Public Economics

(Master PPD & APE)

(EHESS & Paris School of Economics)

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Academic year 2025-2026

Lecture 8: Capital income, inheritance & wealth taxes over time & across countries

(check on line for updated versions)

Roadmap of lecture 8

- Basic notions & notations
- Reminder: what is capital?
- Key distinction: taxes on flow vs taxes on stock
- The diversity of capital taxes & the progressive tax triptyc: income, inheritance, wealth
- Property taxes vs progressive wealth taxes
- Inheritance taxes
- A different view on capital taxation: immaterial capital, patents & « unique » assets

Basic notions & notations

- National income $Y = F(K,L) = Y_K + Y_L = rK + vL$
  with r = average rate of return
  v = average wage rate
- Individual income $y_i = y_{Ki} + y_{Li} = r_i k_i + v_i l_i$
  with r_i = individual rate of return, v_i = individual wage rate
- Individual capital (wealth) k_i comes from past savings and/or from inheritance (or sometime from various forms of appropriations or privatization processes, e.g. for natural ressources: land, oil, gold, etc.)
- In order to study capital taxation, one needs to specify where k_i comes from, i.e. one needs a dynamic, multi-period model: static, one-period model are fine to study labor income taxation, but cannot be used to study capital taxation

Reminder: what is capital?

- K = real-estate (housing, offices..), machinery, equipment, patents, immaterial capital,..

(housing assets + financial/business assets: about 50-50)

(but large variations in portfolio comp. across distribution)

Y_K = capital income = rent, dividend, interest, profits,..

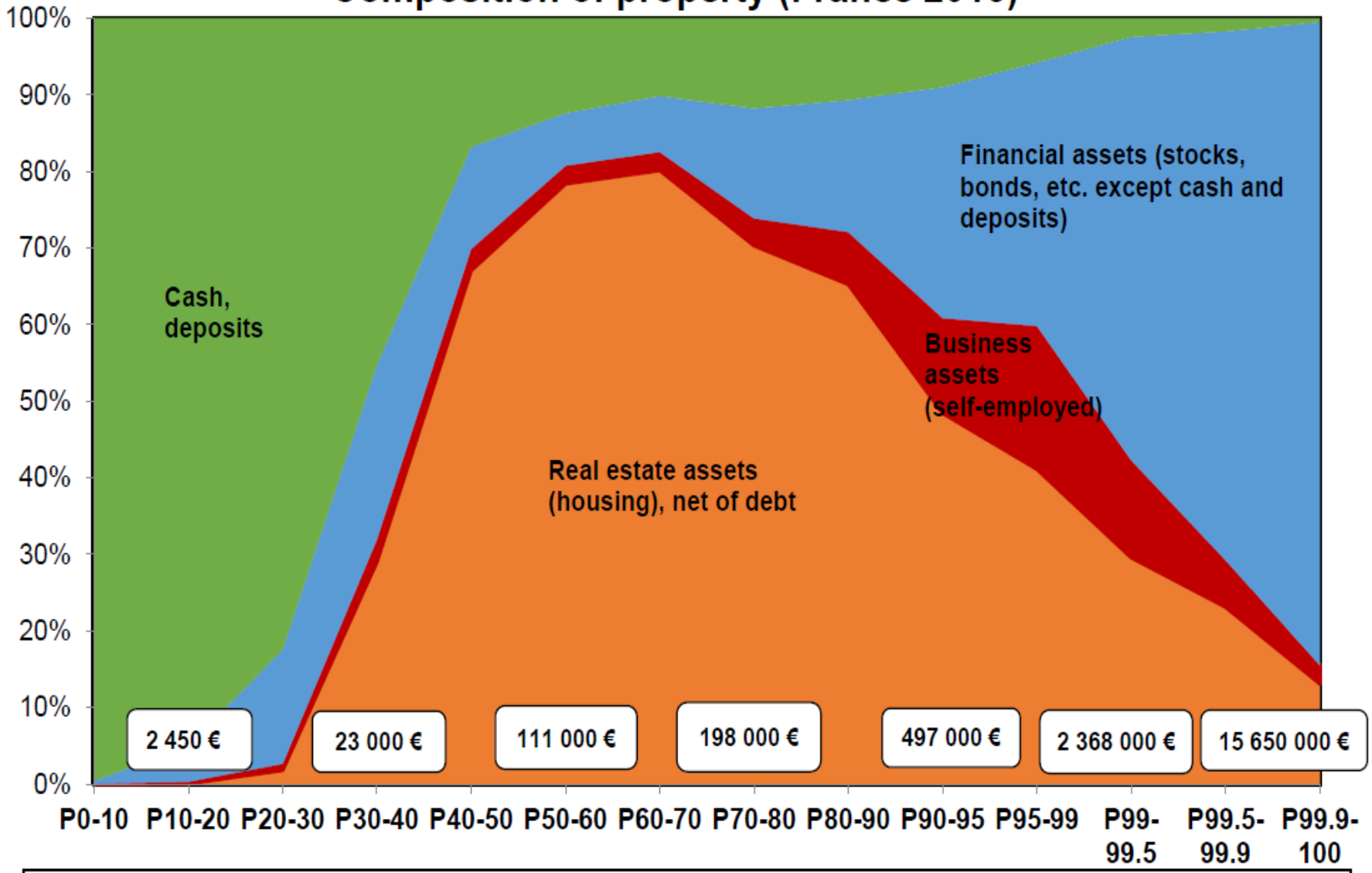
- In rich countries, $\beta = K/Y = 5\text{-}6$ ($\alpha = Y_K/Y = 25\text{-}30\%$)

(i.e. average rate of return $r = \alpha/\beta = 4\text{-}5\%$)

- Typically, in France, Germany, UK, Italy, US, Japan: $Y \approx 30\,000$€ (pretax average income, i.e. national income /population), $K \approx 150\,000\text{-}180\,000$€ (average wealth, i.e. capital stock/population); net foreign asset positions small in most coutries (but rising); see Piketty-Zucman, QJE 2014 for more details

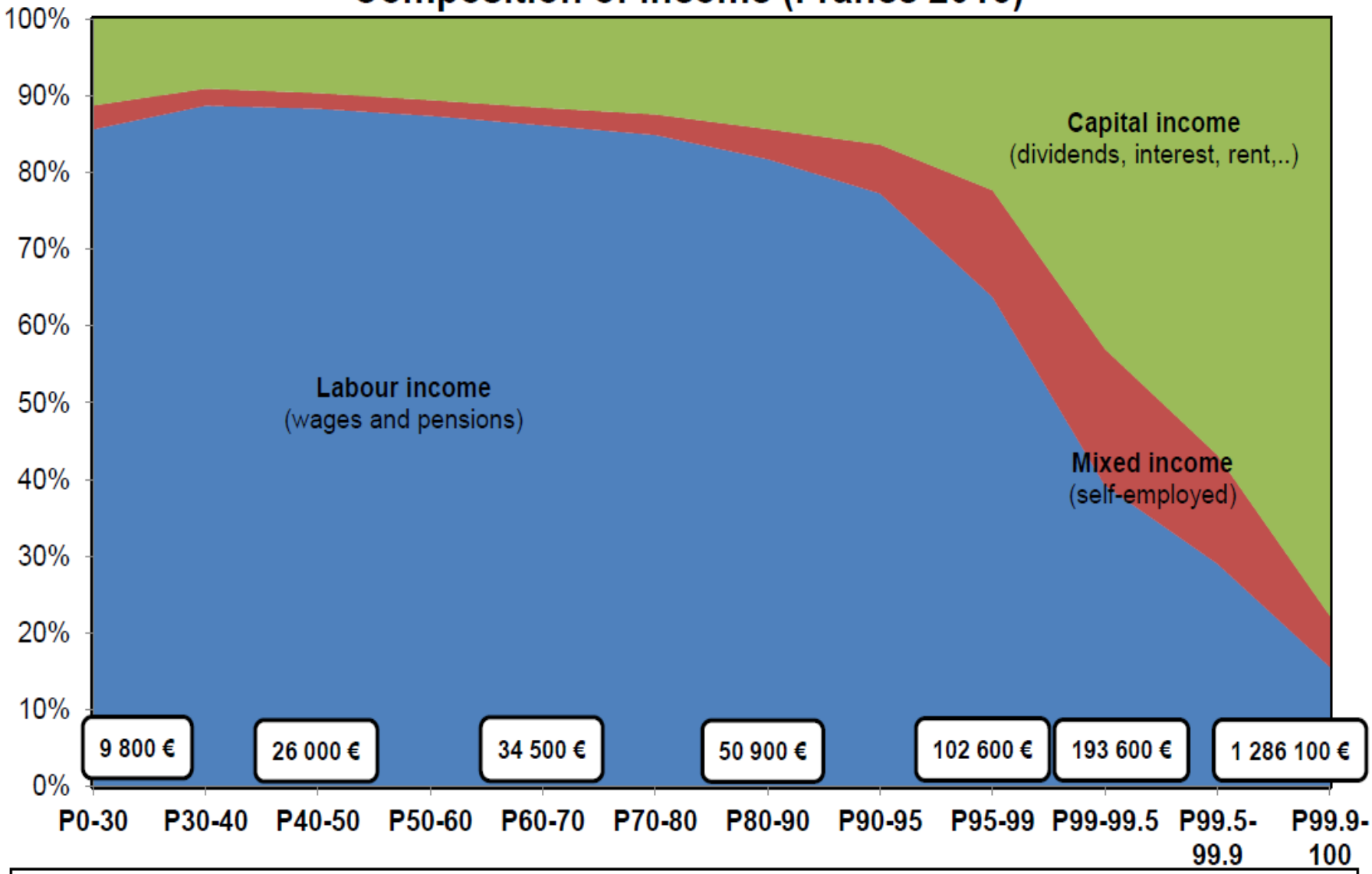
(see also Introduction to economic history class)

Composition of property (France 2015)



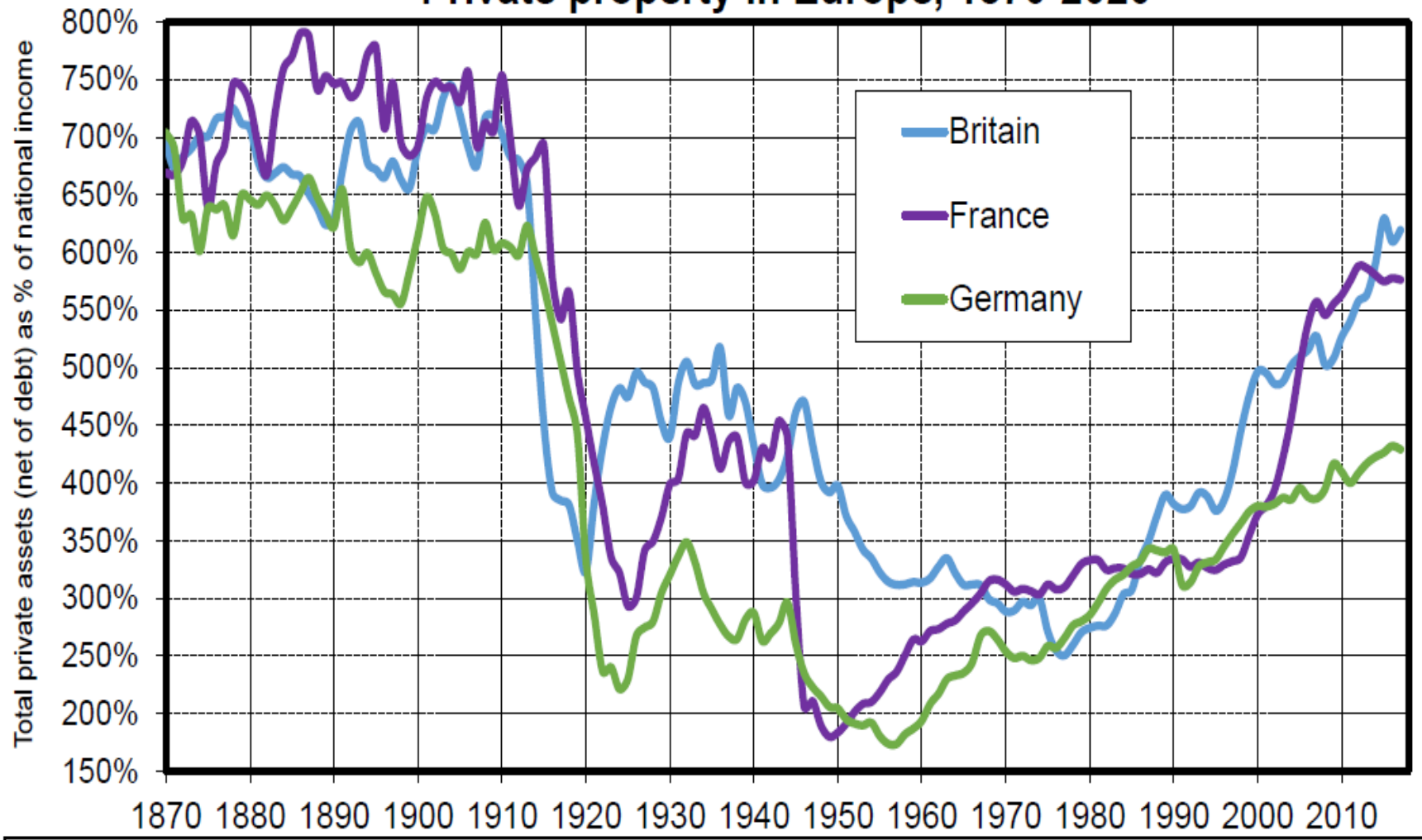
Interpretation. In France in 2015 (as in most countries where data are available), small fortunes consist primarily cash and bank deposits, medium fortunes of real estate, and large fortunes of financial assets (mainly stocks). **Note**: the distribution shown here is per adult wealth (wealth of couples divided by two). **Sources and series**: see piketty.pse.ens.fr/ideology (figure 11.17).

Composition of income (France 2015)



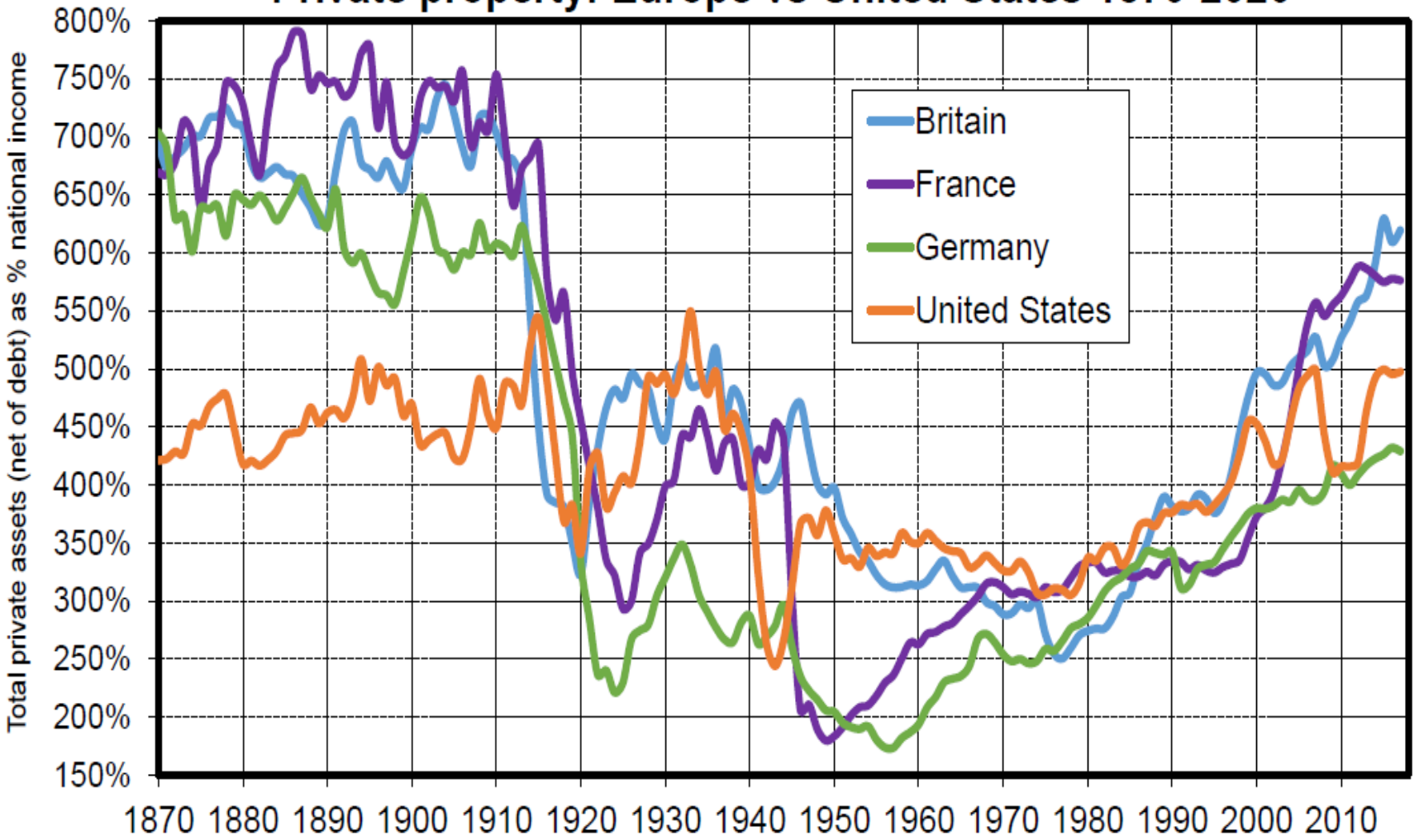
Interpretation. In France in 2015 (as in most countries where data are available), bottom and middle incomes are mostly made of labour income, while the highest incomes mostly consist of capital income (especially dividends). **Note**: the distribution shown here is annual income per adult, before taxes but pensions and unemployment insurance. **Sources and series**: see piketty.pse.ens.fr/ideology (figure 11.16).

Private property in Europe, 1870-2020



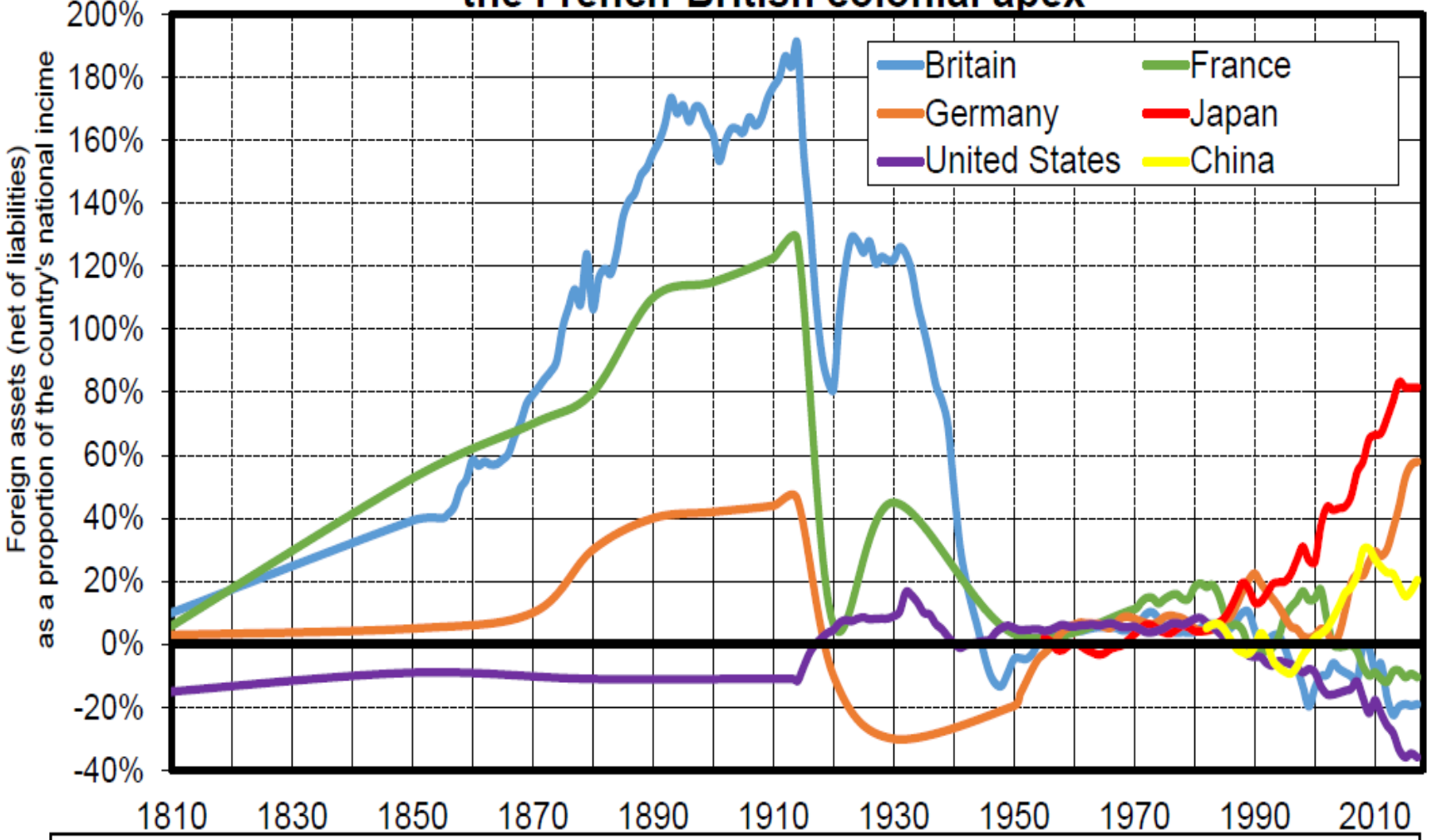
Interpretation. The market value of private property (all assets combined: real estate, business and financial assets, net of debt) was about 6-8 years of national income in Western Europe in 1870-1914, before falling from 1914 to 1950 and reaching about 2-3 years of national income in 1950-1970, and then rising again around 5-6 years in 2000-2020. **Sources and series**: see piketty.pse.ens.fr/ideology (figure 10.8).

Private property: Europe vs United States 1870-2020



Interpretation. The market value of all private assets (real estate, business and financial assets, net of debt) was about 6-8 years of national income in Western Europe in 1870-1914, before falling between 1914 and 1950 (2-3 years during the 1950s-1970s), and rising again to about 5-6 years in 2000-2020. In the US, the historical variations have been less massive (the market value of private property has generally fluctuated around 4-5 years of national income). **Sources and series**: see piketty.pse.ens.fr/ideology (figure S10.8).

Foreign assets in historical perspective: the French-British colonial apex

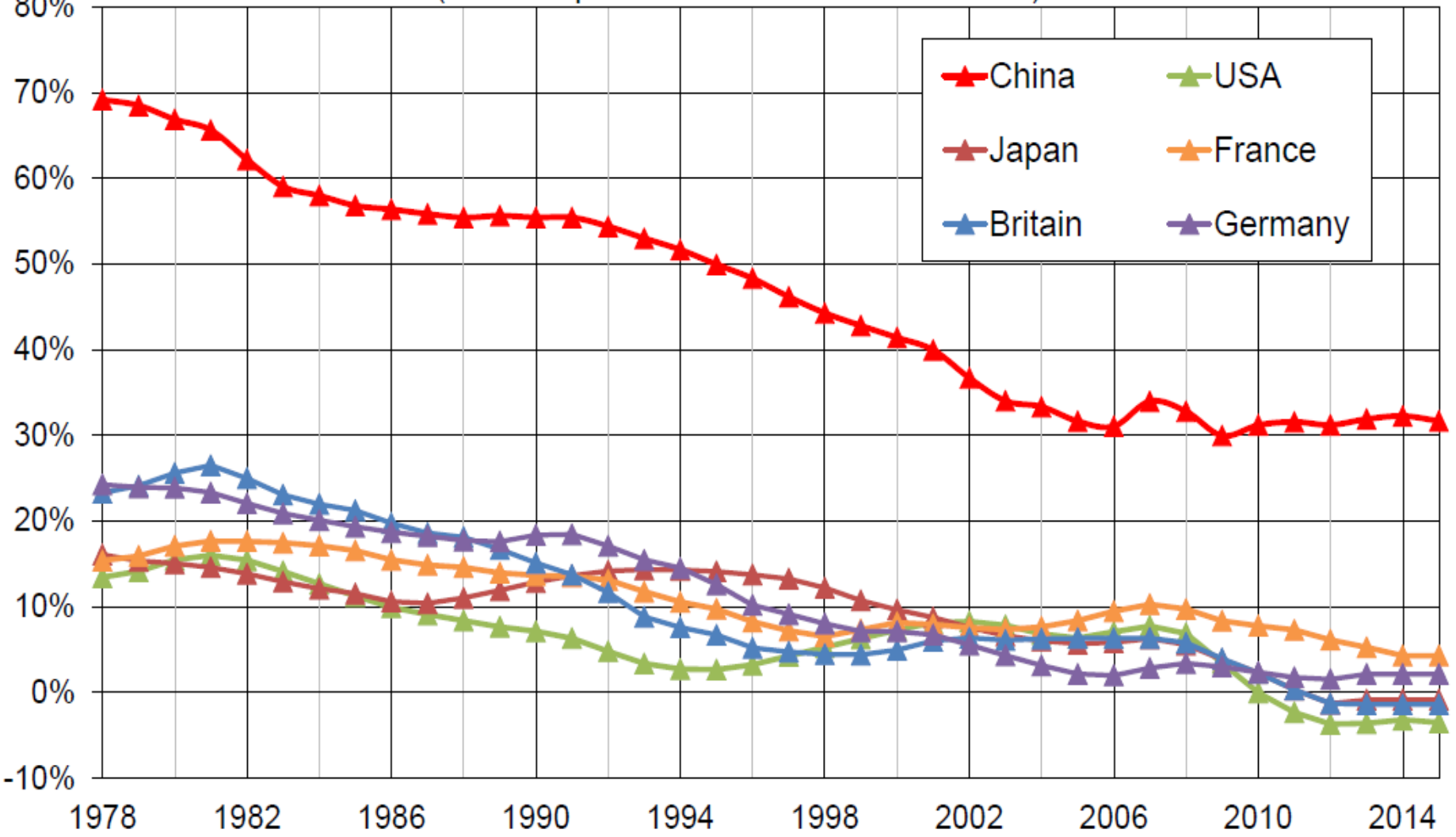


Interpretation. Net foreign assets, i.e. the difference between assets owned abroad by resident owners (including in some cases the governement) and liabilities (i.e. assets owned in the country by foreign owners), amounted in 1914 to 191% of national income in Britain and 125% in France. In 2018, net foreign assets reach 80% of national income in Japan, 58% in Germany and 20% in China.
Sources and series: see piketty.pse.ens.fr/ideology (figure 7.9).

The changing share of public ownership

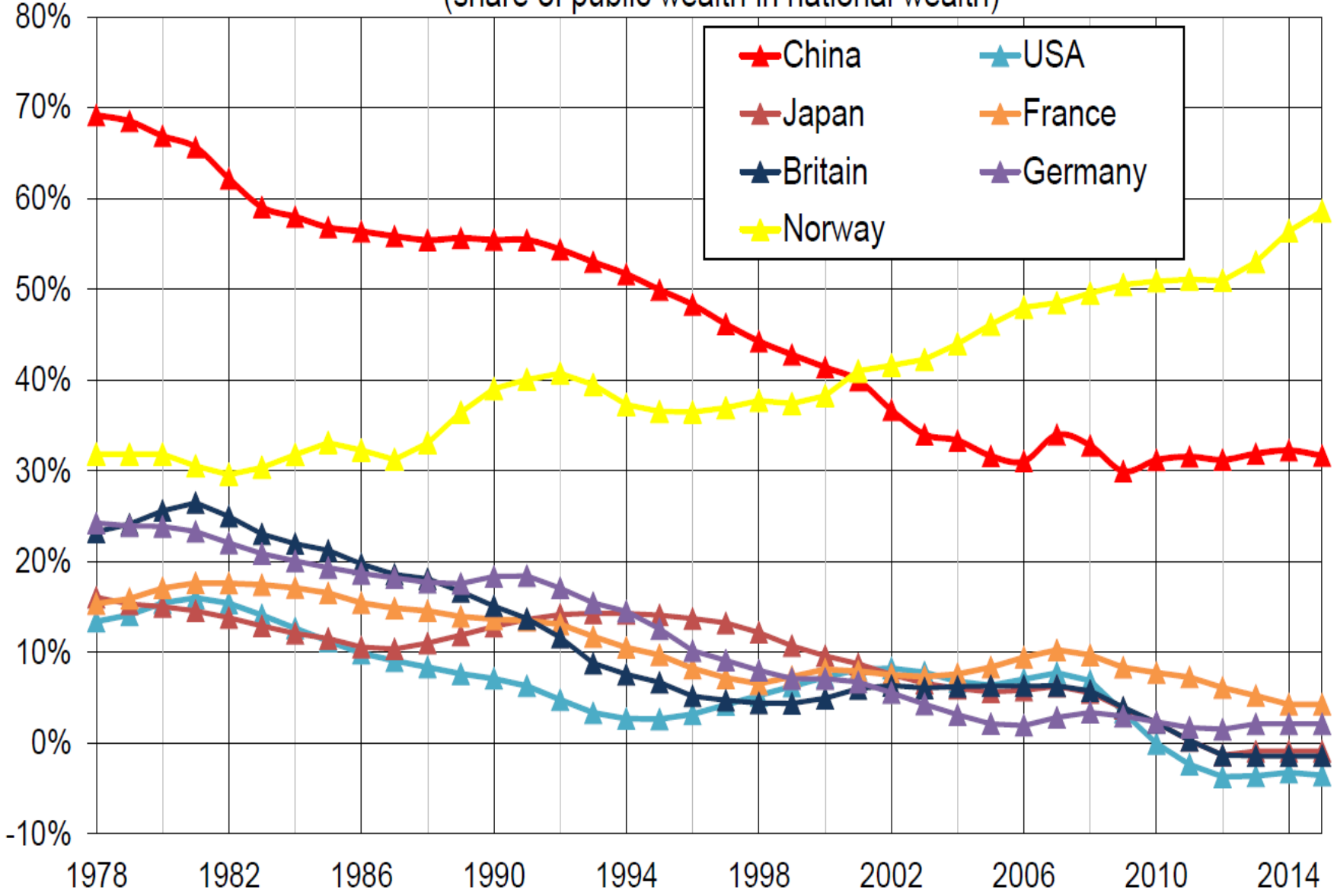
- During the 1950-1980 period, the share of net public wealth in net national wealth was as large as 25-30% in many Western countries = mixed property regime
- By 2015, the share of net public wealth is negative not only in Italy but also in US, UK and Japan (and only slightly positive in France and Germany)
- In China, public share seems stabilize around 30%
- Changing ideology on efficiency of private vs public property
- Rising public debt: more difficulties to agree about fair tax burden with growth slowdown and globalization? And/or structural myopa in absence of strong rules or ideology?

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.

Key distinction: taxes on capital income flows versus taxes on capital stock

- Total tax burden EU27 ≈ 39% of GDP, incl. 9% in capital taxes (US: 28%, incl. 8% in capital taxes). See Eurostat series
- With a capital share $\alpha=Y_k/Y\approx30\%$, this is equivalent to an average tax rate ≈ 30% on all capital income flows
- With a capital/income ratio $\beta=K/Y\approx600\%$, this is equivalent to an average tax rate ≈ 1,5% on the capital stock

→ both forms of capital taxes raise ≈9% of GDP

- In practice, there is a large diversity of capital taxes: **stock-based** (one-off inheritance and transfer taxes, annual property or wealth taxes) or **flow-based** (corporate income taxes, taxes on capital income: rental income, interest, dividend, k gains etc.); why are they not all equivalent ?

- In the simplest economic models, we have a general equivalence result: if the rate of return on capital is equal to r and is the same across all individuals & over all assets (=perfect capital markets), then a tax at rate t_k on the capital income flow is exactly equivalent to a tax at rate τ_k on the capital stock, with:

$$\tau_k = r \times t_k \text{ , or } t_k = \tau_k / r$$

- If r=5%, it is equivalent to tax capital stock at τ_k=1% per year or to tax capital income flow at t_k=20% per year
- If r=4%, then τ_k=1% on stock $\leftrightarrow$ t_k=25% on income flow

- Exemple: assume that you own an appartement worth k=1 million €, and that its annual rental value is equal to y_k=40 000€, i.e. r = 4%
- Assume you have to pay a property tax (taxe foncière) at a rate τ_k=1%: 1% of k=10 000€ in tax
- It is equivalent to pay a tax at rate t_k=25% on the rental income (real or imputed):

  25% of y_k=40 000€ = 10 000€ in tax
- Same computations with k=100 000€, y_k=4 000€

- Note: in France, average rate of property tax ≈0,5%; in the US or UK, it is closer to ≈1%

- In practice, the key reason why taxes on the capital stock and taxes on the capital income flow are not equivalent is the existence of capital market imperfections: the rate of return r_i varies across assets & individuals
- For individuals with r_i > average r, then it is better to have stock taxes than flow taxes (& conversely for individuals with r_i < average r)
- If r_i=10%, τ_k=1% on stock $\leftrightarrow$ t_k=10% on income flow
- If if r_i=2%, τ_k=1% on stock $\leftrightarrow$ t_k=50% on income flow

- Key argument in favor of taxes on capital stock rather than on flow (i.e. capital tax rather than income tax): they put incentives to get a high return on k (Allais)

  (see also "Use it lose it: efficiency gains from wealth taxation", Guvenen et al 2019)

- Popular perceptions about capital tax:
  see Fisman et al 2016, “Do Americans Want to Tax Capital? Evidence from on-line surveys”
- Experiment: show hypothetical individuals with income y= 10 000$, 50 000$, 100 000$, 300 000$, etc. and net wealth w=50 000$, 500 000$,5M $, etc., and ask how much total tax (income tax + property tax + all taxes) they shoud pay
- Result: for given income y, everybody want individuals with higher net wealth w to pay more taxes. Implicit wealth tax rates are pretty high.
- Common-sense reaction: if some individuals have very high wealth but very low income, there’s no reason to exempt them from taxation; they should just sell some of their under-used assets to pay their taxes

The diversity of capital taxes

- In the EU & US, capital taxes = 8%-9% GDP
- Typical structure:
- inheritance taxes <1% GDP

  (say, 5%-10% of a 10% tax base)
- + annual wealth & property taxes 1%-2% GDP

  (say, 0,5% of a 200%-400% tax base)
- + corporate profits tax 2%-3% GDP

  (say, 20%-30% of a 10% tax base)
- + personal capital income tax 2%-3% GDP

  (say, 20%-30% of a 10% tax base)

The progressive tax triptyc: income, inheritance and wealth

- Most developed countries introduced between 1870 and 1920 modern progressive taxes on income and inheritance: first Germany-Sweden-Japan in 1870s-1890s, then UK 1892-1908, US 1913-1916, France 1901-1914, etc.
- General reaction to the perception of high inequality in late 19c and early 20c; international diffusion process; rise of universal suffrage
- But it is really after WW1 that these taxes became steeply progressive, particularly in the US-UK… until the progressive retreat of the 1980s-1990s (changing ideology, rising tax competition)

Four main rationales for capital taxation

- « **Fuzzy frontier argument** »: if one can only observe total income $y=y_L+y_K$, then one needs to use a comprehensive income tax t(y); more generally, if high income-shifting elasticity, then $t(y_L)$ & $t(y_K)$ should not be too different

(see Pirtilla-Selin 2011 on dual taxation in Finland and Yagan et al 2017 on US)

- « **Fiscal capacity argument** »: if income flow y is difficult to observe for top wealth holders (family holdings, corporate consumption, etc.: fiscal income reported by billionaires can be very small as compared to their wealth), then one needs to use a wealth tax t(w) in addition to the income tax t(y)
- « **Incentive argument** »: by taxing the capital stock rather than the income flow, agents are given incentives to get higher returns (this implicitely requires imperfect k markets)
- « **Meritocratic argument** »: even with full observability of y_L, y_K,w, perfect k markets, etc., inheritance should be taxed as long as the relevant elasticity is finite; imperfect k markets then imply that part of the ideal inheritance tax should be shifted to lifetime k tax; see « A Theory of Optimal Inheritance Taxation », Econometrica 2013 (see also "A Theory of Optimal Capital Taxation", WP 2012 ; Slides)
- See « Rethinking capital and wealth taxation » (with E. Saez, G. Zucman), Oxford Review of Economic Policy 2023

The incentive argument for wealth taxation

- Key argument in favor of taxes on capital stock rather than on flow (i.e. capital tax rather than income tax): they put incentives to get a high return on k (Allais) (see also Guvenen et al 2019 for recent model and calibration)
- Other way to put it: if some individuals have high wealth but low income, there's no reason to exempt them from taxation; see e.g. Fisman et al 2016, "Do Americans Want to Tax Capital? Evidence from on-line surveys"
- This implicitely requires to assume imperfect capital markets. I.e. one needs to assume that rate of return r_i is stochastic and depends on individual effort e_i. With perfect k markets everybody should have the same return (full insurance).
- In order to determine optimal wealth tax one also needs to take into account scale economies in portfolio management: higher average rates of return for higher wealth levels (see also Saez-Zucman 2019 for simulations on US billionaires)

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

Average real growth rate per year *(after deduction of inflation)*	1987-2013
The top 1/(100 million) highest wealth holders (about 30 adults out of 3 billions in 1980s, and 45 adults out of 4,5 billions in 2010s)	6,8%
The top 1/(20 million) highest wealth holders (about 150 adults out of 3 billions in 1980s, and 225 adults out of 4,5 billions in 2010s)	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%

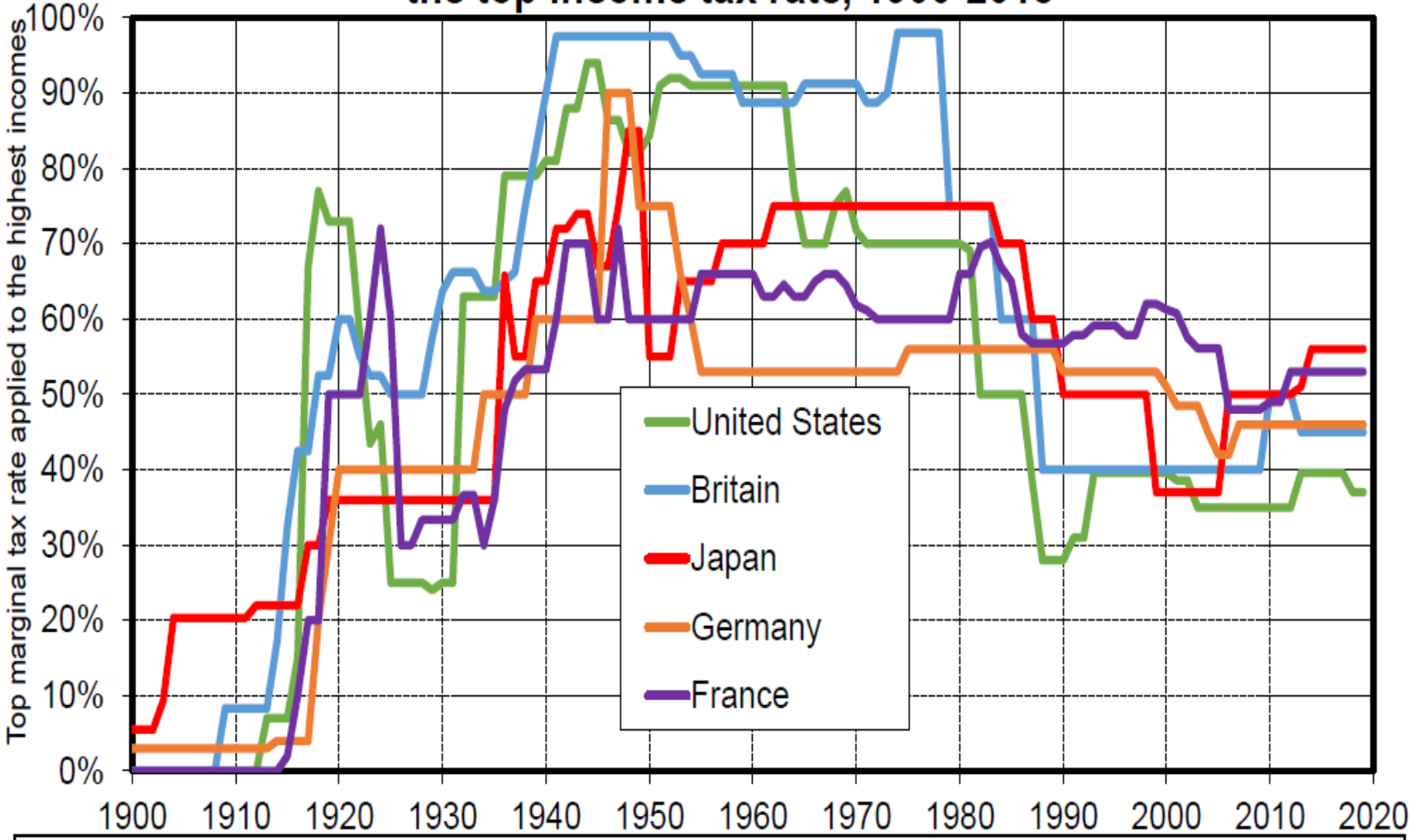
Between 1987 and 2013, the highest global wealth fractiles have grown at 6%-7% per year, vs. 2,1% for average world wealth and 1,4% for average world income. All growth rates are net of inflation (2,3% per year between 1987 and 2013). Sources: see piketty.pse.ens.fr/capital21c.

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

Average real annual rate of return *(after deduction of inflation and all administrative costs and financial fees)*	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 millions $ (226)	7,1%
dont: Endowments less than 100 millions $ (498)	6,2%

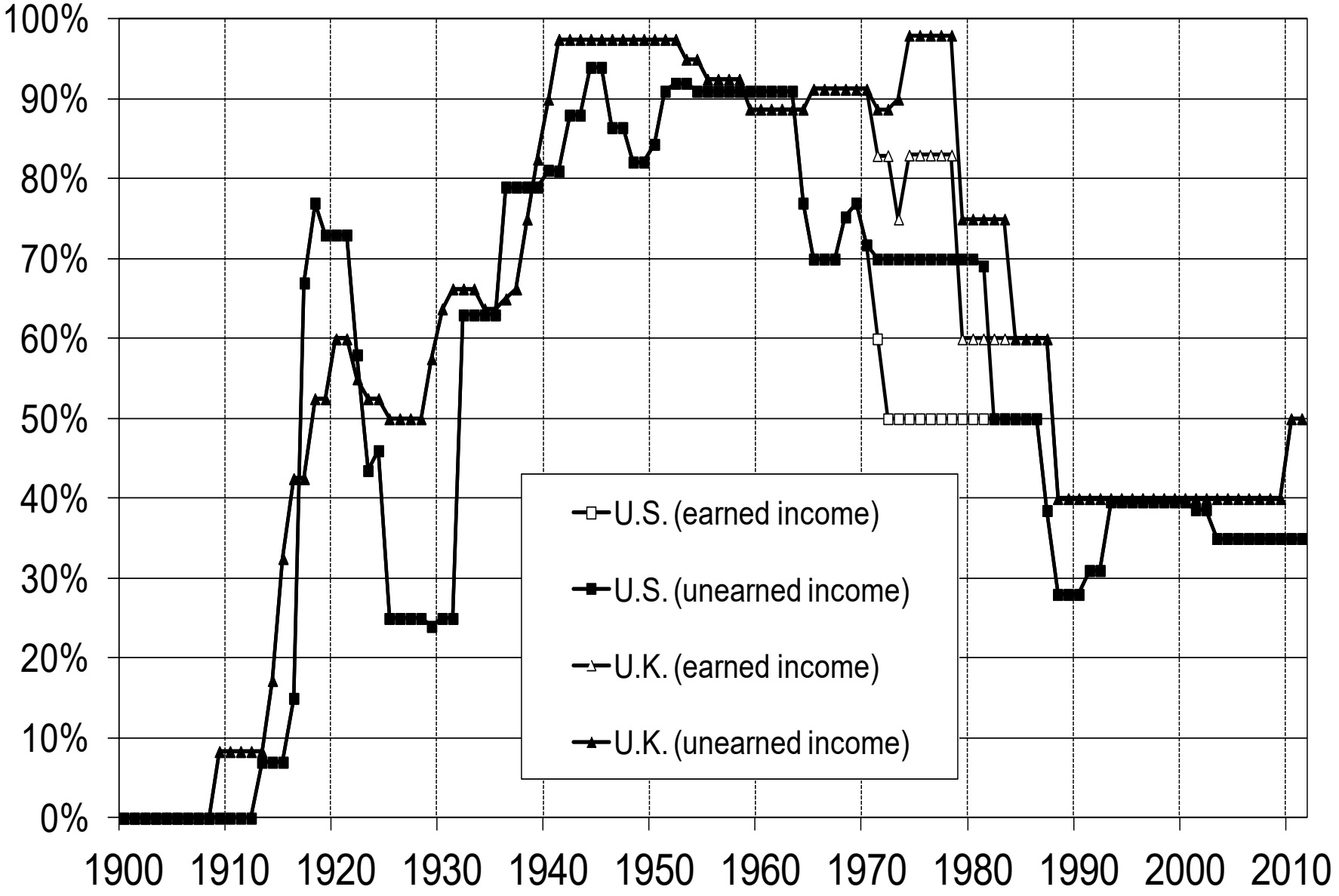
Between 1980 and 2010, U.S. universities earned an average real return of 8,2% on their capital endowments, and all the more so for higher endowments. All returns reported here are net of inflation (2,4% per year between 1980 and 2010) and of all administrative costs and financial fees.
Sources: see piketty.pse.ens.fr/capital21c.

The invention of progressive taxation: the top income tax rate, 1900-2018

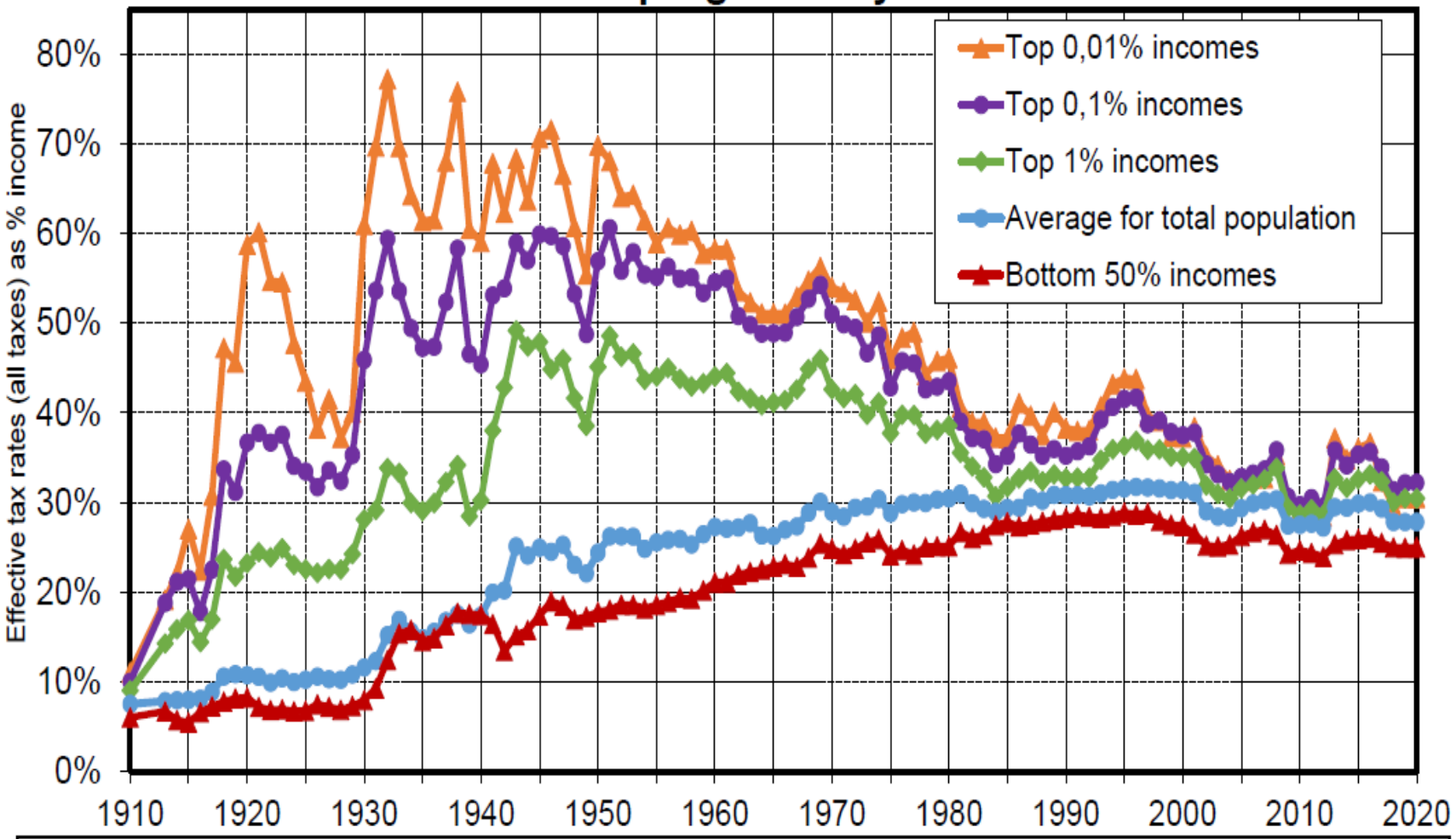


Interpretation. The marginal income tax rate applied to the highest incomes was on average 23% in the U.S. from 1900 to 1932, 81% from 1932 to 1980 and 39% from 1980 to 2018. Over these same periods, the top rate was equal to 30%, 89% and 46% in Britain, 26%, 68% and 53% in Japan, 18%, 58% and 50% in Germany, and 23%, 60% and 57% in France. Progressive taxation peaked in mid-century, especially in the U.S. and in Britain. **Sources and series**: see piketty.pse.ens.fr/ideology (figure 10.11).

Figure 3: Top Income Tax Rates: Earned (Labor) vs Unearned (Capital)

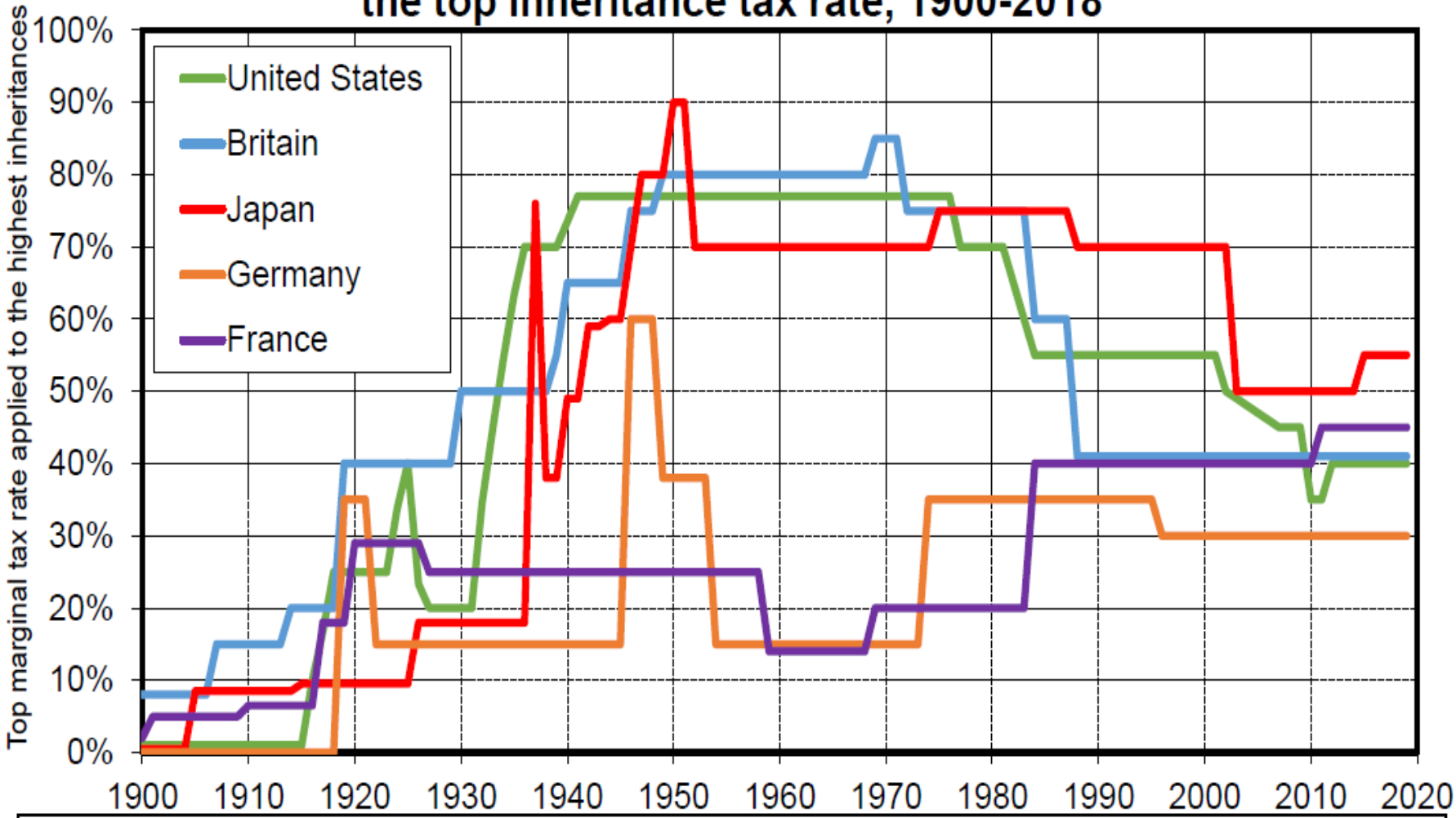


Effective rates and progressivity in the U.S. 1910-2020



Interpretation. From 1915 to 1980, the tax system was highly progressive in the U.S., in the sense that effective tax rates paid by the highest income groups (all taxes included, and as % of pretax income) was significantly larger than the average effective tax rate paid by the the total population (and particularly by the bottom 50% incomes). Since 1980, the tax system has not been very progressive, with little differences in effective tax rates across groups. **Sources and series**: see piketty.pse.ens.fr/ideology (figure 10.13).

The invention of progressive taxation: the top inheritance tax rate, 1900-2018



Interpretation. The marginal inheritance tax rate applied to the highest inheritances was on average 12% in the U.S. from 1900 to 1932, 75% from 1932 to 1980 and 50% from 1980 to 2018. Over these same periods, the top rate was equal to 25%, 72% and 46% in Britain, 9%, 64% and 63% in Japan, 8%, 23% and 32% in Germany, and 15%, 22% and 39% in France. Progressivity was maximal in mid-century, especially in the U.S. and in Britain. **Sources and series**: see piketty.pse.ens.fr/ideology (figure 10.12).

- **Progressive income tax**: basic pillar for financing public goods and social spendings (together with social contributions)
- **Progressive inheritance tax**: lower tax revenue than income tax (say, <1% Y vs 10% Y), but important role to limit perpetuation & concentration of wealth & power in the same families
- **The US invented very steeply progressive taxation of income and inherited wealth in the 1920s-1930s, partly because the US did not want to become as unequal as Europe**
- See Fisher 1919 about the "undemocratic" concentration of wealth (top 2% owned 50% of US wealth at the time: less than in Europe, but already too much according to mainstream US economists of the time)

- Over 1930-1980 period, top marginal income tax rate = 82% in the US
- Extreme income tax progressivity at the very top is critical not so much to raise revenue, but mostly to keep top labor incomes and rent extraction under control
- Top US & UK inheritance tax rates also reached 70-80% during 1930-1980 period, much more than in Germany and France (where wealth redistribution was largely carried out via other means: destruction, inflation, nationalization)
- Progressive taxation = a US-UK invention
- On the social, political and cultural history of taxation in the US and France, see Huret, *American Tax Resisters*, HUP 2014, and Delalande, *Les batailles de l'impôt – Consentement et résistance de 1789 à nos jours*, 2011
- See also Beckert, *Inherited wealth*, PUP 2008

Wealth taxes vs property taxes

- Progressive taxes on net wealth (real estate + business + financial assets – debt) still exist in Switzerland, France, Spain, Norway. Abolished in Sweden and Germany during the 2000s (mostly because of valuation problems, see above)
- Most common wealth tax: « property tax » = proportional tax on real estate assets (land and housing), created in early 19c or earlier
- In 19c US, property taxes were also targetting financial assets; this changed due to lack of fiscal coordination and to the development of federal income and inheritance tax
- Proportional, non-inflation-adjusted property taxes are at the origin of US tax revolt in the late 1970s: see I. Martin, *The Permanent Tax Revolt: How the Property Tax Transformed American Politics*, SUP 2008; *After the Tax Revolt: California's Proposition 13 Turns 30*, 2008

- UK « mansion tax »: progressive tax on real estate transactions (very low rates <0.1m£, much higher rate above 1m£ or 2m£)
- Not clear why transactions should be taxed (better to have lower annual tax rates, independantly of whether you move or not), or why only real estate should be taxed rather than full net wealth

- Many European countries also created annual progressive taxes on net wealth (total assets minus debt) in the early 20th century (Germany, Sweden, Norway, Switzerland, etc.).
- Germany: creation of annual wealth tax in 1893 in Prussia (after income tax 1891), 1902 in Saxony, etc. See Dell 2008.
- Sweden: creation of annual wealth tax in 1911. See G. Du Rietz, M. Henrekson, « Swedish Wealth Taxation (1911–2007) », in *Swedish Taxation: Developments since 1862*, Palgrave 2015, Chap. 6
- Switzerland: local and federal wealth taxes since 1913. See Dell et al 2007

- But no progressive tax on wealth was created at that time in UK, US, France.
- Why? Maybe because these countries already had well developed, old-style annual proportional taxes on real-estate property (land, housing and buildings), like “taxe foncière” in France (created by French Revolution). Maybe it is more difficult to reform such taxes than to create brand new system.
- On the other, Swiss wealth taxes did evolve from old-style local property taxes.
- Anyway, UK-US-France in early 20c focused upon progressive taxes and income and inheritance (=so as to make new industrial and financial sectors contribute to tax) rather than wealth taxes.

- Wealth tax debate came back later in the 1970s in UK and France. See H. Glennester, “A Wealth Tax Abandonned: The Role of UK Treasury 1974-1976”, LSE 2011
- France: first annual wealth tax created in 1981 (IGF), repealed in 1986, reintroduced in 1988 (ISF), repealed/transformed in IFI in 2018 (see below).
- Exceptionnal wealth taxes in France 1945 (up to 25%, or even 100% for those whose wealth had increased between 1940 and 1944), a little bit like the exceptional wealth taxes in Germany 1949-1985 to repay public debt; but no annual wealth tax until 1981

- Wealth tax created in France in 1980s (IGF-ISF): based upon market values of all assets (but no automatic pre-filled declaration).

- Very different from the wealth taxes created around 1900-1910 in Germany or Sweden, at a time with no inflation: wealth taxes were based not on market values, but on cadastral values, which created huge valuation problems when inflation became important (a little bit like property tax in France and other countries, but with tax progressivity this is even more problematic).

- Germany 1997: suspension of wealth tax due to valuation problems (constitutional/legal decisions on lack of horizontal equity).
- In Sweden: top wealth tax rates up to 4% in the 1980s, but applied to mismeasured tax base. Repeal 2007. Partly due to valuation problems, partly due to ideological/political change + small-country syndrom (repeal inheritance tax 2005) + welfare-state success.

- New discussions on European wealth taxes have been growing since 2011-12, in the context of Euro debt crisis and rising Euro discontent. See e.g. Kreneck et al 2017.

- No annual progressive wealth tax in UK and US, but during many decades higher income tax progressivity than in all other countries
- See Sanders-Warren 2019-2020 proposals for a federal wealth tax (up to 8% on billionaires + 40% exit tax)
- See Saez-Zucman « Progressive wealth taxes » BPEA 2019
- See ProPublica 2021 Report showing that US billionaires pay virtually no income tax as a proportion of their wealth
- See Saez-Zucman « How to get 1 trillion $ from 1000 billionaires? Tax their gains now », 2021

Various forms of inheritance taxes

- Basic distinction:
- **Estate taxes** : tax rates depend on the total "estate" (real estate: immobilier + personal estate: mobilier, incl. financial), i.e. the total wealth left by the decedent, irrespective of how it is split between successors

  = **applied in US & UK** (complete testamentary freedom… but egalitarian default rules if no testament)
- **Inheritance taxes**: tax rates depend on the wealth received by each successor (part successorale) and the kin relationship (children vs stangers)

  = applied in **France & Germany** (limited testamentary freedom; rigid transmission rules)

  → in order to understand how the tax is computed, one first needs to understand how the wealth is divided

- Rigid transmission rules in France: the 1/n+1 rule
- « Réserve héréditaire » (this has to go the children, no matters what) = n/n+1
- « Quotité disponible » (what you can transmit to individuals other than your children) = 1/n+1 , with n = number of children
- With n = 1, free disposal of 50% of your wealth
- With n =2, free disposal of 33% of your wealth
- With n=3 or more, free disposal of 25% of your wealth; the other 75% is divided equally among children
- These basic rules were unchanged since 1804

- Default matrimonial regime: « community of acquisition » (« communauté réduite aux acquêts »)
- Married couple wealth $w = w_c + w_1 + w_2$
- with w_c = community assets = assets acquired during marriage

w_1 , w_2 = own assets (biens propres) = inherited by each spouse (or acquired before marriage)

- Only w_c is split 50-50

- Other matrimonial regimes: separate property (more & more common); universal community (very rare)
- Inheritance data can be used to study family strategies with wealth, porfolio reallocation during marriage, etc.

(see historical Parisian inheritance data project)

- Exemples of computations using tax schedules from France and the US: see excel file

- Chaotic evolution of top inheritance tax rates over time and across countries: see graph
- On the historical evolution of inheritance taxes:
- K. Scheve & D. Stasavadge, "Democracy, War & Wealth – Evidence from Two Centuries of Inheritance Taxation", 2011 [article in pdf format]
- See also: J. Beckert, *Inherited wealth*, PUP 2008

Fisher, « Economists in Public Service », AER 1919

G. Du Rietz, M. Henrekson, D. Waldenström, « Swedish Inheritance and Gift Taxation (1885–2004) », in *Swedish Taxation: Developments since 1862*, 2015, Chap. 5

Genschel-Limberg-Seelkopf 2022, "Revenue, Redistribution, and the Rise and Fall of Inheritance Taxation"

Limberg-Seelkopf 2022 « The historical origins of wealth taxation »

A different view on capital taxation: immaterial capital, broadband and « unique » assets

- The taxation of immaterial capital (intellectual property, patents, etc.) raises very different issues: if copy costs are zero, then the social optimum should involve free use of immaterial capital… except that one needs to put incentives for the production of new ideas
- In practice, mixture of public production of ideas and research with free access (but copyrights for books by public researchers…) and private production with patents: equivalent to temporary property rights or gradual capital tax (20-year patent ≈ 5% annual k tax)

- Other problem: capital as usage rights over unique assets
- Typical example: broadband radio spectrum
- Should we auction broadband usage rights forever (permanent private property, which private owners can resell to other users), or every year (temporary property rights, so as to foster reallocation between potential users, ≈ 100% capital tax at the end of each year) ?

- Weyl-Zhang 2016 « Ownership of means of production »: if you have full private property over unique assets (broadband, special spots for buildings etc., and more generally all capital assets), then this will lead to monopoly power and insufficient reallocation of usage rights. See « Depreciating licences » 2018.
- On the other hand, annual auctions and public management of entire capital stock is complicated to organize
- Best solution: private property (permanent auctions), but with high wealth tax rates, up to 5-10% per year according to WZ calibration to US housing markets

- Interesting idea: property should be made temporary, otherwise it becomes monopoly.
- See also Posner-Wheyl 2017 « Property is monopoly ».
- But is this the right framework to think about temporary property? Introducing inequality seems critical. With representative-agent setup, hard to believe that 5-10% flat tax on wealth can be optimal (or it will just depress property prices and make little difference).