r > g

Lessons from the history of wealth

Thomas Piketty
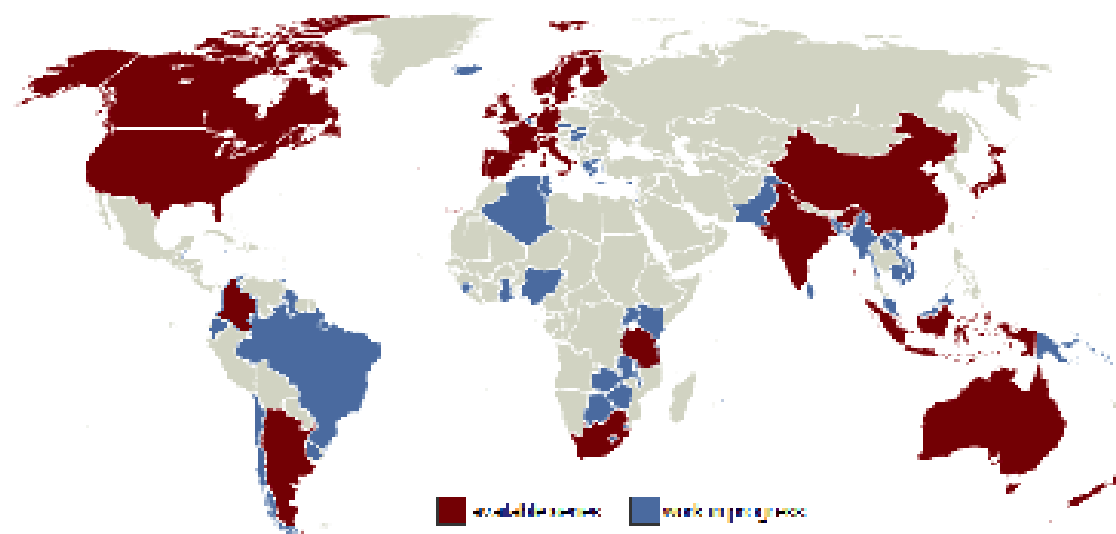
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- One important lesson from the history of wealth: in the long-run, there is a tendancy for the **rate of return** to capital to exceed the economy's **growth rate** (**r > g**), and this tends to lead to high concentration of wealth

- In this presentation, I focus on this key force: **r > g**

- Warning: there are many other forces that play an important role in the long run dynamics of income and wealth distribution; and there is still a lot of data that needs to be collected; we know more than we used to, but we still know too little

THE WORLD TOP INCOMES DATABASE

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- Fact n°1: in 1900-1910, income inequality was higher in Europe than in the United States; in 2000-2010, it is a lot higher in the United States

- This is due to a mixture of reasons: changing supply and demand for skills; race between education and technology; globalization; more unequal to access to skills in the US; unprecedented rise of top managerial compensation in the US

Figure 1. Income inequality: Europe and the U.S., 1900-2010
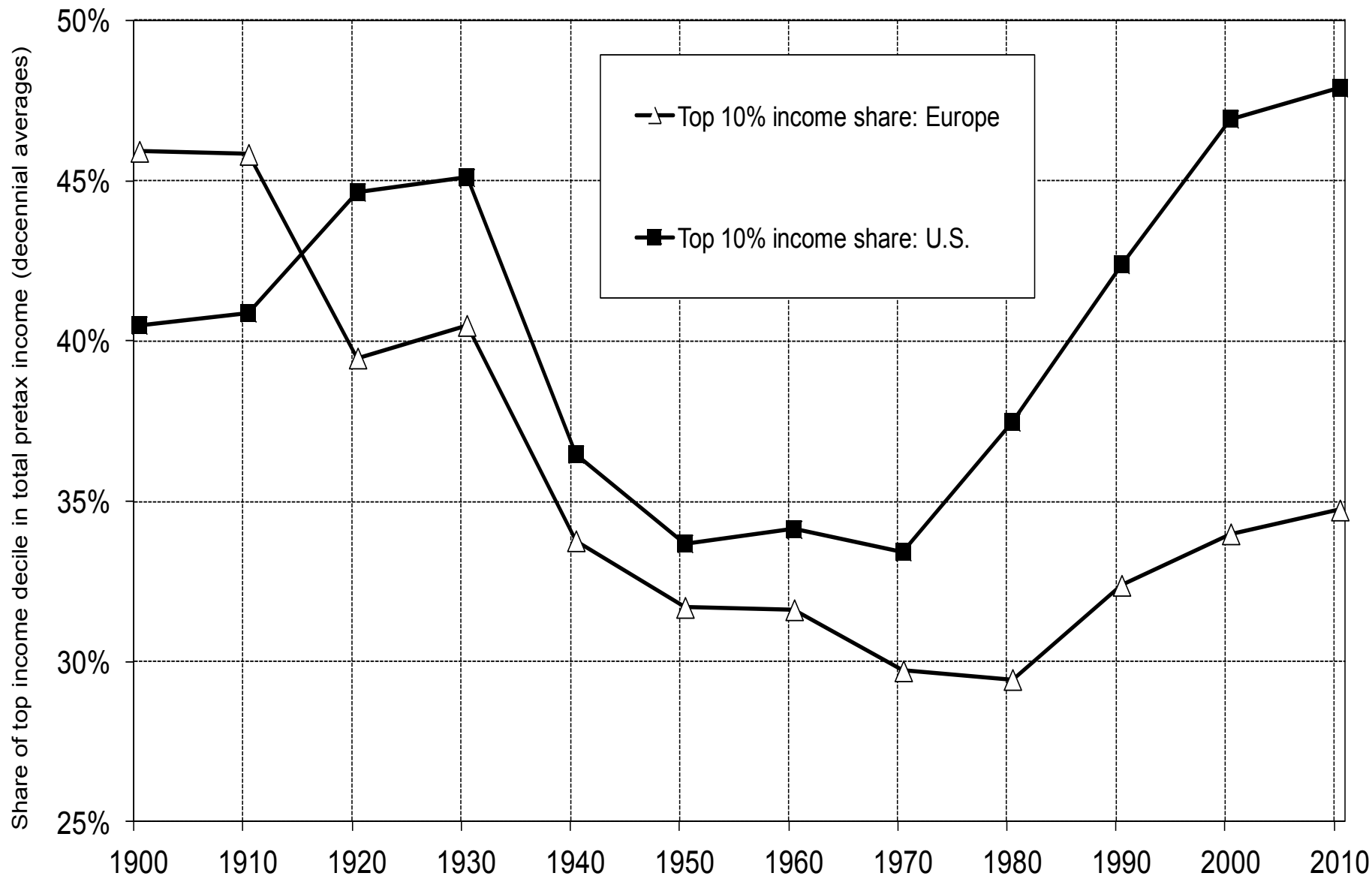
The share of total income accruing to top decile income holders was higher in Europe than in the U.S. around 1900-1910; it is a lot higher in the U.S. than in Europe around 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c

- Fact n°2: wealth inequality is always a lot higher than income inequality

- Fact n°3: wealth inequality is less extreme today than a century ago, although the total quantity of wealth relative to income has now recovered from the 1914-1945 shocks
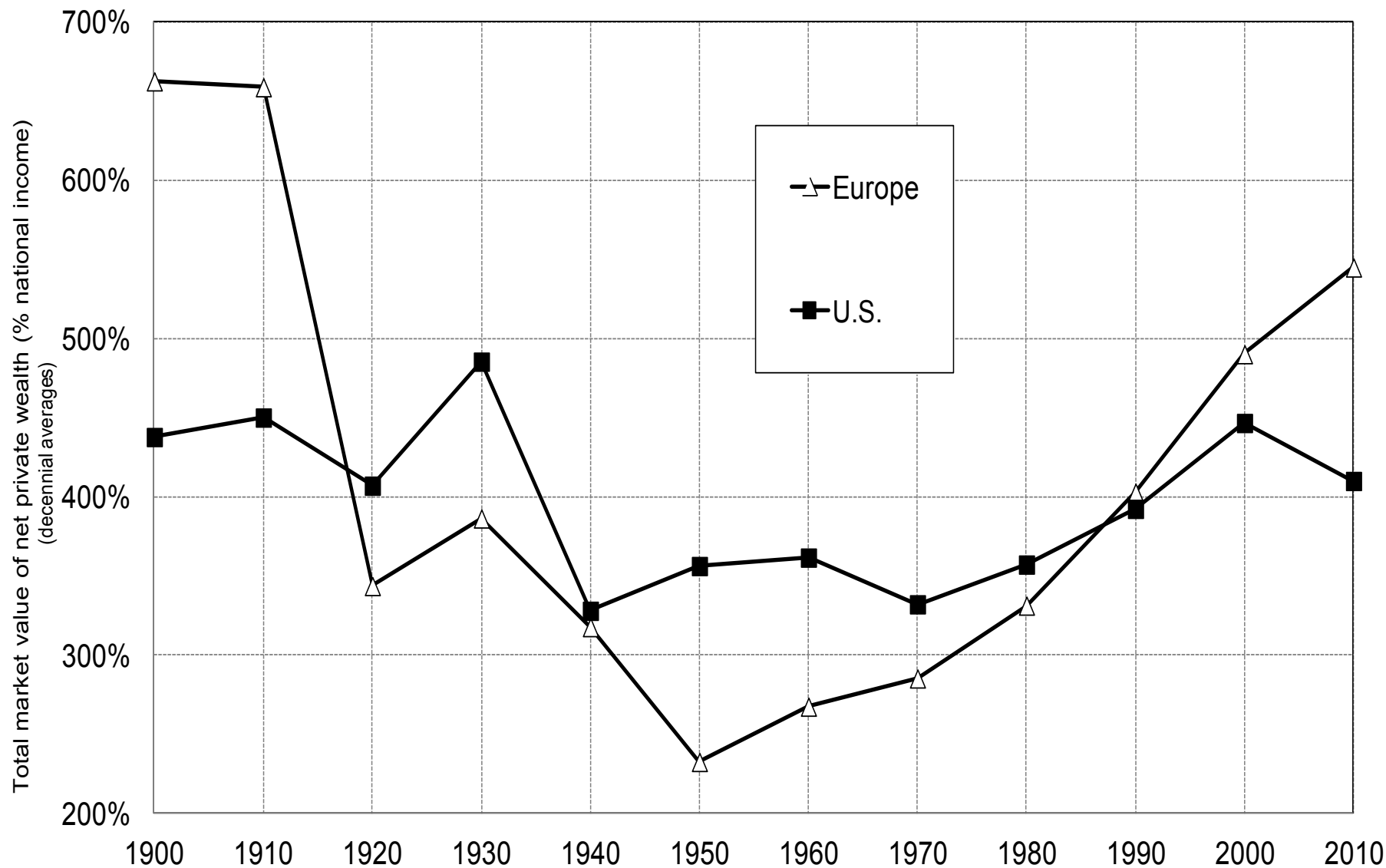
Figure 2. Wealth inequality: Europe and the U.S., 1870-2010
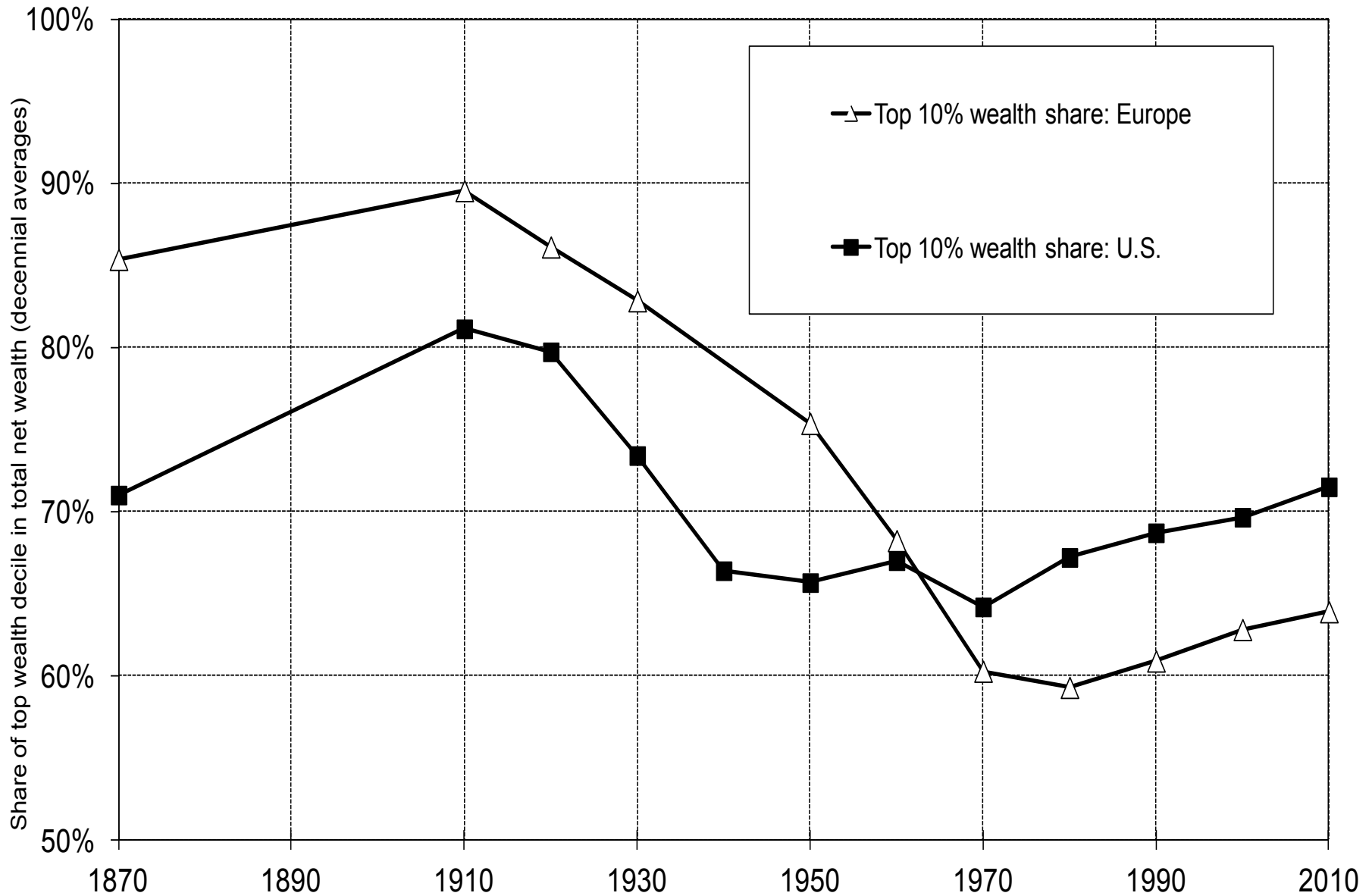
The share of total net wealth belonging to top decile wealth holders has become higher in the US than in Europe over the course of the 20th century. But it is still smaller than what it was in Europe before World War 1.

Sources and series: see piketty.ps

Figure 3. Wealth-income ratios: Europe and the U.S., 1900-2010

Total net private wealth was worth about 6-7 years of national income in Europe prior to World War 1, down to 2-3 years in 1950-1960, back up to 5-6 years in 2000-2010. In the US, the U-shaped pattern was much less marked.
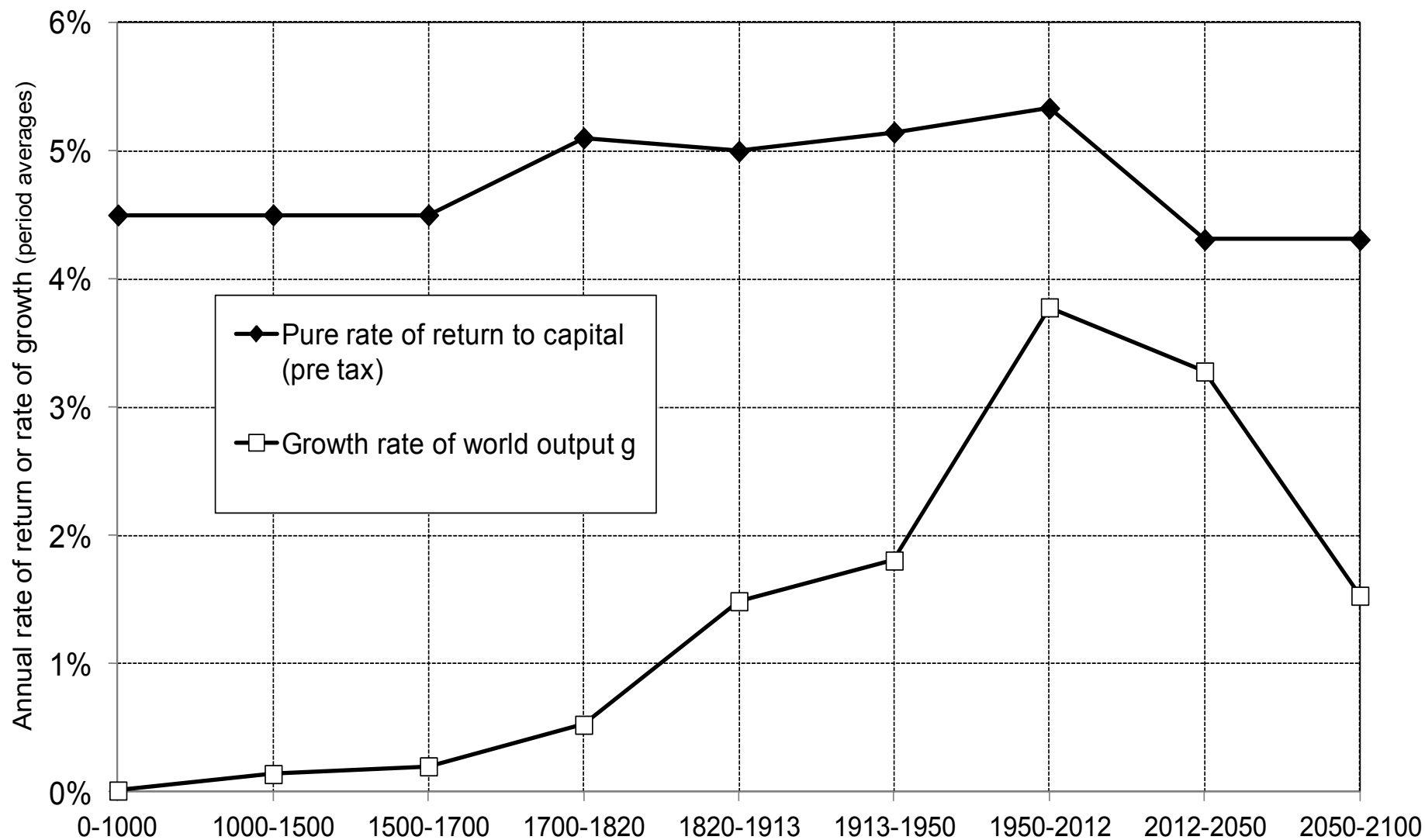
Sources and series: see piketty

- Best model to explain why wealth is so much more concentrated than income: dynamic model with random multiplicative shocks (n. children, rates of return, etc.)

- In any such model, for a given variance of shocks, the equilibrium level of wealth inequality is a steeply increasing function of r - g

- Intuition: with high r – g, initial wealth inequalities get amplified at a faster pace

- E.g. with r = 5%, g = 1%, wealth holders only need to reinvest 1/5th of their capital income so as to ensure that their wealth rises as fast as national income; this makes it easier to build and perpetuate large fortunes

- During most of the history of mankind, $r > g$ was obvious: g was close to 0%, and r was generally around 5%
- Typically, annual rental income = 5% of land values in traditional agrarian societies (to get an annual income of 1 000£, one needs a capital of 20 000£: obvious to any Jane Austen reader!)

- Modern industrial growth did not change this basic fact as much as one might have expected: g rose from 0% to 1-2%; r rose also

- During the 20th century, very unusual combination of events: low r due to 1914-1945 shocks + unusually high g during postwar period (reconstruction + demographic transition: g = 3-4%)
- But the long run g seems to be closer to 1-2%, especially given projected population growth slowdown; and r might rise due to global competition to attract capital
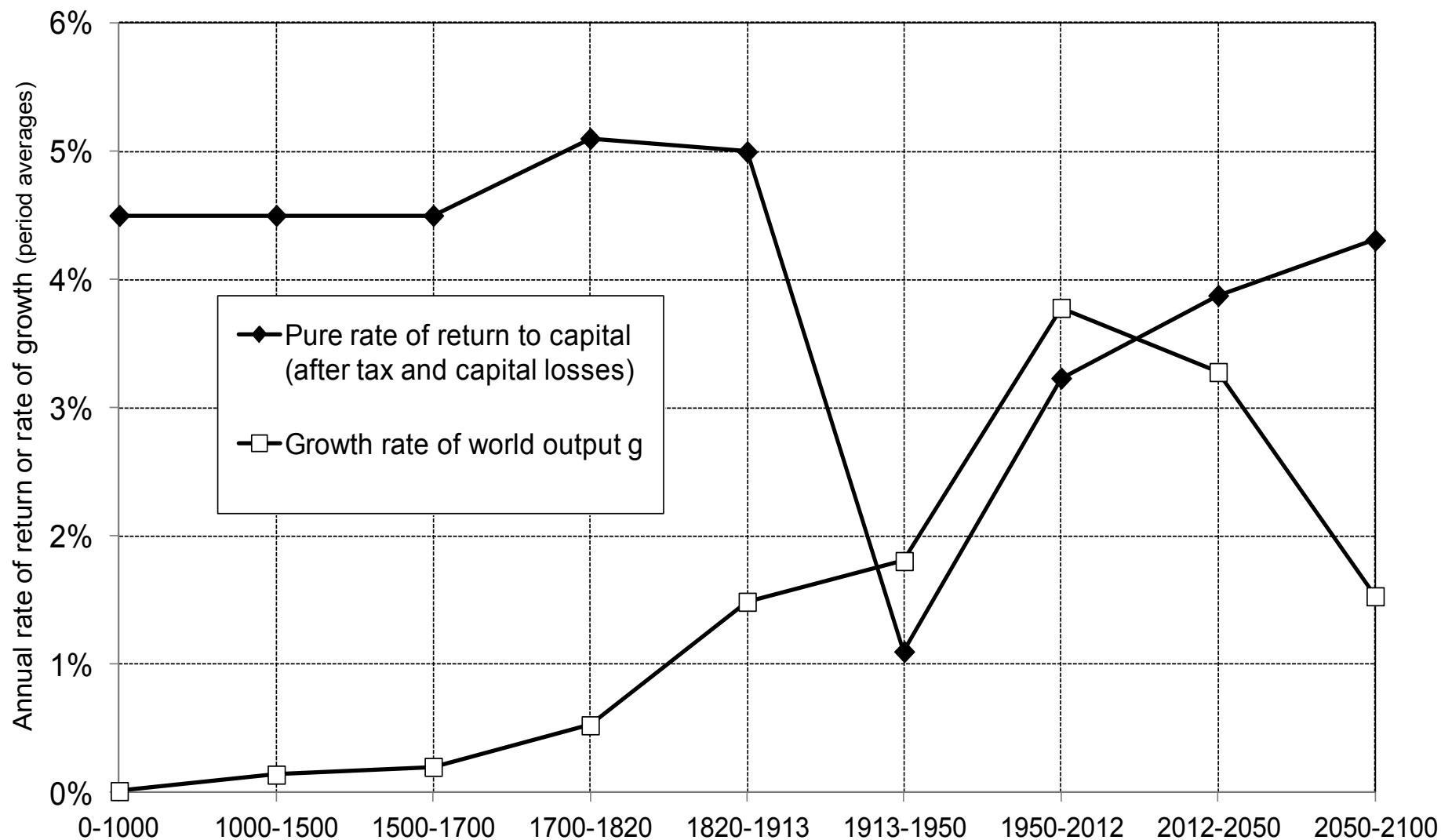
Figure 4. Rate of return vs. growth rate at the world level, from Antiquity until 2100

The average rate of return to capital (pre tax) has always been higher the growth rate, but the gap was reduced during the 20th century, and might widen again in the 21st century.

Figure 5. After-tax rate of return vs. growth rate at the world level, from Antiquity until 2100

The average rate of return to capital (after tax and capital losses) fell below the growth rate during the 20th century. It may again surpass it in the 21st century, as it did throughout human history until the 19th century.

Sources and series: see pikett

- The balance between r and g depends on many factors that are difficult to predict: technology (capital intensive sectors: real estate, energy, robots,..), saving behavior, etc.

- Scale effects in portfolio management, financial complexity: higher rates of return for large portfolios

- r > g seems to particularly strong for billionaires and large capital endowments

- Maybe less true at 10m € than at 1b €

- We know little about current wealth dynamics: cross border assets, tax havens, lack of financial transparency

Table 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 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 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.

- Ideal solution: financial transparency, international transmission of bank information, global registry of financial assets, global coordination on wealth taxation, so that we can adapt progressive wealth tax rates on the basis of reliable wealth statistics

- Other ways to redistribution wealth: inflation, expropriation (China, Russia), wars, etc.

- Will the progressive wealth tax happen? The history of wealth and taxation is full of surprises
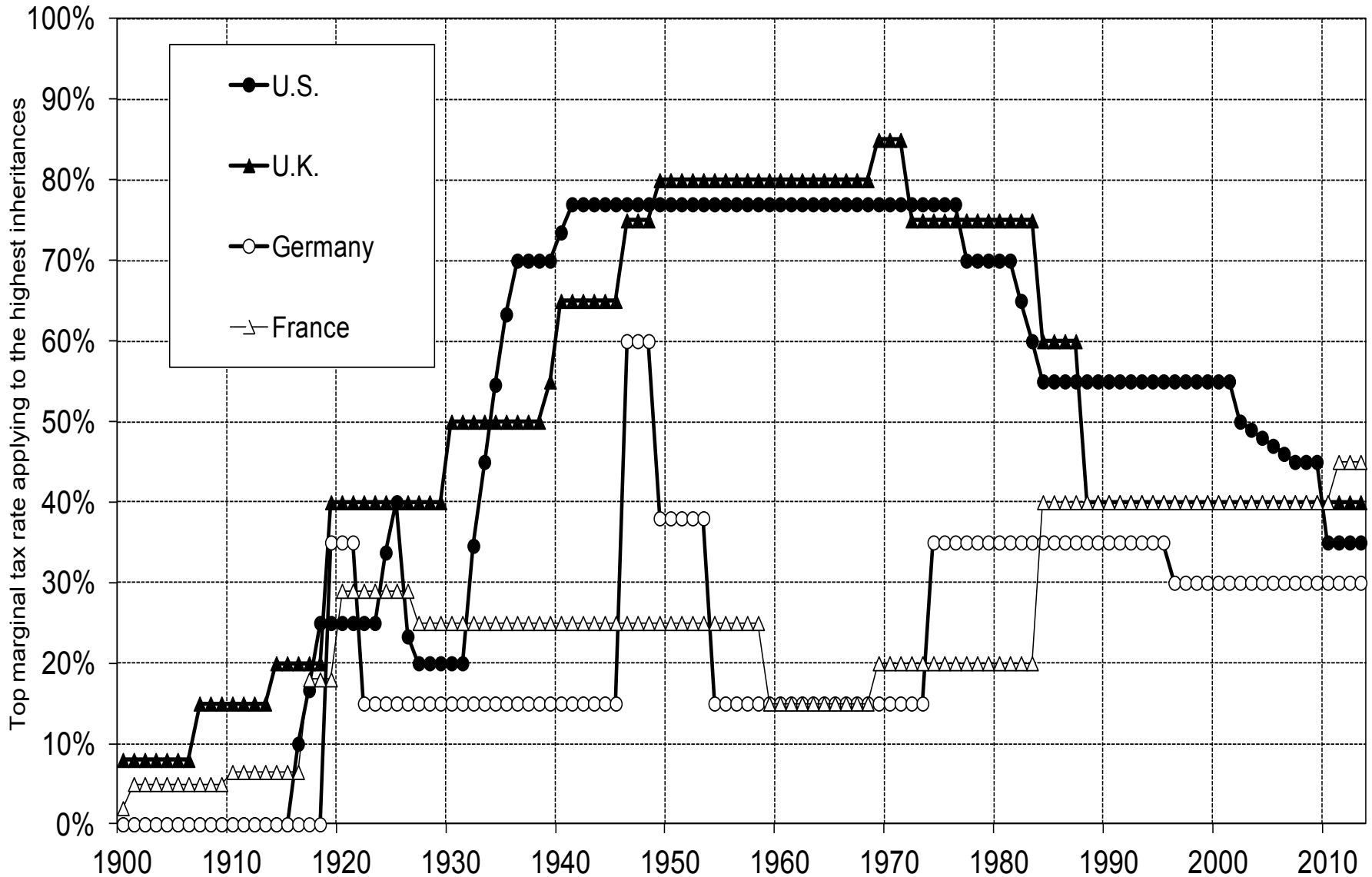
Figure 6. Top income tax rates, 1900-2013
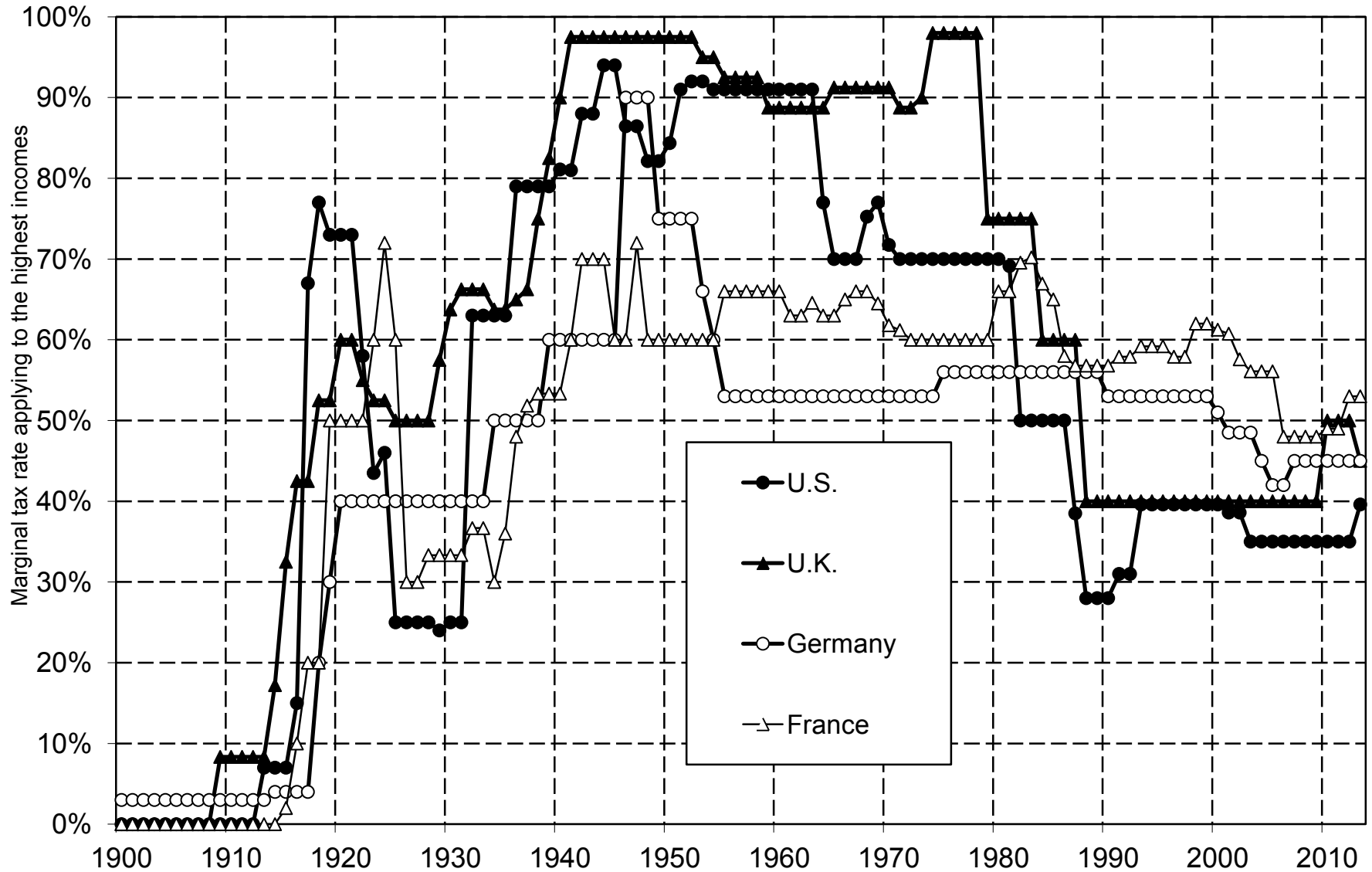
The top marginal tax rate of the income tax (applying to the highest incomes) has been higher historically in Anflo-saxon countries than in Continental Europ. In the U.S. it dropped from 70% in 1980 to 28% in 1988.
Sources and series: see piketty.pse.ens.

Figure 7. Top inheritance tax rates, 1900-2013

The top marginal tax rate of the inheritance tax (applying to the highest inheritances) has been higher historically in Anglo-saxon countries than in Continental Europe. In the U.S. it dropped from 70% in 1980 to 35% in 2013.

Sources and series: see pike