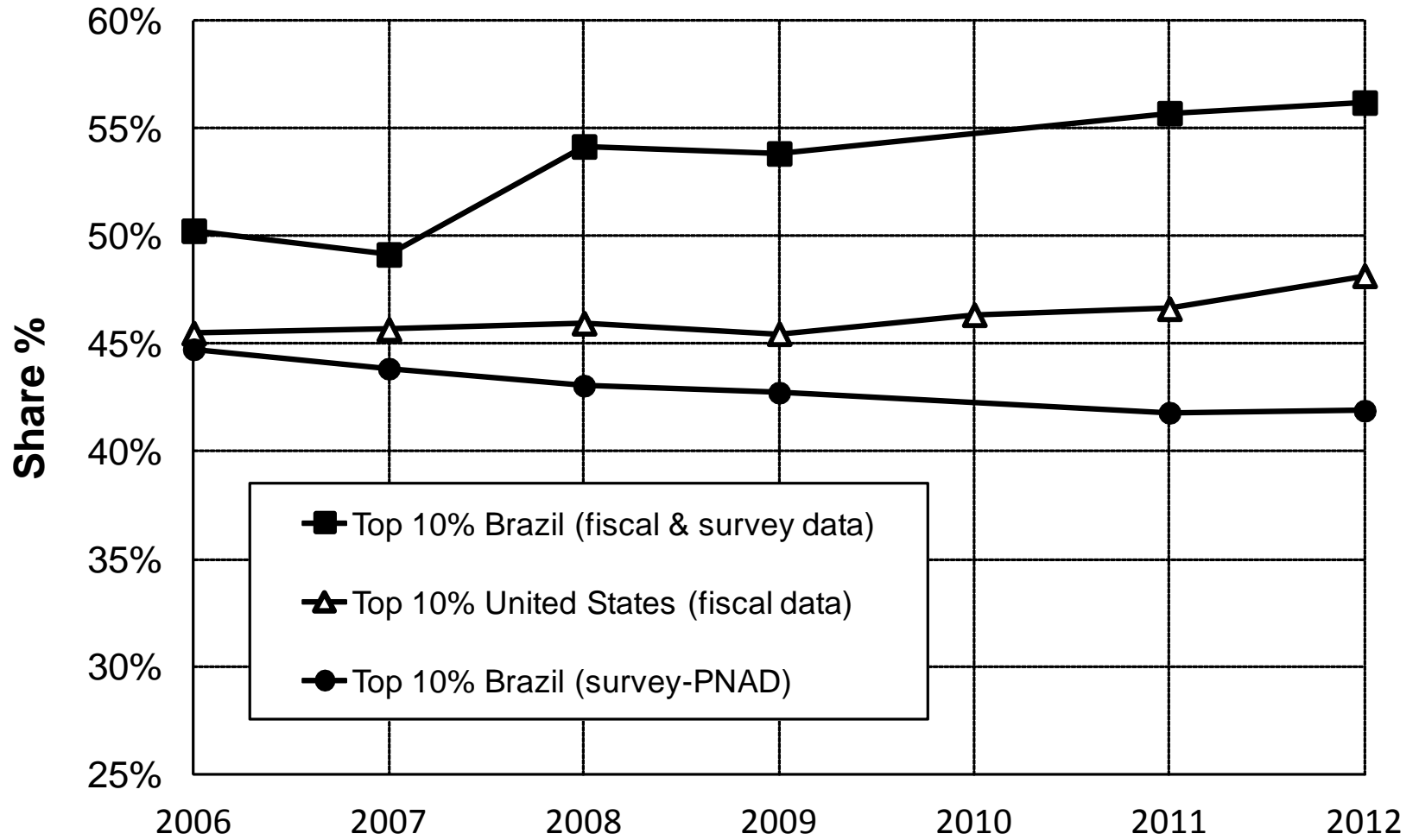
South Africa, United States, France



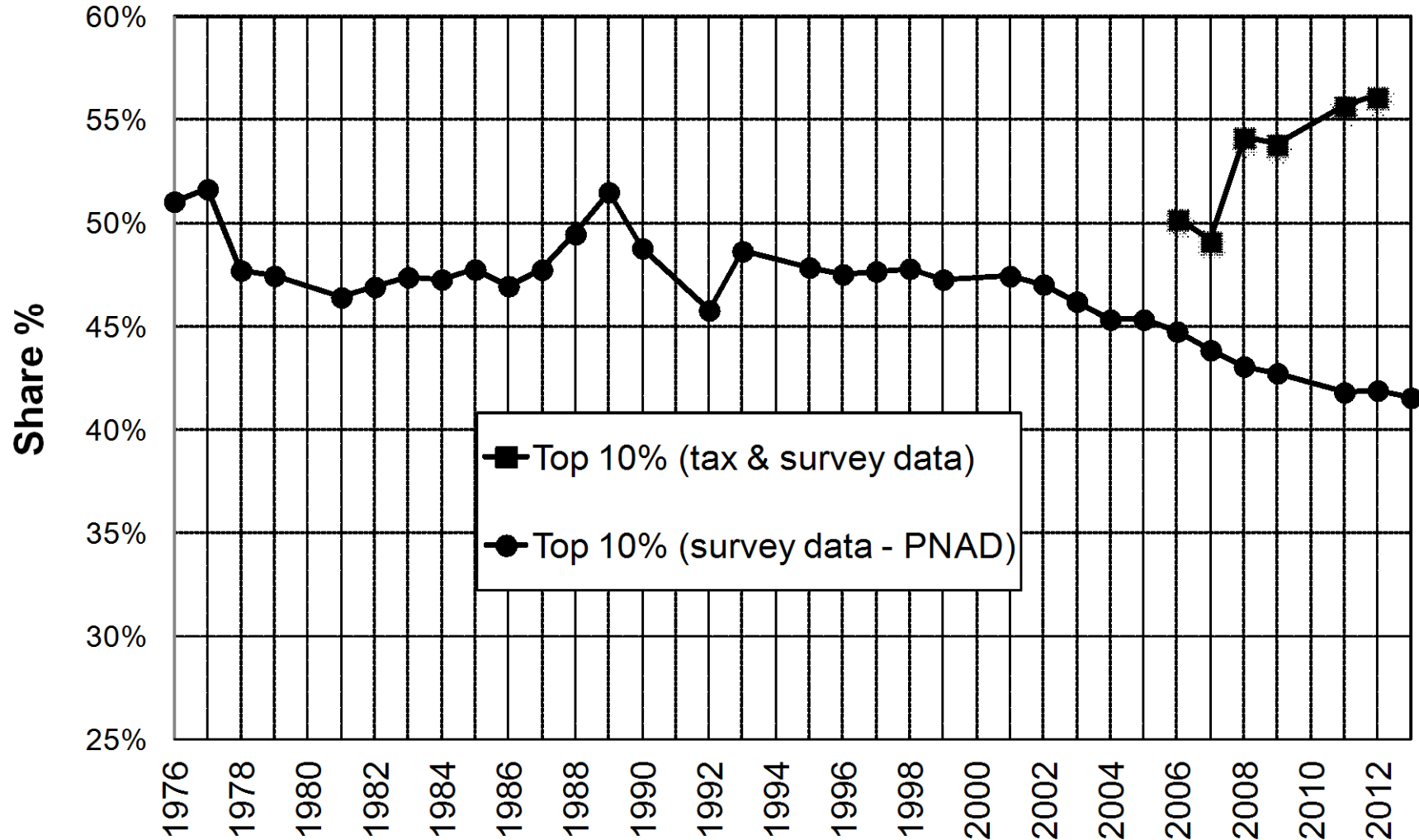
Top 1% income share: Brazil and US, 2006-2012



Top 10% income share: Brazil and US, 2006-2012



Income inequality in Brazil: 1976-2013



Extreme inequality regimes

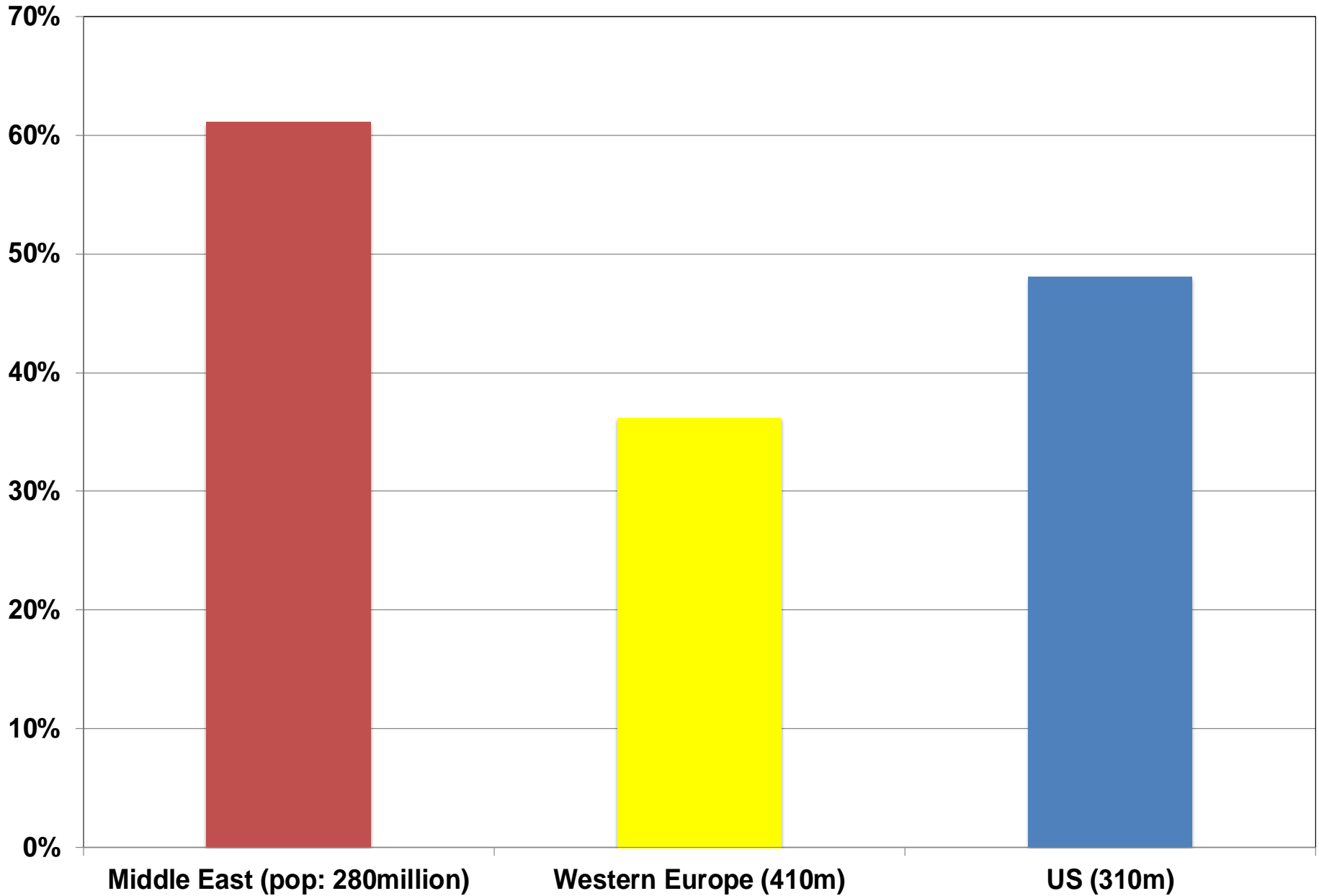
- **Need to go beyond a Western-centered and 20c-centered view of inequality regimes:** more than a measurement pb
- **Extreme inequality is usually associated by an historical legacy of racial discrimination and rigid inequality of status.** Not much to do with modern meritocratic myth.
- **South Africa.** Apartheid until 1994, no right to property or mobility for 90% of the population, no redistribution since the end of Apartheid (no land reform, no wealth redistribution).
- **Brasil.** Slavery until 1887 (last country to abolish slavery, with slaves = 30% of pop in 1887), huge regional disparities.
- **US.** Slavery until 1865 in the South (40% of pop), legal racial discrimination until 1960s, massive prejudice until now. Prevented the development of European-style welfare state? Same risk today with anti-muslim racism in Europe?

- **Extreme inequality is usually associated by an historical legacy of racial discrimination and rigid inequality of status: South Africa, Brasil, US. But there are exceptions.**
- **E.g. Middle East: the most unequal region in the world,** due to different factors: geographical concentration of oil resources, arbitrary frontiers drawn and protected by the West since 1916 (until recently...).
- **If we measure income inequality at the level of the region taken as a whole, then the Middle East appears as the most unequal region in the world.**

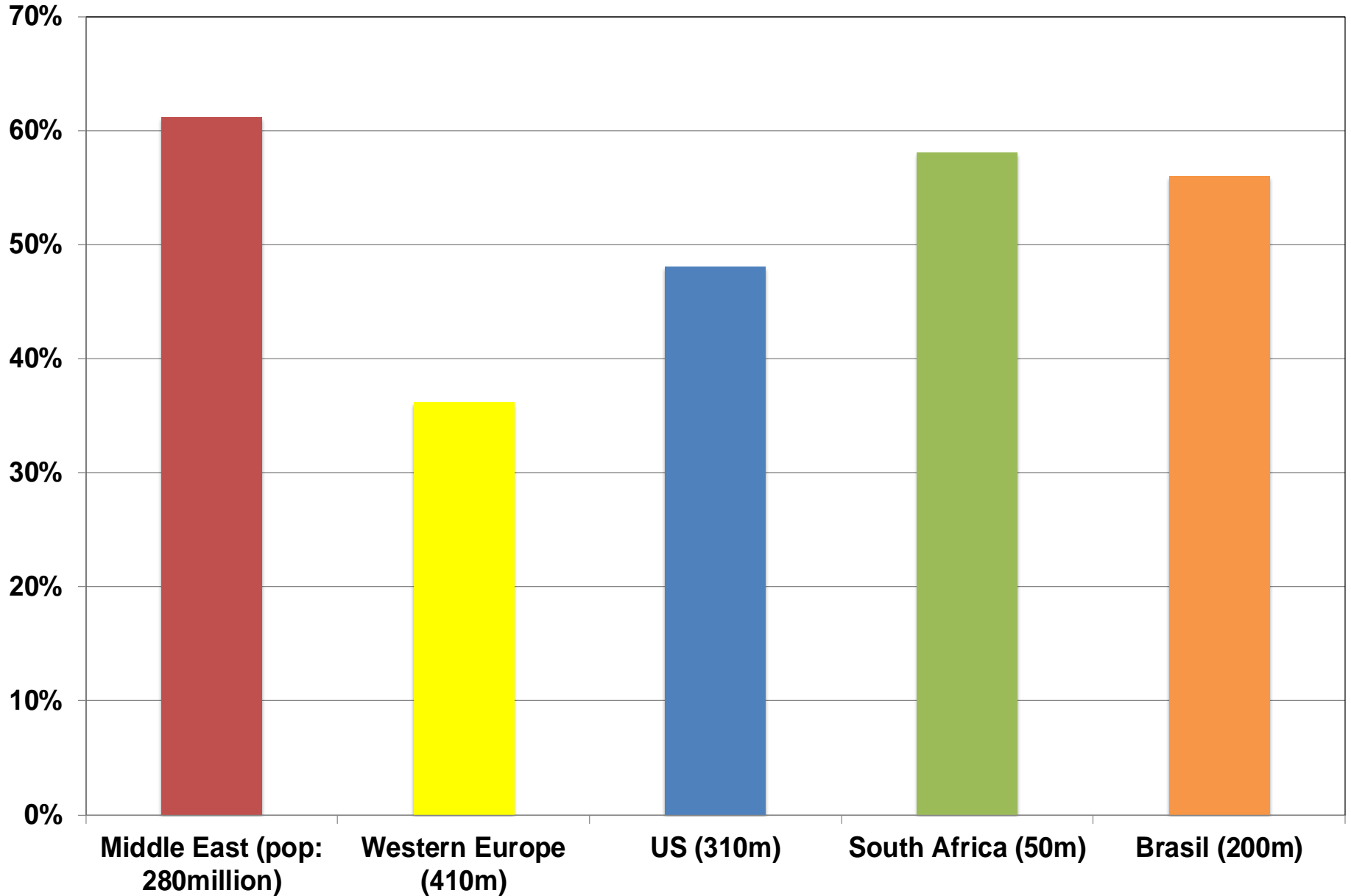
Top 10% income share \approx 60% of total income in Middle East (lower bound, i.e. assuming low within-country inequality)
 \approx 35% in Europe, 45-50% in USA, 55-60% in S. Africa or Brasil
- **This is due to huge inequality between Middle East countries, itself due to concentration of oil resources in small territories with limited population.**

E.g. total educational investment of Egypt (80m pop) is 100 times smaller than oil revenues in UAE-Qatar (1m pop).

Top 10% income share



Top 10% income share



- Role of sovereign wealth funds and global financial markets to transform oil rent into perpetual financial rent: extreme inequality level can persist long after the end of oil
- Near complete absence of historical legacy of slavery and forced labor in Middle East (at least since the rise of Islam), but more extreme inequality than in South Africa/Brasil/US
- **Oil, frontiers and finance can be more powerful inequality-generating mechanisms than slavery and racial discrimination.**
- **Modern inequality has a little to do with the meritocratic fairy tale. It involves a mixture of old and new, and the new components can be as violent as the old.**

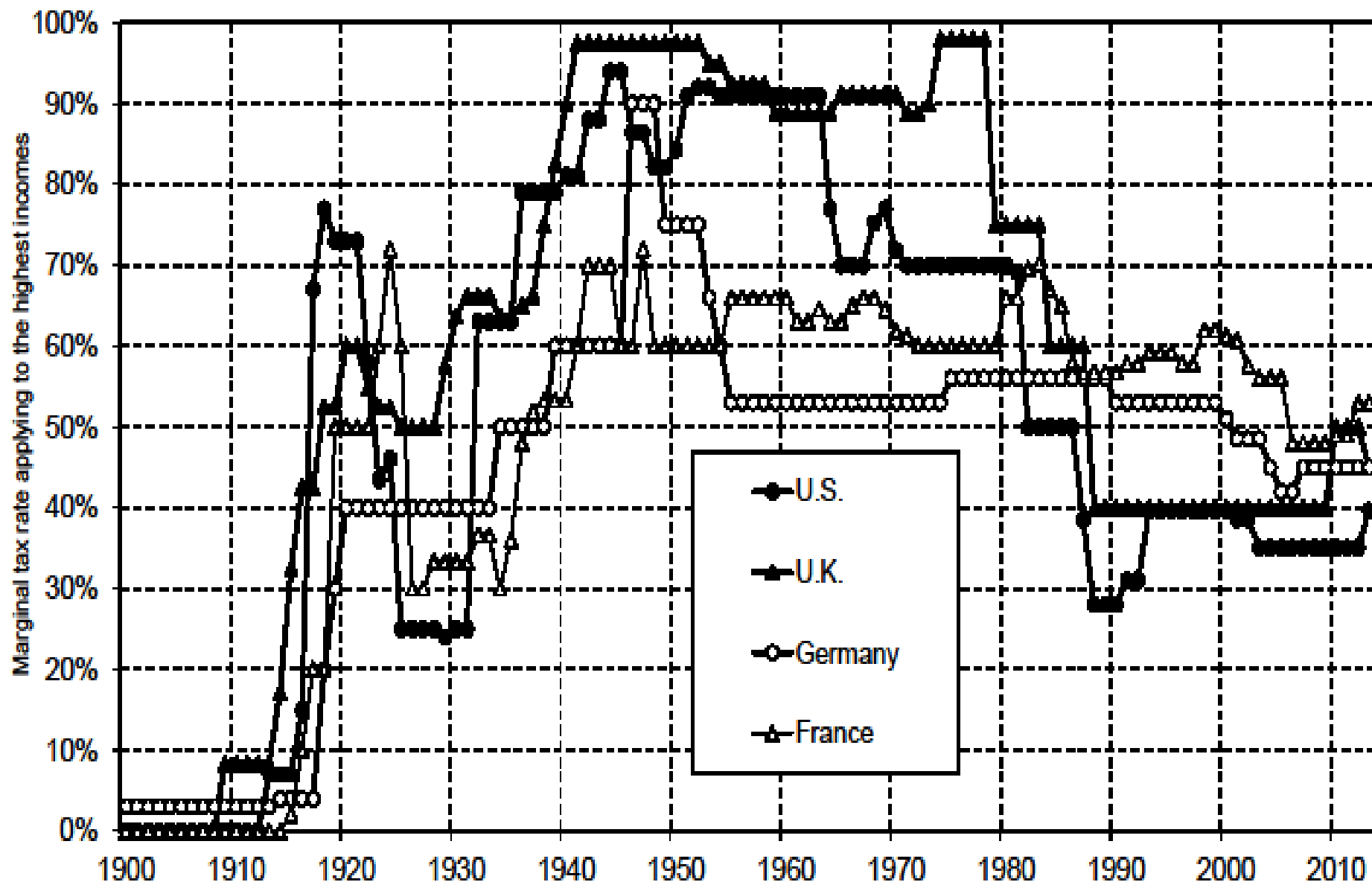
- **Ideally, the Middle East would need regional political integration and democratic redistribution of oil and other resources.**
- Very difficult to organize peacefully... especially if Western countries do everything they can to preserve the high-inequality status quo.
- Regional European funds: some redistribution from Western and Northern Europe to Eastern and Southern Europe.
- Germany/France/Britain: net transfer of about 0.5-1% GDP. But already too much according to Brexit voters...

- **Western illusion about modern inequality (supposedly based upon social harmony, equality of rights, meritocracy, etc.) vs ancient inequality regimes (based upon rigid inequality of status, castes, etc.).**
- But meritocracy is largely a myth invented by the winners: in practice there is very little equality of rights in access to high-quality education or good-paying jobs. Real vs formal rights.
- Huge discrimination in all post-colonial societies: see e.g. muslim names in France.
- **Indian debates about caste-based vs gender-based vs parental-income-based reservations & quotas: very relevant for Western countries & the world.**

- **4. Rising inequality and the changing structure of political conflict.**
- With rising inequality, one could have expected rising political demand for redistribution
- So why do we see more xenophobic populism and identity-based politics (Brexit, Trump, Le Pen, Modi, etc.), rather than more class-based (income-based and wealth-based) politics?
- Standard explanation: globalisation & competition between countries make vertical redistribution very difficult to organize; end of class-based redistributive politics, rise of identity-based conflict
- Partly true, but not enough; not the end of the story

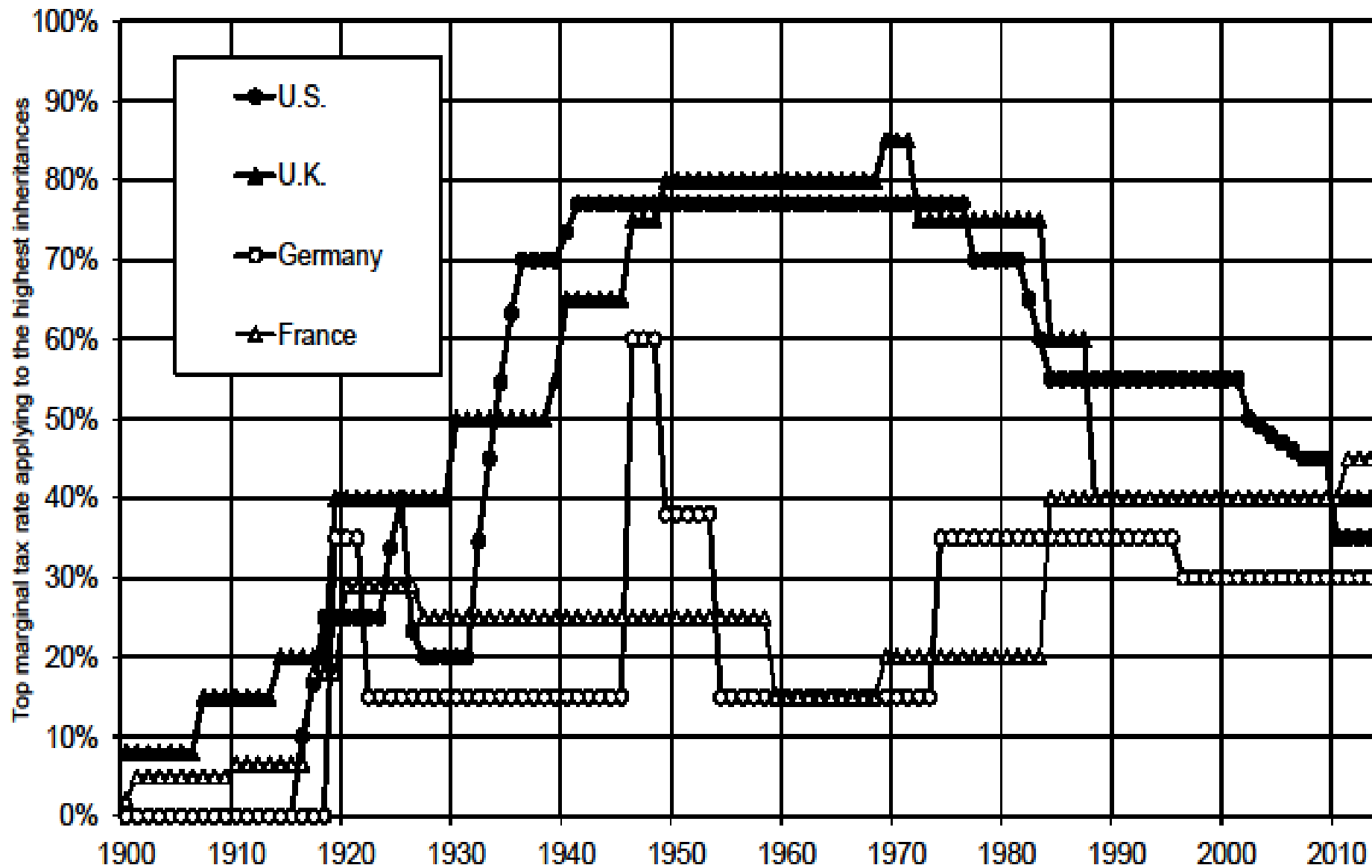
- Nothing in globalization makes redistribution and egalitarianism technically impossible (proposals for global wealth register, etc.)
- The history of inequality is political and ideological, not technical or deterministic
- E.g. the history of progressive taxation in 20c involves sharp reversals in beliefs systems, unexpected political bifurcations, and unstable institutional tinkering

Figure 14.1. Top income tax rates, 1900-2013



The top marginal tax rate of the income tax (applying to the highest incomes) in the U.S. dropped from 70% in 1980 to 28% in 1988. Sources and series: see piketty.pse.ens.fr/capital21c.

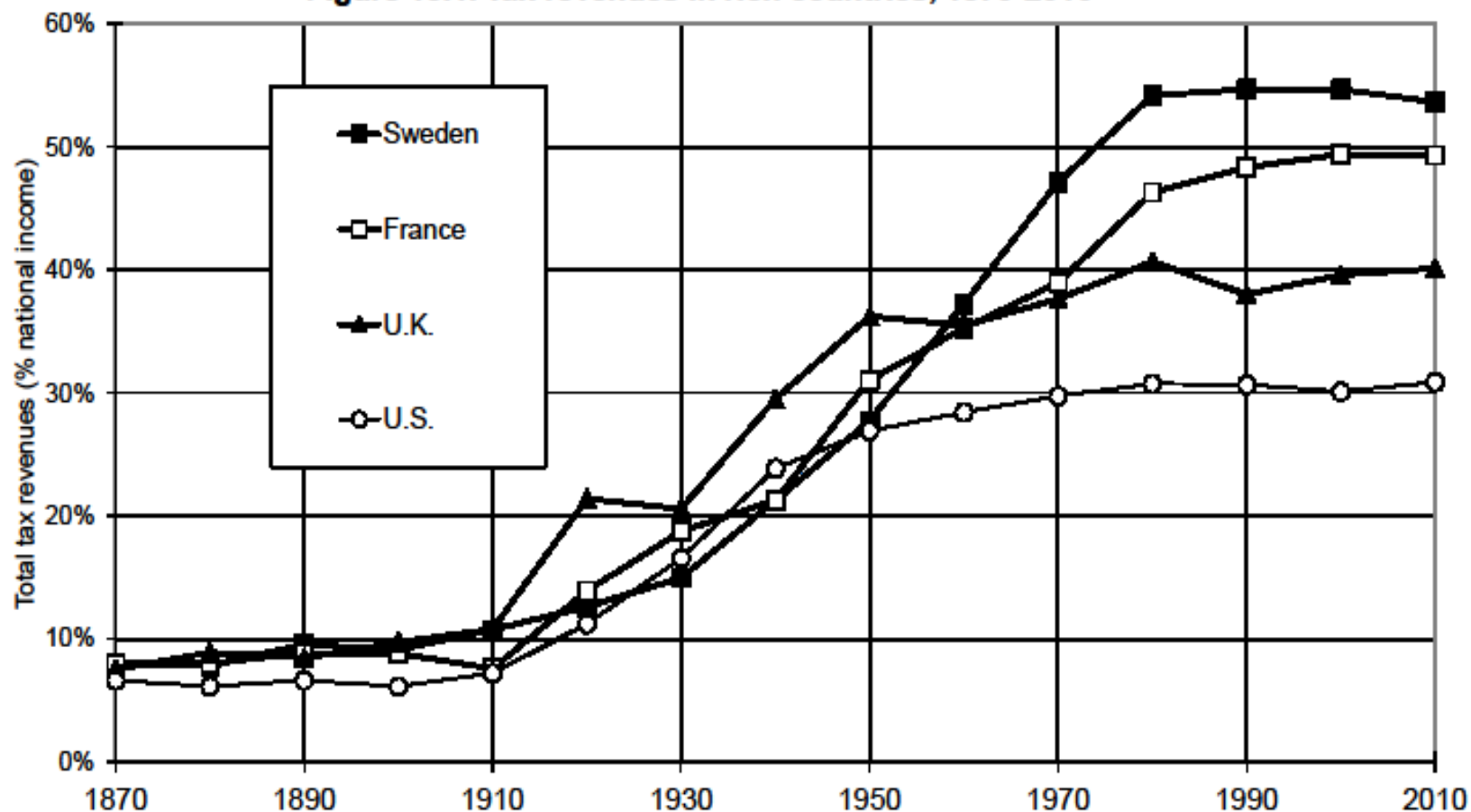
Figure 14.2. Top inheritance tax rates, 1900-2013



The top marginal tax rate of the inheritance tax (applying to the highest inheritances) in the U.S. dropped from 70% in 1980 to 35% in 2013. Sources and series: see piketty.pse.ens.fr/capital21c.

- **There are also powerful structural forces which led to the mid-20c (1930-1980) class-based redistributive politics and winning coalition**
- Unique circumstances (wars, revolutions, depression) led to structural changes in political beliefs toward capitalism and markets
- Political organizations contributed to and mobilized these changing beliefs to turn them into action
- Europe: role of social-democratic parties in post-WW2 welfare state consensus (CNR 1945 etc.)
- US: Roosevelt coalition (poor whites and poor blacks vote for the same party) (≠ 19c, ≠ today...)

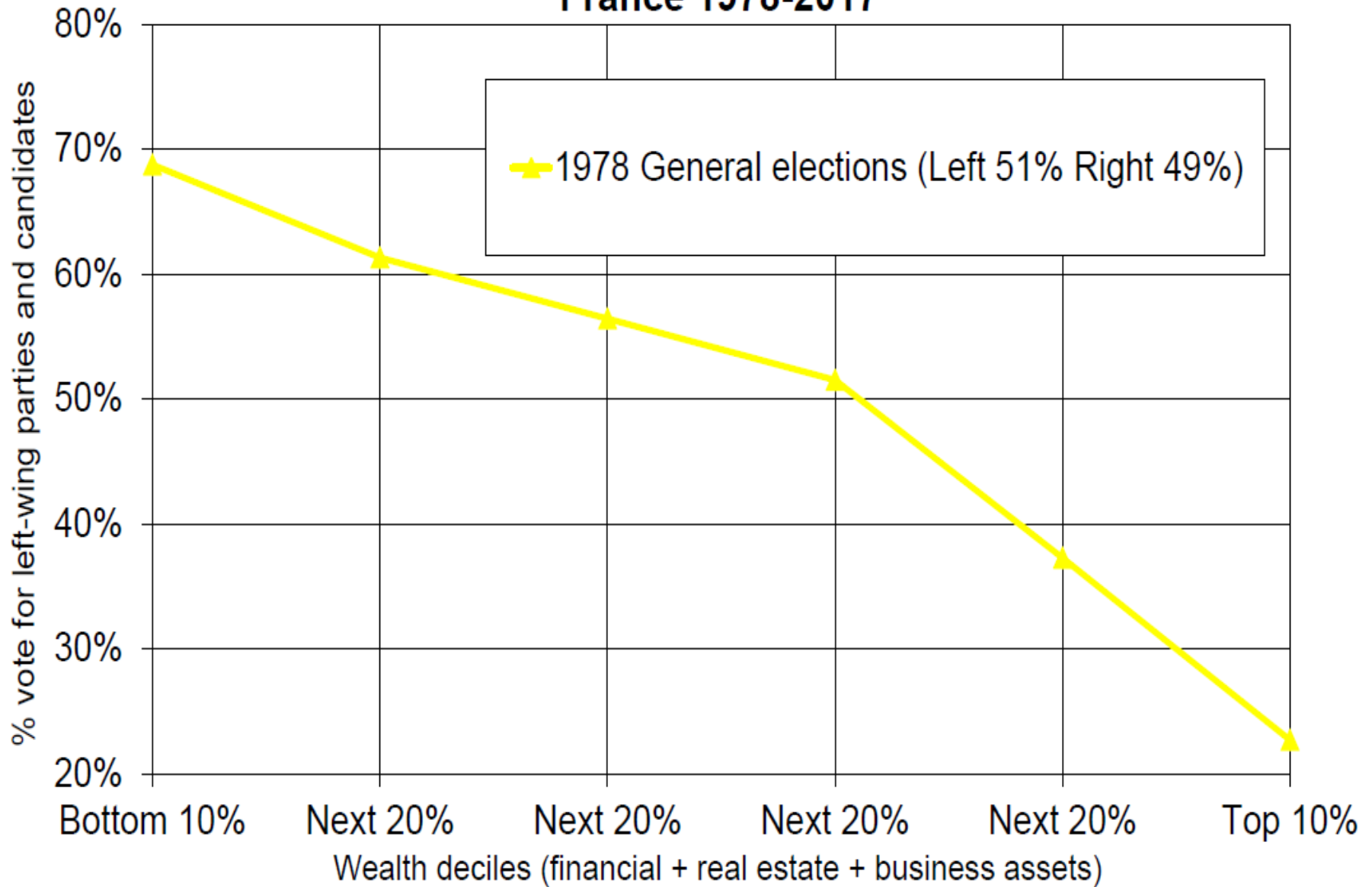
Figure 13.1. Tax revenues in rich countries, 1870-2010



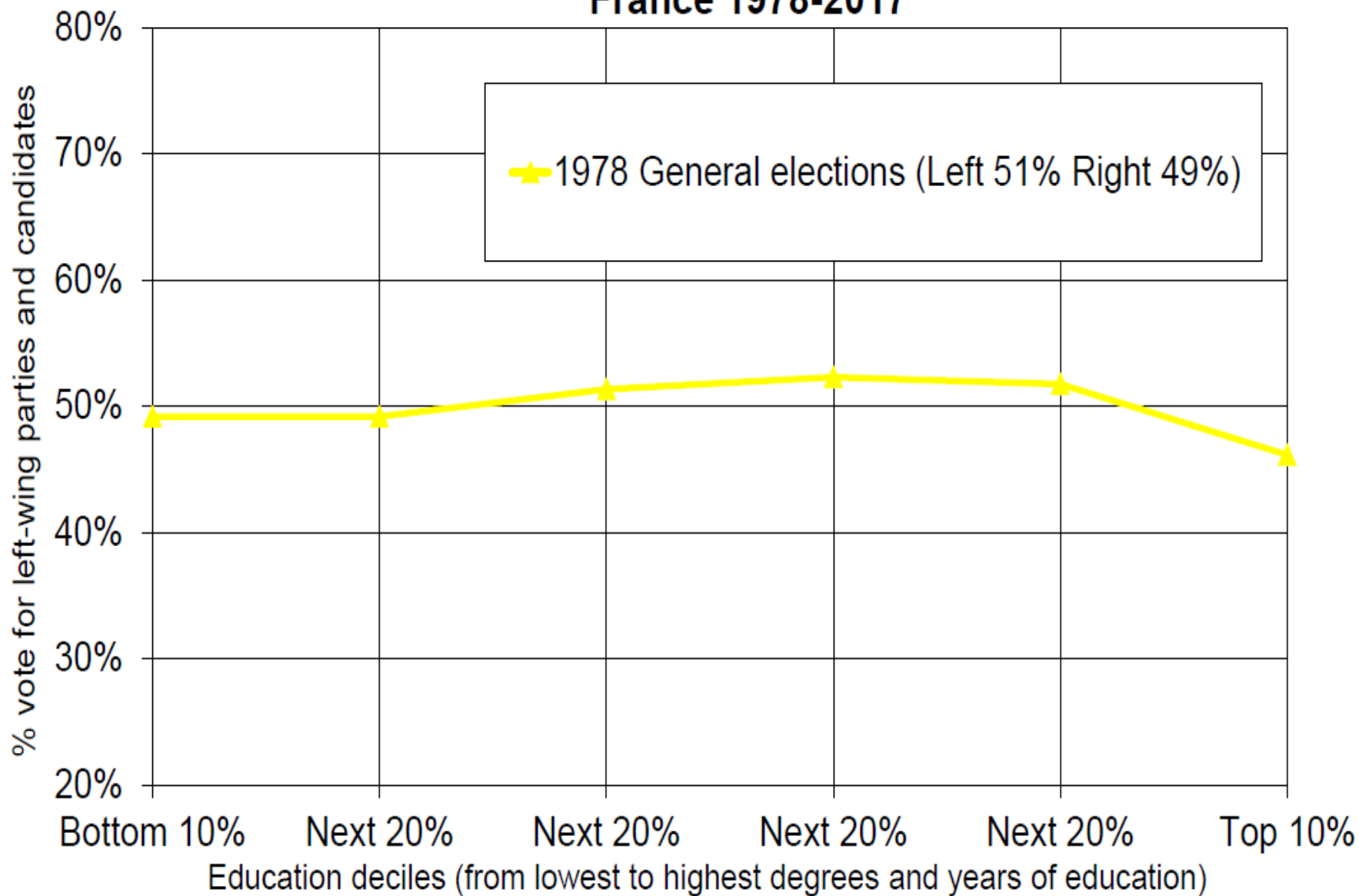
Total tax revenues were less than 10% of national income in rich countries until 1900-1910; they represent between 30% and 55% of national income in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.

- **Was there something exceptional and inherently unstable in post-WW2 class-based politics and pro-redistribution winning coalition?**
- **Maybe not exceptional, but at least very specific**
- There are deep changes in the structure of electoral conflict since 1980s-1990s which are not favourable to the development of pro-redistribution coalitions
- In Europe, left-wing parties used to attract predominantly low- and middle-wealth voters, and low- and middle-education voters
- **Since the 1980s-1990s, they have gradually started more and more highly educated voters, while less educated voters gradually turn to the right**

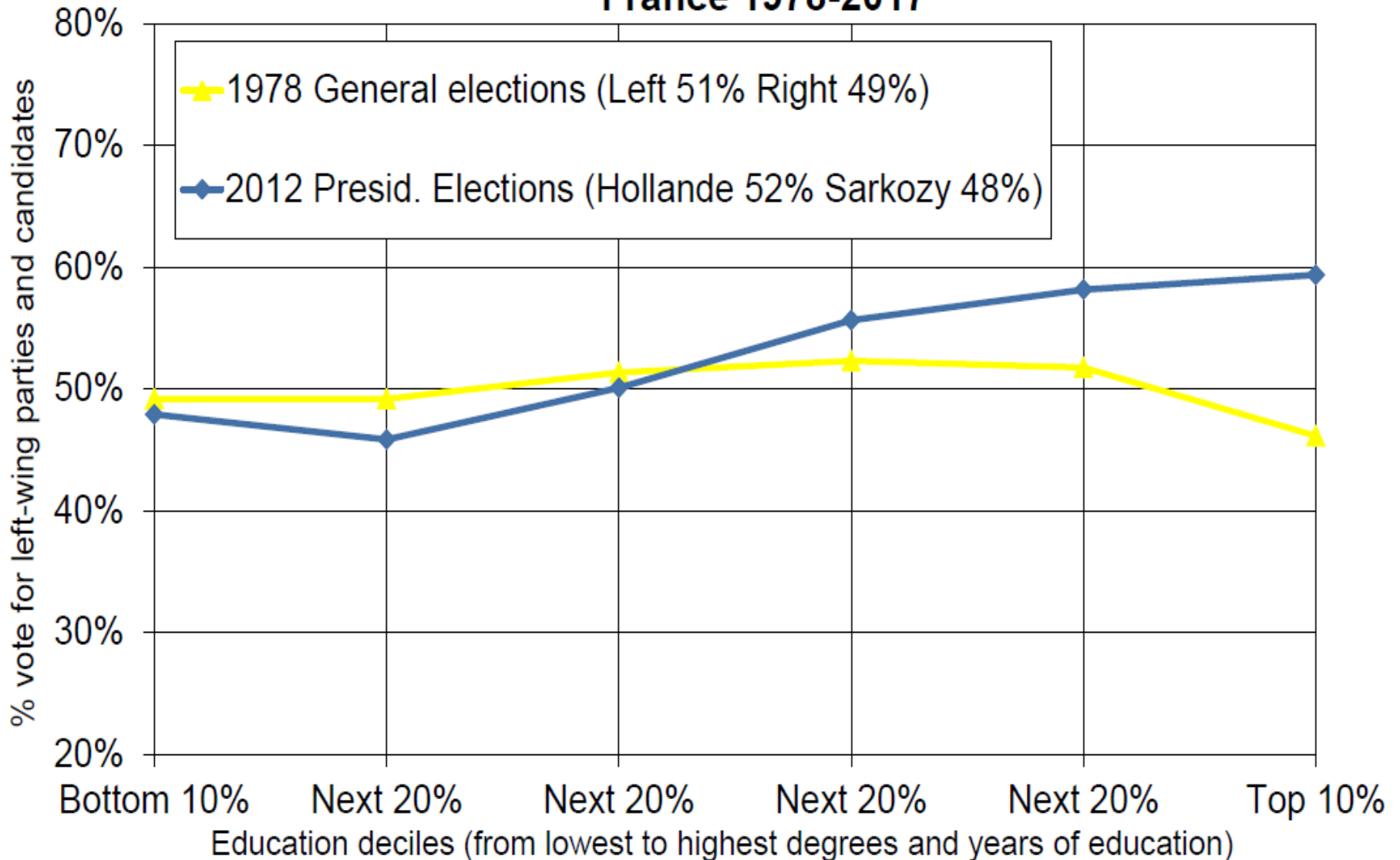
The changing relation between left-wing vote and wealth France 1978-2017



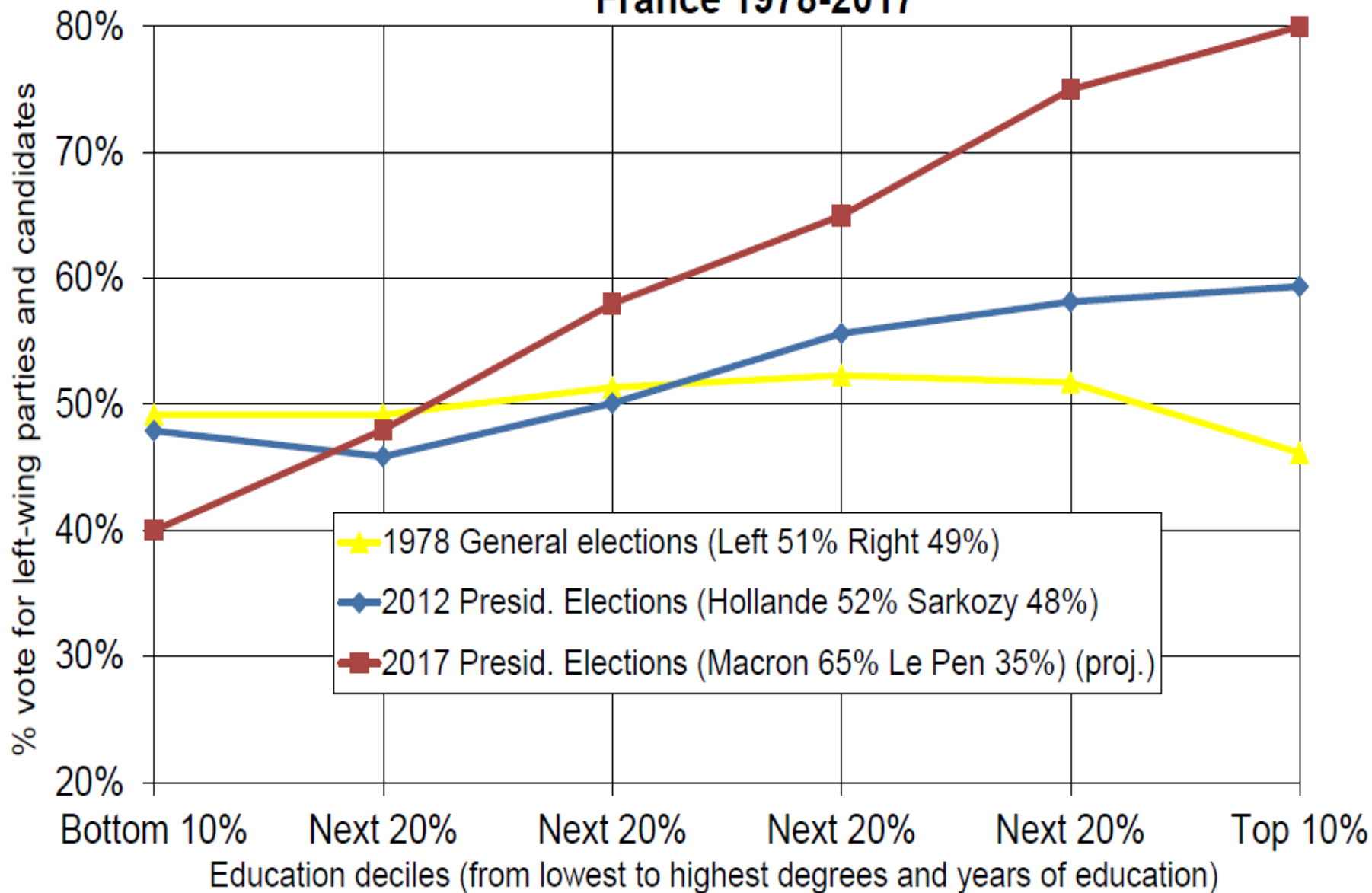
The changing relation between left-wing vote and education France 1978-2017



The changing relation between left-wing vote and education France 1978-2017

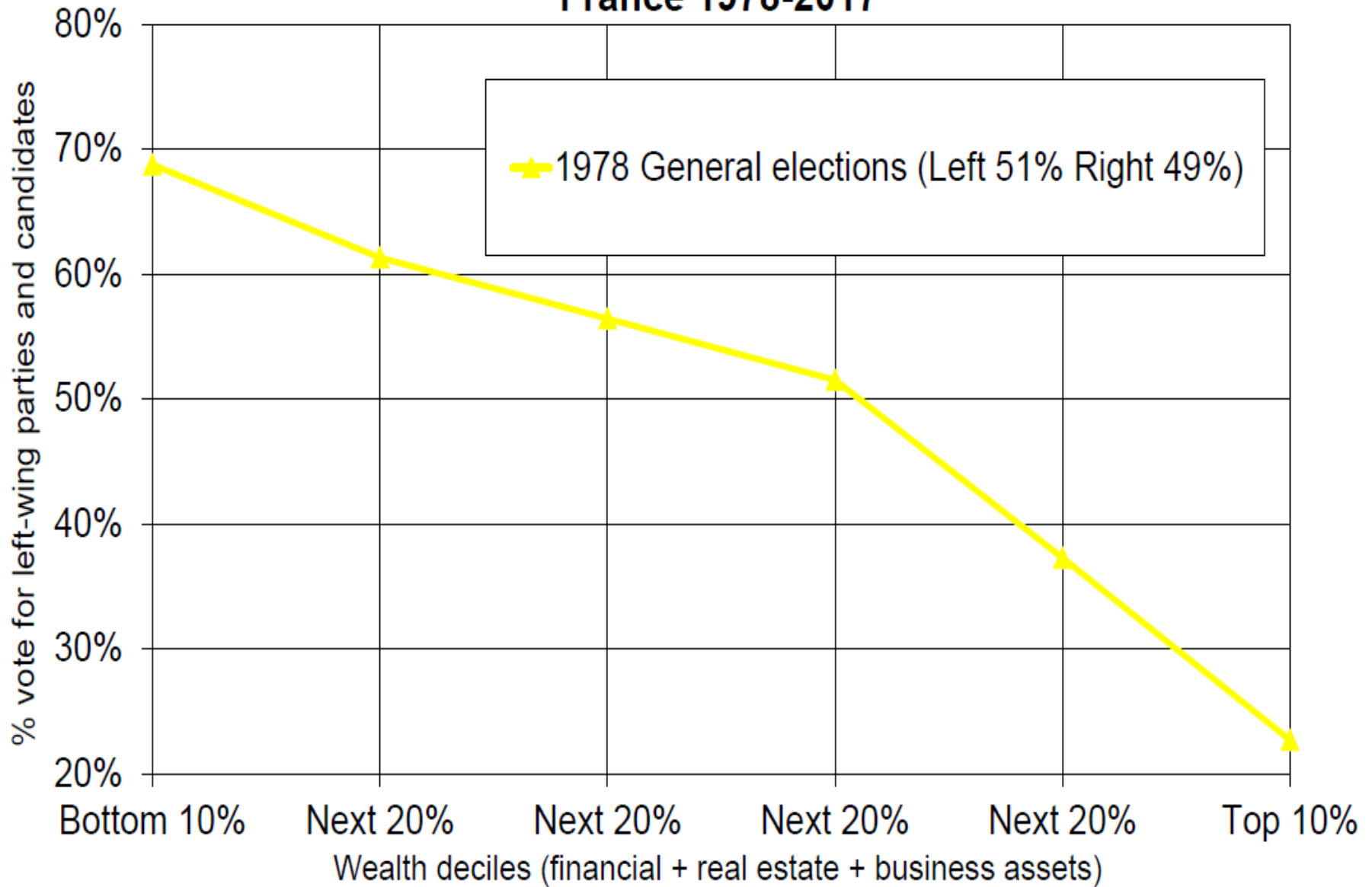


The changing relation between left-wing vote and education France 1978-2017

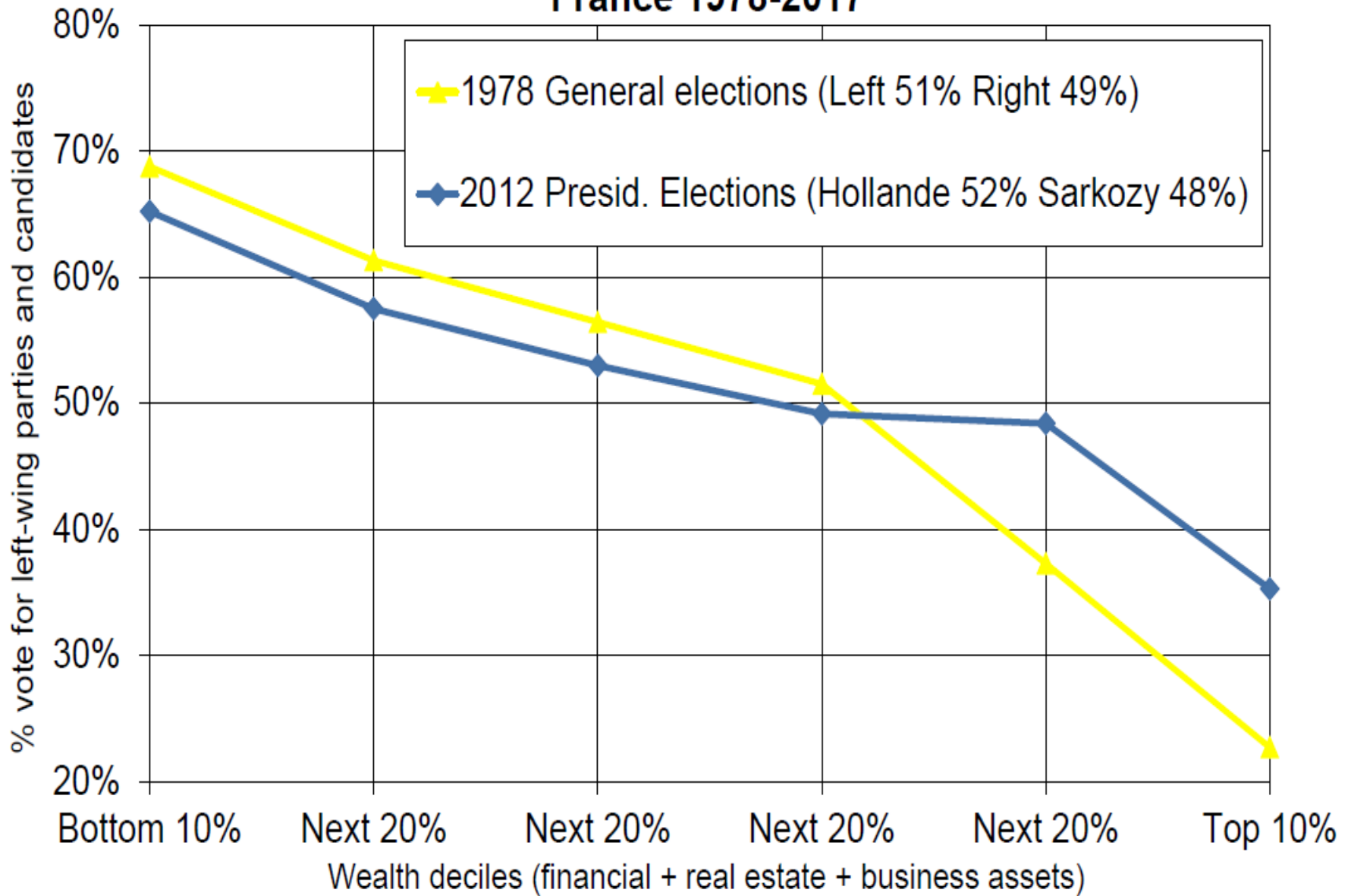


- **Why is the left-wing vote becoming more and more the high-education vote?**
- Left parties have always promoted emancipation through education; those who have succeeded and benefited from it identify and vote for the left
- High-education voters & left parties support universal values associated to globalization and post-colonial multi-ethnic societies; low-education voters feel abandoned & threatened by globalization and immigration and gradually turn to xenophobic right; left parties further shift econ. policies to the right; etc.
- **Next step: will the left-wing vote also become the high-wealth vote? Possible: see French election 2017**

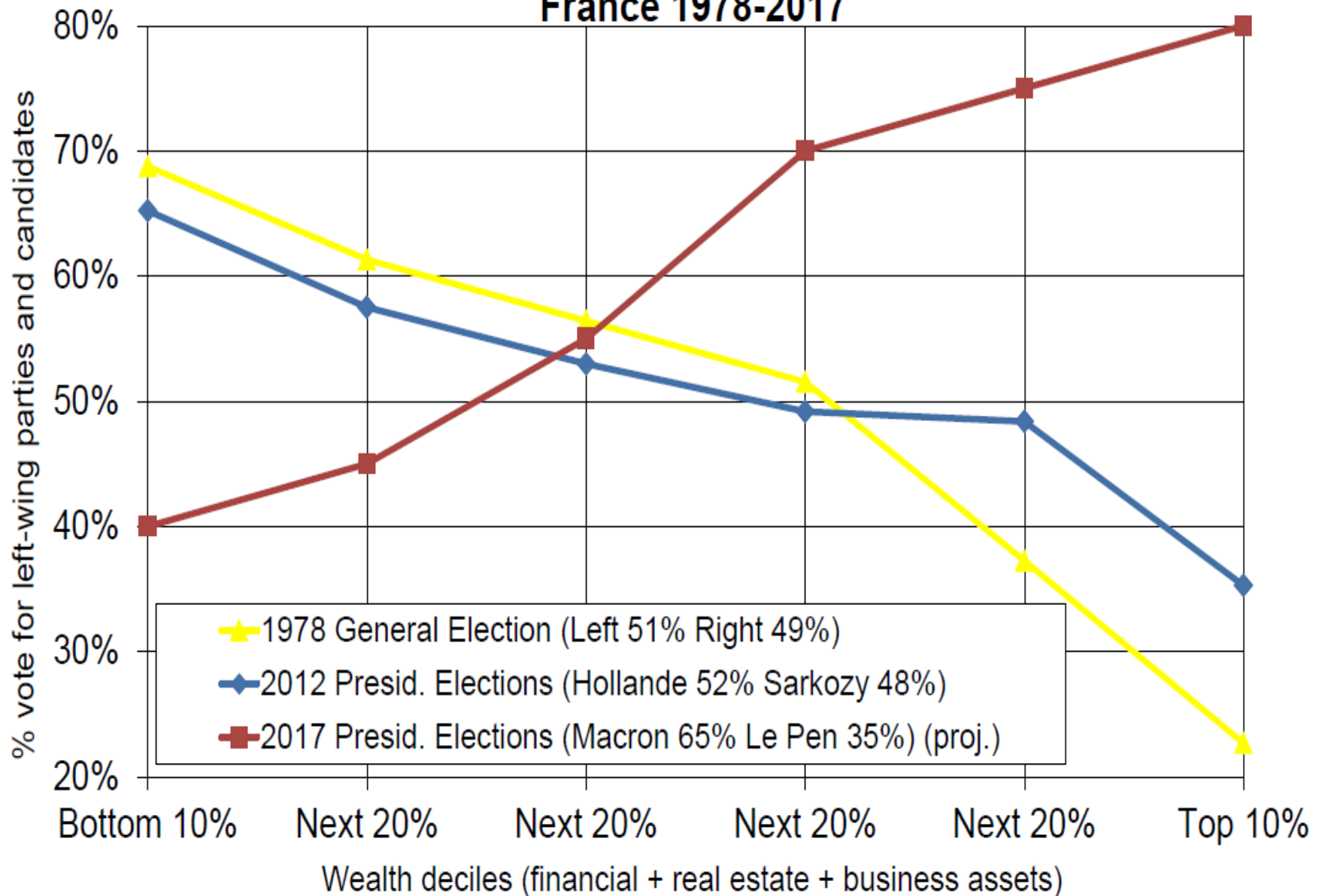
The changing relation between left-wing vote and wealth France 1978-2017



The changing relation between left-wing vote and wealth France 1978-2017



The changing relation between left-wing vote and wealth France 1978-2017



- **Does this mean that we are gradually shifting from a left-vs-right poor-vs-rich political conflict to a progressives-vs-nationalists rich-vs-poor conflict?**
- There are powerful forces pushing in this direction, and this is clearly not leading to more redistribution
- But there are also forces pushing in opposite direction: rising inequality also leads to rising demand for class-based politics. Identity-based conflict highly unstable.
- Not a deterministic process. Historical bifurcations will happen again and again. E.g. Sanders-Trump or Melenchon-Le Pen could have happened instead of Clinton-Trump or Macron-Le Pen and would have led to different electoral structures & political outcomes.

Conclusions

- **The history of income and wealth inequality is deeply political. It involves beliefs systems, national identities and sharp reversals. Wars and revolutions played a key role in 20^c inequality dynamics. It will probably be chaotic as well in 21^c.**
- In a way, both Marx and Kuznets were wrong: there are powerful forces pushing in the direction of rising or reducing inequality; which one dominates depends on the institutions and policies that different societies choose to adopt
- The ideal solution involves a broad combination of inclusive institutions, including progressive tax on income & wealth; education & labor laws; economic democracy, new forms of property, power structure and participatory governance.
- **Inequality regimes need to be put into a broad historical and comparative perspective, so as to invent new solutions and go beyond nationalism and perceived exceptionalism**