




CAPITAL

in the Twenty-First Century



**THOMAS
PIKETTY**

TRANSLATED BY ARTHUR GOLDHAMMER

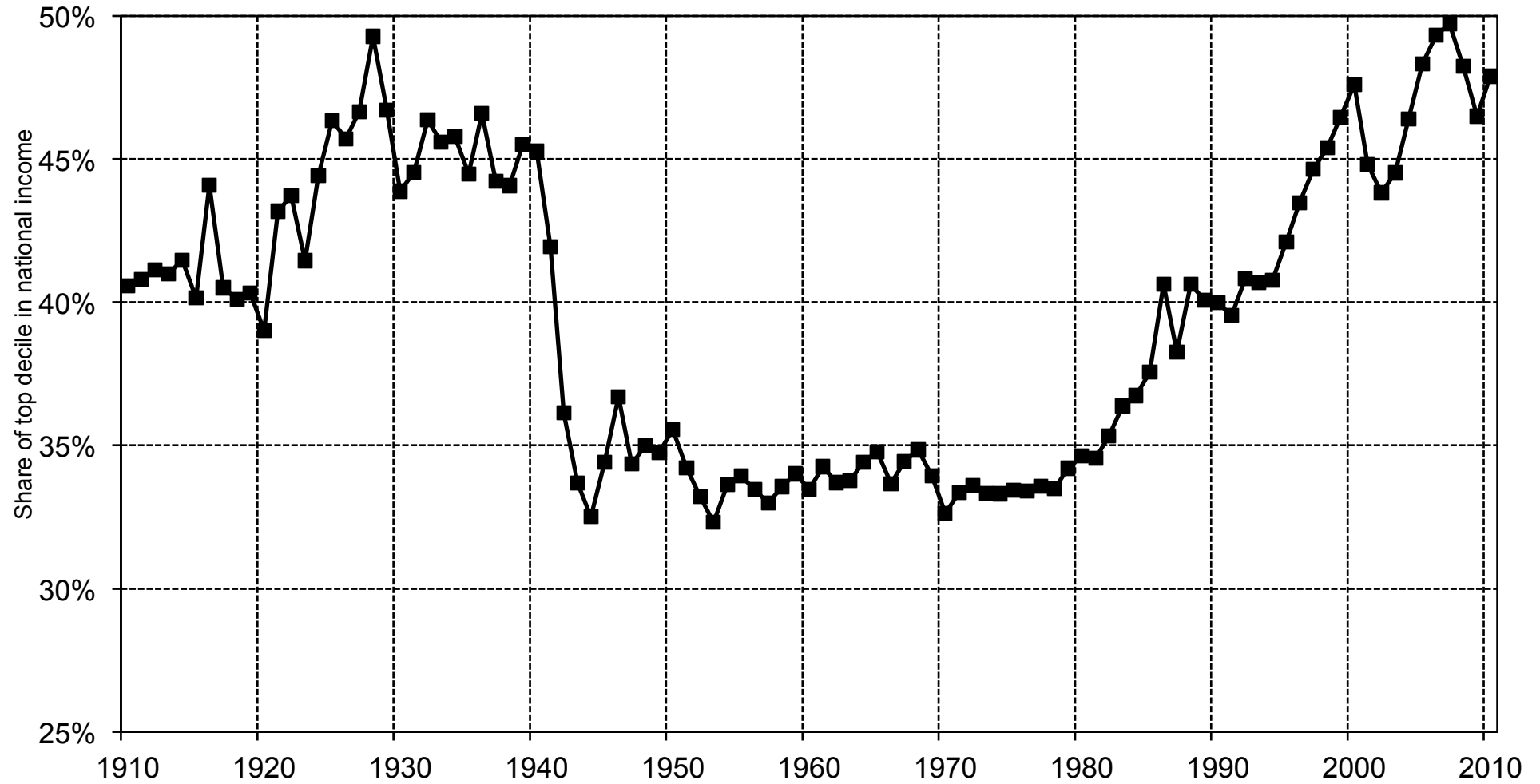
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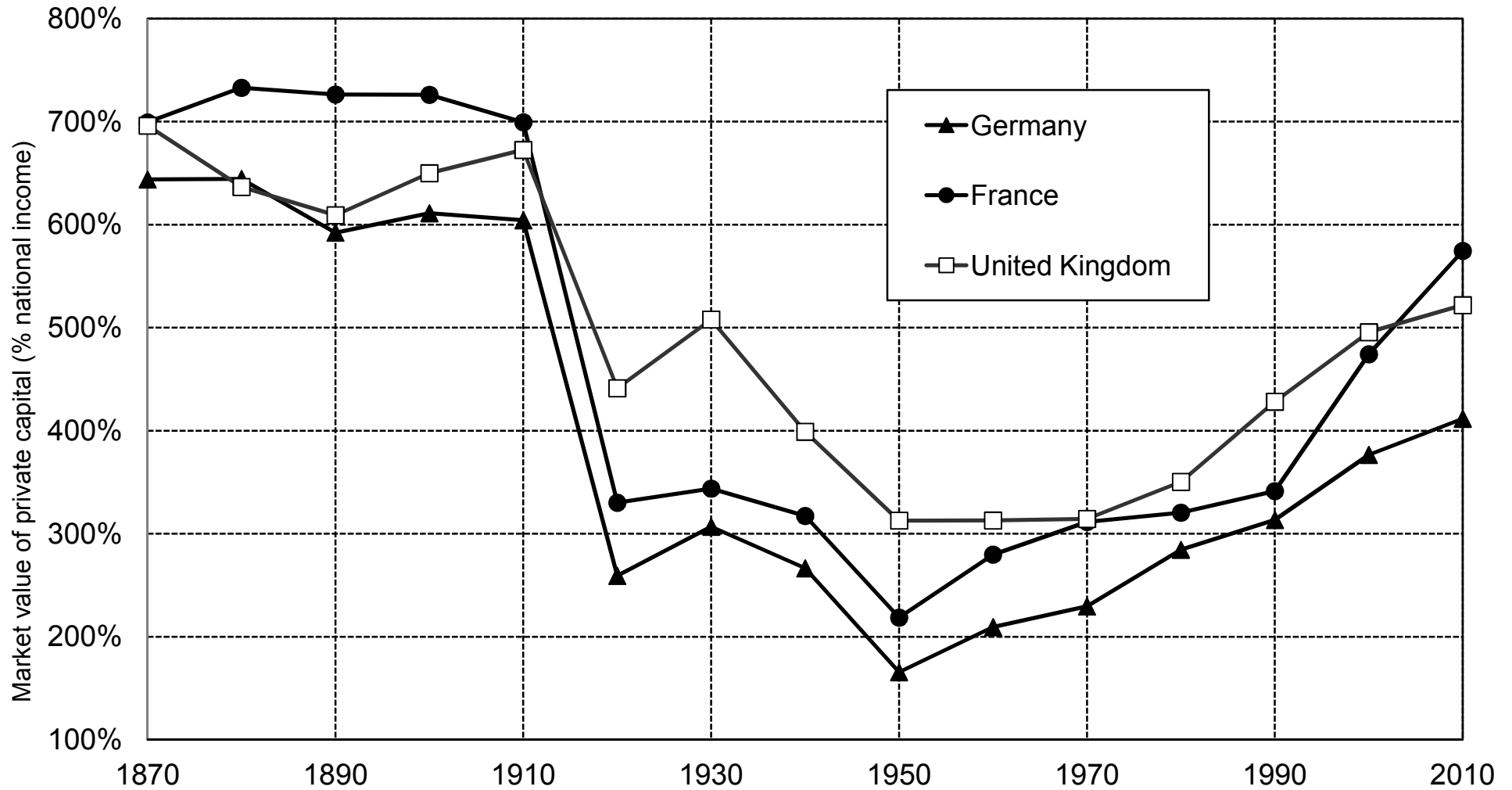
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Figure I.1. Income inequality in the United States, 1910-2010



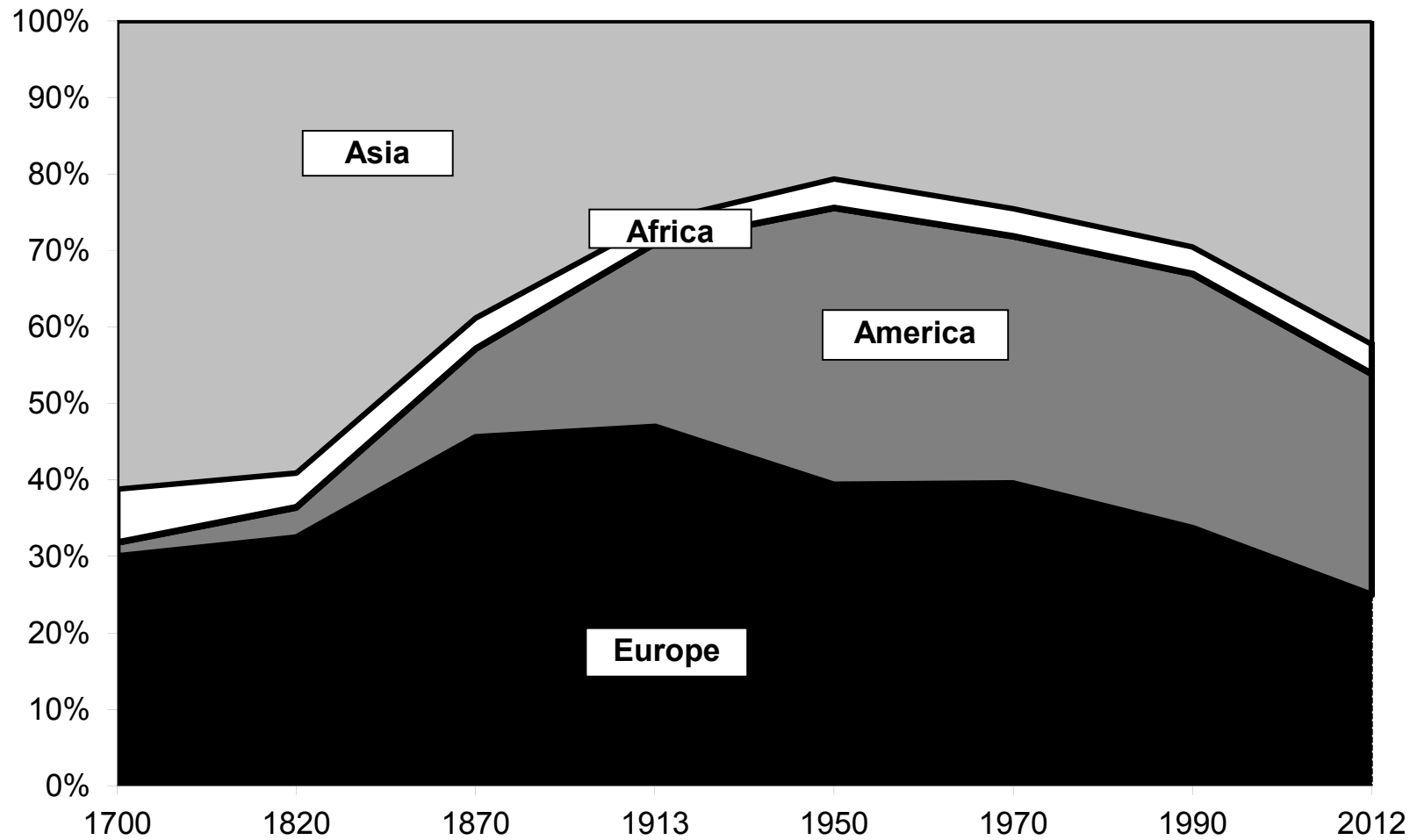
The top decile share in U.S. national income dropped from 45-50% in the 1910s-1920s to less than 35% in the 1950s (this is the fall documented by Kuznets); it then rose from less than 35% in the 1970s to 45-50% in the 2000s-2010s. Sources and series: see piketty.pse.ens.fr/capital21c.

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 1.1. The distribution of world output 1700-2012



Europe's GDP made 47% of world GDP in 1913, down to 25% in 2012.

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

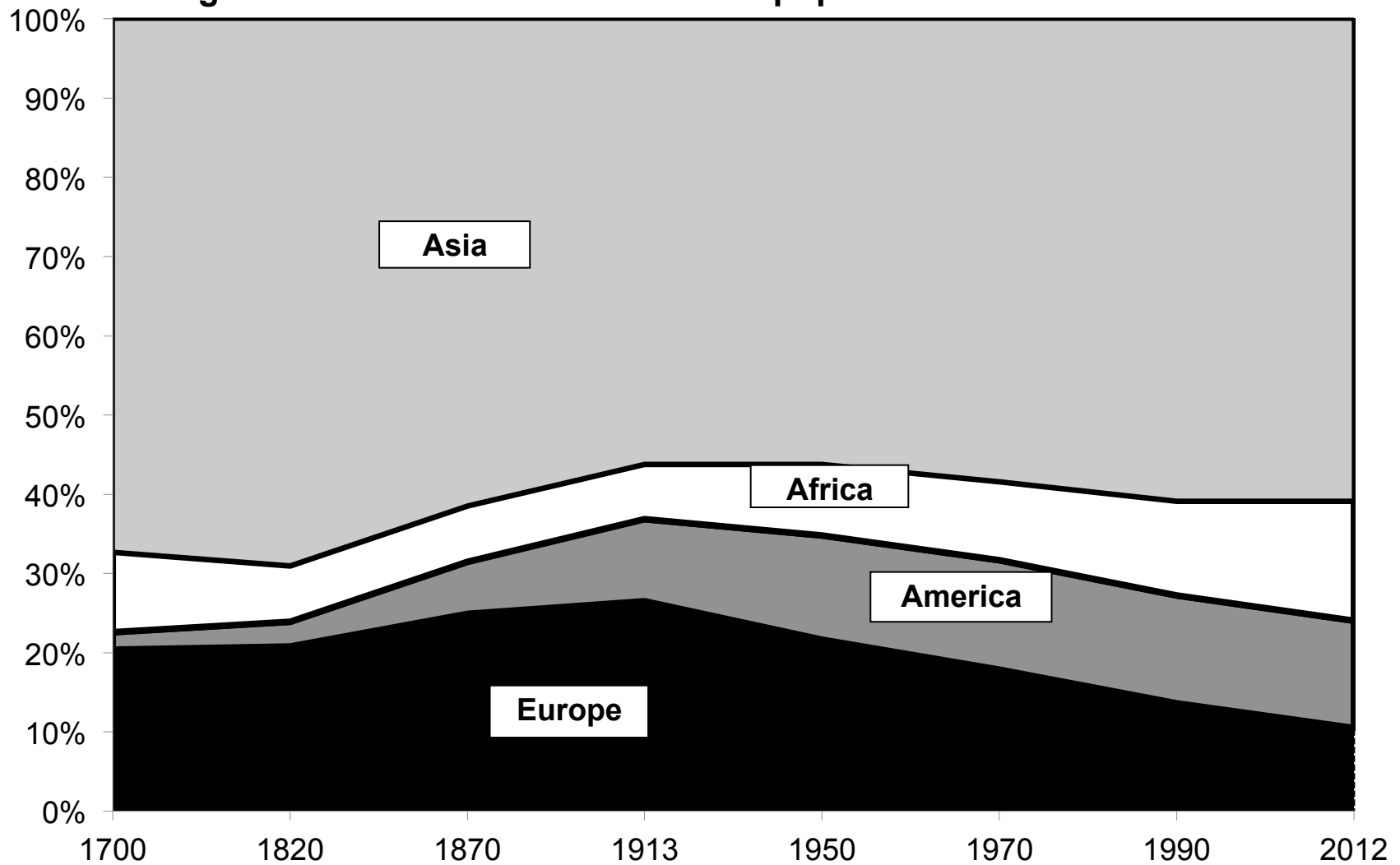
Table 1.1: Distribution of world GDP, 2012

	Population (million inhabitants)		GDP (billion euros 2012)		Per capita GDP	Equivalent per capita monthly income
					(euros 2012)	
World	7,050	100%	71,200	100%	10,100 €	760 €
Europe	740	10%	17,800	25%	24,000 €	1,800 €
incl. European Union	540	8%	14,700	21%	27,300 €	2,040 €
incl. Russia/Ukraine	200	3%	3,100	4%	15,400 €	1,150 €
America	950	13%	20,600	29%	21,500 €	1,620 €
incl. United States/Canada	350	5%	14,300	20%	40,700 €	3,050 €
incl. Latin America	600	9%	6,300	9%	10,400 €	780 €
Africa	1,070	15%	2,800	4%	2,600 €	200 €
incl. North Africa	170	2%	1,000	1%	5,700 €	430 €
incl. Sub-Saharan Africa	900	13%	1,800	3%	2,000 €	150 €
Asia	4,290	61%	30,000	42%	7,000 €	520 €
incl. China	1,350	19%	10,400	15%	7,700 €	580 €
incl. India	1,260	18%	4,000	6%	3,200 €	240 €
incl. Japan	130	2%	3,800	5%	30,000 €	2,250 €
incl. Other	1,550	22%	11,800	17%	7,600 €	570 €

World GDP, estimated in purchasing power parity, was about 71 200 billion euros in 2012. World population was about 7.050 billion inhabitants, hence a per capita GDP of €10 100 (equivalent to a monthly income of about €760 per month). All numbers were rounded to the closed dozen or hundred

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

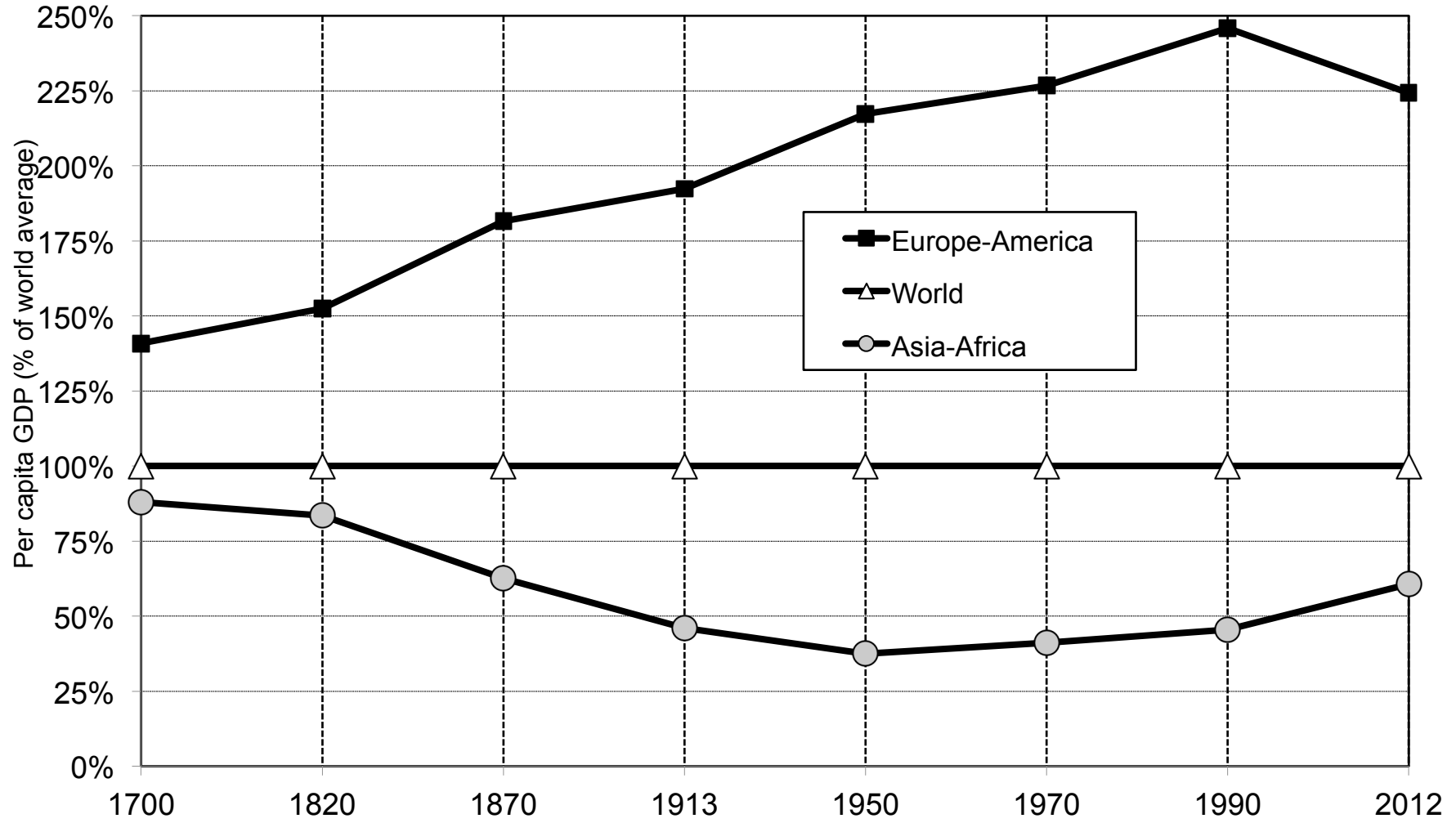
Figure 1.2. The distribution of world population 1700-2012



Europe's population made 26% of world population in 1913, down to 10% in 2012.

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

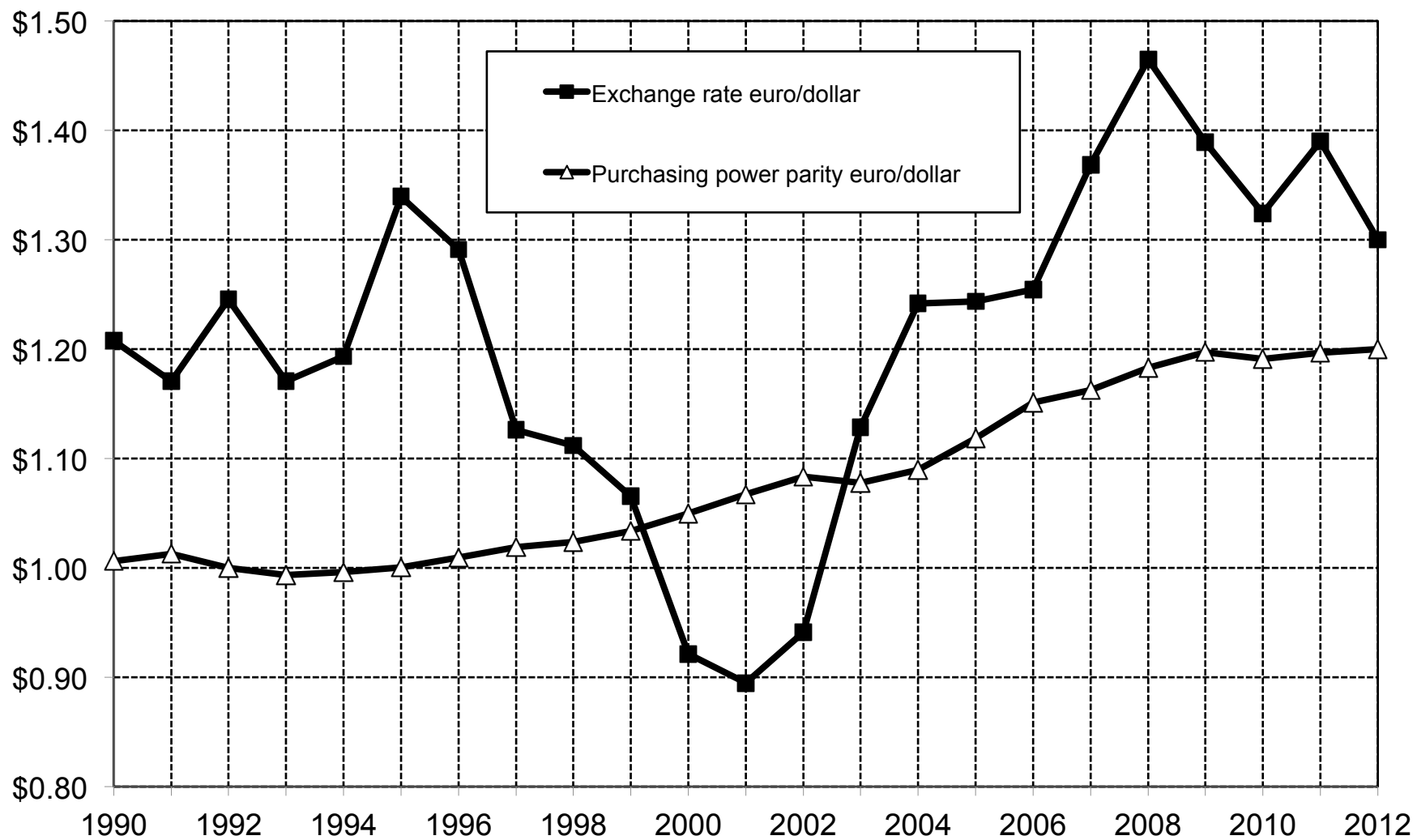
**Figure 1.3. Global inequality 1700-2012:
divergence then convergence?**



Per capita GDP in Asia-Africa went from 37% of world average in 1950 to 61% in 2012.

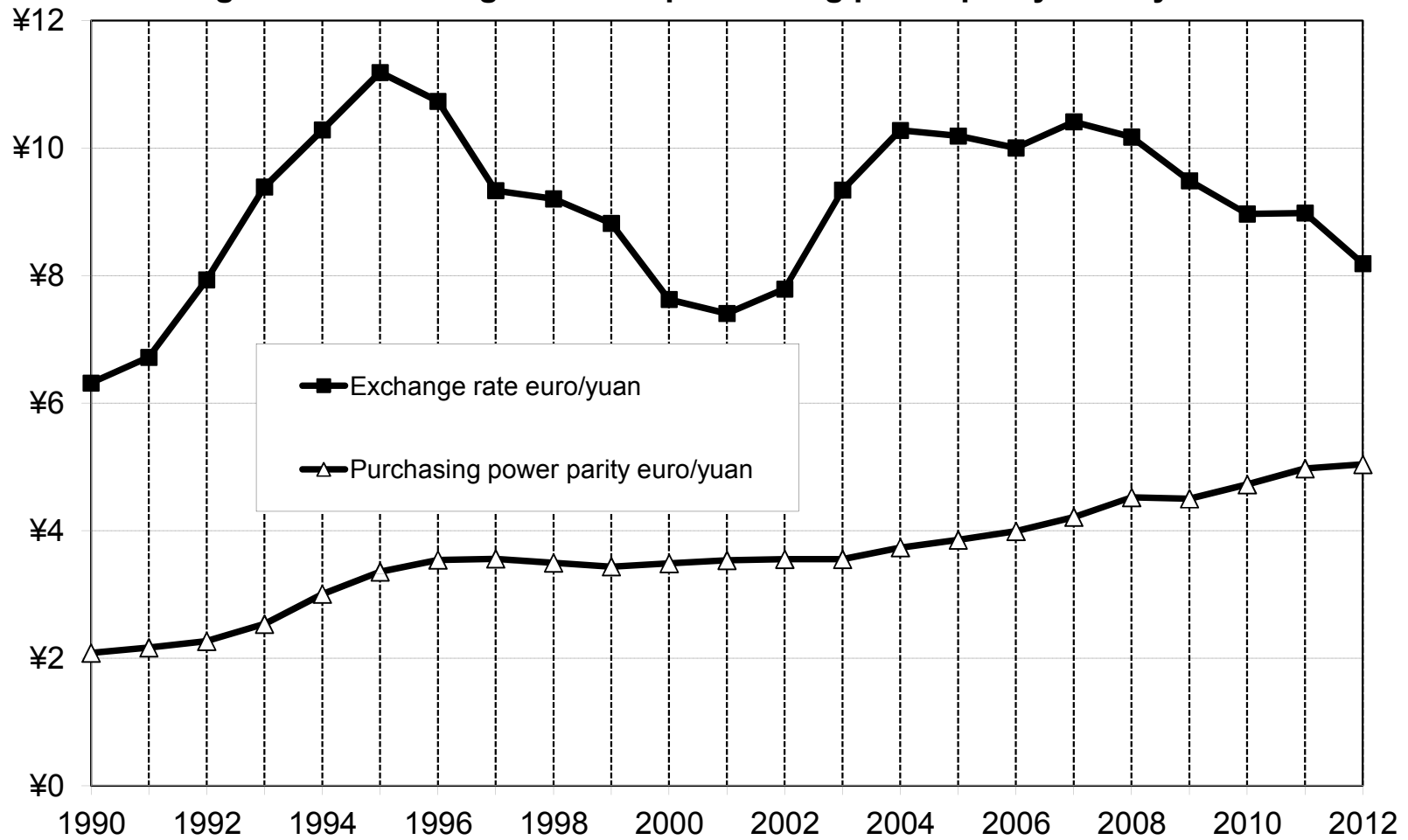
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 1.4. Exchange rate and purchasing power parity: euro/dollar



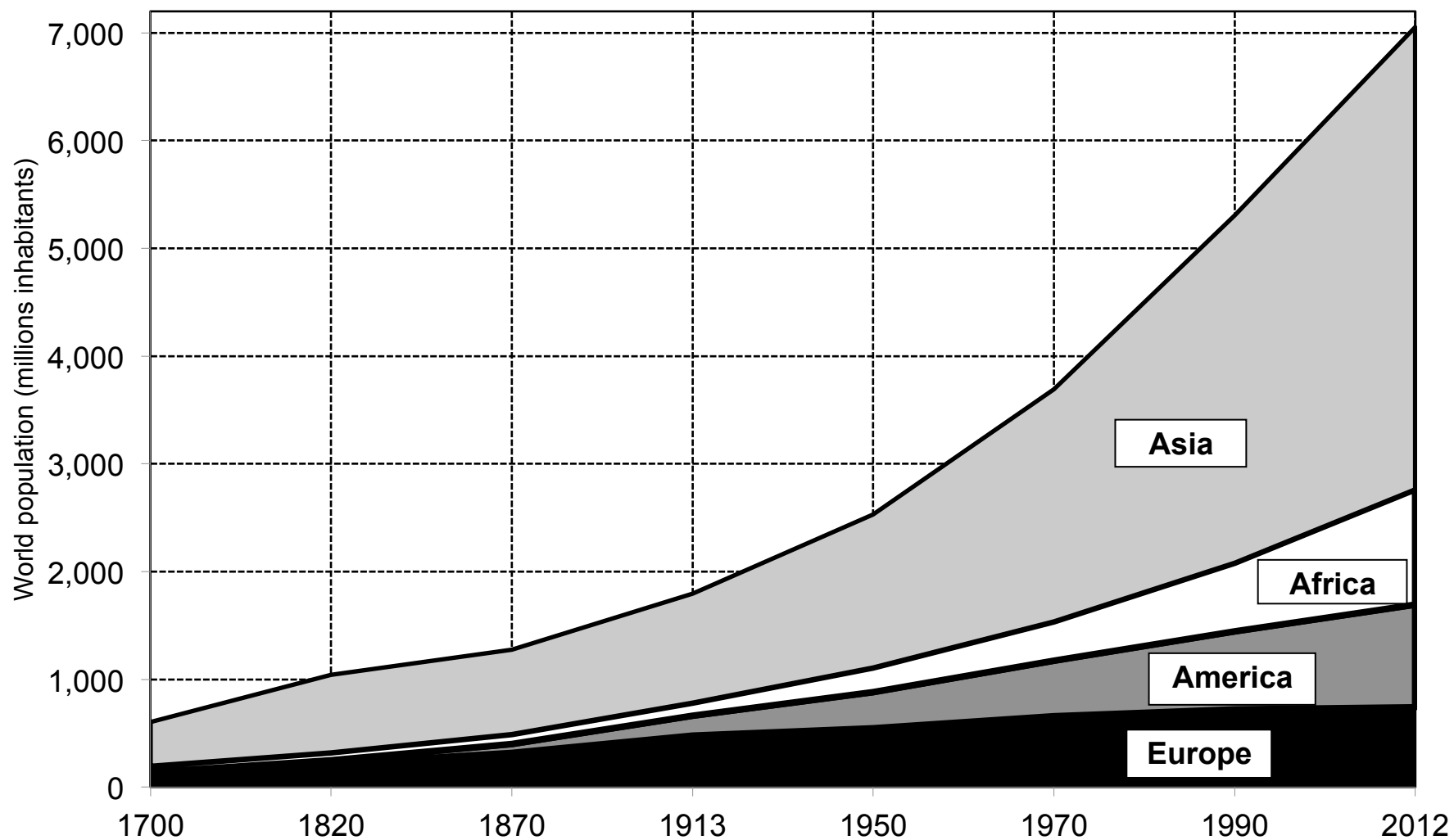
In 2012, 1 euro was worth 1.30 dollars according to current exchange rate, but 1.20 dollars in purchasing power parity. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 1.5. Exchange rate and purchasing power parity: euro/yuan



In 2012, 1 euro was worth 8 yuans according to current exchange rate, but 5 yuans in purchasing power parity. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 2.1. The growth of world population 1700-2012



World population rose from 600 million inhabitants in 1700 to 7 billion in 2012.

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

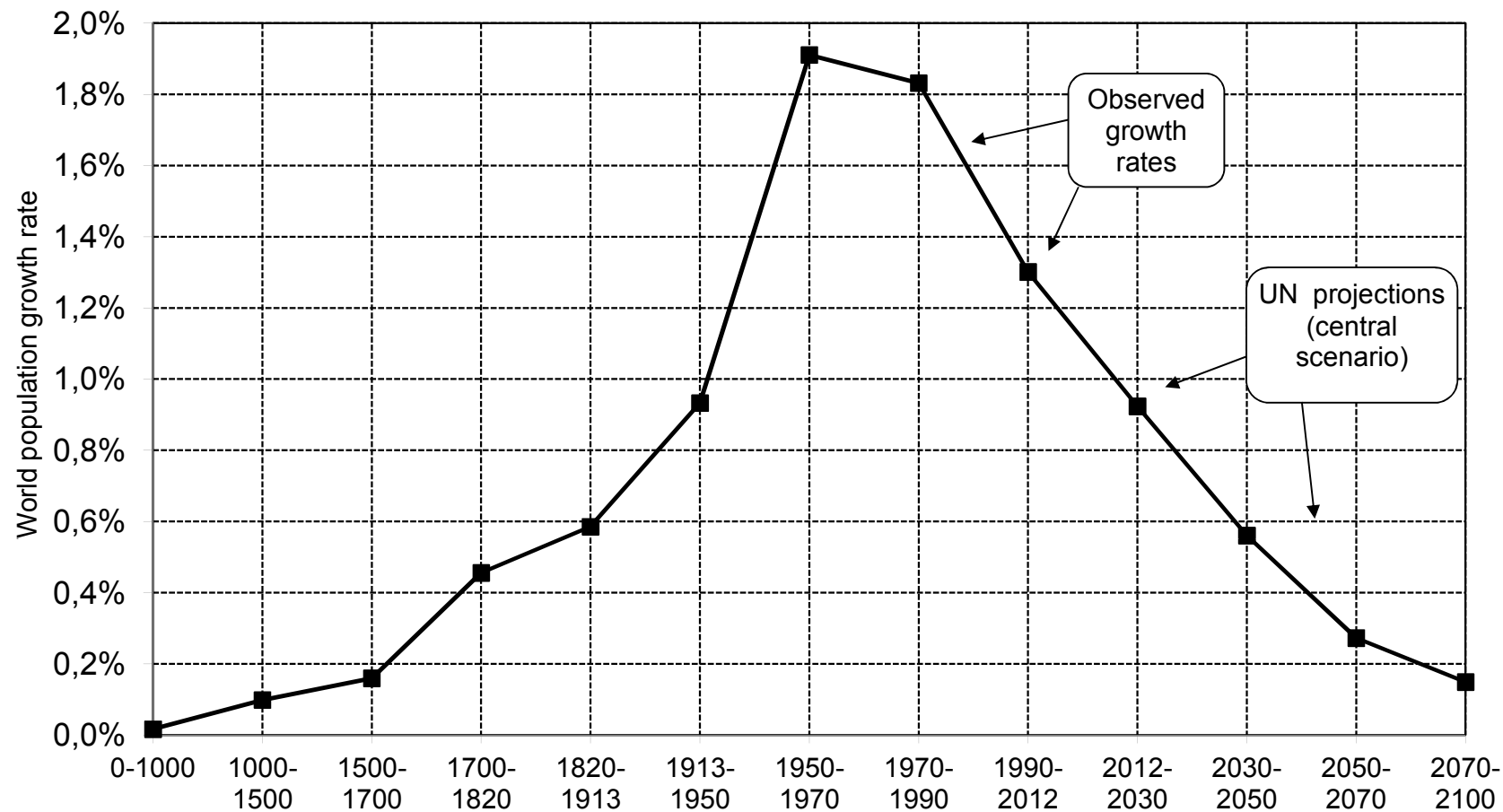
Table 2.1: World growth since the industrial revolution

Average annual growth rate	World output	World population	Per capita output
0-1700	0.1%	0.1%	0.0%
1700-2012	1.6%	0.8%	0.8%
<i>incl.: 1700-1820</i>	0.5%	0.4%	0.1%
<i>1820-1913</i>	1.5%	0.6%	0.9%
<i>1913-2012</i>	3.0%	1.4%	1.6%

Between 1913 and 2012, the growth rate of world GDP was 3.0% per year on average. This growth rate can be broken down between 1.4% for world population and 1.6% for per capita GDP.

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

Figure 2.2. The growth rate of world population from Antiquity to 2100



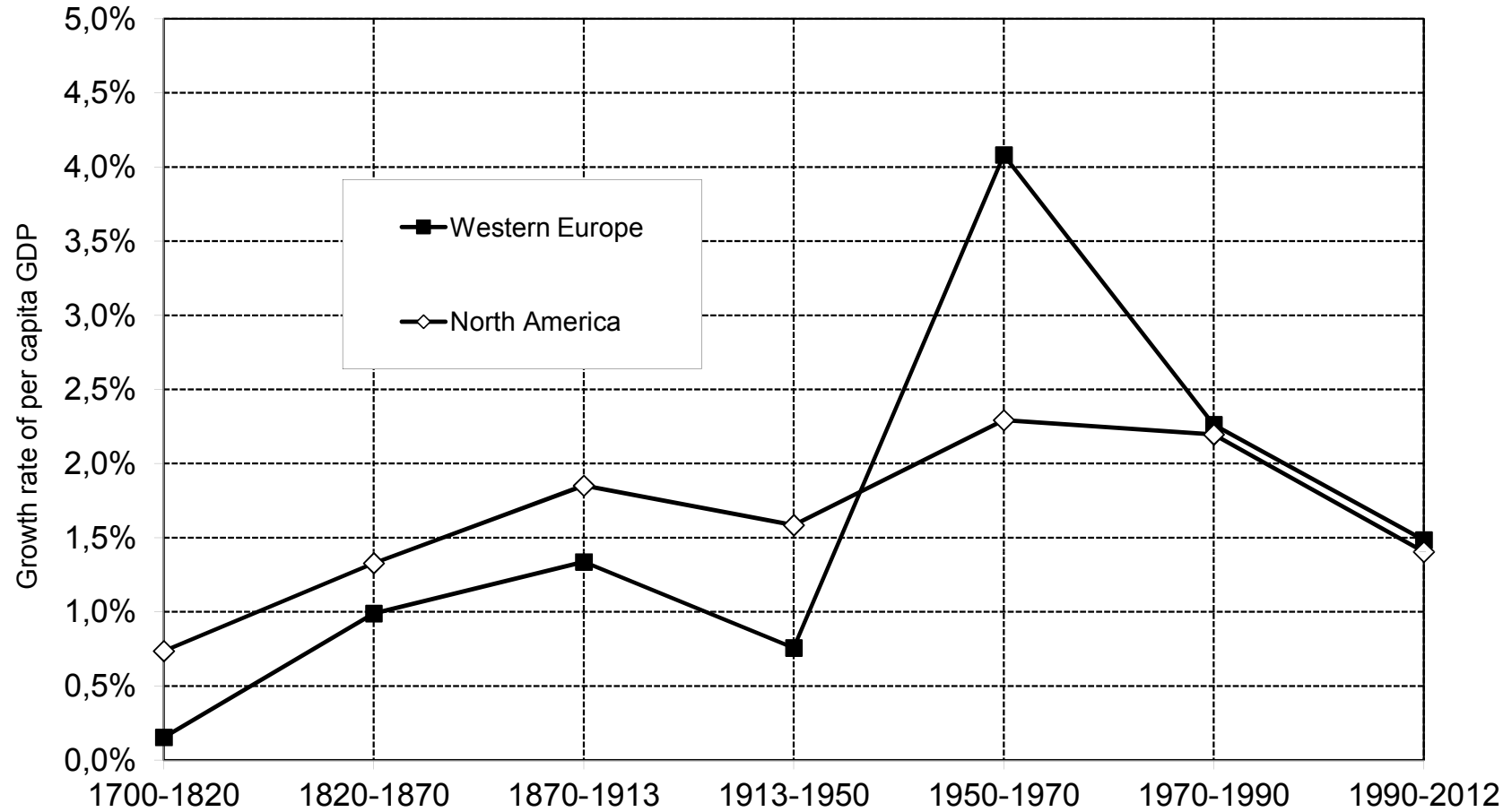
The growth rate of world population was above 1% per year from 1950 to 2012 and should return toward 0% by the end of the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c.

Table 2.2. The law of cumulated growth

An annual growth rate equal to...	.. is equivalent to a generational growth rate (30 years) of...	...i.e. a multiplication by a coefficient equal to...	...and a multiplication after 100 years by a coefficient equal to...	...and a multiplication after 1000 years by a coefficient equal to...
0.1%	3%	1.03	1.11	2.72
0.2%	6%	1.06	1.22	7.37
0.5%	16%	1.16	1.65	147
1.0%	35%	1.35	2.70	20 959
1.5%	56%	1.56	4.43	2 924 437
2.0%	81%	1.81	7.24	398 264 652
2.5%	110%	2.10	11.8	52 949 930 179
3.5%	181%	2.81	31.2	...
5.0%	332%	4.32	131.5	...

An annual growth rate of 1% is equivalent to an annual growth rate of 35% per generation (30 years), a multiplication by 2.7 every 100 years, and by over 20 000 every 1000 years.

Figure 2.3. The growth rate of per capita output since the industrial revolution



The growth rate of per capita output surpassed 4% per year in Europe between 1950 and 1970, before returning to American levels. Sources and series: see piketty.pse.ens.fr/capital21c

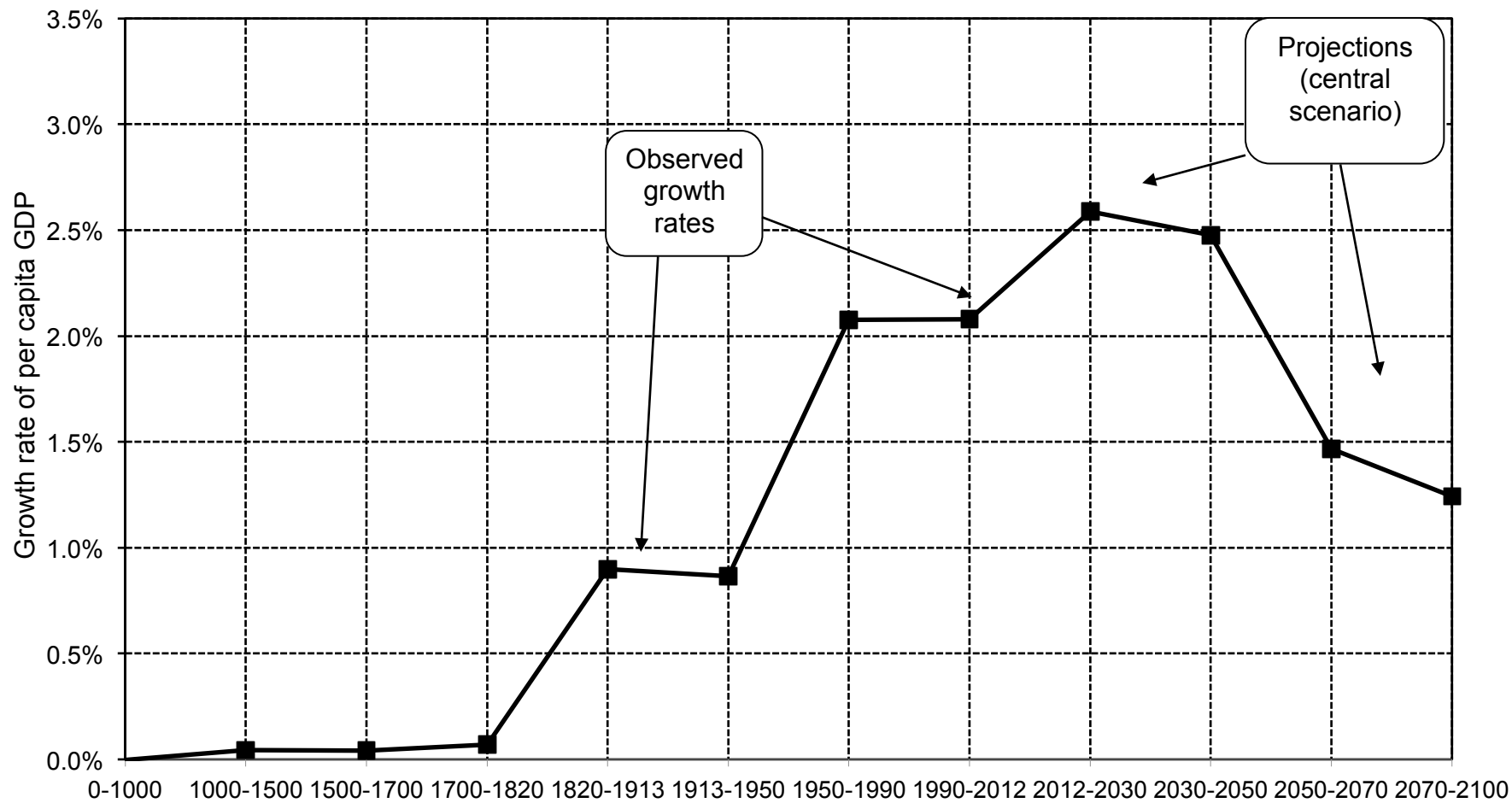
Table 2.3: Demographic growth since the industrial revolution

Average annual growth rate	World population	Europe	America	Africa	Asia
0-1700	0.1%	0.1%	0.0%	0.1%	0.1%
1700-2012	0.8%	0.6%	1.4%	0.9%	0.8%
incl: 1700-1820	0.4%	0.5%	0.7%	0.2%	0.5%
1820-1913	0.6%	0.8%	1.9%	0.6%	0.4%
1913-2012	1.4%	0.4%	1.7%	2.2%	1.5%
<i>Projections 2012-2050</i>	0.7%	-0.1%	0.6%	1.9%	0.5%
<i>Projections 2050-2100</i>	0.2%	-0.1%	0.0%	1.0%	-0.2%

Between 1913 and 2012, the growth rate of world population was 1.4% per year, including 0.4% for Europe, 1.7% for America, etc.

Sources: see piketty.pse.ens.fr/capital21c. Projections for 2012-2100 correspond to the UN central scenario.

Figure 2.4. The growth rate of world per capita output since Antiquity until 2100



The growth rate of per capita output surpassed 2% from 1950 to 2012. If the convergence process goes on, it will surpass 2.5% from 2012 to 2050, and then will drop below 1.5%.

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

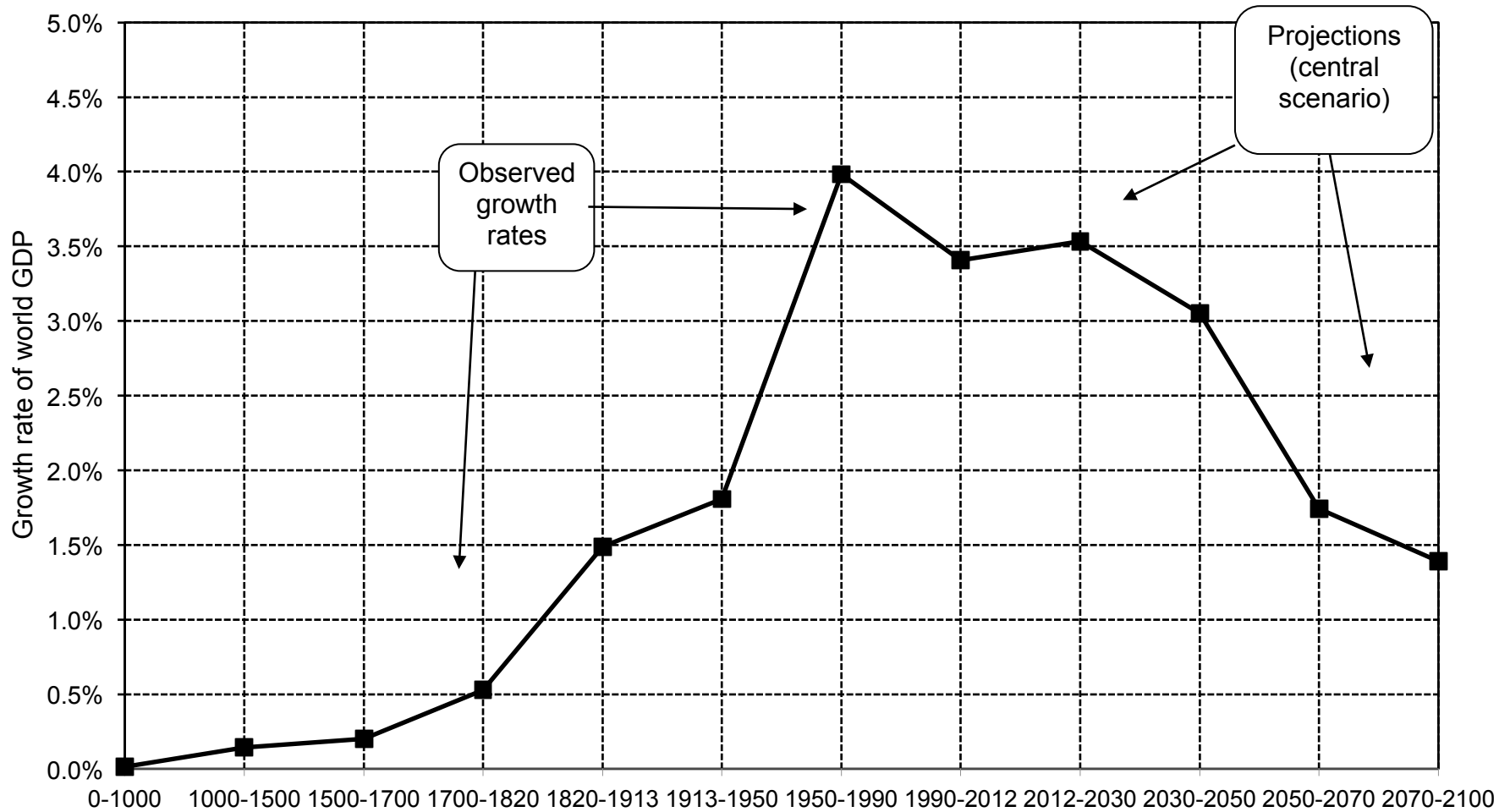
**Table 2.4: Employment by sector
in France and the United States, 1800-2012**

(% of total employment)	France			United States		
	Agriculture	Manufacturing	Services	Agriculture	Manufacturing	Services
1800	64%	22%	14%	68%	18%	13%
1900	43%	29%	28%	41%	28%	31%
1950	32%	33%	35%	14%	33%	50%
2012	3%	21%	76%	2%	18%	80%

In 2012, agriculture made 3% of total employment in France, vs. 21% in manufacturing and 76% in the services. Construction - 7% of employment in France and the U.S. in 2012 - was included in manufacturing.

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

Figure 2.5. The growth rate of world output from Antiquity until 2100



The growth rate of world output surpassed 4% from 1950 to 1990. If the convergence process goes on it will drop below 2% by 2050. Sources and series: see piketty.pse.ens.fr/capital21c.

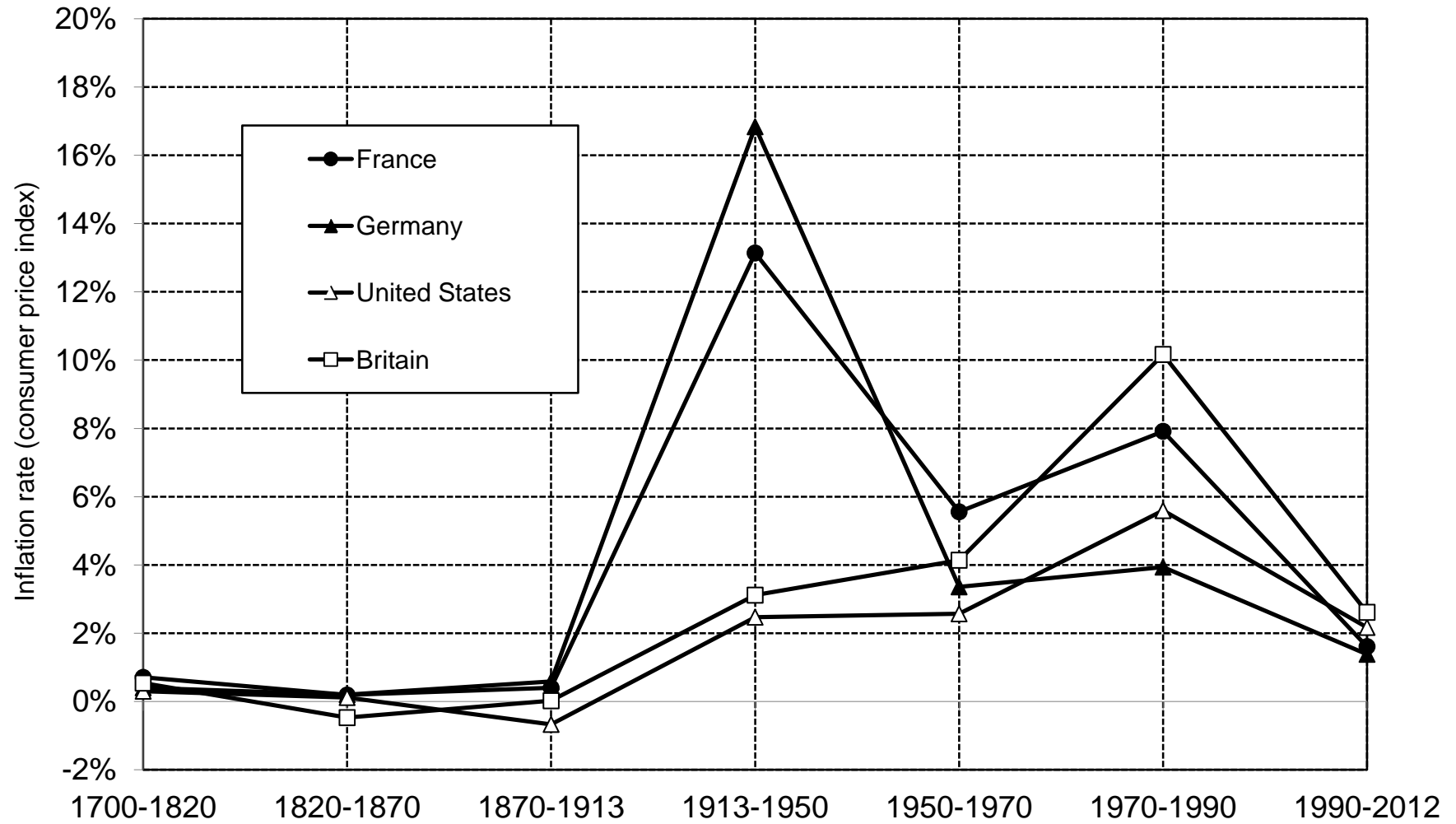
Table 2.5: Per capita output growth since the industrial revolution

Average annual growth rate	Per capita world output	Europe	America	Africa	Asia
0-1700	0.0%	0.0%	0.0%	0.0%	0.0%
1700-2012	0.8%	1.0%	1.1%	0.5%	0.7%
incl.: 1700-1820	0.1%	0.1%	0.4%	0.0%	0.0%
1820-1913	0.9%	1.0%	1.5%	0.4%	0.2%
1913-2012	1.6%	1.9%	1.5%	1.1%	2.0%
1913-1950	0.9%	0.9%	1.4%	0.9%	0.2%
1950-1970	2.8%	3.8%	1.9%	2.1%	3.5%
1970-1990	1.3%	1.9%	1.6%	0.3%	2.1%
1990-2012	2.1%	1.9%	1.5%	1.4%	3.8%
1950-1980	2.5%	3.4%	2.0%	1.8%	3.2%
1980-2012	1.7%	1.8%	1.3%	0.8%	3.1%

Between 1910 and 2012, the growth rate of per capita output was 1.7% per year on average at the world level, including 1.9% in Europe, 1.6% in America, etc.

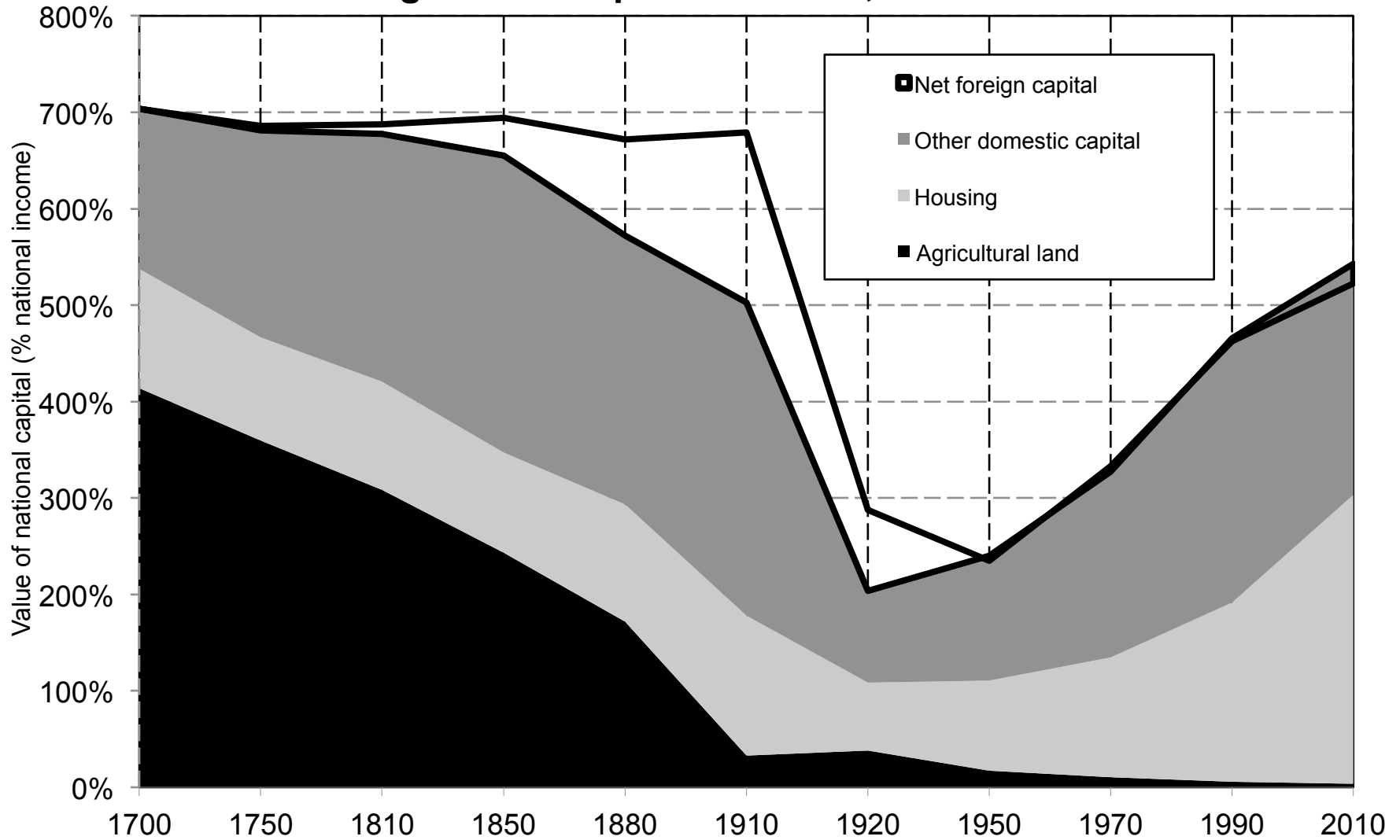
Sources: see piketty.pse.ens.fr/capital21c

Figure 2.6. Inflation since the industrial revolution



Inflation in rich countries was null during 18th-19th centuries, high during 20th century, and is about 2% per year since 1990. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 3.1. Capital in Britain, 1700-2010



National capital is worth about 7 years of national income in Britain in 1700 (including 4 in agricultural land).

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

Table 3.1: Public wealth and private wealth in France in 2012

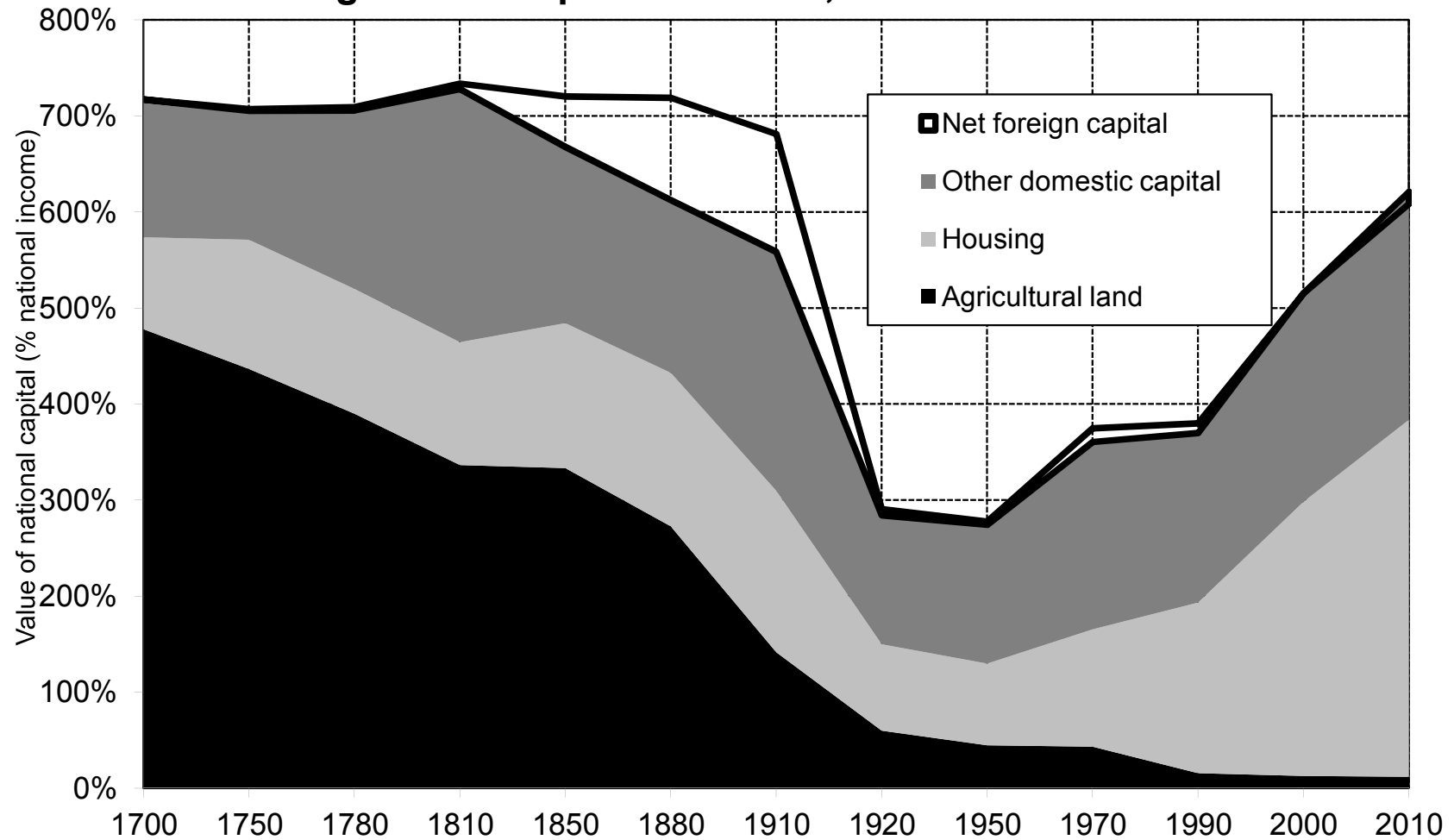
	Value of capital (% national income)		Value of capital (% national capital)	
National capital (public capital + private capital)	605%		100%	
Public capital (net public wealth: difference between assets and debt held by government and other public agencies)	31%		5%	
	Assets	Debt	Assets	Debt
	145%	114%	24%	19%
Private capital (net private wealth: difference between assets and debt held by private individuals (households))	574%		95%	
	Assets	Debt	Assets	Debt
	646%	72%	107%	12%

In 2012, the total value of national capital in France was equal to 605% of national income (6,05 of national income), including 31% for public capital (5% of total) and 574% for private capital (95% of total).

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

Note: national income is equal to gross domestic product (GDP), minus capital depreciation, plus net foreign income; in practice, it is typically equal to about 90% of GDP in France in 2012; see chapter 1 and technical appendix.

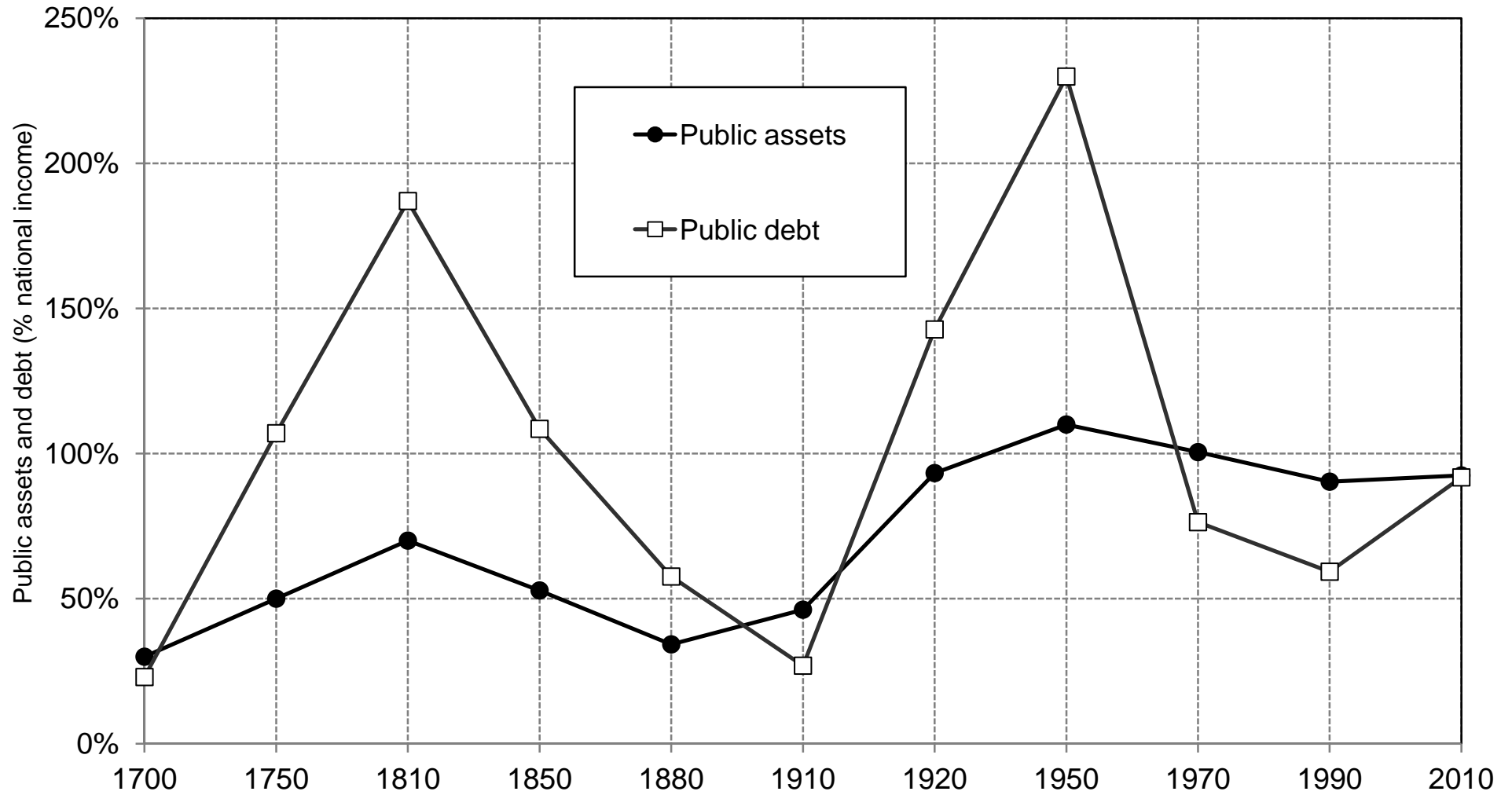
Figure 3.2. Capital in France, 1700-2010



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.

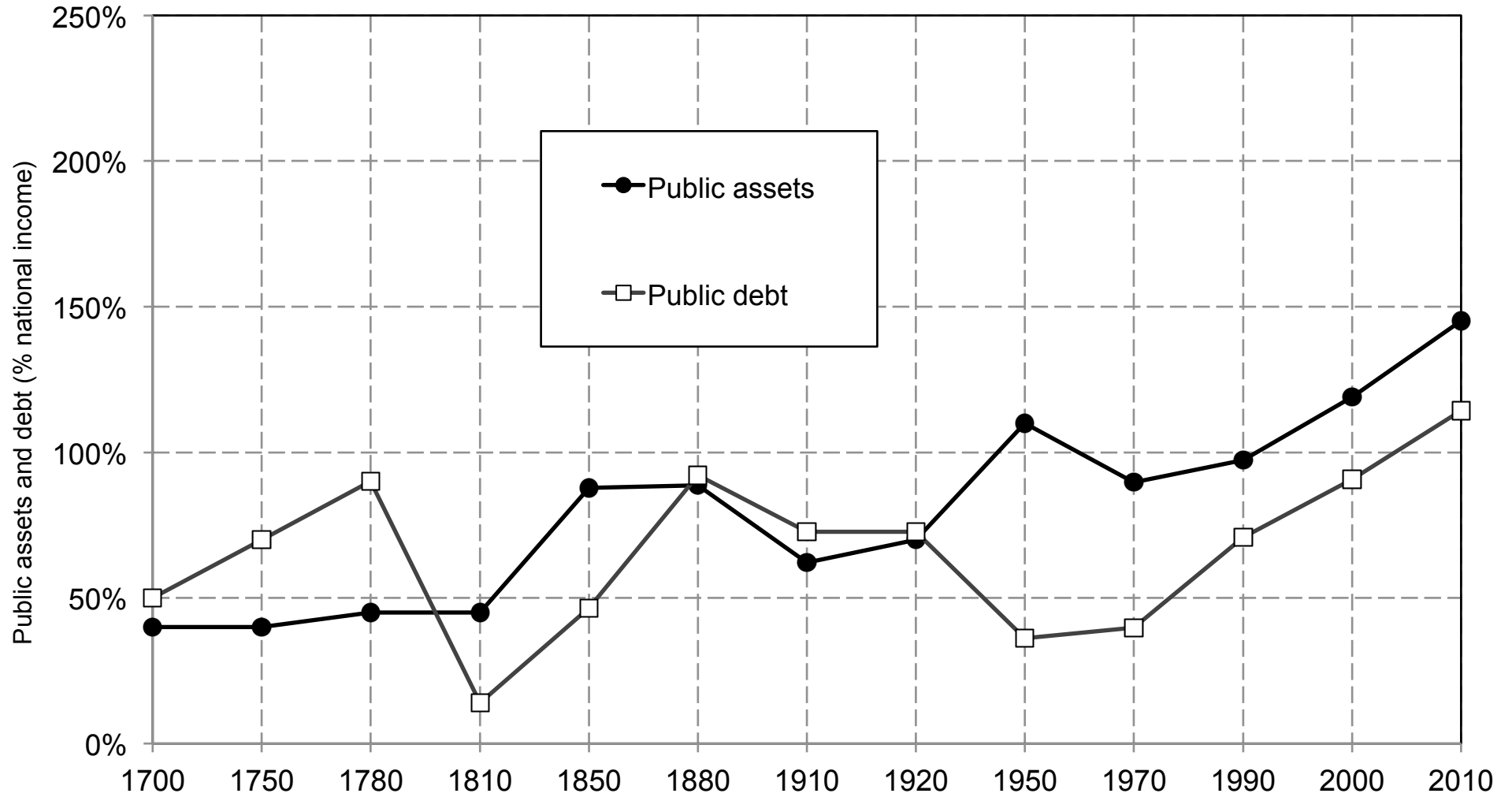
Figure 3.3. Public wealth in Britain, 1700-2010



Public debt surpassed 2 years of national income in 1950 (vs. 1 year for public assets).

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

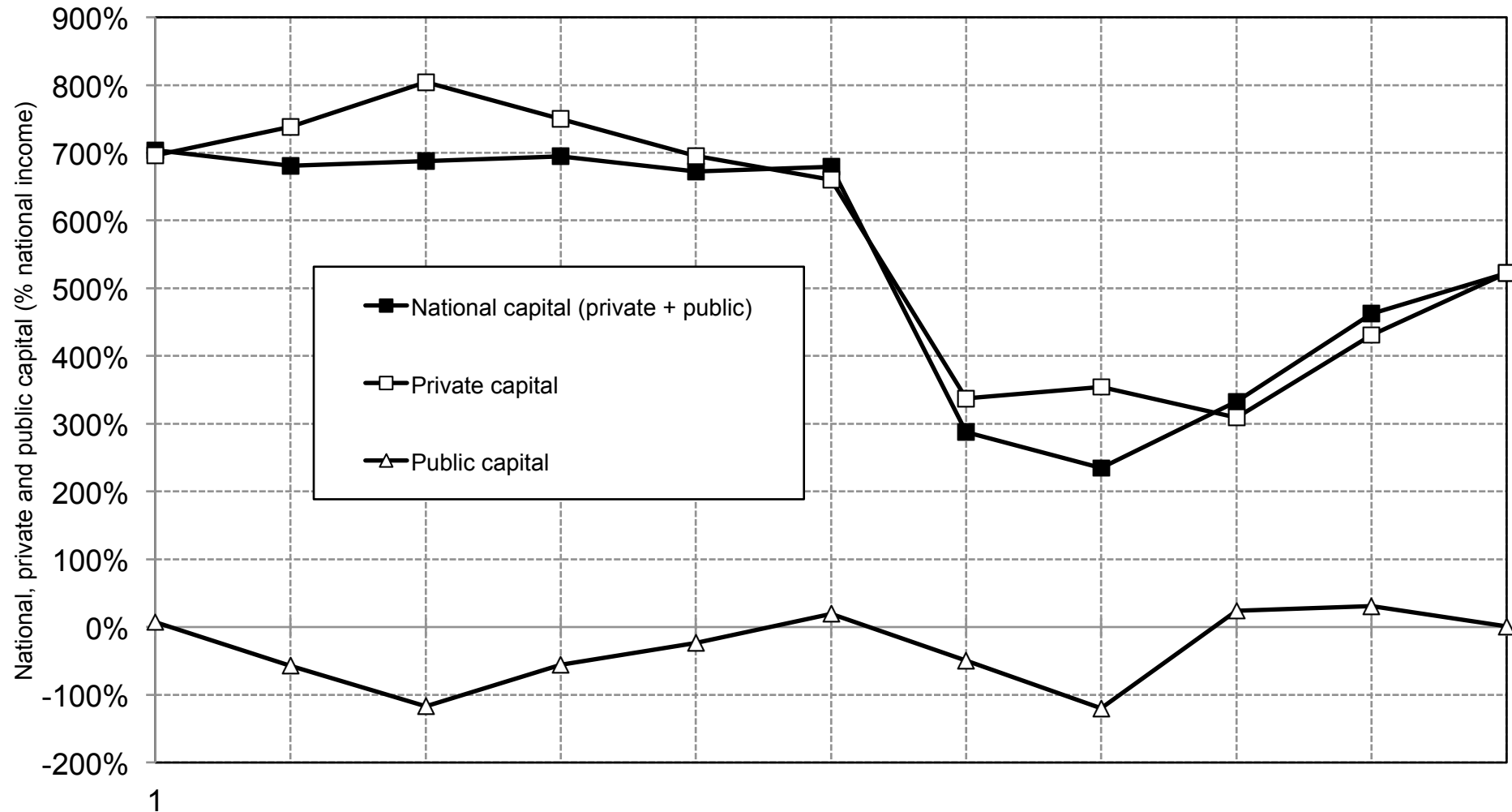
Figure 3.4. Public wealth in France, 1700-2010



Public debt is about 1 year of national income in France in 1780 as in 1880 and in 2000-2010.

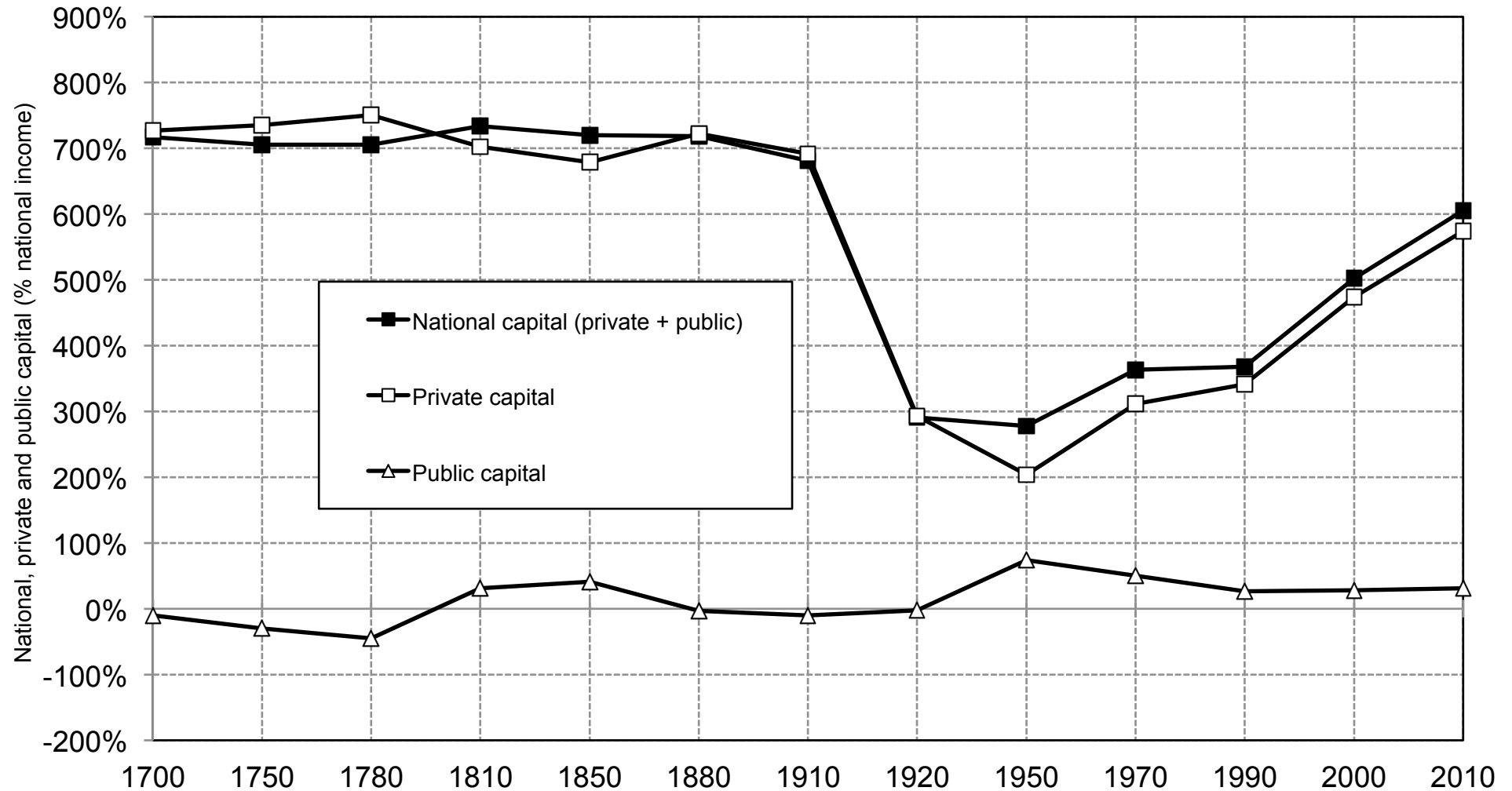
Sources and series: see piketty.pse.ens.fr/capital21c

Figure 3.5. Private and public capital in Britain., 1700-2010



In 1810, private capital is worth 8 years of national income in Britain (vs. 7 years for national capital). Sources and series: see piketty.pse.ens.fr/capital21c.

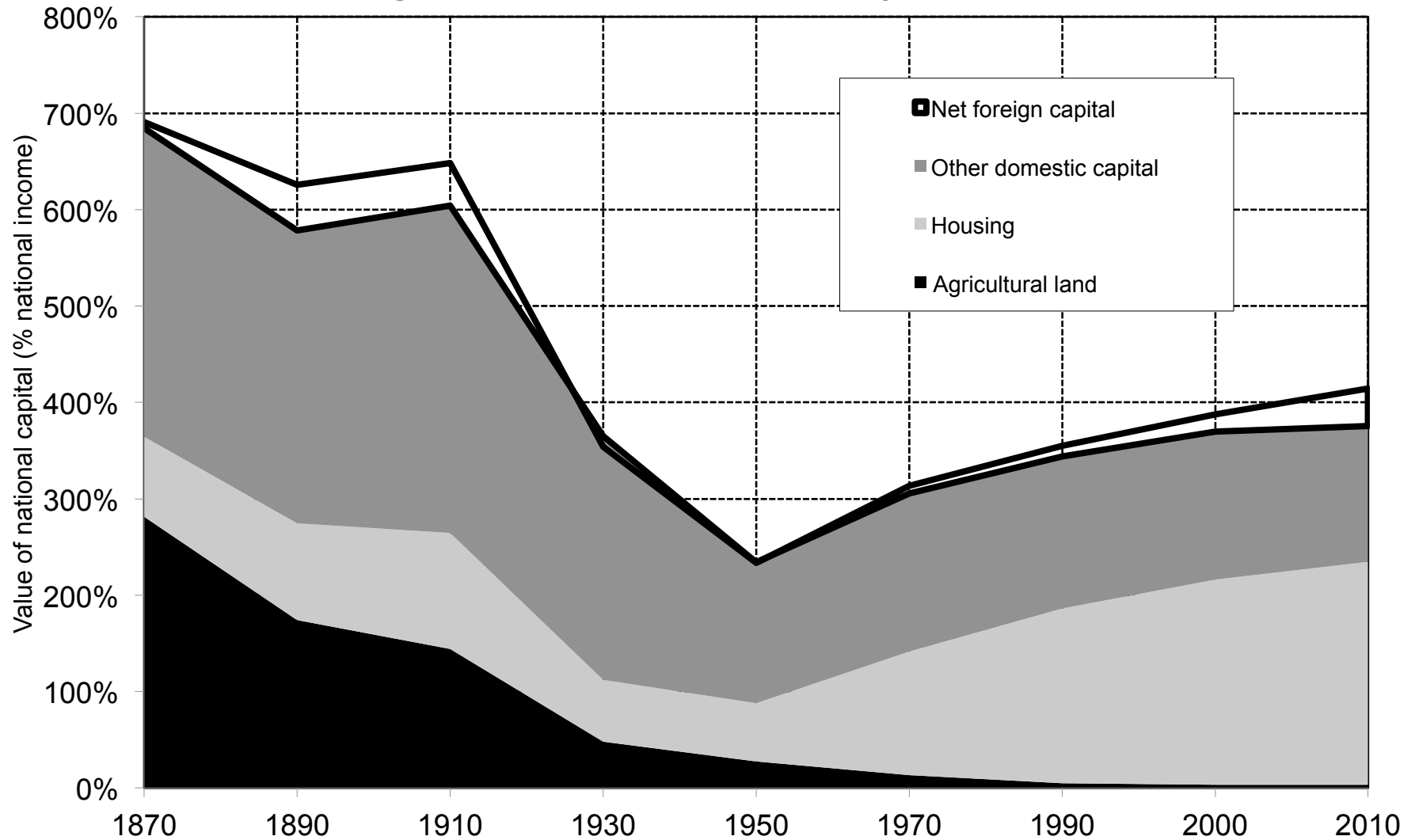
Figure 3.6. Private and public capital in France, 1700-2010



In 1950, public capital is worth almost 1 year of national income, vs. 2 years for private capital.

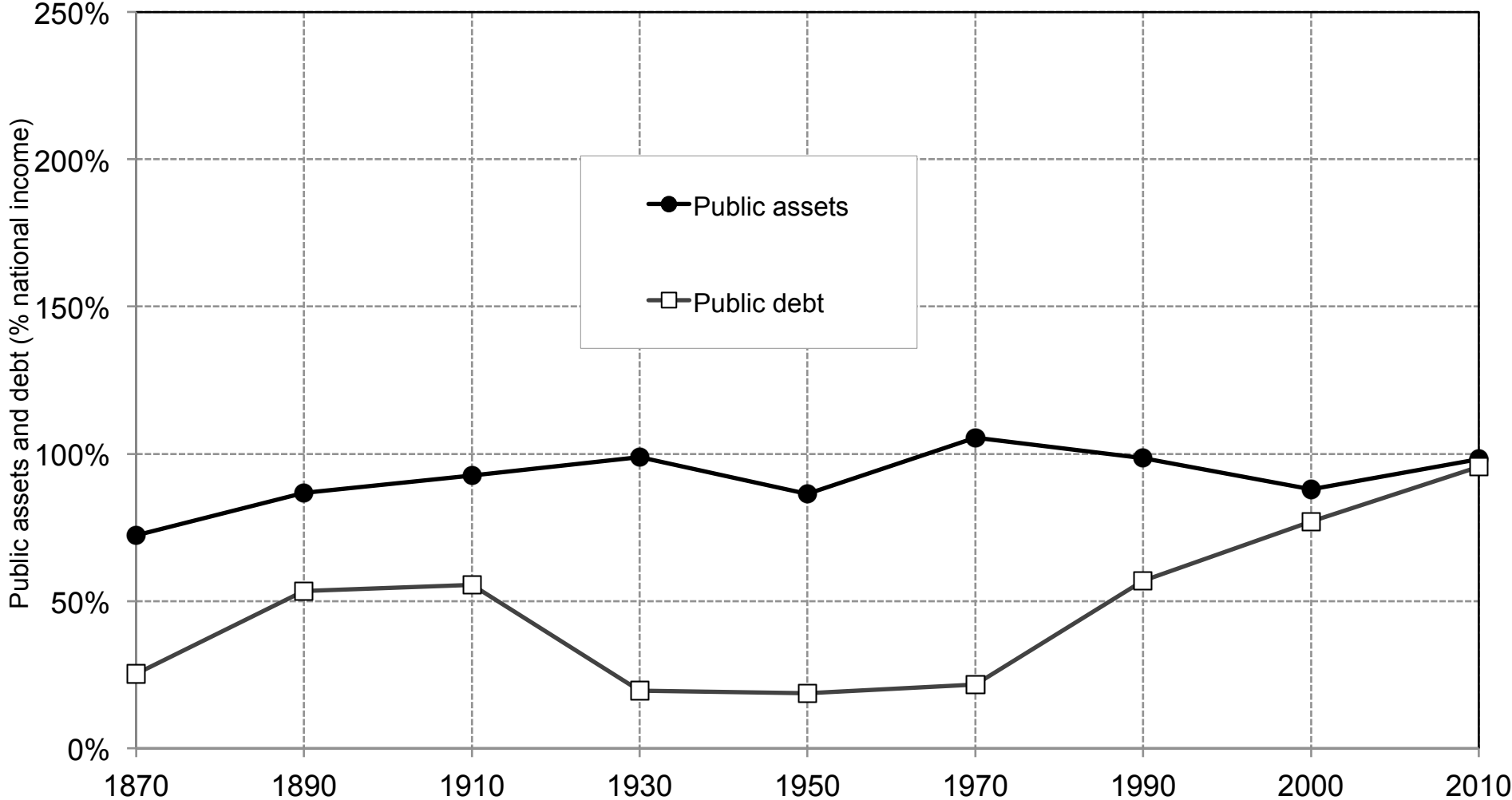
Sources and series: see piketty.pse.ens.fr/capital21c

Figure 4.1. Capital in Germany, 1870-2010



National capital is worth 6.5 years of national income in Germany in 1910 (incl. about 0.5 year invested abroad). Sources and series: see piketty.pse.ens.fr/capital21c.

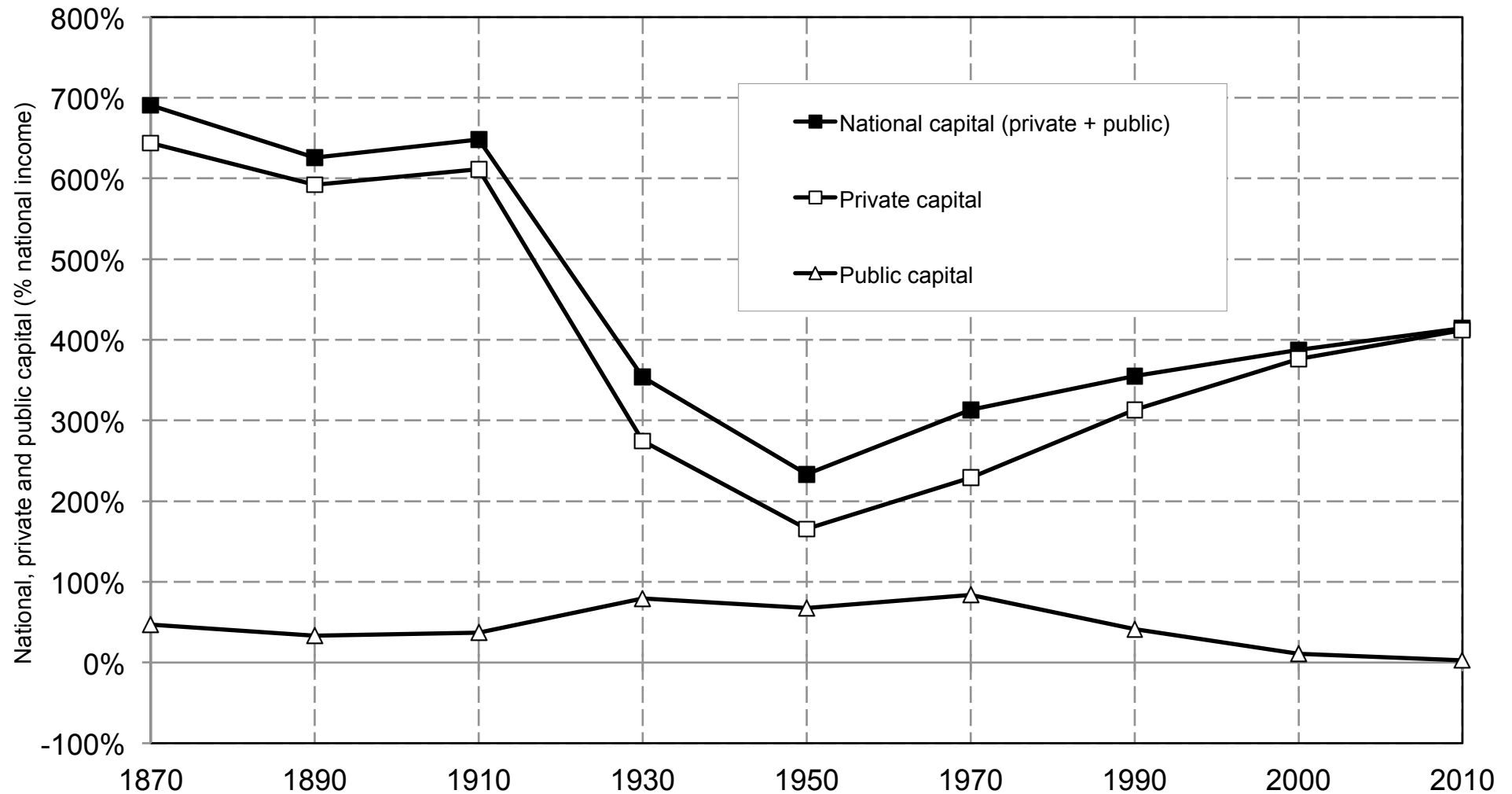
Figure 4.2. Public wealth in Germany, 1870-2010



Public debt is worth almost 1 year of national income in Germany in 2010 (as much as assets)

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

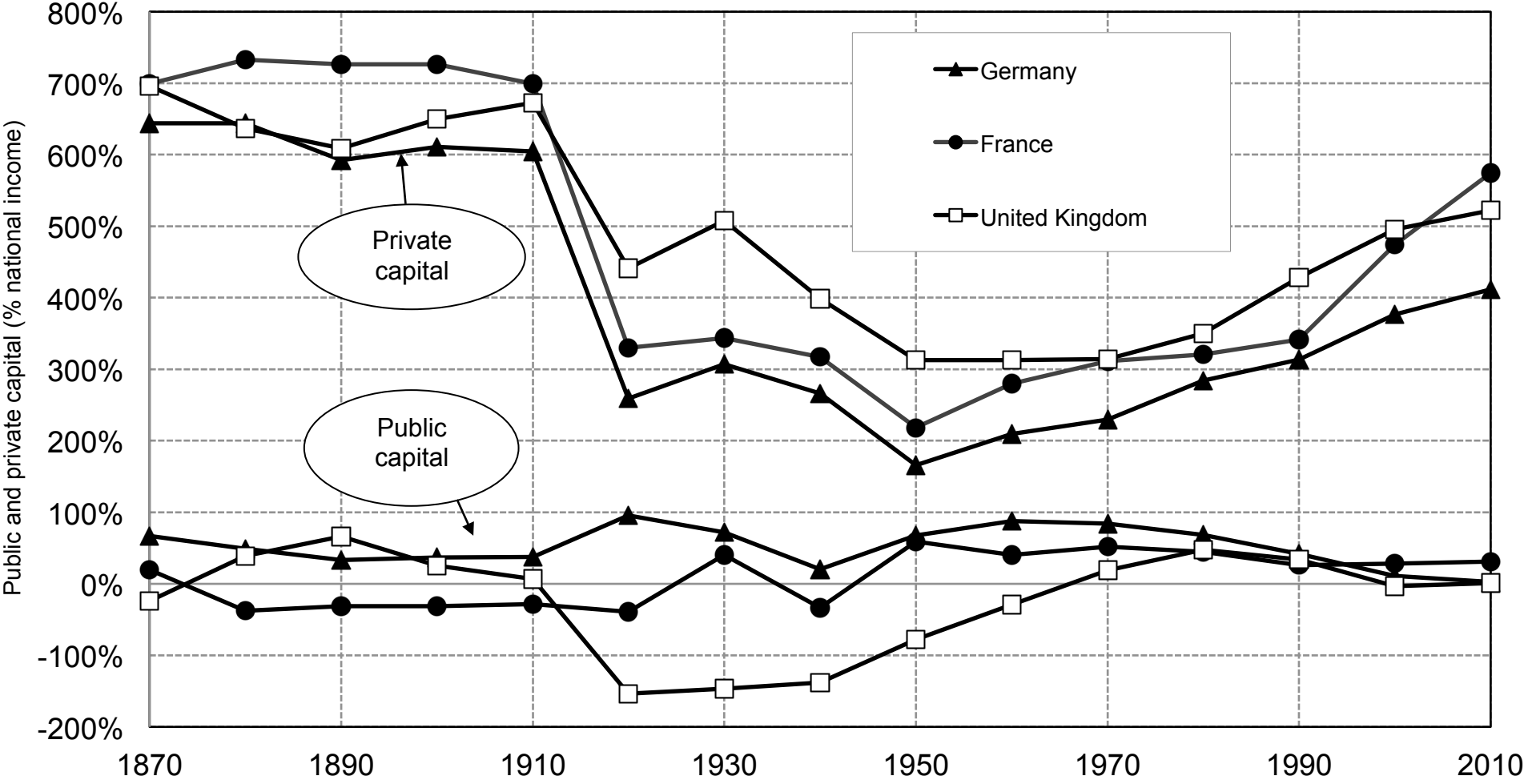
Figure 4.3. Private and public capital in Germany, 1870-2010



In 1970, public capital is worth almost 1 year of national income, versus slightly more than 2 for private capital.

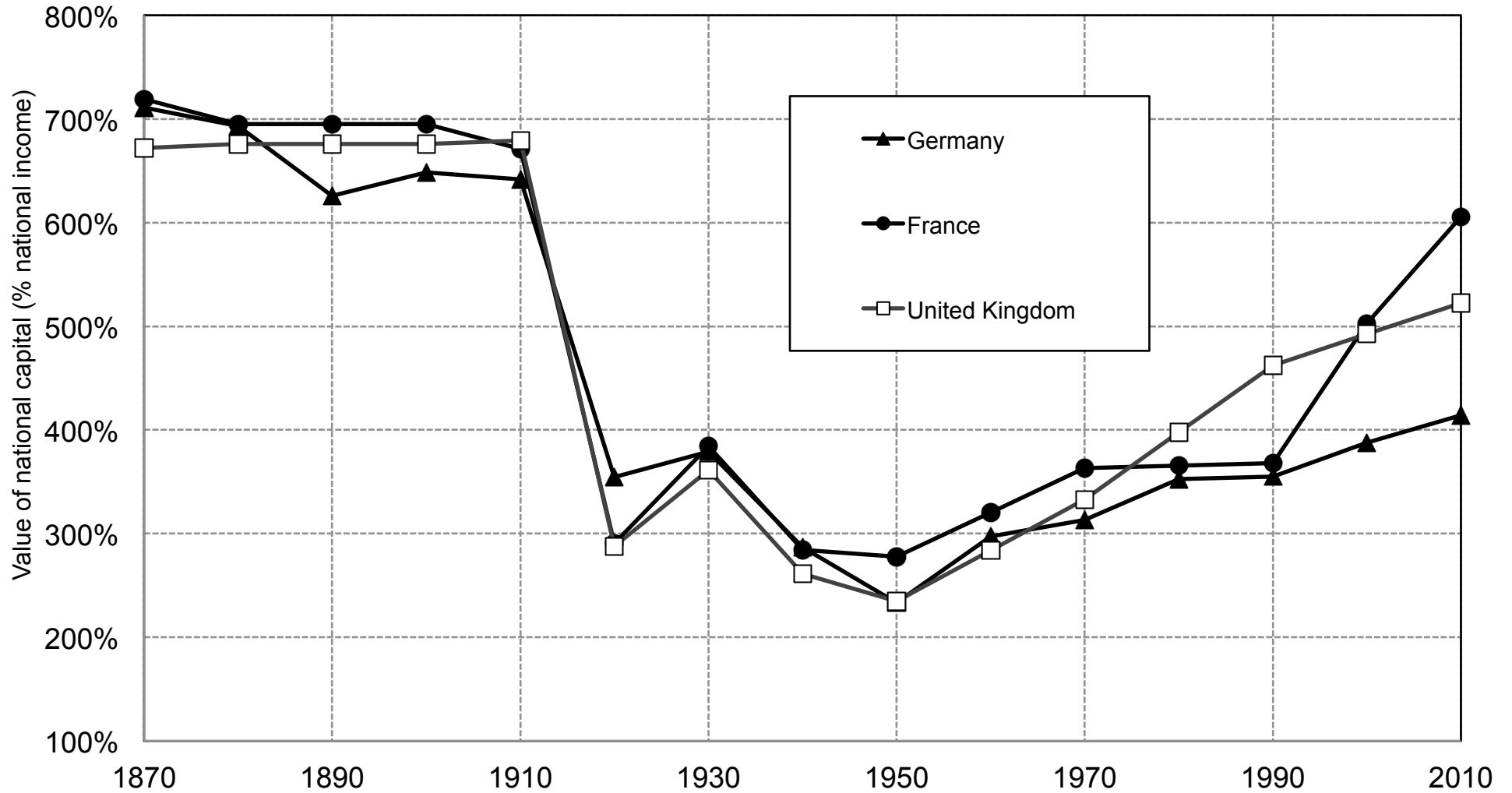
Sources and series: see piketty.pse.ens.fr/capital21c

Figure 4.4. Private and public capital in Europe, 1870-2010



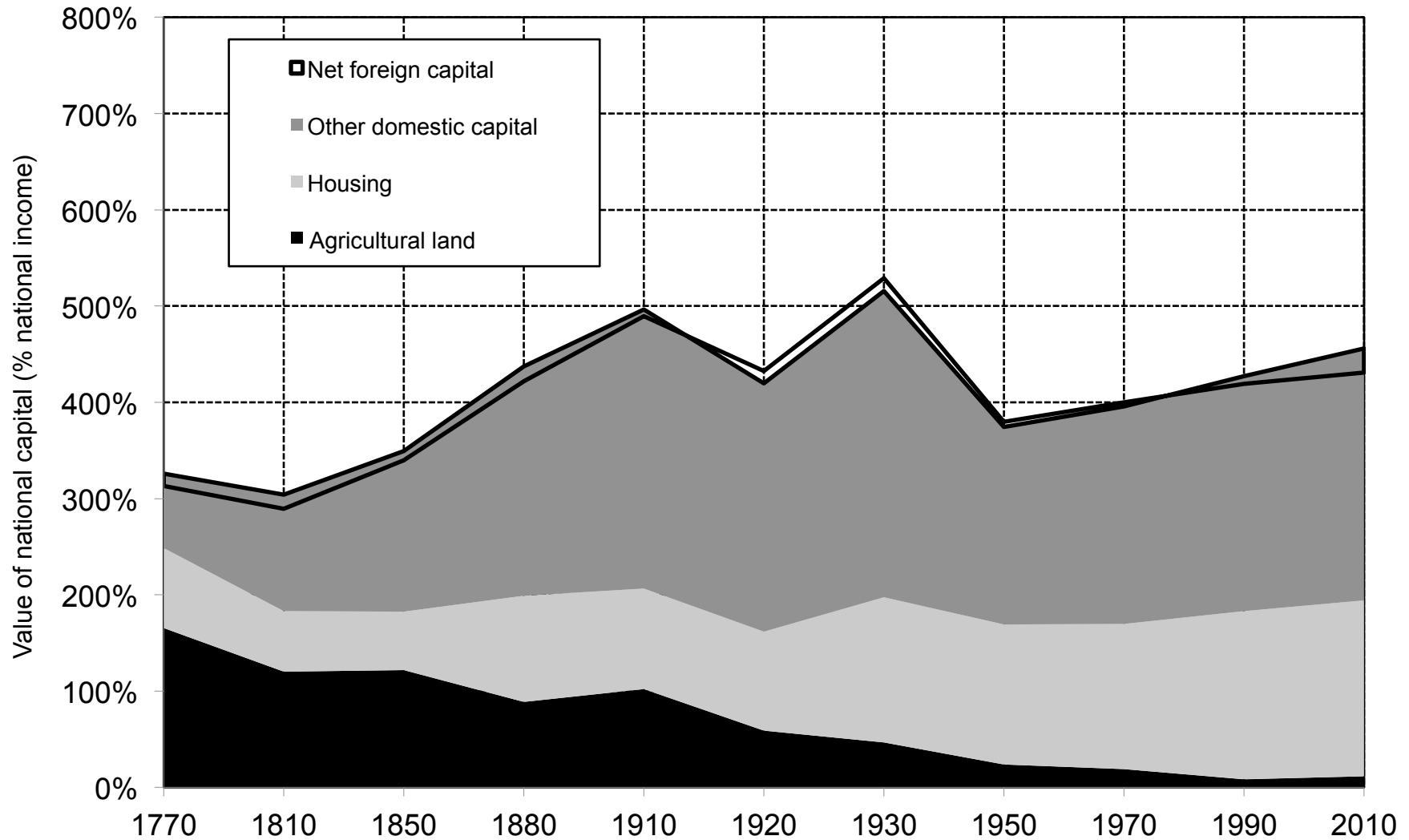
The fluctuations of national capital in Europe in the long run are mostly due to the fluctuations of private capital.
 Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 4.5. National capital in Europe, 1870-2010



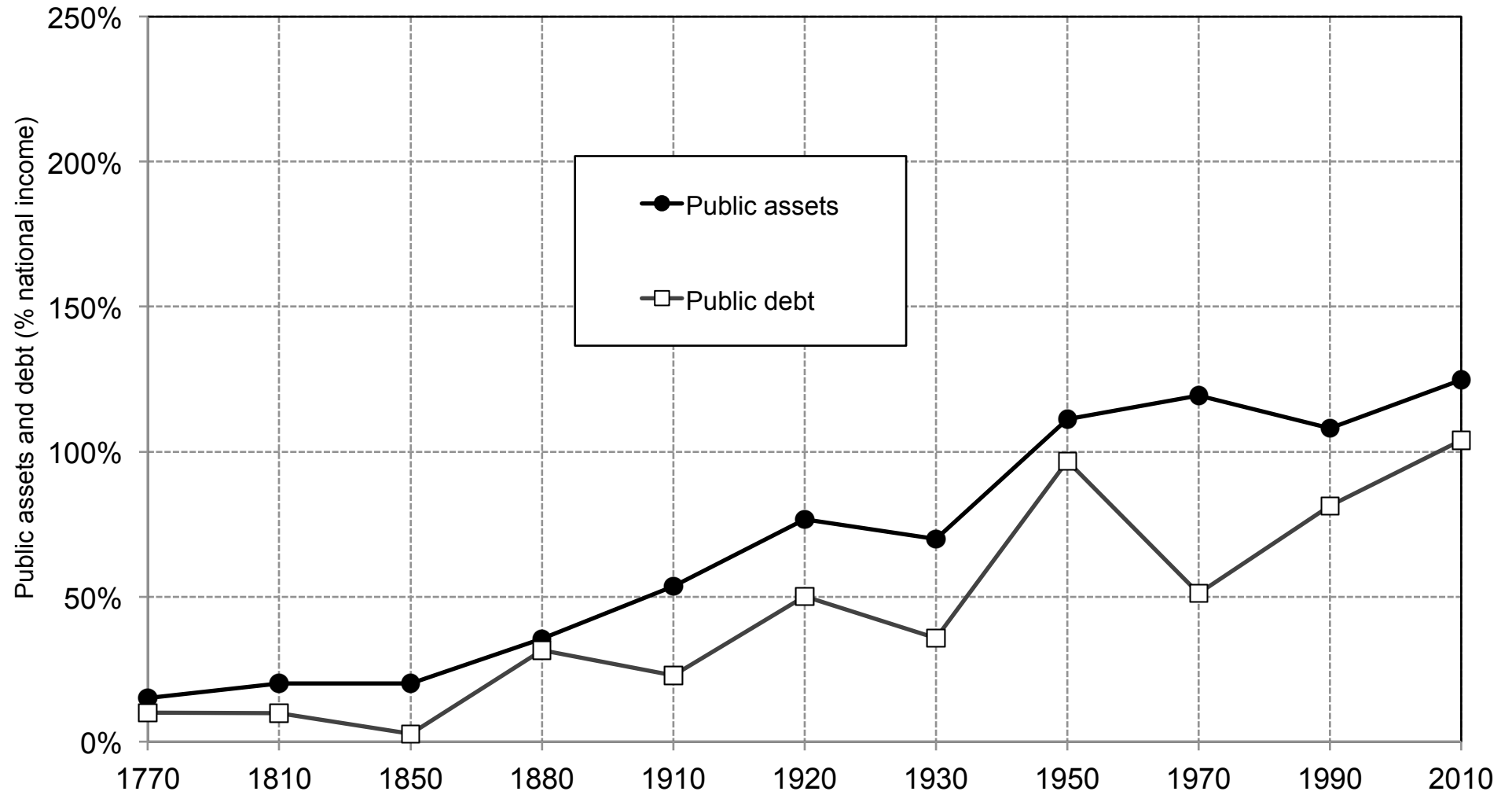
National capital (sum of public and private capital) is worth between 2 and 3 years of national income in Europe in 1950. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 4.6. Capital in the United States, 1770-2010



National capital is worth 3 years of national income in the United States in 1770 (incl. 1.5 years in agricultural land). Sources and series: see piketty.pse.ens.fr/capital21c.

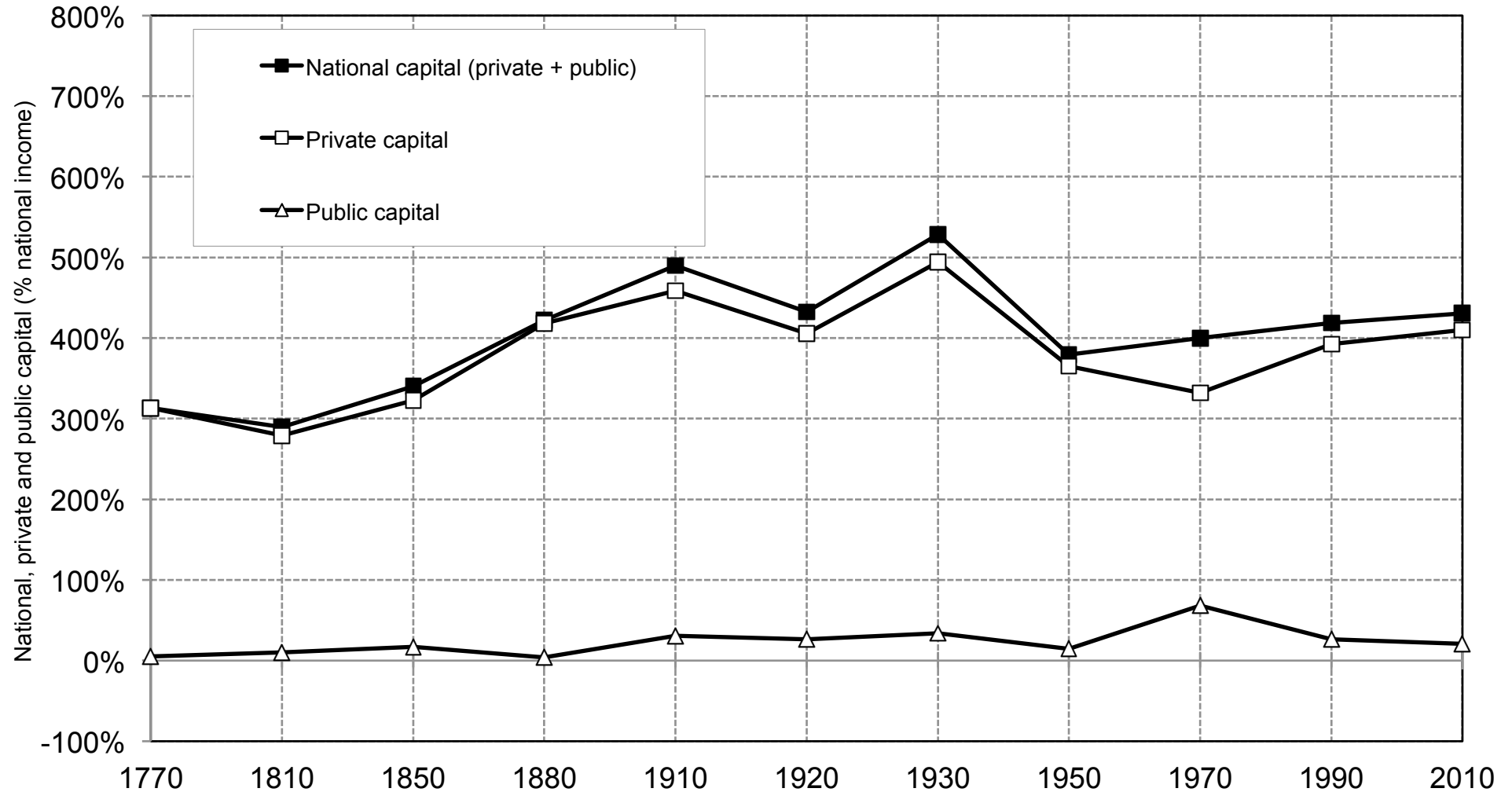
Figure 4.7. Public wealth in the United States, 1770-2010



Public debt is worth 1 year of national income in the U.S. in 1950 (almost as much as assets)

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

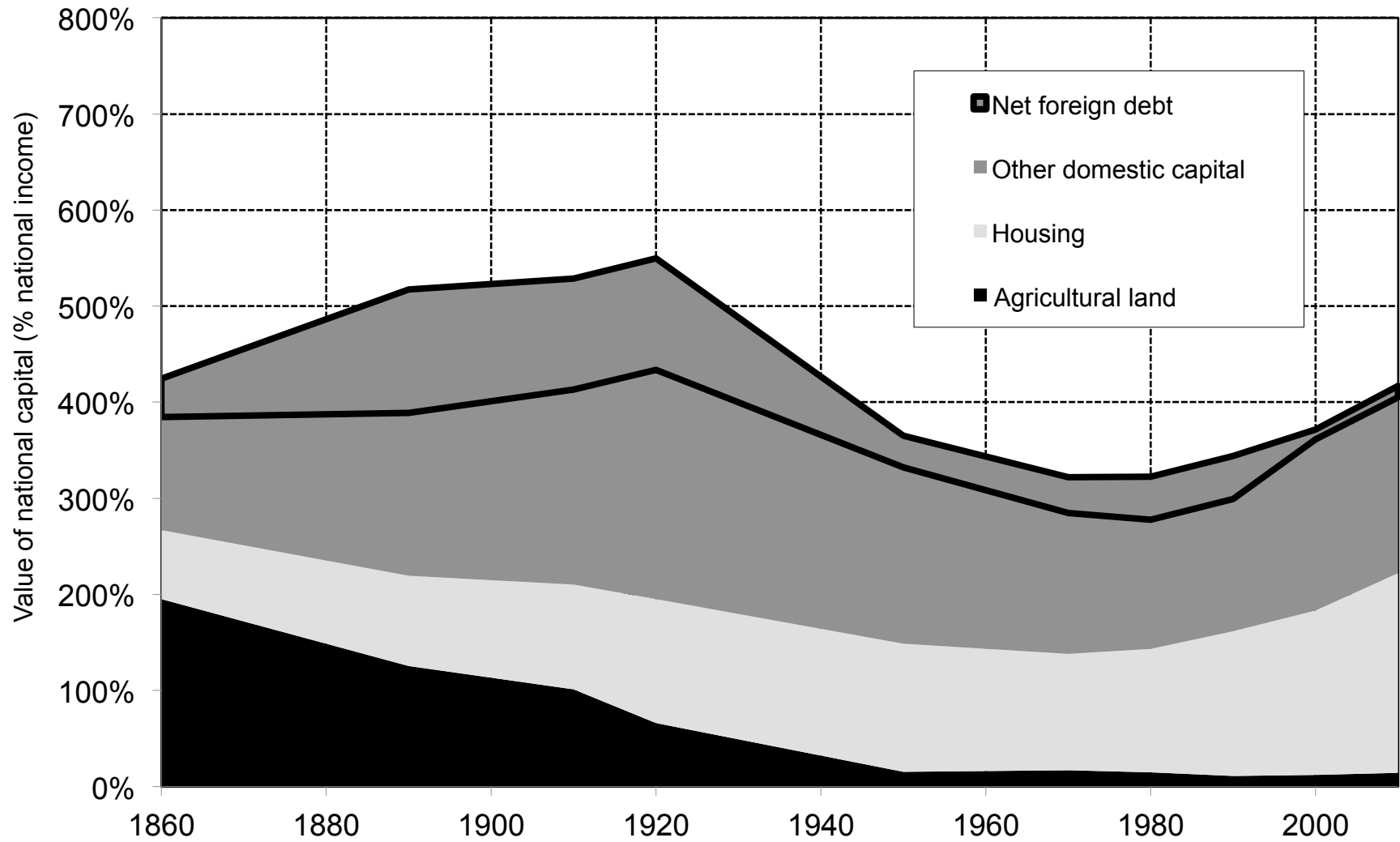
Figure 4.8. Private and public capital in the U.S., 1770-2010



In 2010, public capital is worth 20% of national income, vs. over 400% for private capital.

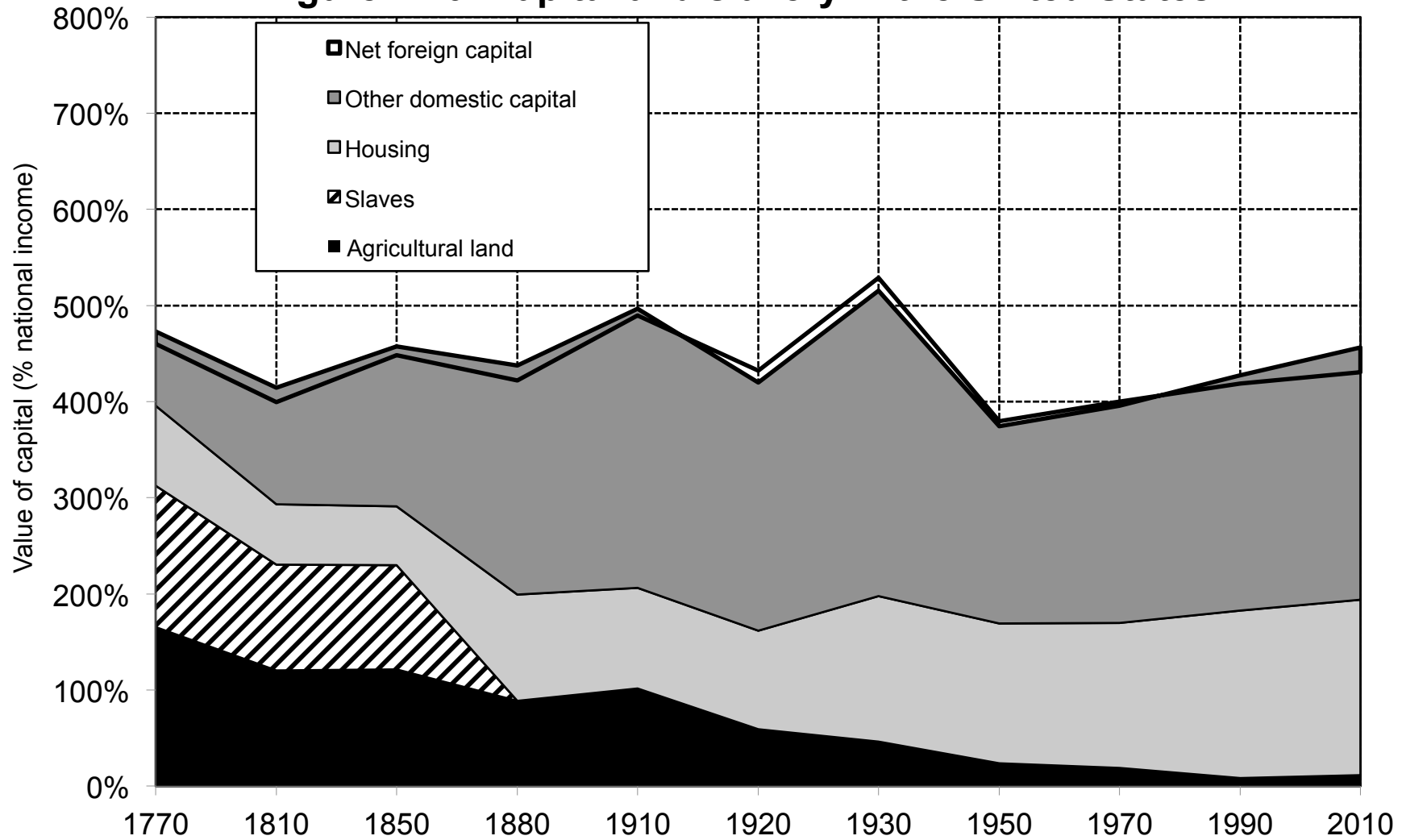
Sources and series: see piketty.pse.ens.fr/capital21c

Figure 4.9. Capital in Canada, 1860-2010



In Canada, a substantial part of domestic capital has always been held by the rest of the world, so that national capital has always been less than domestic capital. Sources and series: see piketty.pse.ens.fr/capital21c

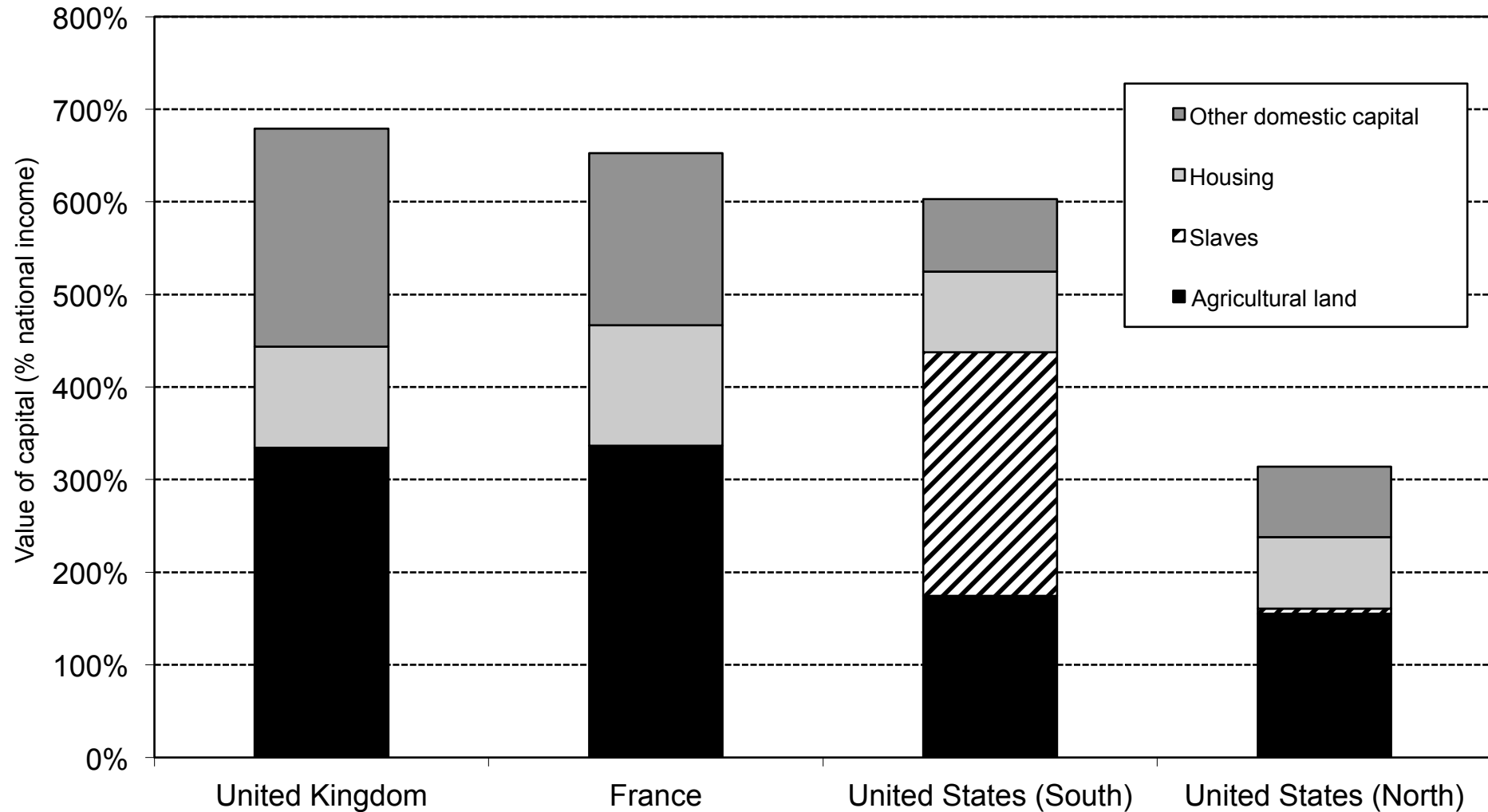
Figure 4.10. Capital and slavery in the United States



The market value of slaves was about 1.5 years of U.S. national income around 1770 (as much as land).

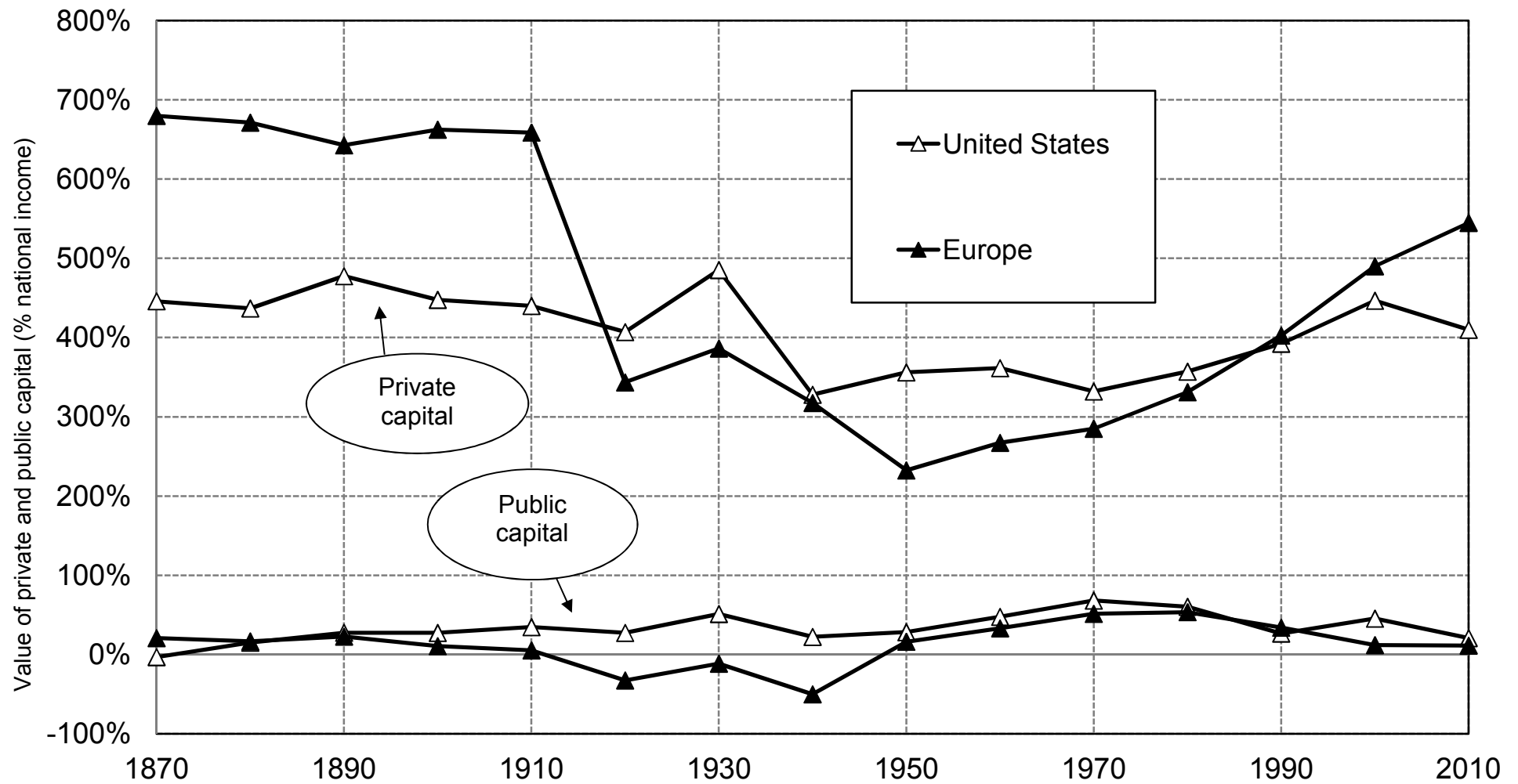
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 4.11. Capital around 1770-1810: Old an New World



The combined value of agricultural land and slaves in Southern United States surpassed 4 years of national income around 1770-1810. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 5.1. Private and public capital: Europe and America, 1870-2010



The fluctuations of national capital in the long run correspond mostly to the fluctuations of private capital (both in Europe and in the U.S.). Sources and series: see piketty.pse.ens.fr/capital21c.

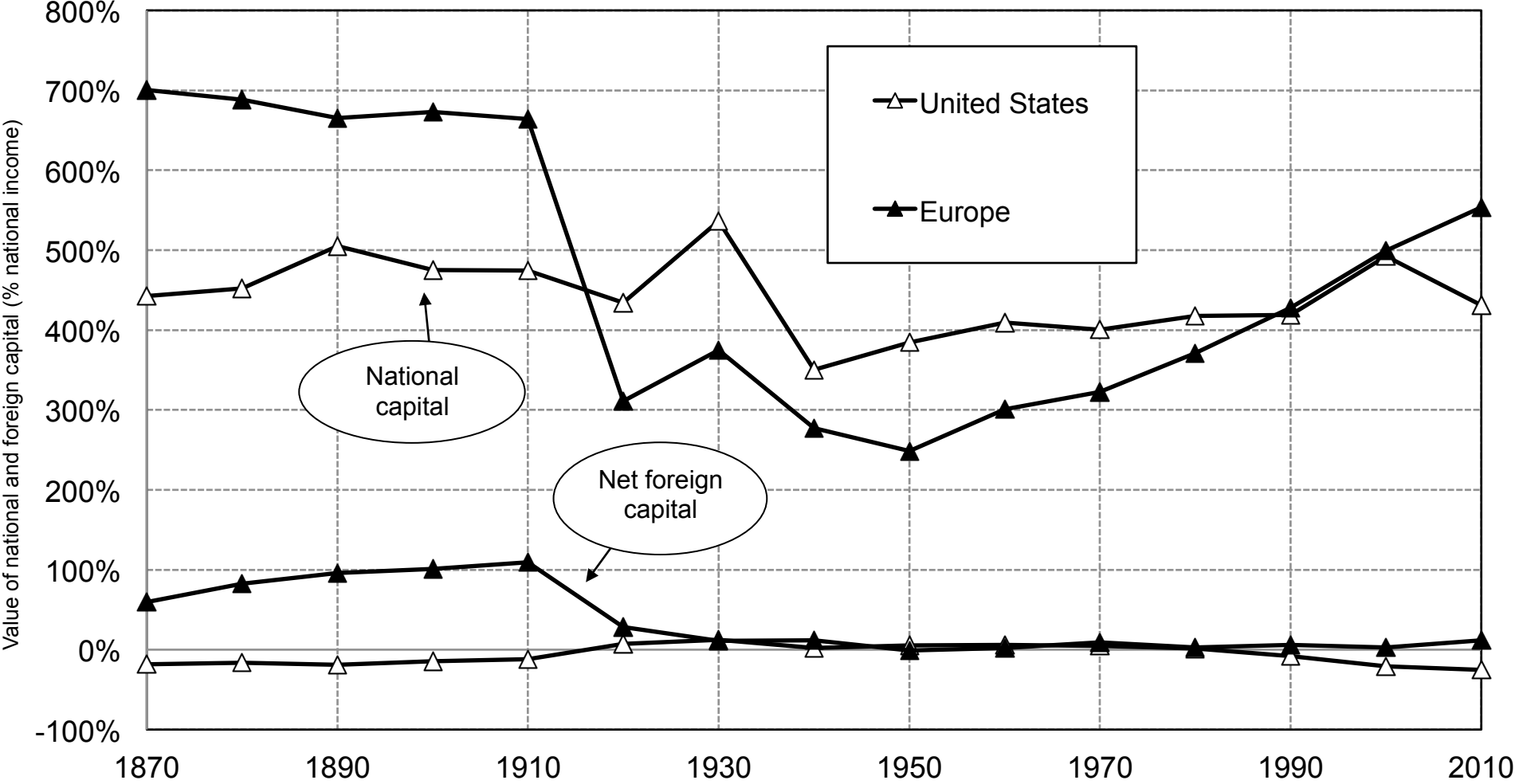
Table 5.1. Growth rates and saving rates in rich countries, 1970-2010

	Growth rate of national income	Growth rate of population	Growth rate of per capita national income	Private saving (net of depreciation) (% national income)
U.S.	2.8%	1.0%	1.8%	7.7%
Japan	2.5%	0.5%	2.0%	14.6%
Germany	2.0%	0.2%	1.8%	12.2%
France	2.2%	0.5%	1.7%	11.1%
U.K.	2.2%	0.3%	1.9%	7.3%
Italy	1.9%	0.3%	1.6%	15.0%
Canada	2.8%	1.1%	1.7%	12.1%
Australia	3.2%	1.4%	1.7%	9.9%

Saving rates and demographic growth vary a lot within rich countries; growth rates of per capita national income vary much less.

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

Figure 5.2. National capital in Europe and America, 1870-2010



National capital (public and private) is worth 6.5 years of national income in Europe in 1910, vs. 4.5 years in America.
 Sources and series: see piketty.pse.ens.fr/capital21c.

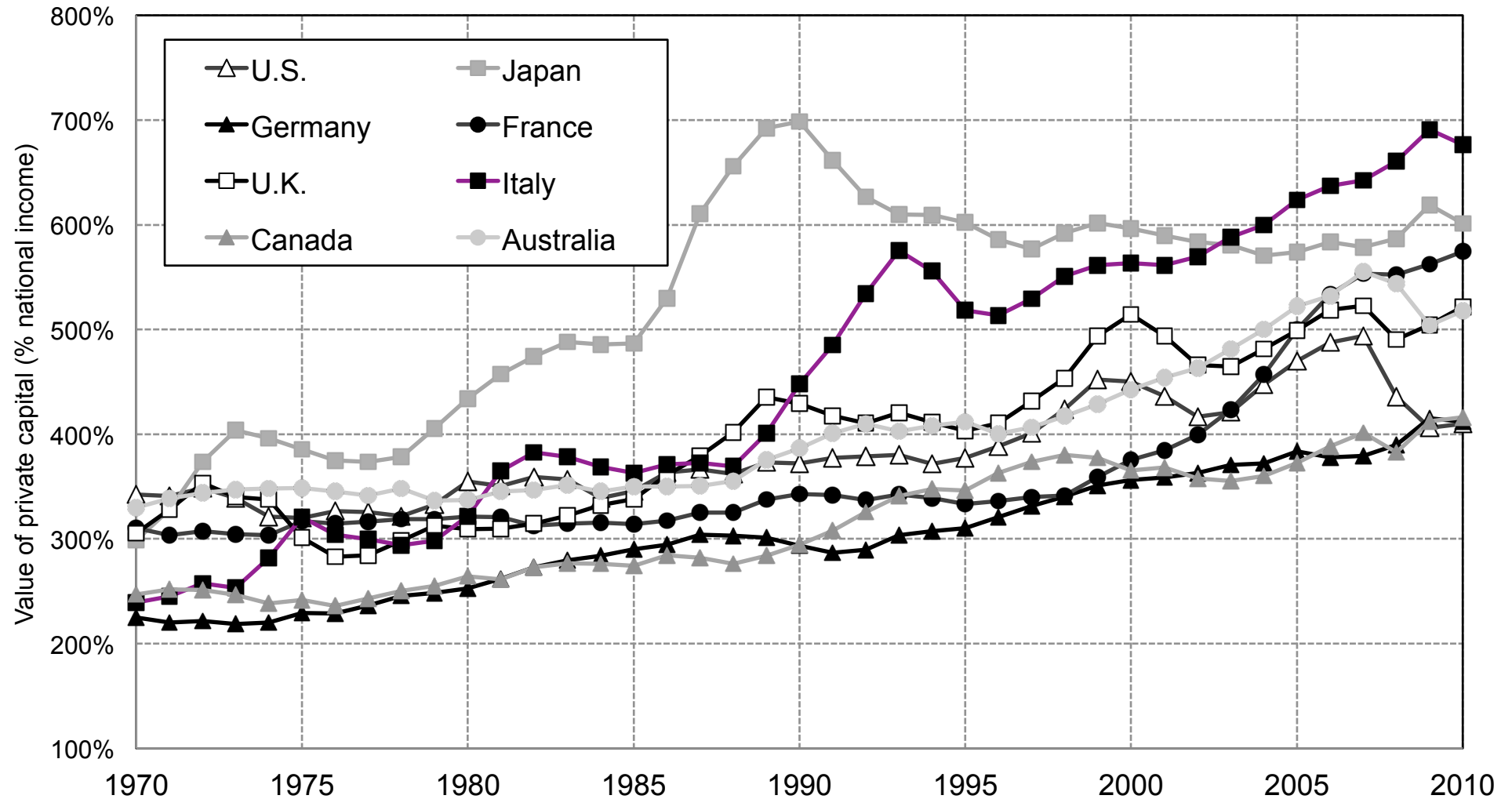
Table 5.2. Private saving in rich countries, 1970-2010

	Private saving (net of depreciation) (% national income)	incl. Household net saving	incl. Corporate net saving (net retained earnings)
U.S.	7.7%	4.6% 60%	3.1% 40%
Japan	14.6%	6.8% 47%	7.8% 53%
Germany	12.2%	9.4% 77%	2.8% 23%
France	11.1%	9.0% 81%	2.1% 19%
U.K.	7.4%	2.8% 38%	4.6% 62%
Italy	15.0%	14.6% 97%	0.4% 3%
Canada	12.1%	7.2% 60%	4.9% 40%
Australia	9.9%	5.9% 60%	3.9% 40%

A large part (variable across countries) of private saving comes from corporate retained earnings (undistributed profits).

Sources: 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.

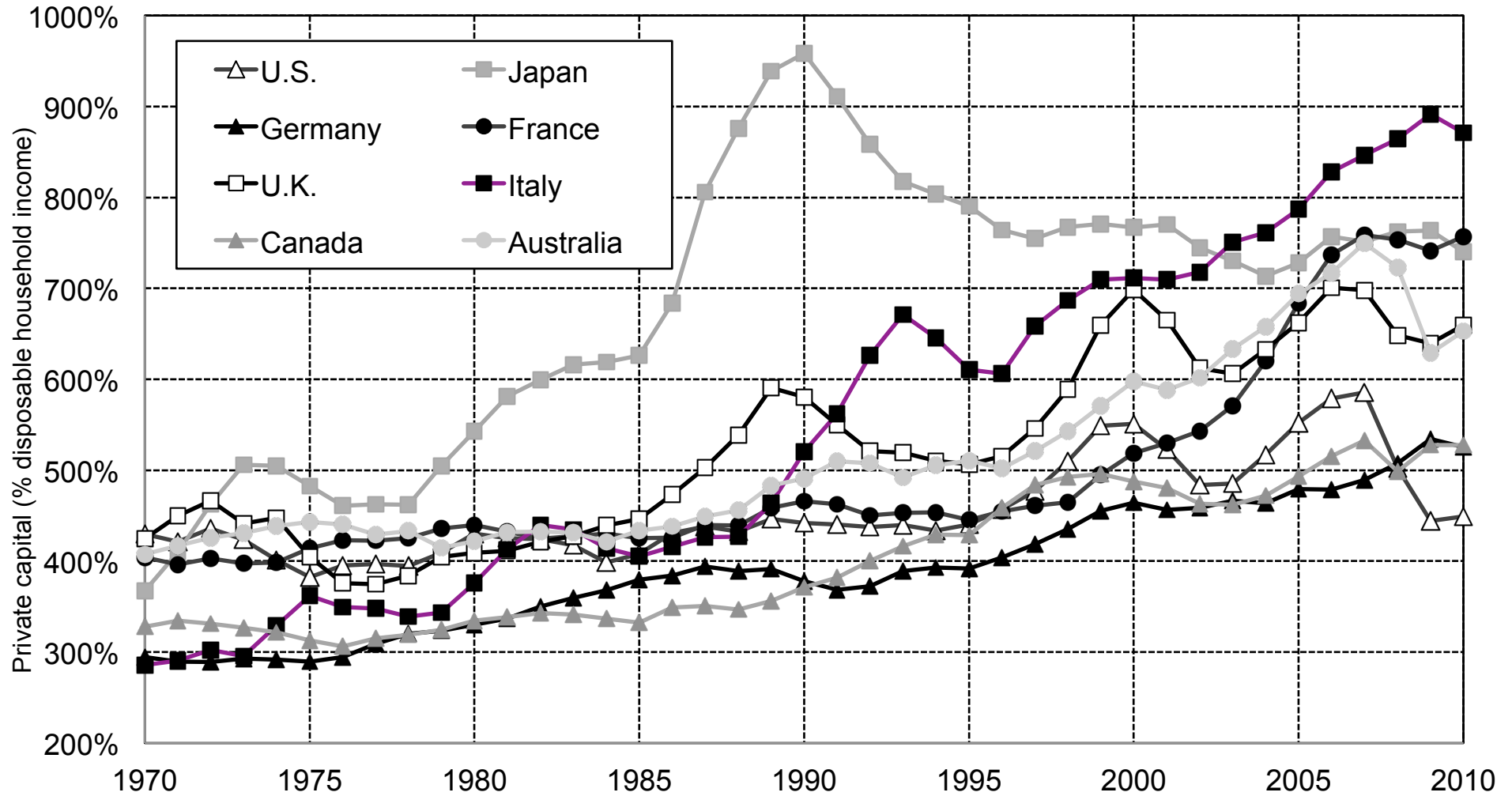
Table 5.3. Gross and net saving in rich countries, 1970-2010

	Gross private savings (% national income)	Minus: Capital depreciation	Equal: Net private saving
U.S.	18.8%	11.1%	7.7%
Japan	33.4%	18.9%	14.6%
Germany	28.5%	16.2%	12.2%
France	22.0%	10.9%	11.1%
U.K.	19.7%	12.3%	7.3%
Italy	30.1%	15.1%	15.0%
Canada	24.5%	12.4%	12.1%
Australia	25.1%	15.2%	9.9%

A large part of gross saving (generally about half) corresponds to capital depreciation; i.e. it is used solely to repair or replace used capital.

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

Figure 5.4. Private capital measured in years of disposable income



Expressed in years of household disposable income (about 70-80% of national income), the capital/income ratio appears to be larger than when it is expressed in years of national income. Sources and series : see piketty.pse.ens.fr/capital21c.

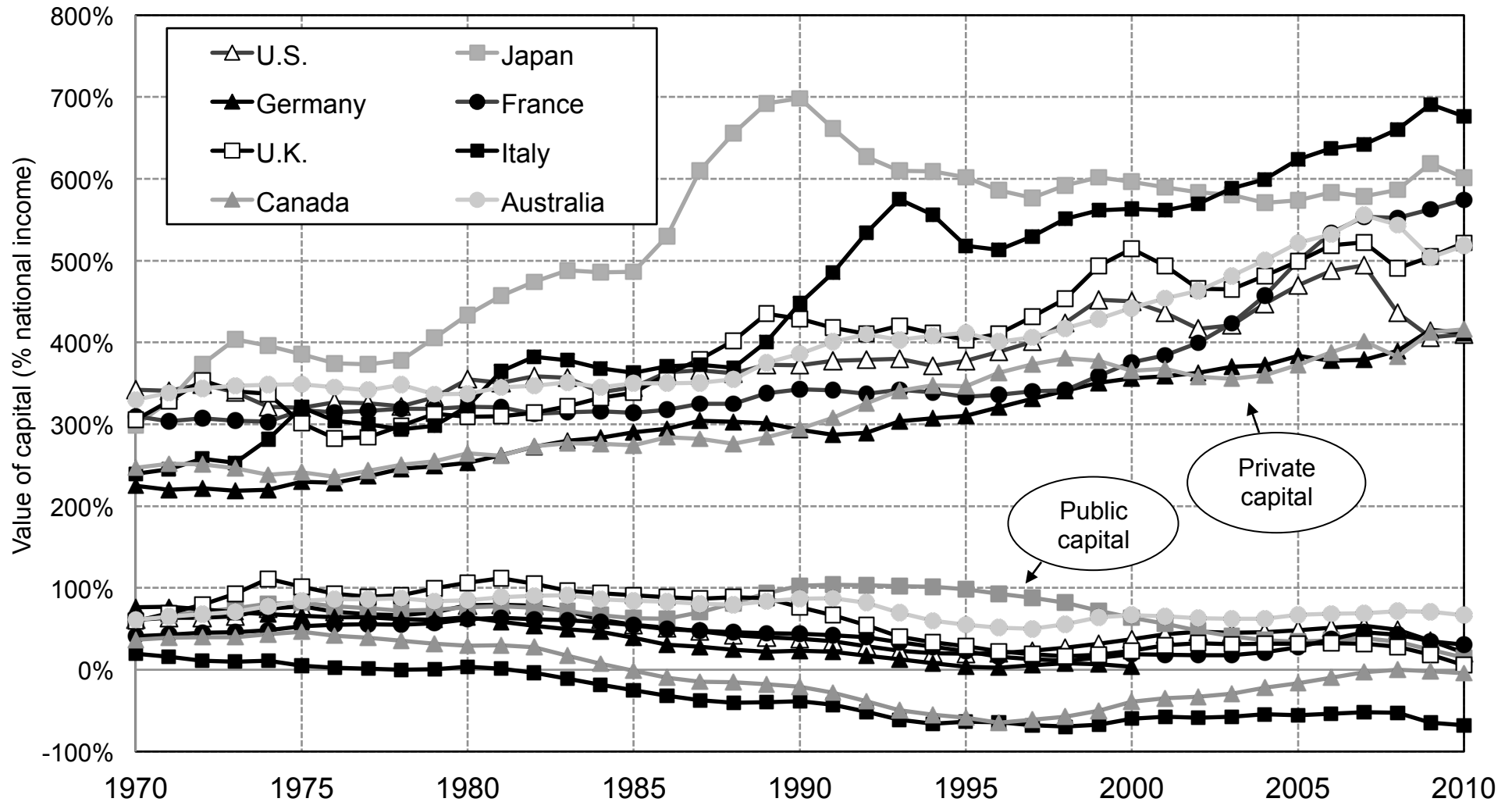
Table 5.4. Private and public saving in rich countries, 1970-2010

	National saving (private + public) (net of depreciation) (% national income)	incl. Private saving	incl. Public saving
U.S.	5.2%	7.6%	-2.4%
Japan	14.6%	14.5%	0.1%
Germany	10.2%	12.2%	-2.0%
France	9.2%	11.1%	-1.9%
U.K.	5.3%	7.3%	-2.0%
Italy	8.5%	15.0%	-6.5%
Canada	10.1%	12.1%	-2.0%
Australia	8.9%	9.8%	-0.9%

A large part (variable across countries) of private saving is absorbed by public deficits, so that national saving (private + public) is less than private saving.

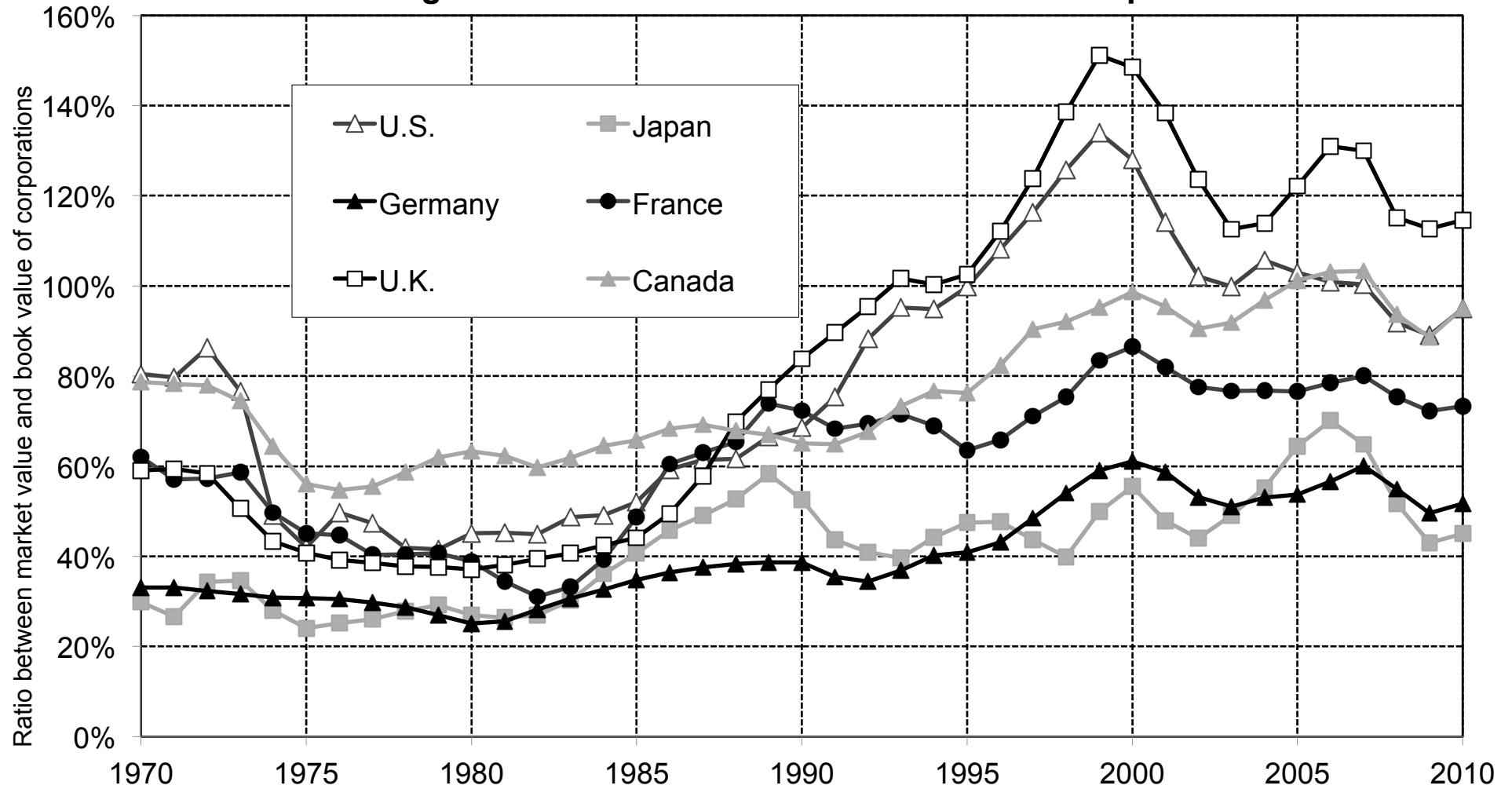
Sources: voir piketty.pse.ens.fr/capital21c

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



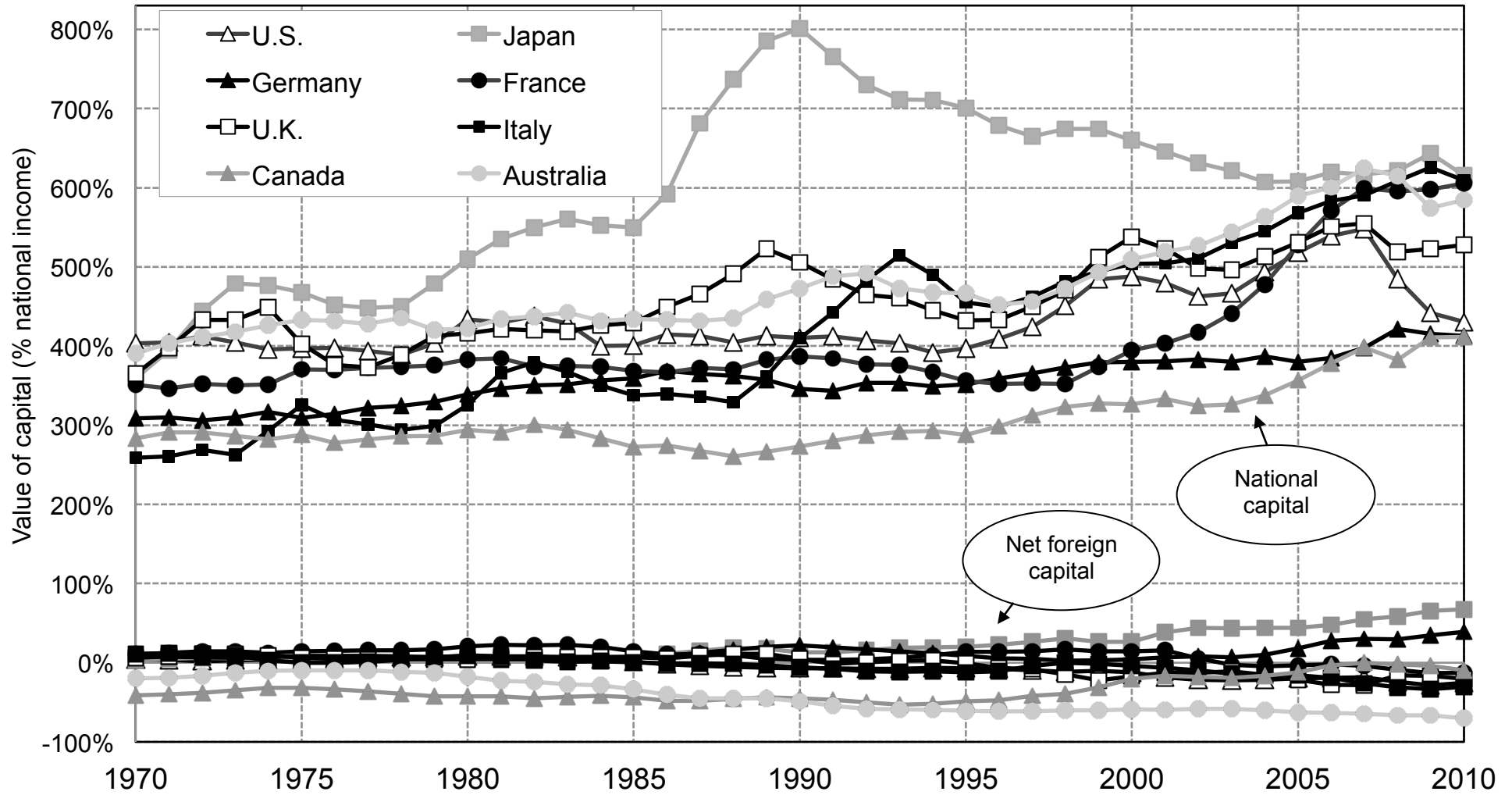
In Italy, private capital rose from 240% to 680% of national income between 1970 and 2010, while public capital dropped from 20% to -70%. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 5.6. Market value and book value of corporations



Tobin's Q (i.e. the ratio between market value and book value of corporations) has risen in rich countries since the 1970s-1980s. Sources and series: see piketty.pse.ens.fr/capital21c.

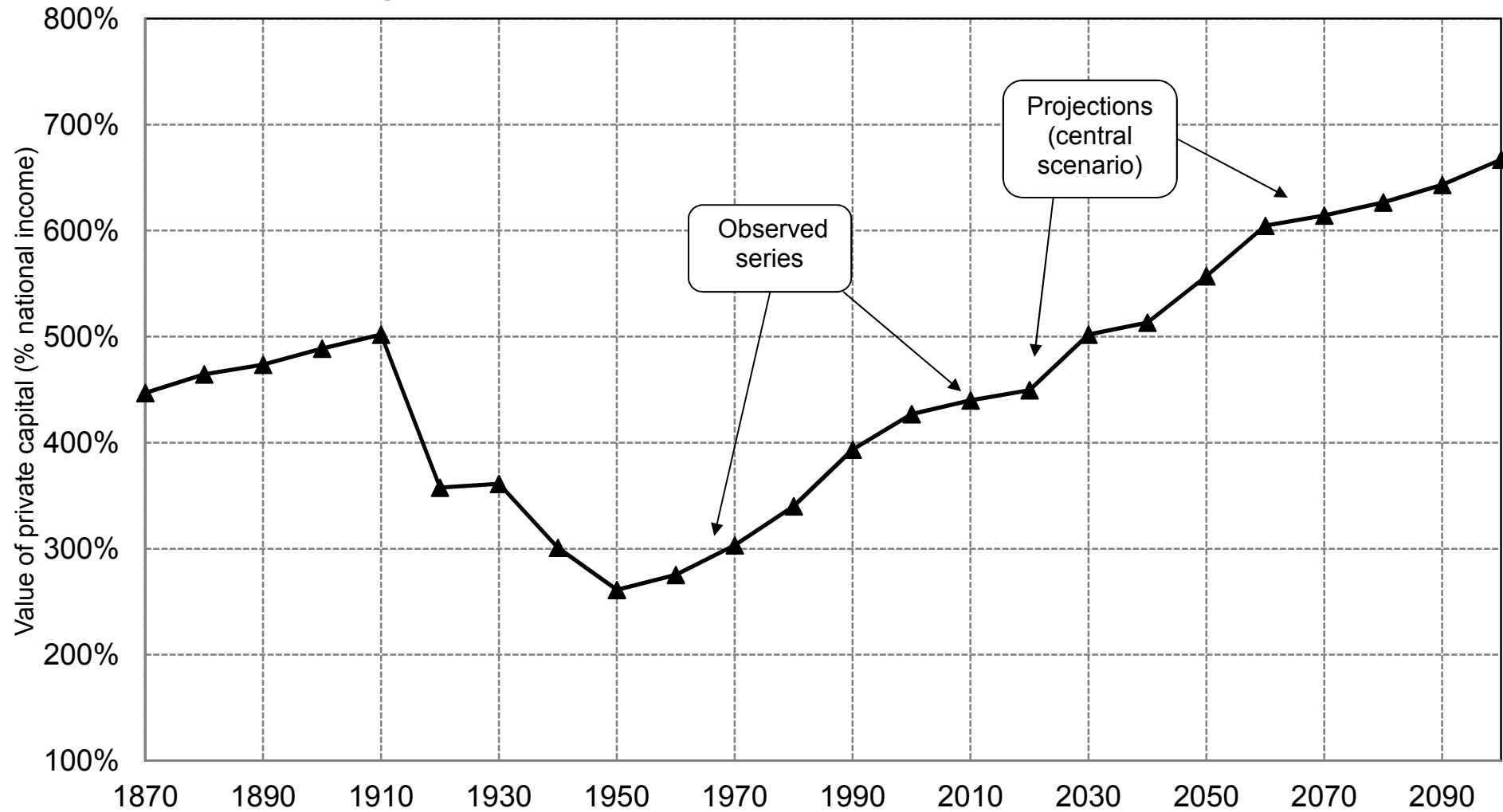
Figure 5.7. National capital in rich countries, 1970-2010



Net foreign assets held by Japan and Germany are worth between 0.5 and 1 year of national income in 2010.

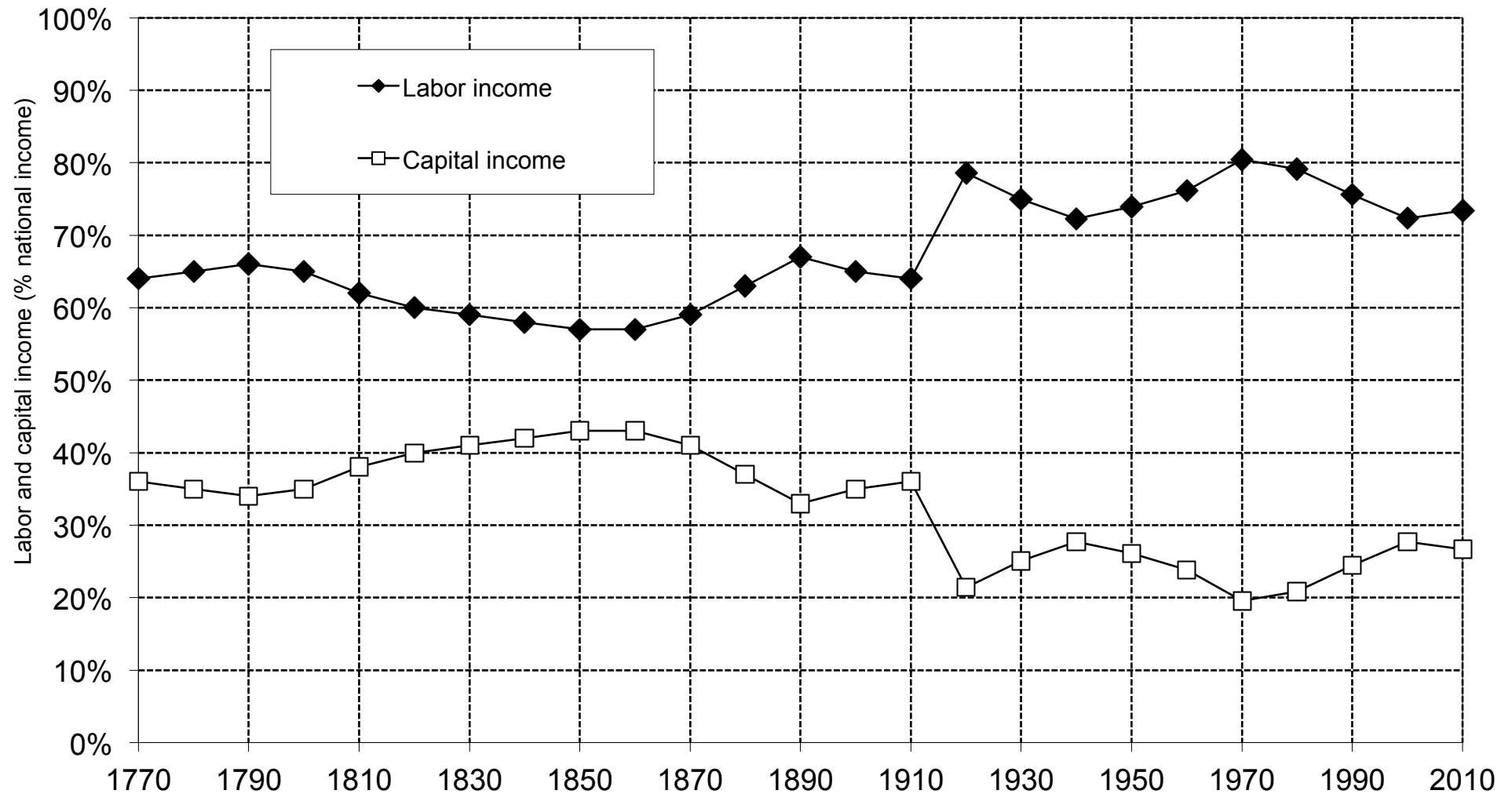
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 5.8. The world capital/income ratio, 1870-2100



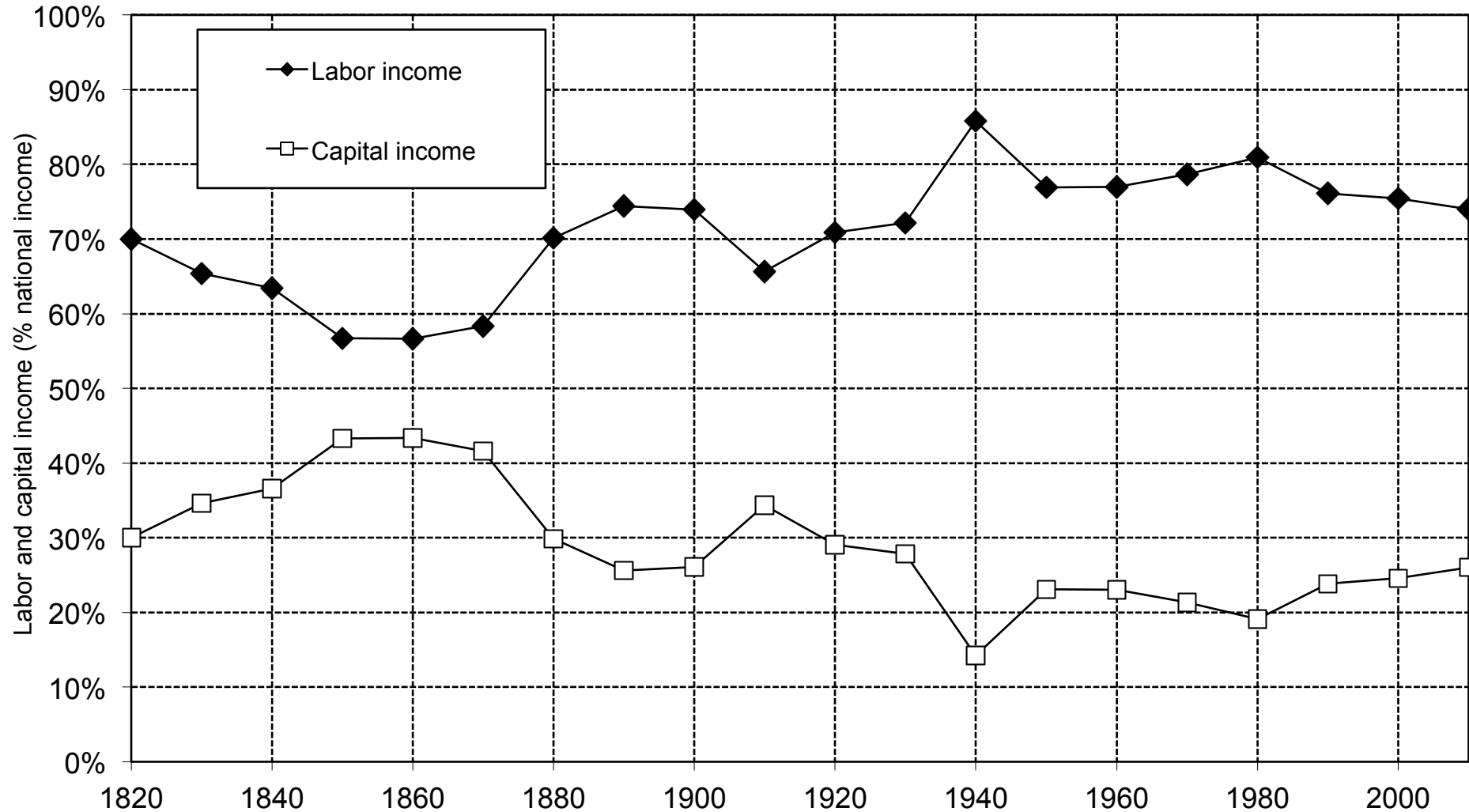
According to simulations (central scenario), the world capital/income ratio could be near to 700% by the end of the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 6.1. The capital-labor split in the Britain, 1770-2010



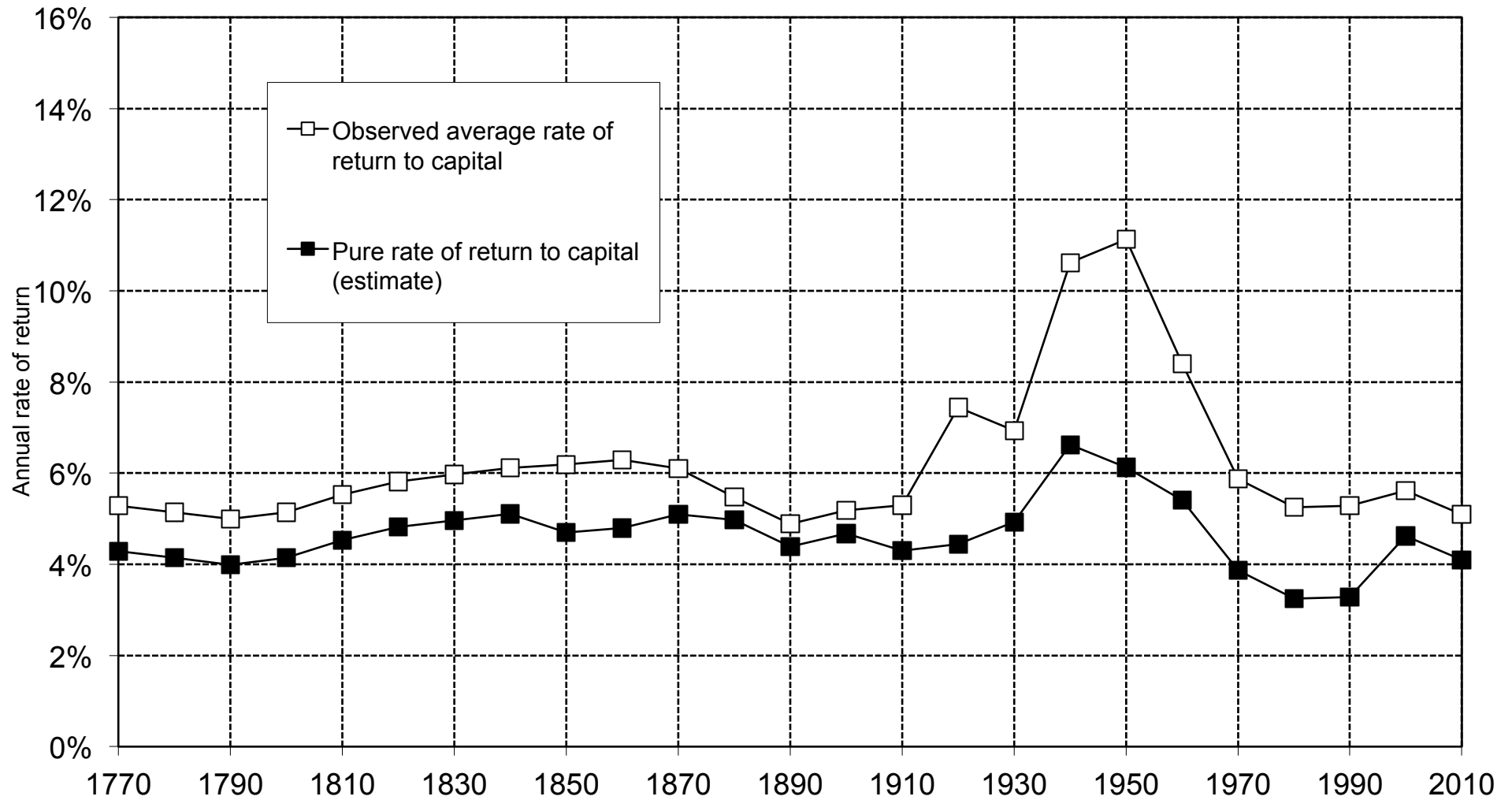
During the 19th century, capital income (rent, profits, dividends, interest,..) absorbed about 40% of national income, vs. 60% for labor income (salaried and non salaried). Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 6.2. The capital-labor split in France, 1820-2010



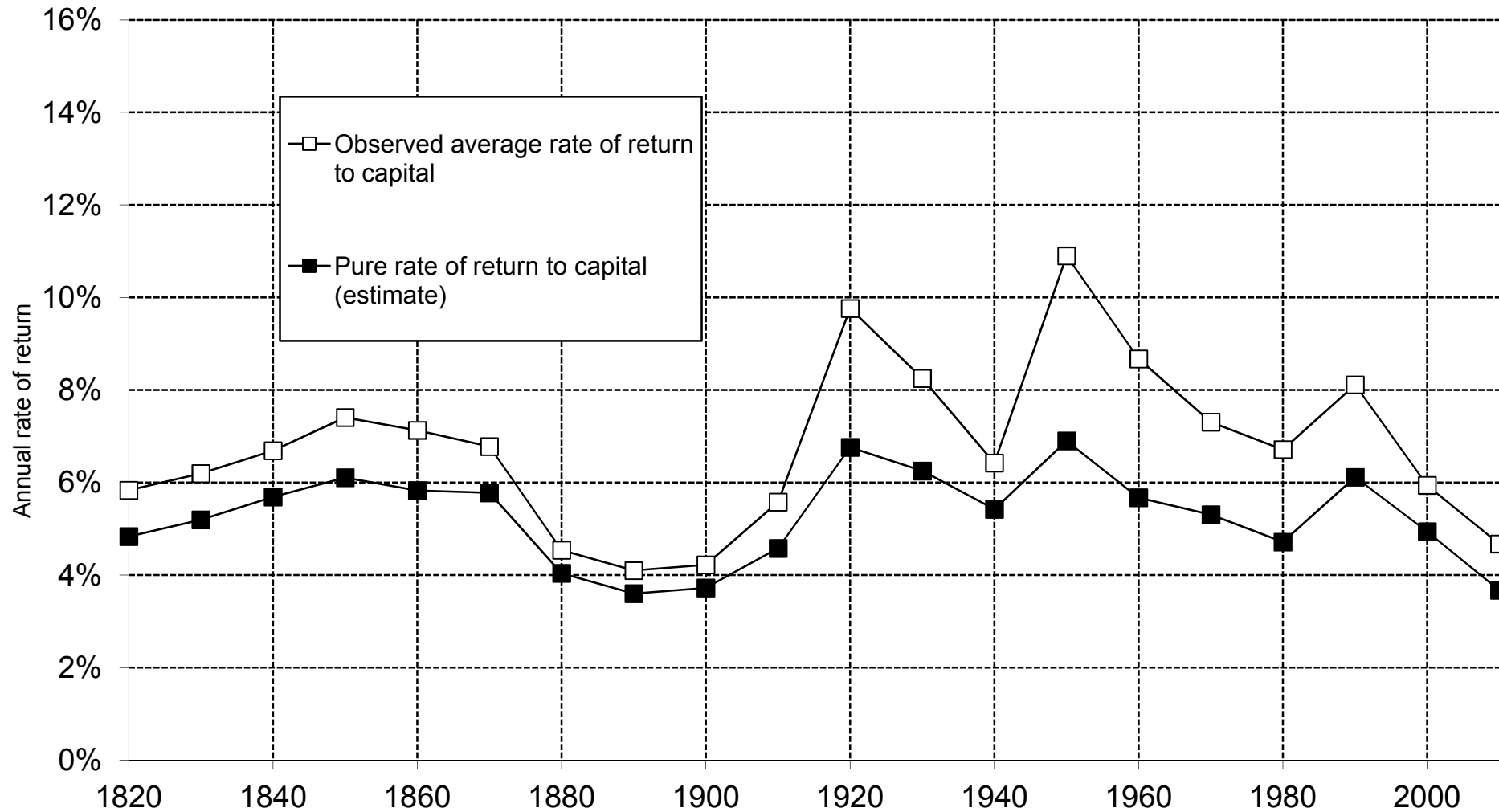
In the 21st century, capital income (rent, profits, dividends, interest,...) absorbs about 30% of national income, vs. 70% for labor income (salaried and non salaried). Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 6.3. The pure return to capital in Britain, 1770-2010



The pure rate of return to capital is roughly stable around 4%-5% in the long run.
Sources and series: see piketty.pse.ens.fr/capital21c.

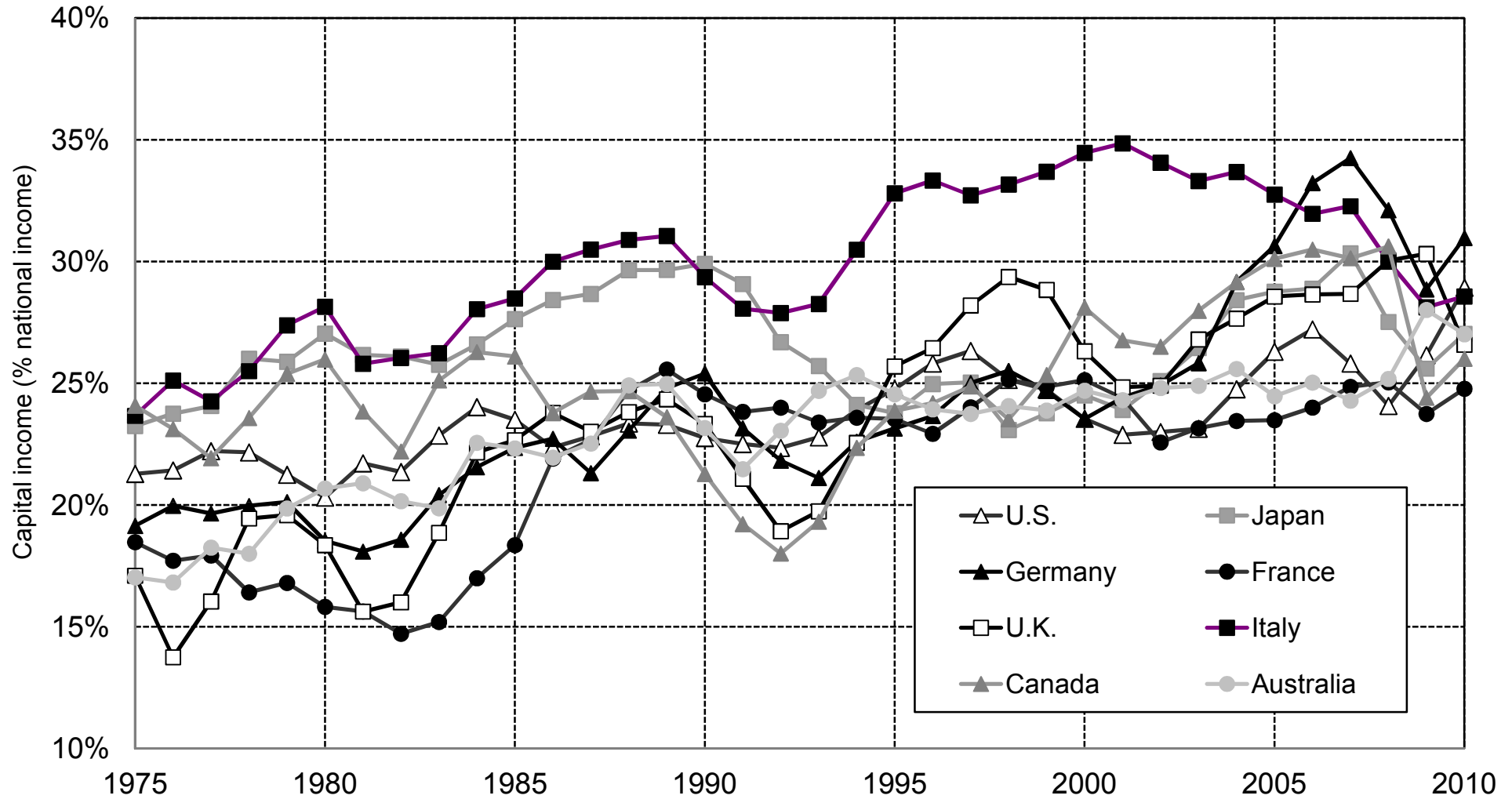
Figure 6.4. The pure rate of return to capital in France, 1820-2010



The observed average rate of return displays larger fluctuations than the pure rate of return during the 20th century.

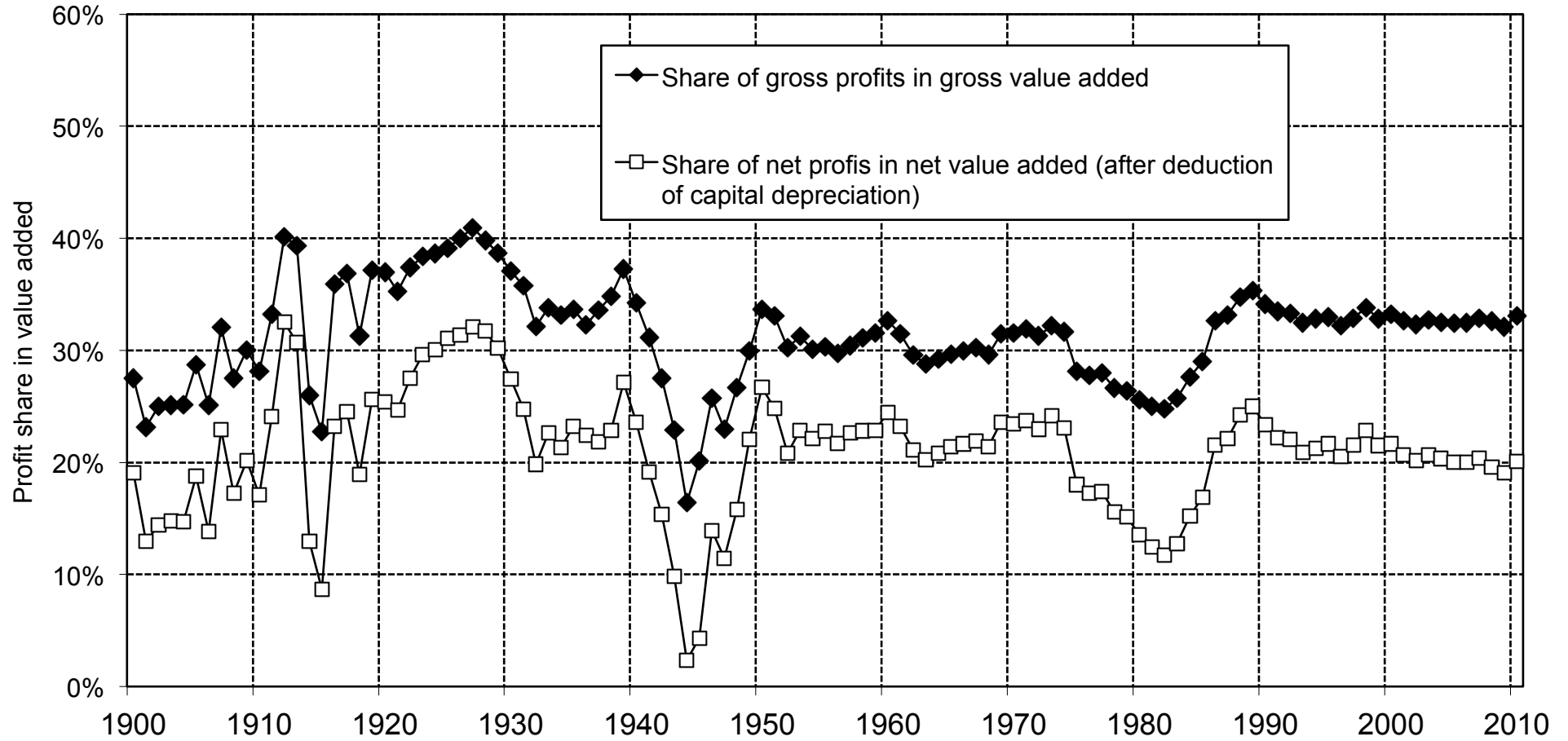
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 6.5. The capital share in rich countries, 1975-2010



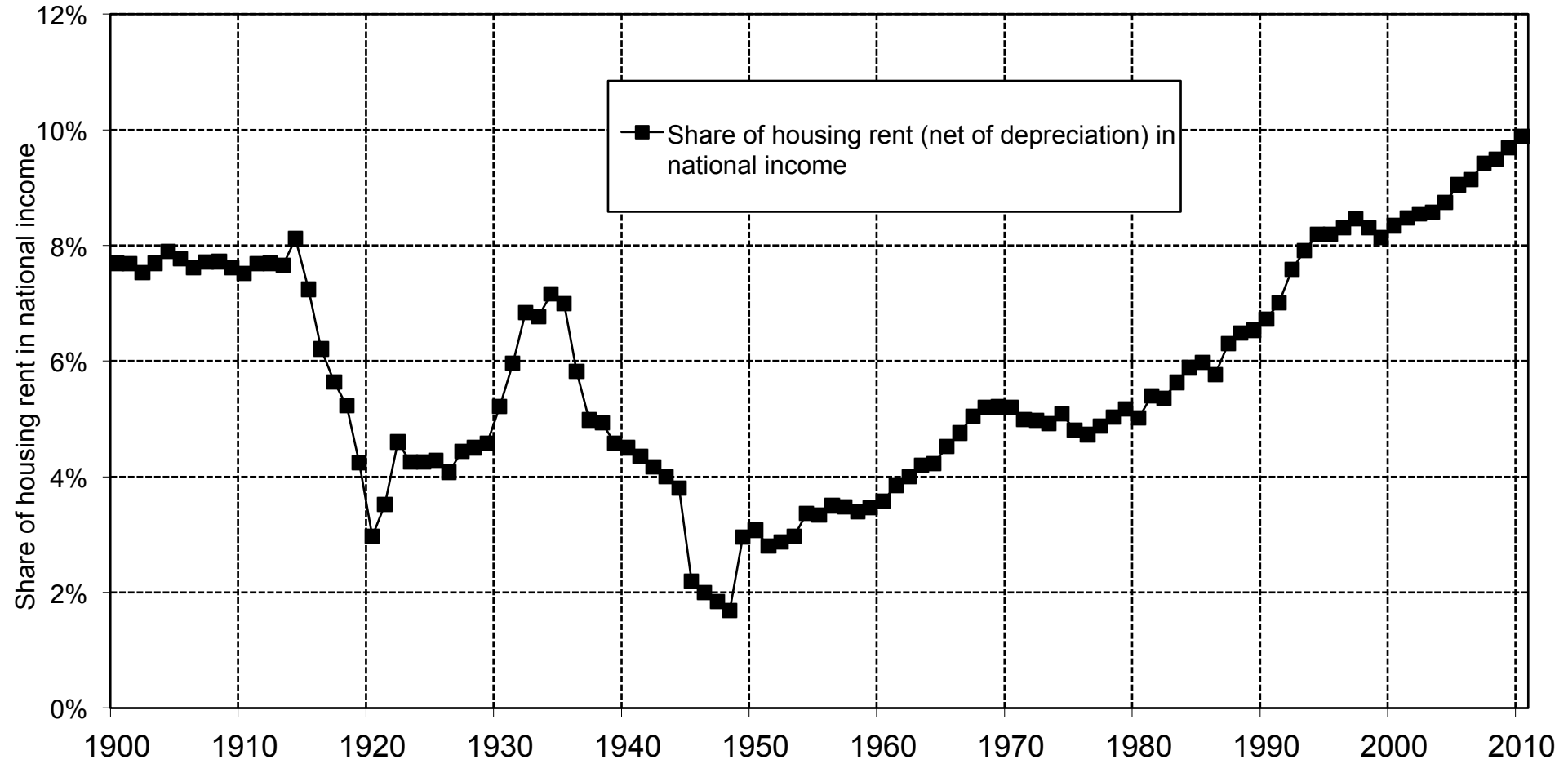
Capital income absorbs between 15% and 25% of national income in rich countries in 1970, and between 25% and 30% in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 6.6. The profit share in the value added of corporations in France, 1900-2010



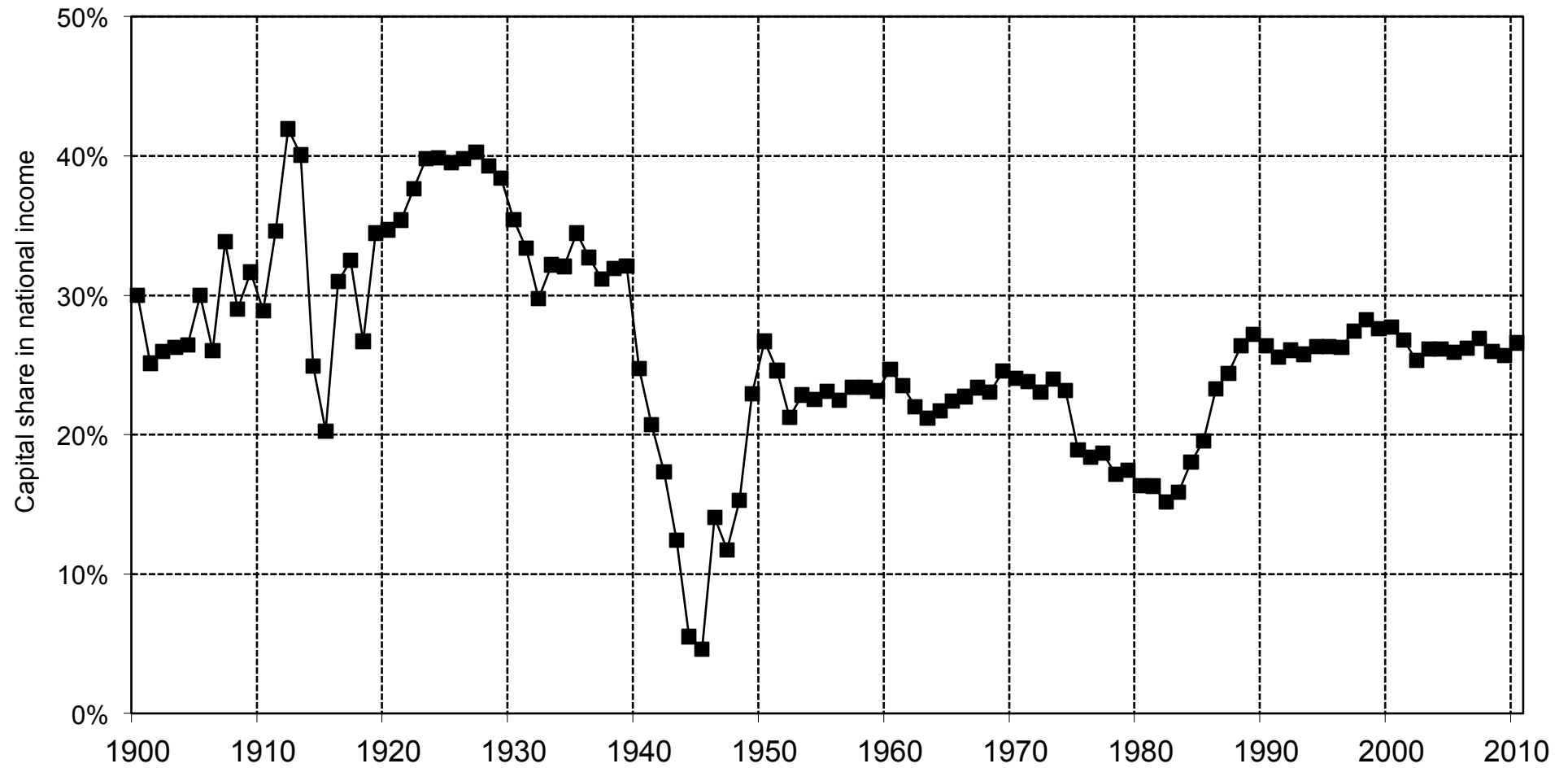
The share of gross profits in gross value added of corporations rose from 25% in 1982 to 33% in 2010; the share of net profits in net value added rose from 12% to 20%. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 6.7. The share of housing rent in national income in France, 1900-2010



The share of housing rent (rental value of dwellings) rose from 2% of national income in 1948 to 10% in 2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 6.8. The capital share in national income in France, 1900-2010



The share of capital income (net profits and rents) rose from 15% of national income in 1982 to 27% in 2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Table 7.1. Inequality of labor income across time and space

Share of different groups in total labor income	Low inequality (≈ Scandinavia, 1970s-80s)	Medium inequality (≈ Europe 2010)	High inequality (≈ U.S. 2010)	Very high inequality (≈ U.S. 2030 ?)
The top 10% "Upper class"	20%	25%	35%	45%
<i>including: the top 1%</i> <i>("dominant class")</i>	5%	7%	12%	17%
<i>including: the next 9%</i> ("well to-do class")	15%	18%	23%	28%
The middle 40% "Middle class"	45%	45%	40%	35%
The bottom 50% "Lower class"	35%	30%	25%	20%
Corresponding Gini coefficient (synthetic inequality index)	0.19	0.26	0.36	0.46

In societies where labor income inequality is relatively low (such as in Scandinavian countries in the 1970s-1980s), the top 10% most well paid receive about 20% of total labor income, the bottom 50% least well paid about 35%, the middle 40% about 45%. The corresponding Gini index (a synthetic inequality index going from 0 to 1) is equal to 0.19. See technical appendix.

Table 7.2. Inequality of capital ownership across time and space

Share of different groups in total capital	Low inequality (never observed; ideal society?)	Medium inequality (≈ Scandinavia, 1970s-1980s)	Medium- high inequality (≈ Europe 2010)	High inequality (≈ U.S. 2010)	Very high inequality (≈ Europe 1910)
The top 10% "Upper class"	30%	50%	60%	70%	90%
<i>including: the top 1%</i> <i>("dominant class")</i>	10%	20%	25%	35%	50%
<i>including: the next 9%</i> ("well <i>to-do class")</i>	20%	30%	35%	35%	40%
The middle 40% "Middle class"	45%	40%	35%	25%	5%
The bottom 50% "Lower class"	25%	10%	5%	5%	5%
Corresponding Gini coefficient (synthetic inequality index)	0.33	0.58	0.67	0.73	0.85

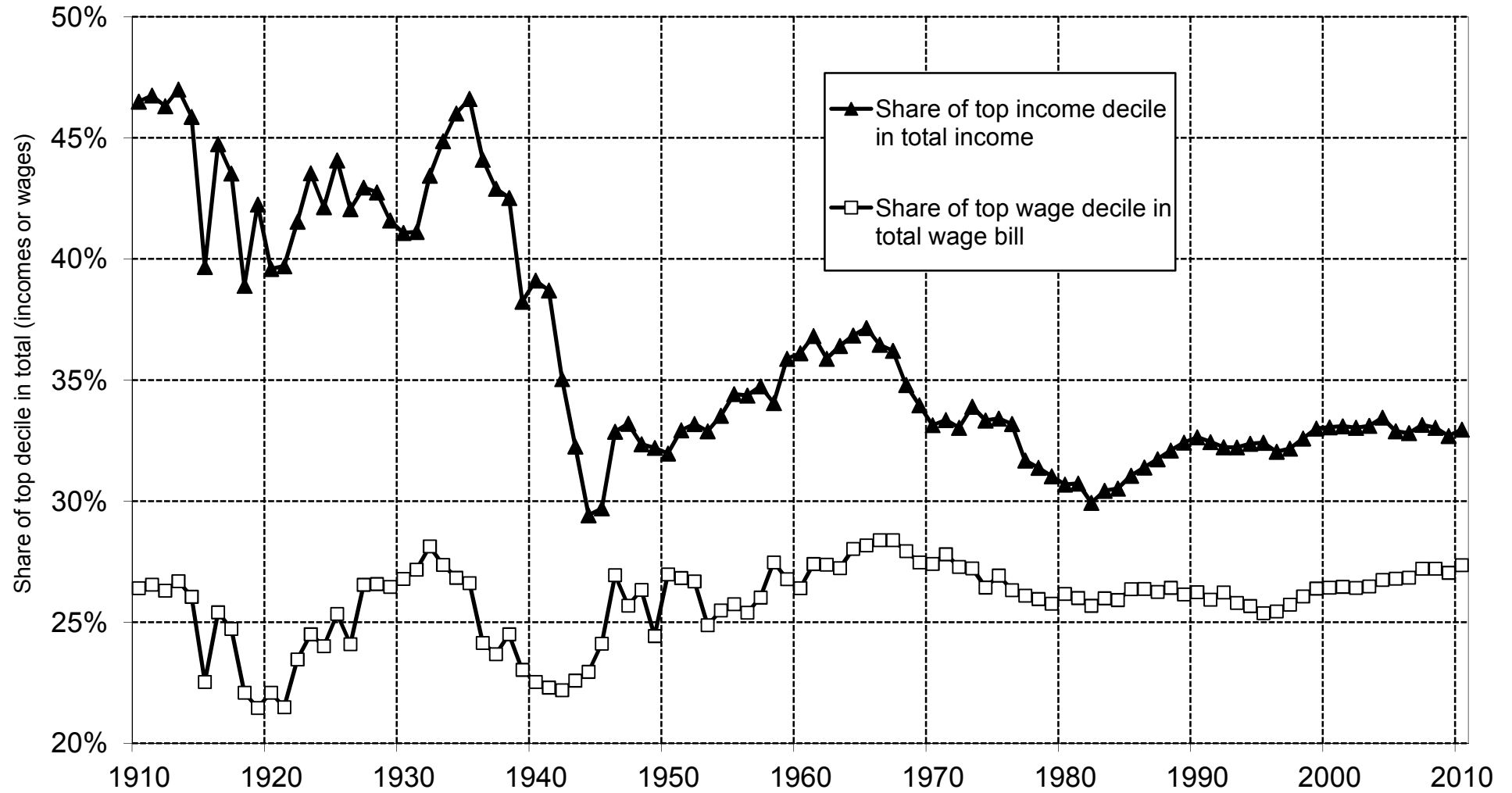
In societies with "medium" inequality of capital ownership (such as Scandinavian countries in the 1970s-1980s), the top 10% richest in wealth own about 50% of aggregate wealth, the bottom 50% poorest about 10%, and the middle 40% about 40%. The corresponding Gini coefficient is equal to 0.58. See technical appendix.

Table 7.3. Inequality of total income (labor and capital) across time and space

Share of different groups in total income (labor + capital)	Low inequality (≈ Scandinavia, 1970s-80s)	Medium inequality (≈ Europe 2010)	High inequality (≈ U.S. 2010, Europe 1910)	Very high inequality (≈ U.S. 2030 ?)
The top 10% "Upper class"	25%	35%	50%	60%
<i>including: the top 1%</i> ("dominant class")	7%	10%	20%	25%
<i>including: the next 9%</i> ("well-to-do class")	18%	25%	30%	35%
The middle 40% "Middle class"	45%	40%	30%	25%
The bottom 50% "Lower class"	30%	25%	20%	15%
Corresponding Gini coefficient (synthetic inequality index)	0.26	0.36	0.49	0.58

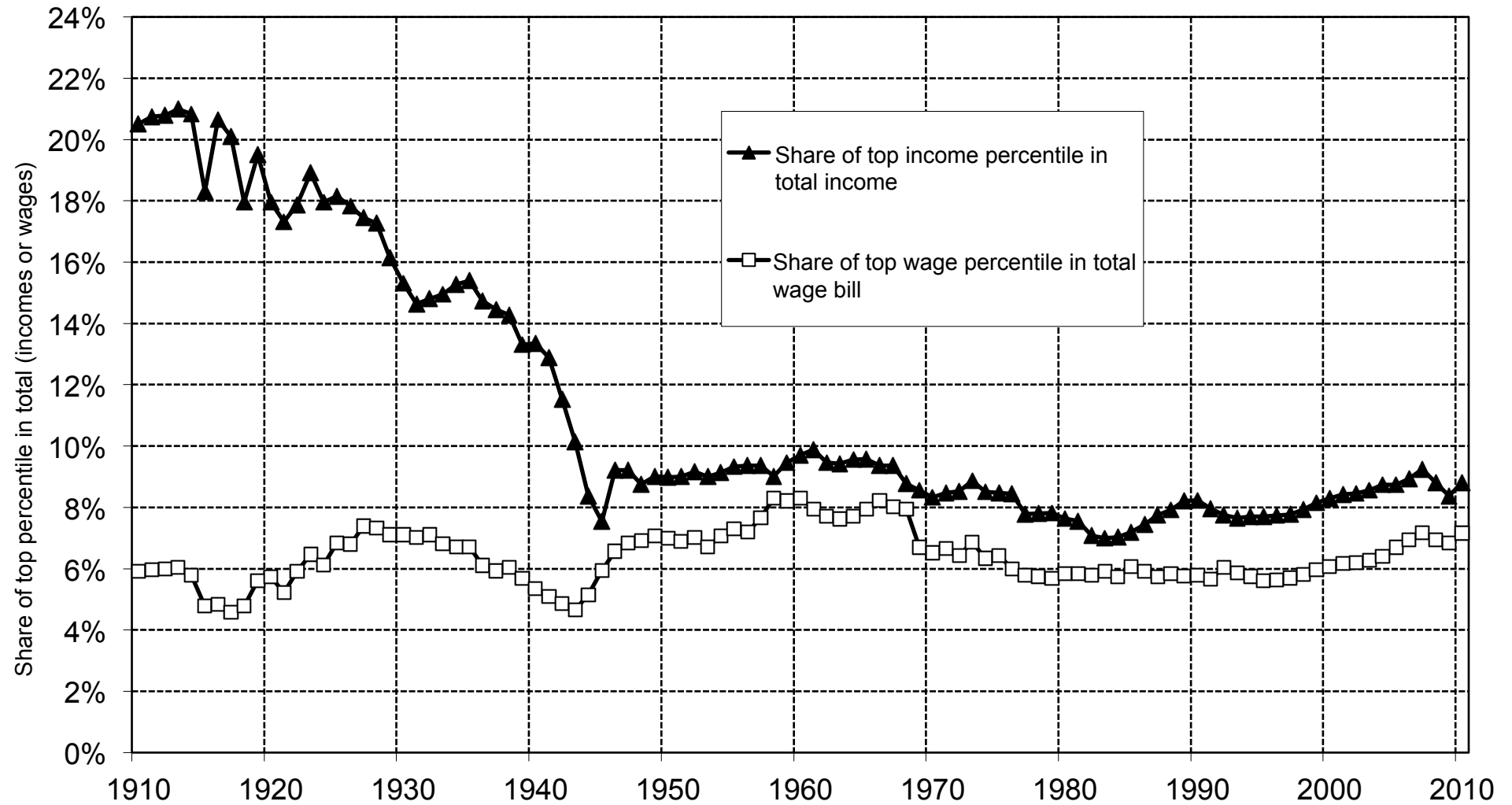
In societies where the inequality of total income is relatively low (such as Scandinavian countries during the 1970s-1980s), the 10% highest incomes receive about 20% of total income, the 50% lowest income receive about 30%. The corresponding Gini coefficient is equal to 0.26. See technical appendix.

Figure 8.1. Income inequality in France, 1910-2010



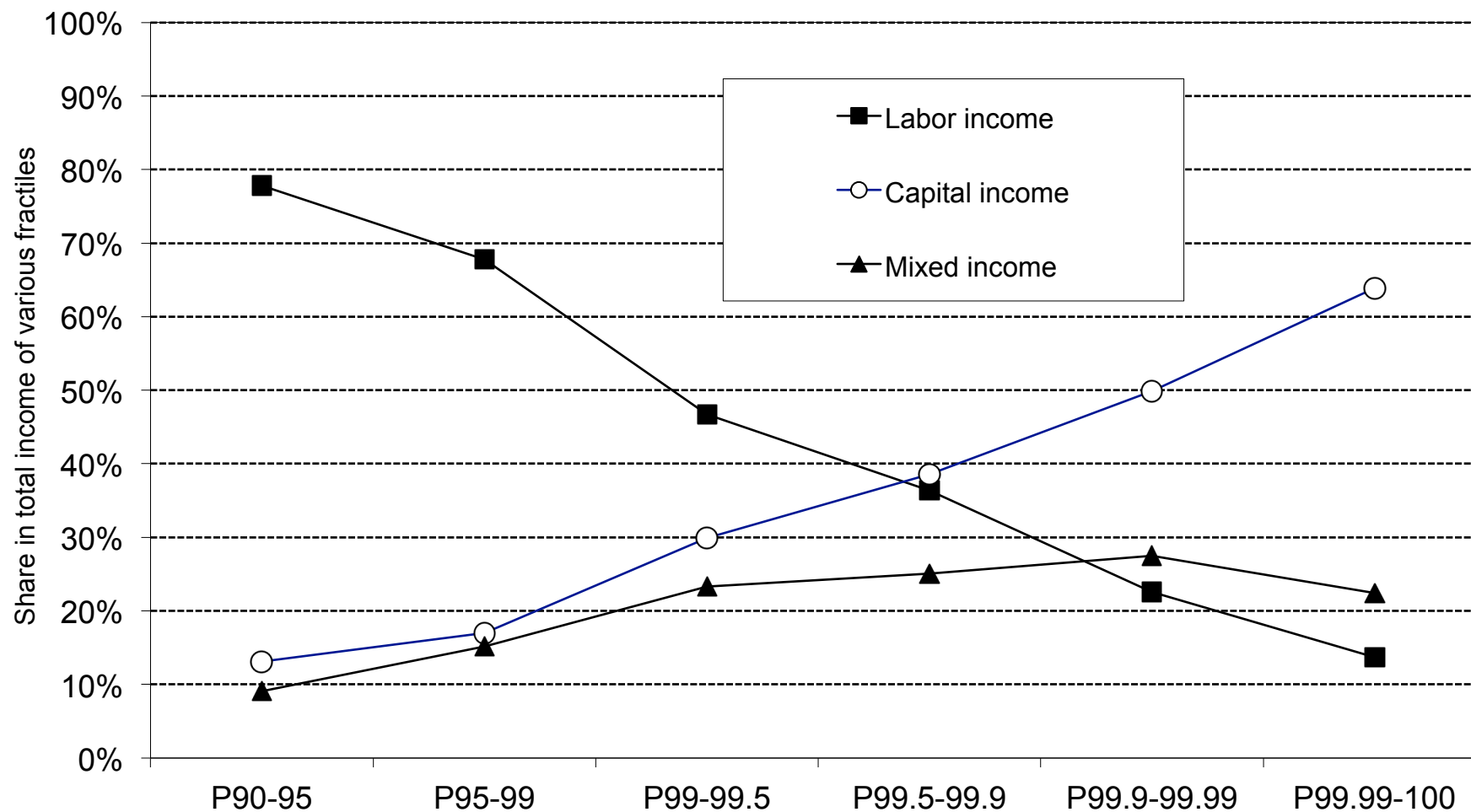
Inequality of total income (labor and capital) has dropped in France during the 20th century, while wage inequality has remained the same. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 8.2. The fall of rentiers in France, 1910-2010



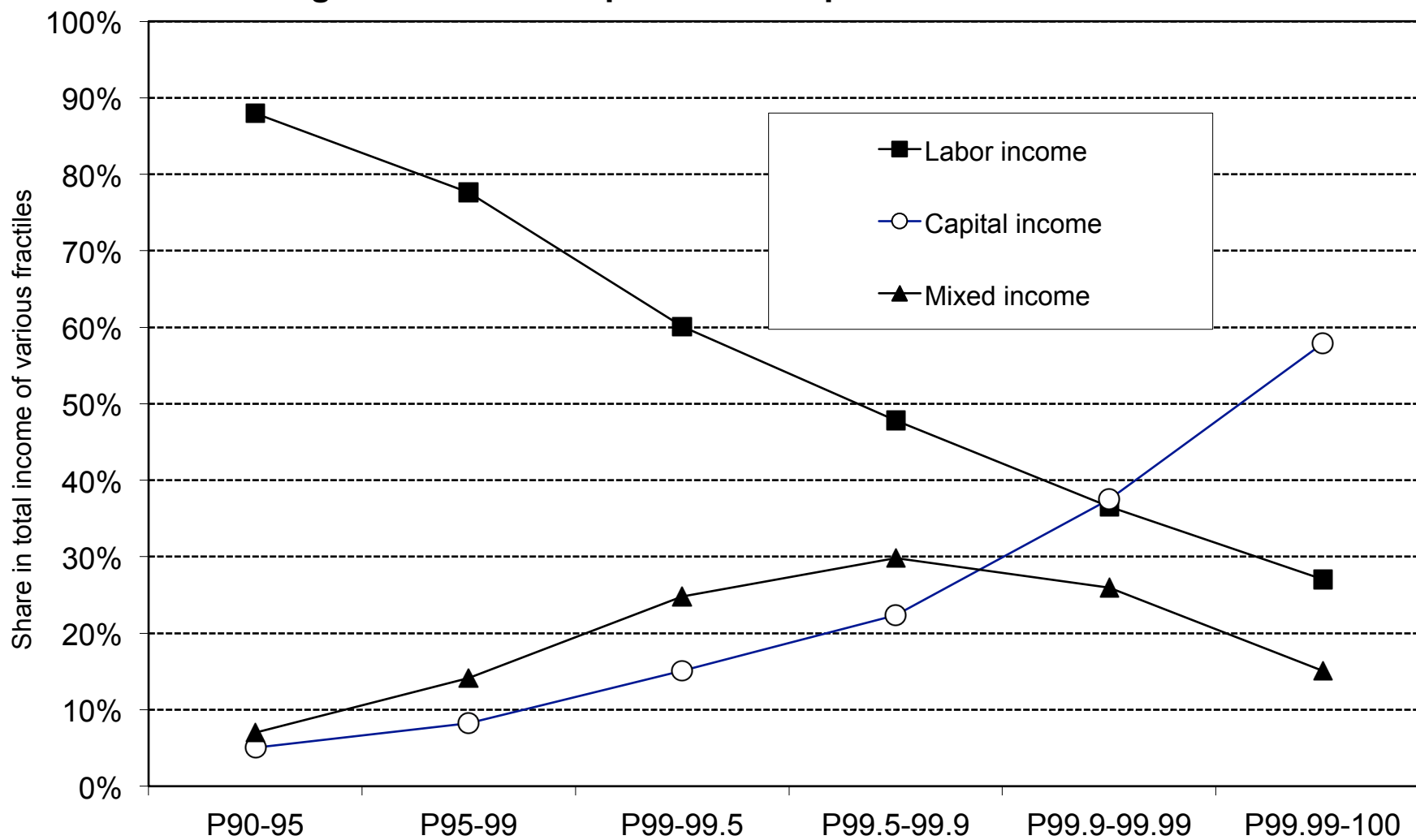
The fall in the top percentile share (the top 1% highest incomes) in France between 1914 and 1945 is due to the fall of top capital incomes. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 8.3. The composition of top incomes in France in 1932



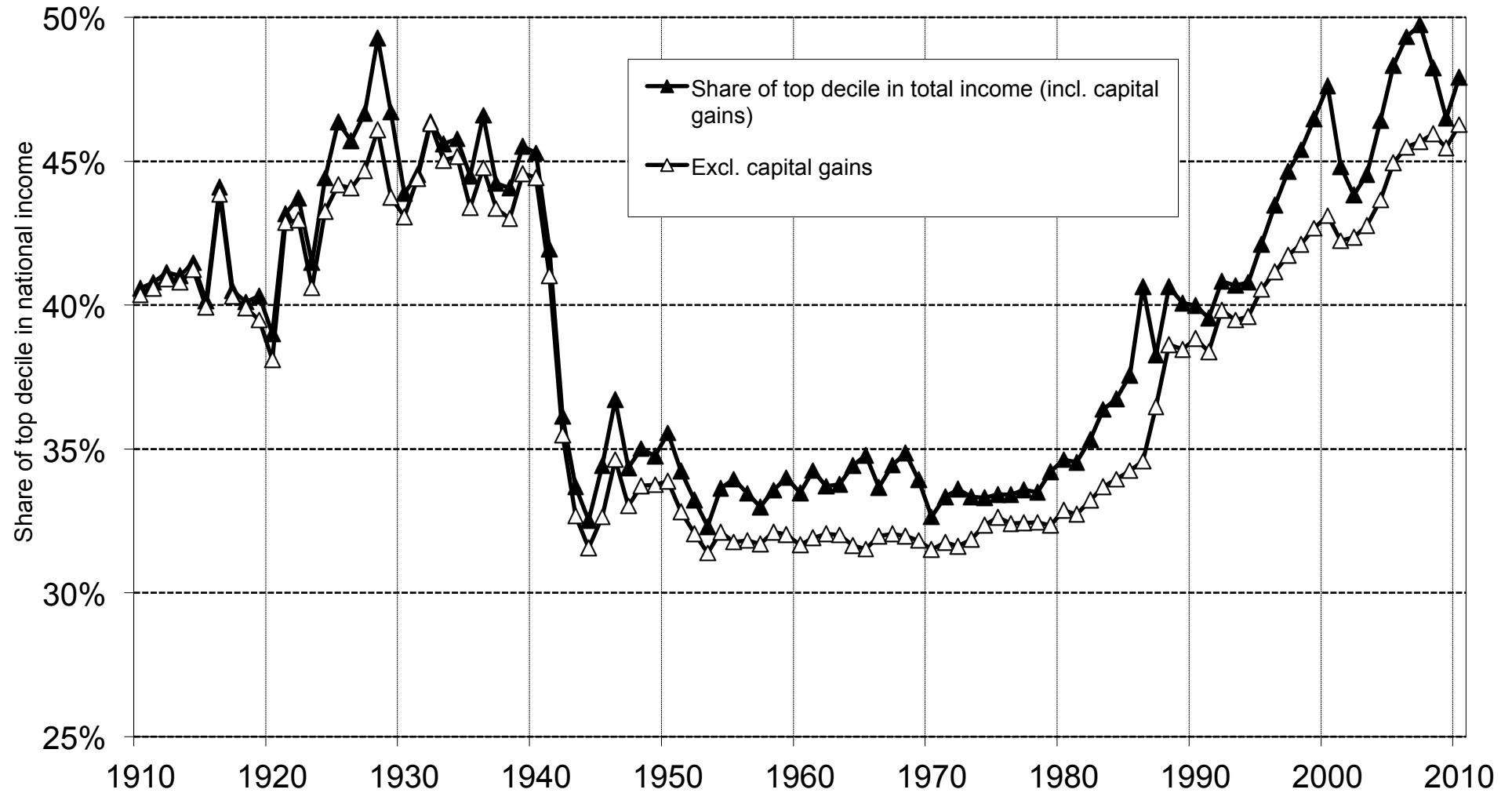
Labor income becomes less and less important as one goes up within the top decile of total income. Notes: (i) "P90-95" includes individuals between percentiles 90 to 95, "P95-99" includes the next 4%, "P99-99.5" the next 0.5%, etc. (ii) Labor income: wages, bonuses, pensions. Capital income: dividends, interest, rent. Mixed income: self-employment income. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 8.4. The composition of top incomes in France in 2005



Capital income becomes dominant at the level of the top 0.1% in France in 2005, as opposed to the top 0.5% in 1932. Sources and series: see piketty.pse.ens.fr/capital21c.

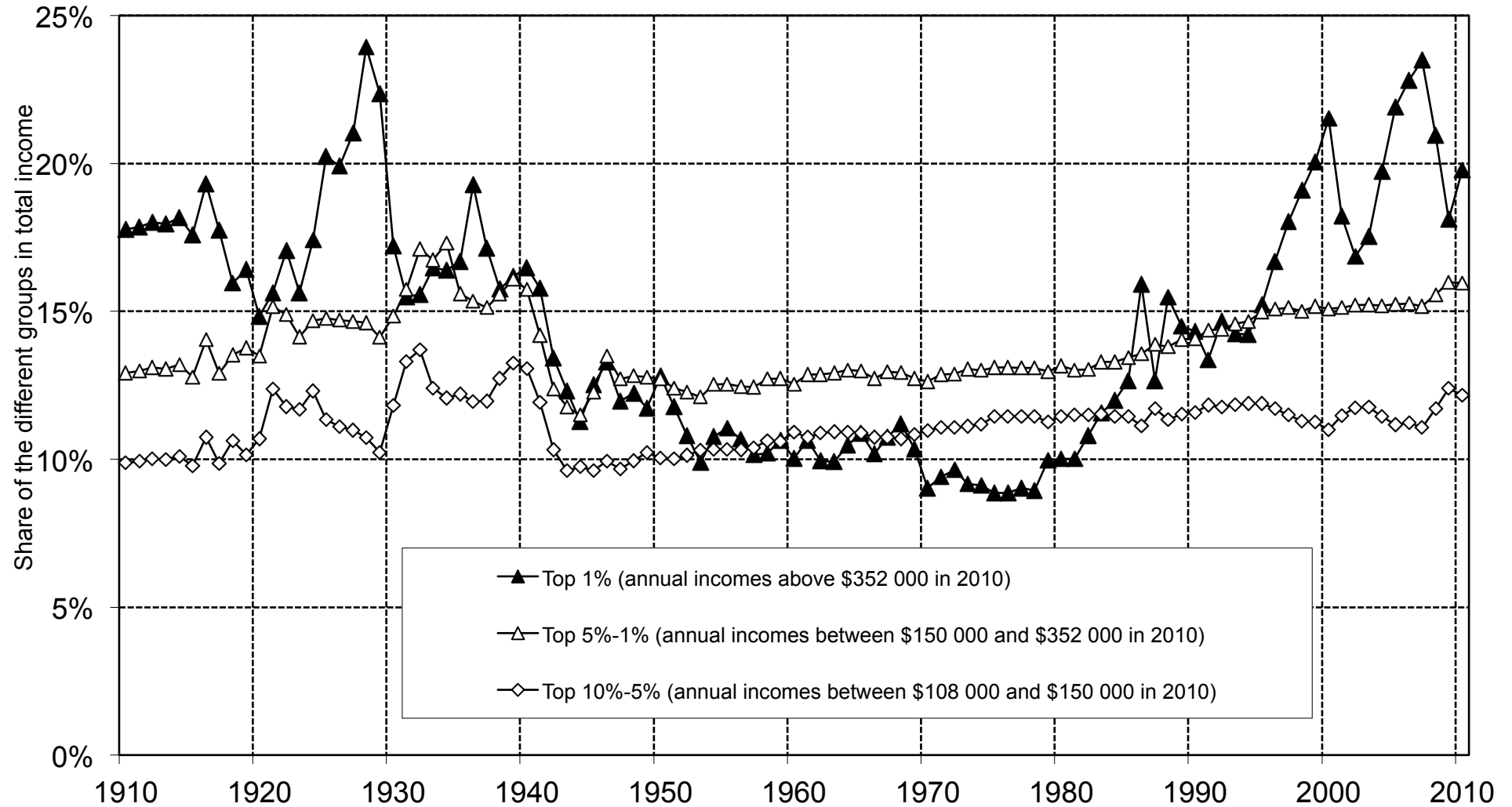
Figure 8.5. Income inequality in the United States, 1910-2010



The top decile income share rose from less than 35% of total income in the 1970s to almost 50% in the 2000s-2010s.

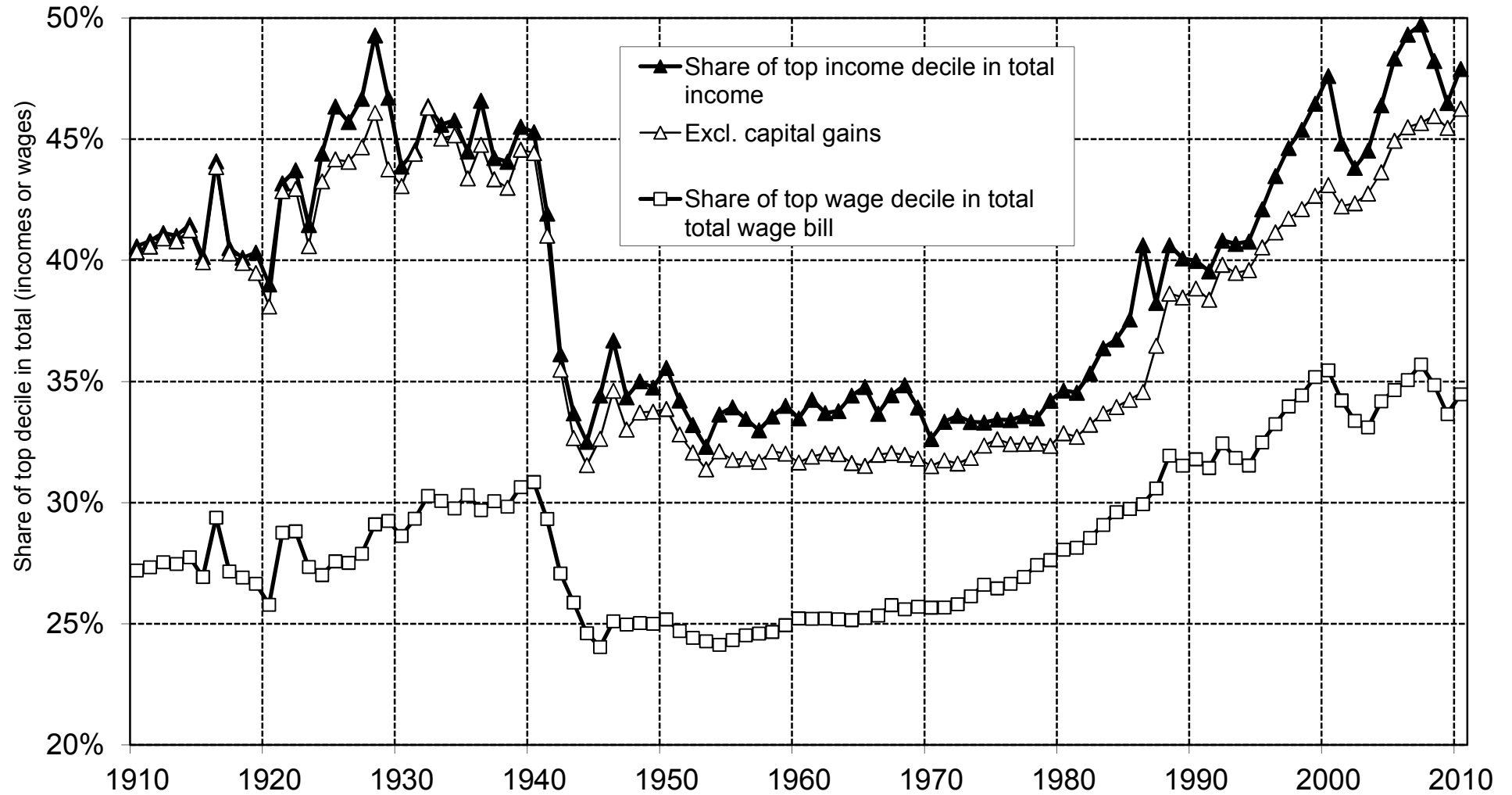
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 8.6. Decomposition of the top decile, U.S. 1910-2010



The rise of the top decile income share since the 1970s is mostly due to the top percentile.
Sources and series: see piketty.pse.ens.fr/capital21c.

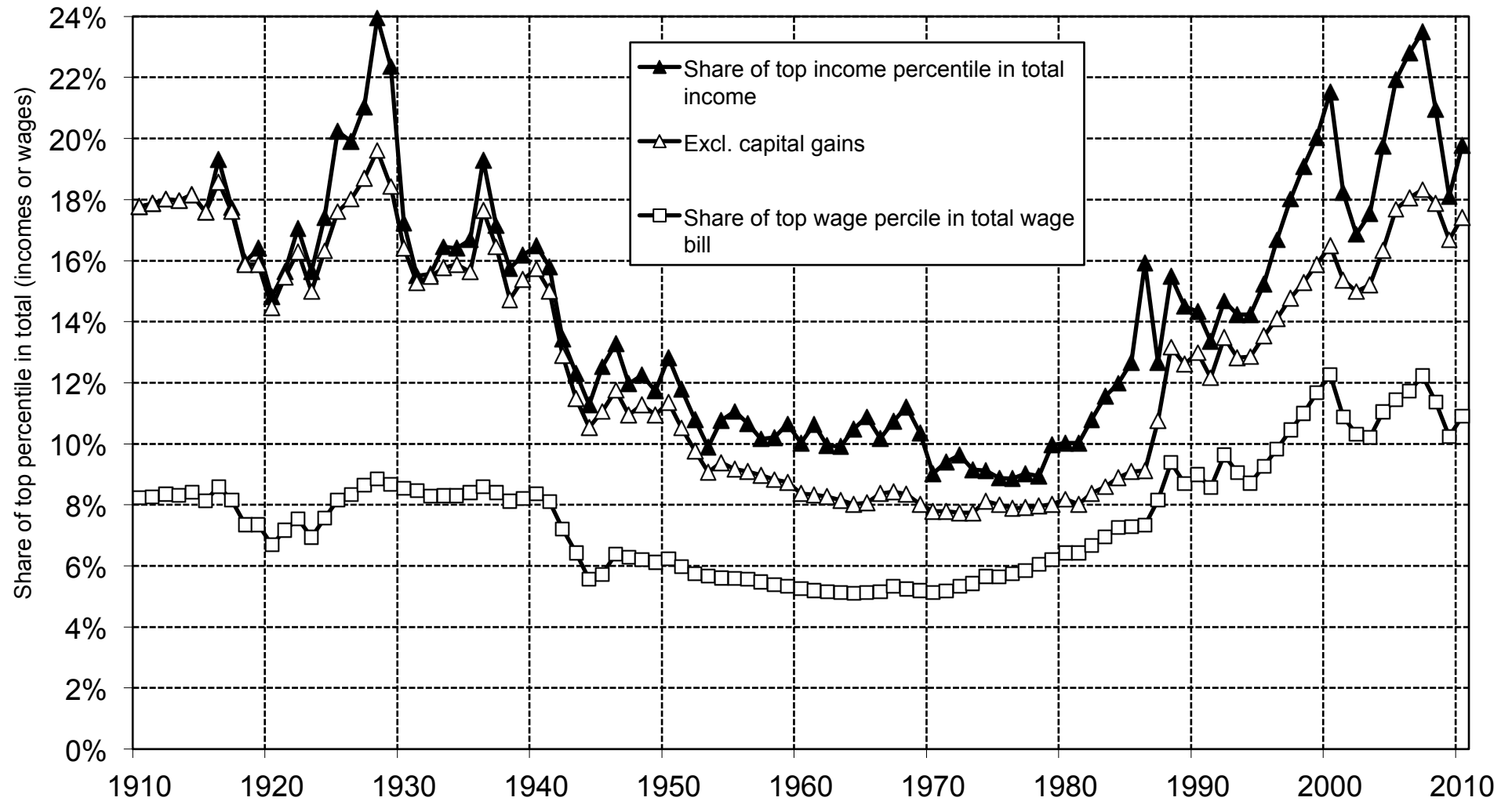
Figure 8.7. High incomes and high wages in the U.S. 1910-2010



The rise of income inequality since the 1970s is largely due to the rise of wage inequality.

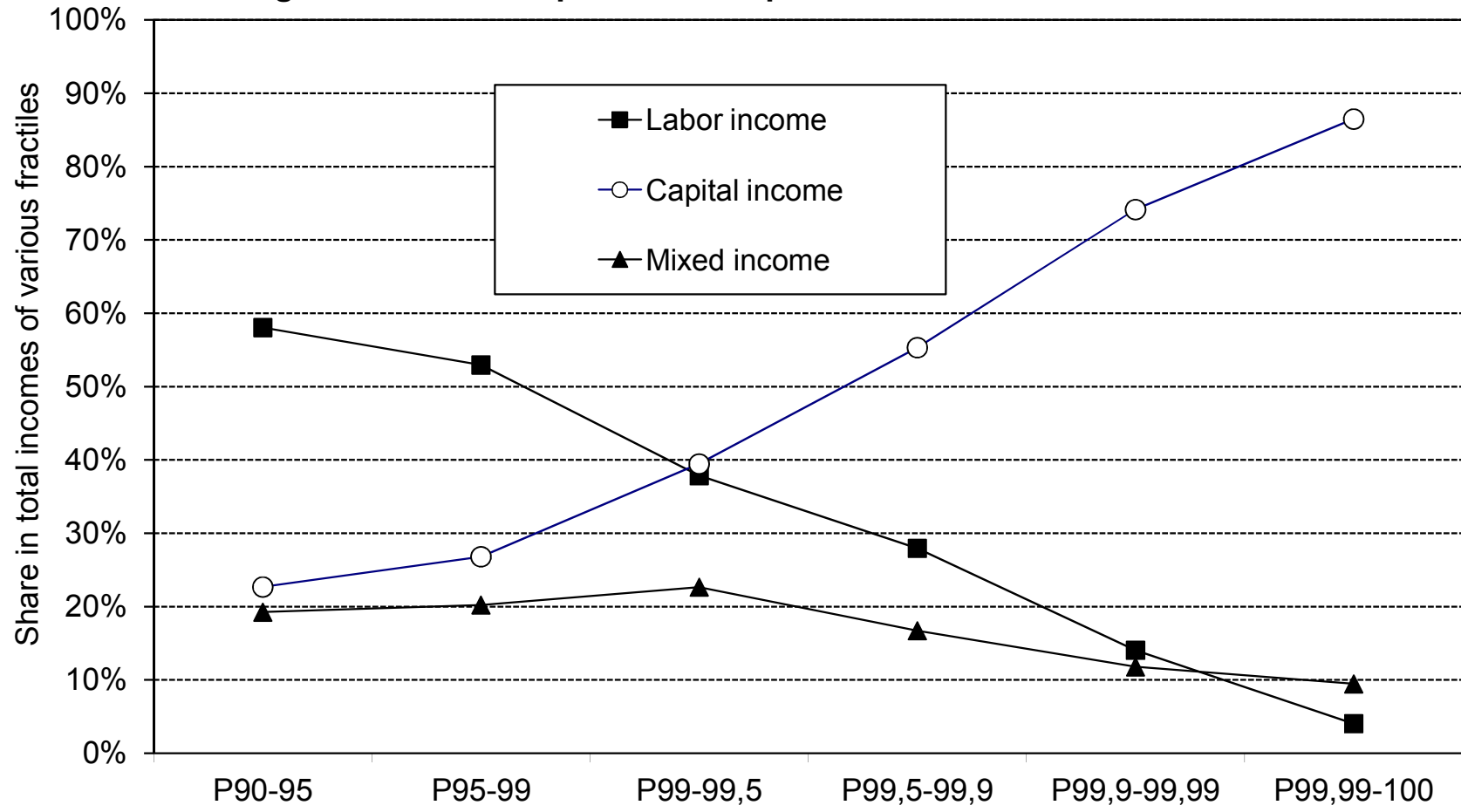
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 8.8. The transformation of the top 1% in the United States



The rise in the top 1% highest incomes since the 1970s is largely due to the rise in the top 1% highest wages. Sources and series: see piketty.pse.ens.fr/capital21c.

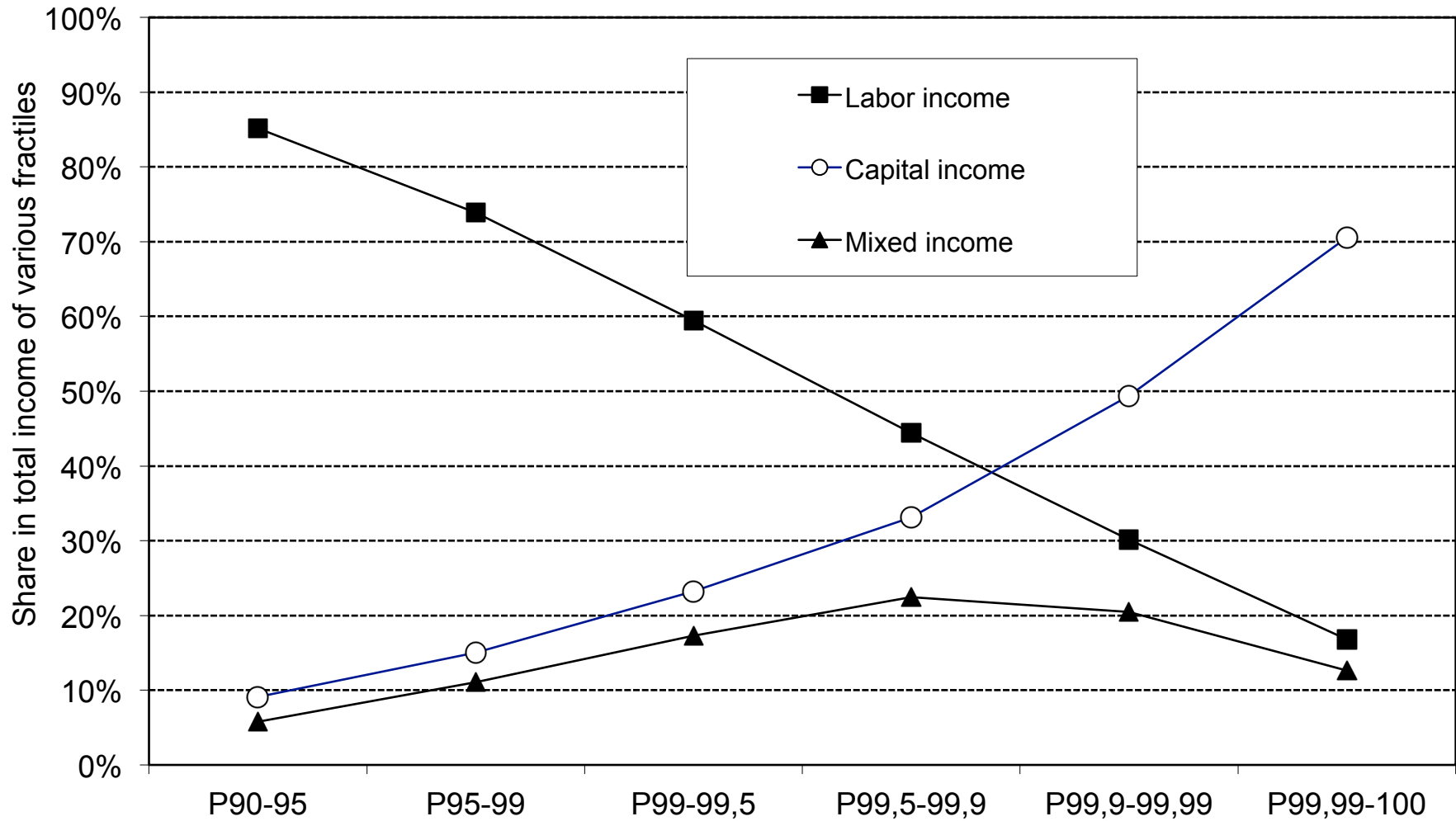
Figure 8.9. The composition of top incomes in the U.S. in 1929



Labor income becomes less and less important as one moves up within the top income decile.

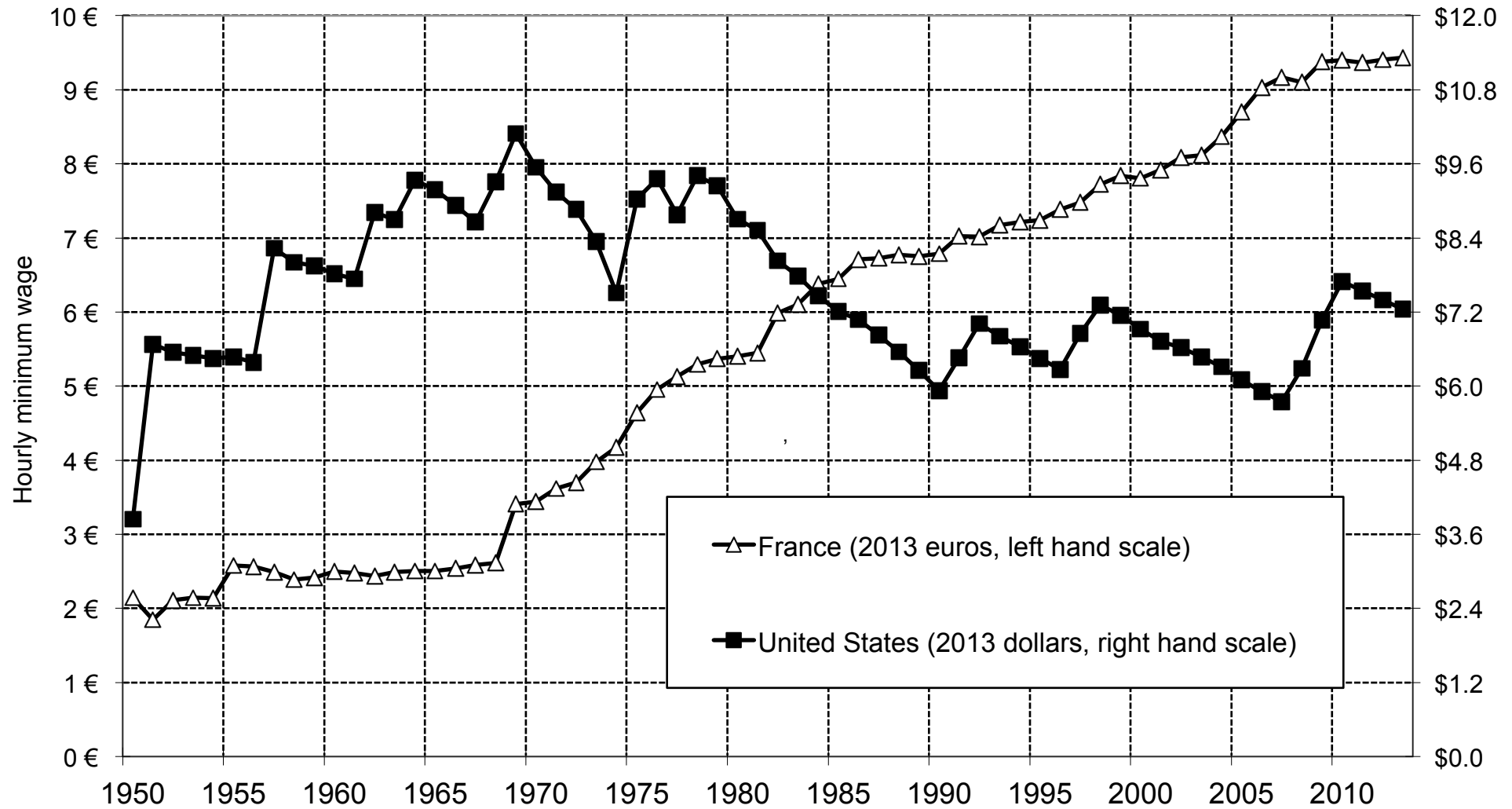
Sources and series: see piketty.pse.ens.fr/capital21c

Figure 8.10. The composition of top incomes in the U.S., 2007



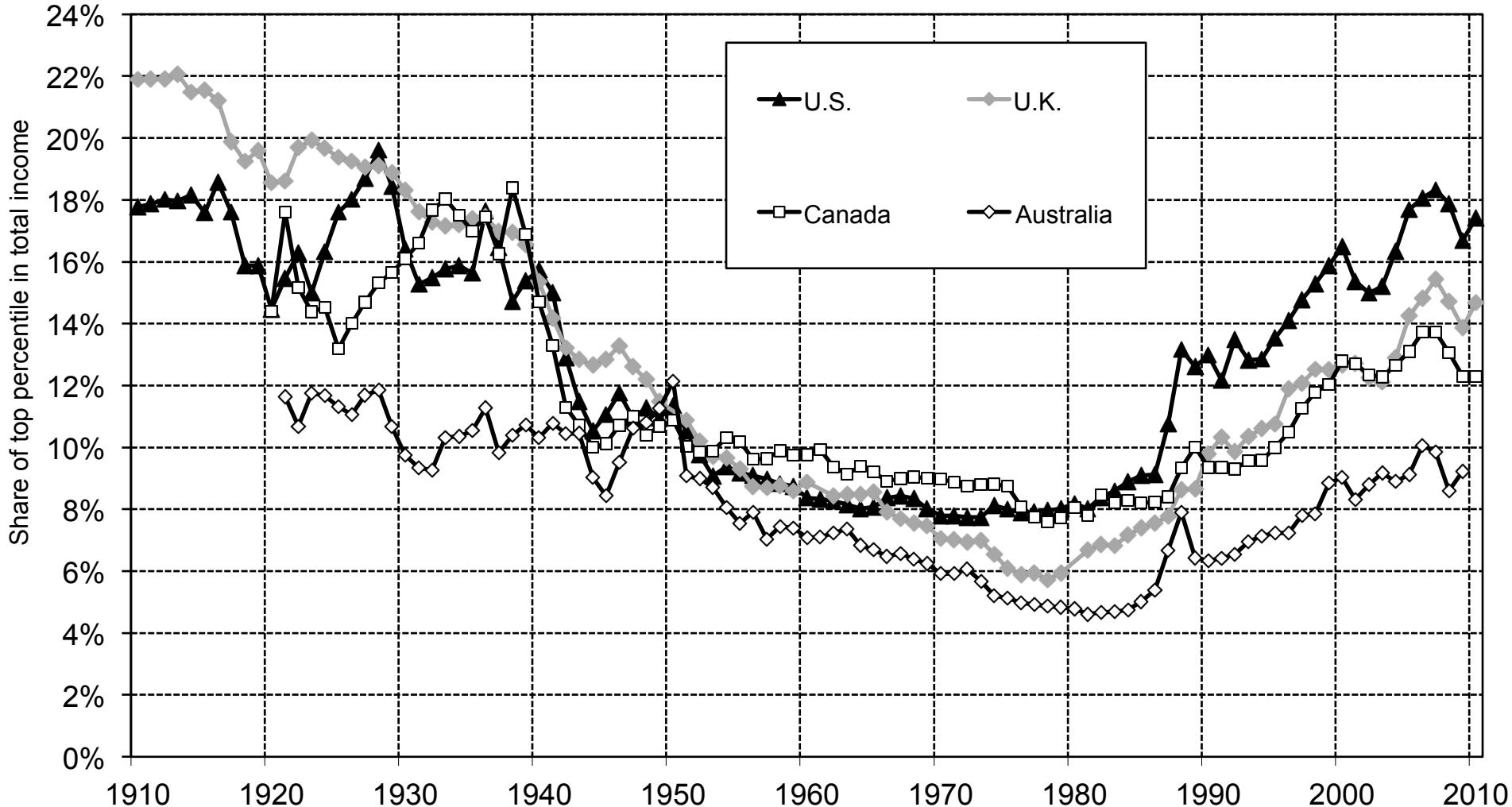
Capital income becomes dominant at the level of top 0.1% in 2007, as opposed to the top 1% in 1929. Sources and series: see piketty.pse.ens.fr/capital21c.

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



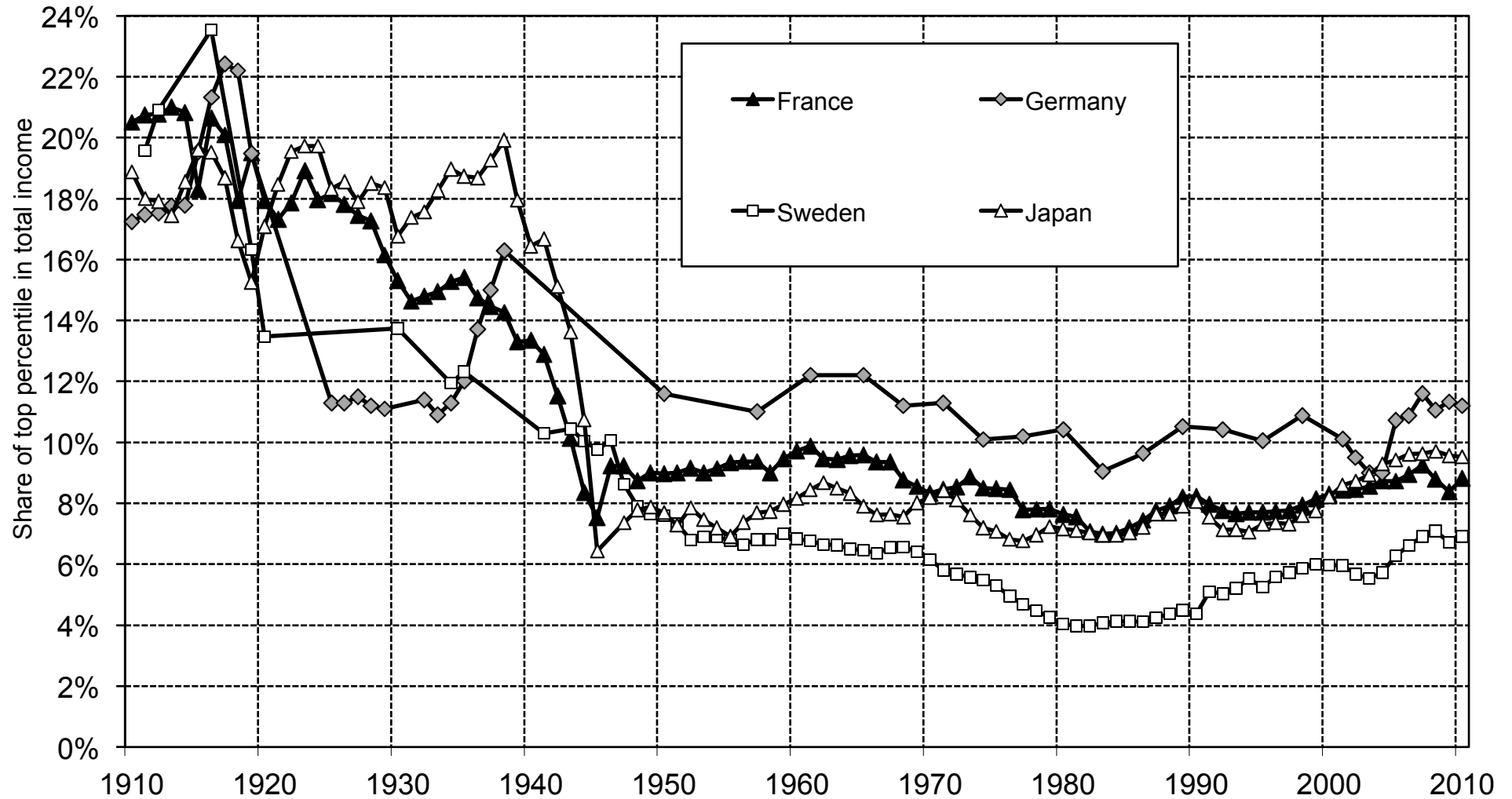
Expressed in 2013 purchasing power, the hourly minimum wage rose from \$3.8 to \$7.3 between 1950 and 2013 in the U.S., and from €2.1 to €9.4 in France. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 9.2. Income inequality in Anglo-saxon countries, 1910-2010



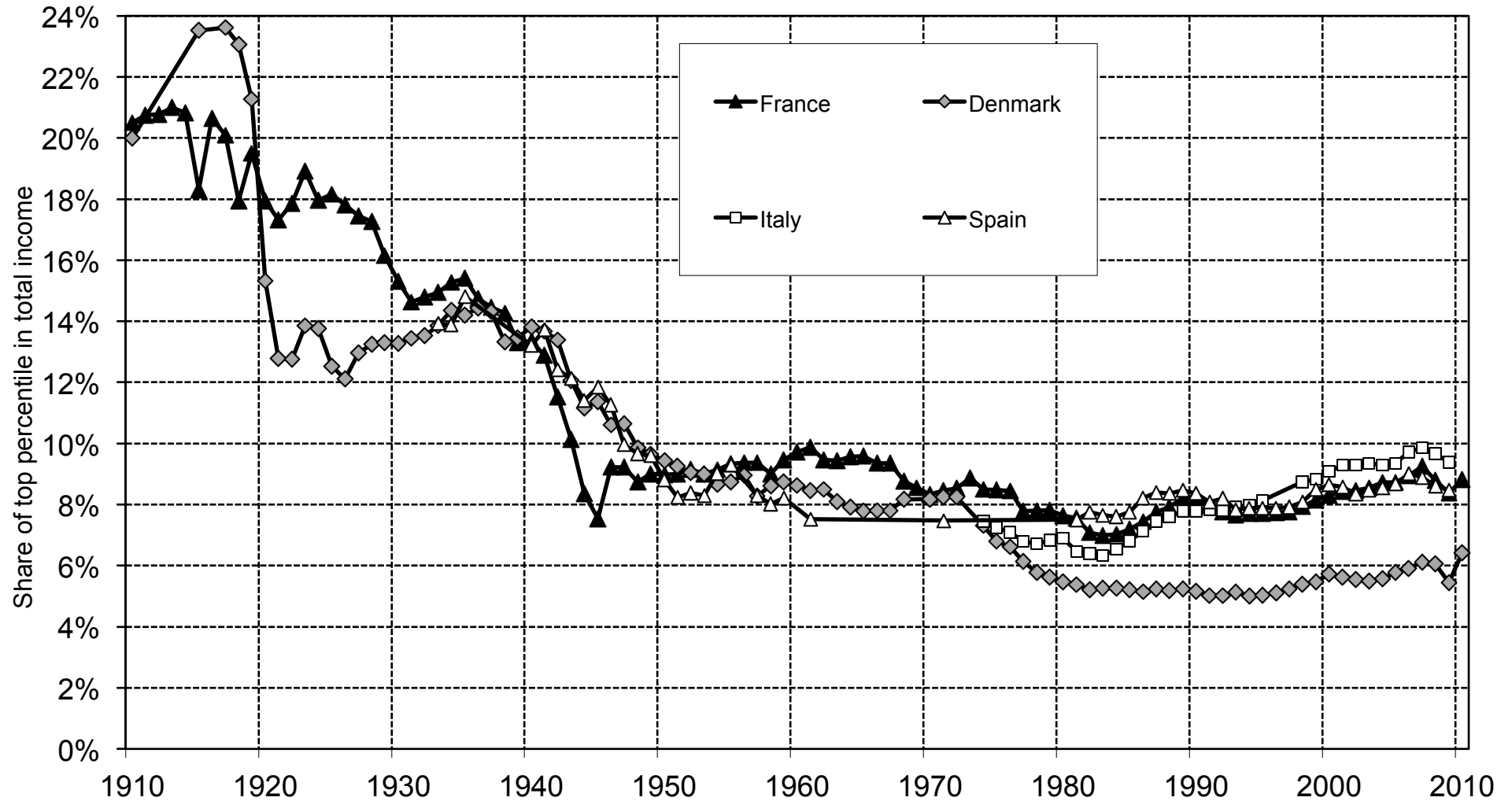
The share of top percentile in total income rose since the 1970s in all Anglo-saxon countries, but with different magnitudes. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 9.3. Income inequality: Continental Europe and Japan, 1910-2010



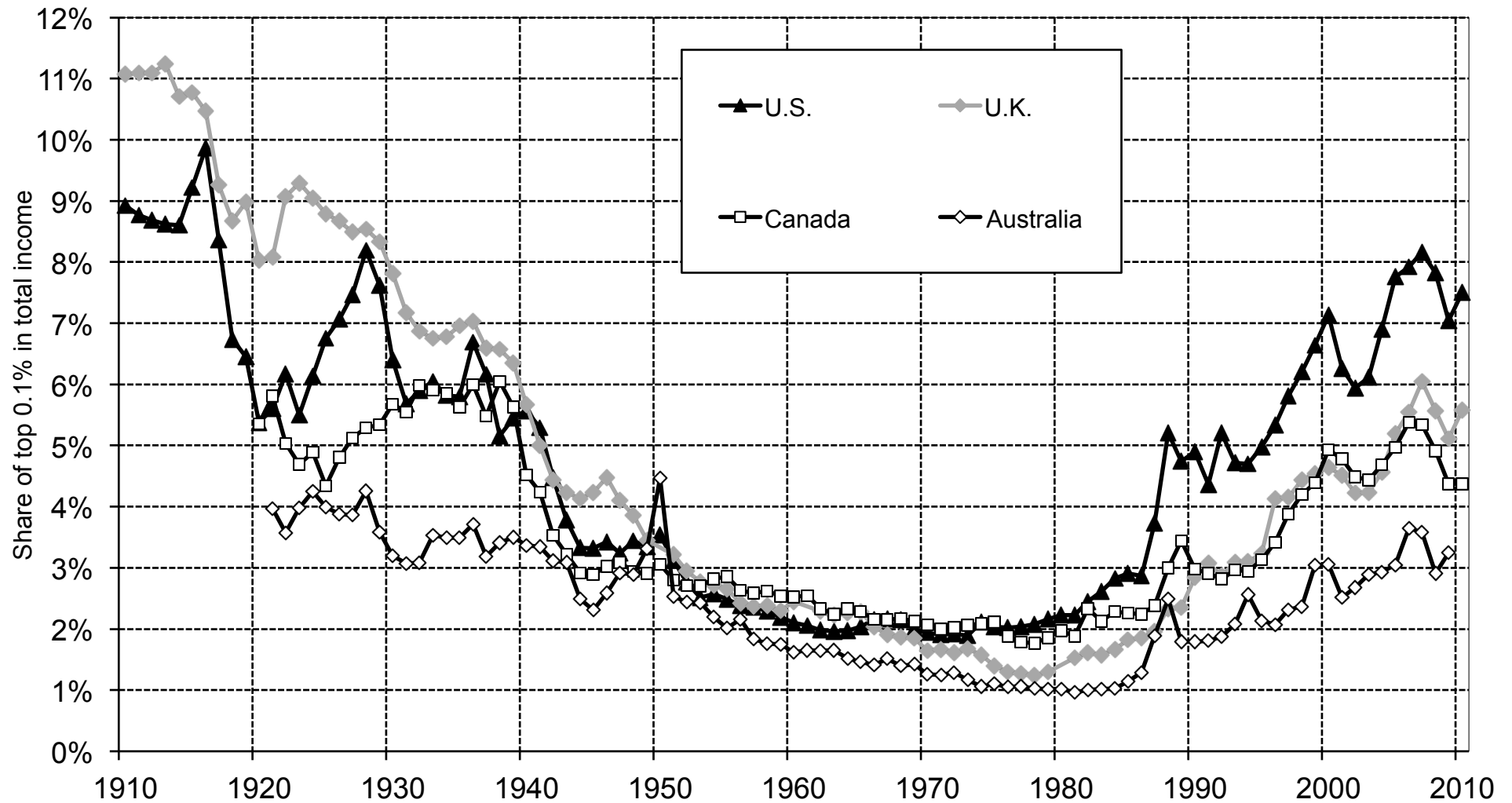
As compared to Anglo-saxon countries, the share of top percentile barely increased since the 1970s in Continental Europe and Japan. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 9.4. Income inequality: Northern and Southern Europe, 1910-2010



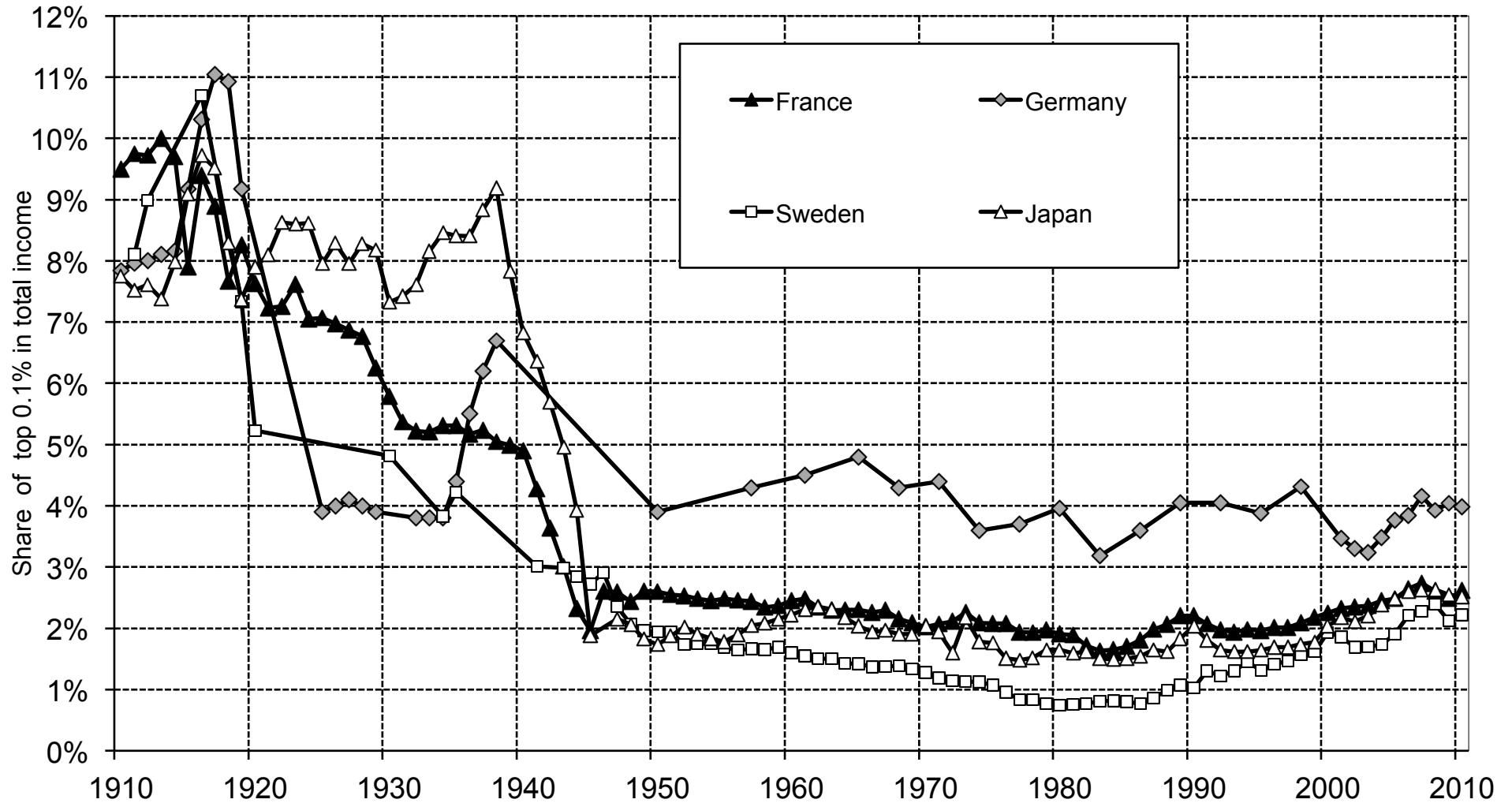
As compared to Anglo-saxon countries, the top percentile income share barely increased in Northern and Southern Europe since the 1970s. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 9.5. The top 0.1% income share in Anglo-saxon countries, 1910-2010



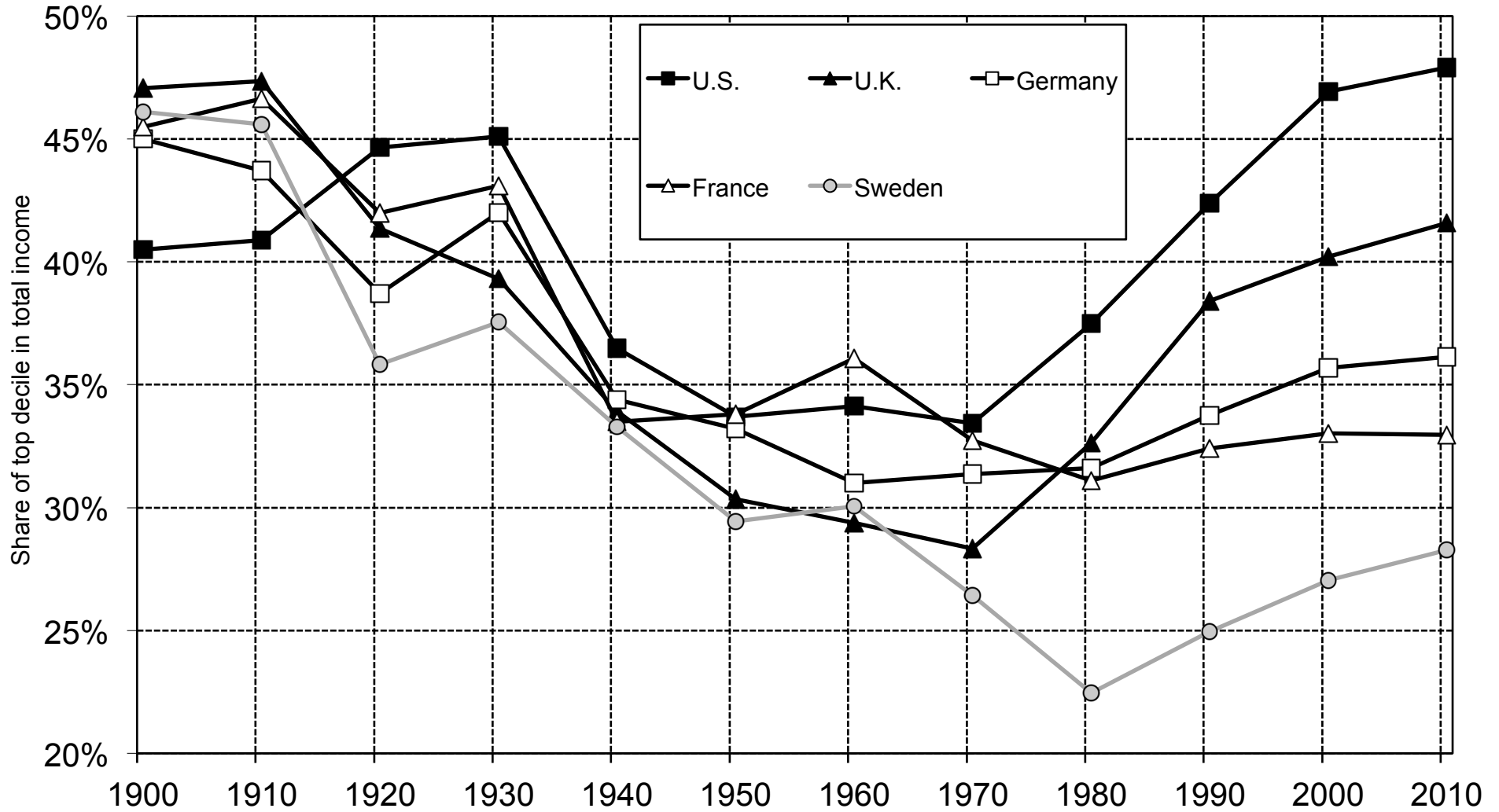
The share of the top 0.1% highest incomes in total income rose sharply since the 1970s in all Anglo-saxon countries, but with varying magnitudes. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 9.6. The top 0.1% income share: Continental Europe and Japan, 1910-2010



As compared to Anglo-saxon countries, the top 0.1% income share barely increased in Continental Europe and Japan. Sources and series: see piketty.pse.ens.fr/capital21c.

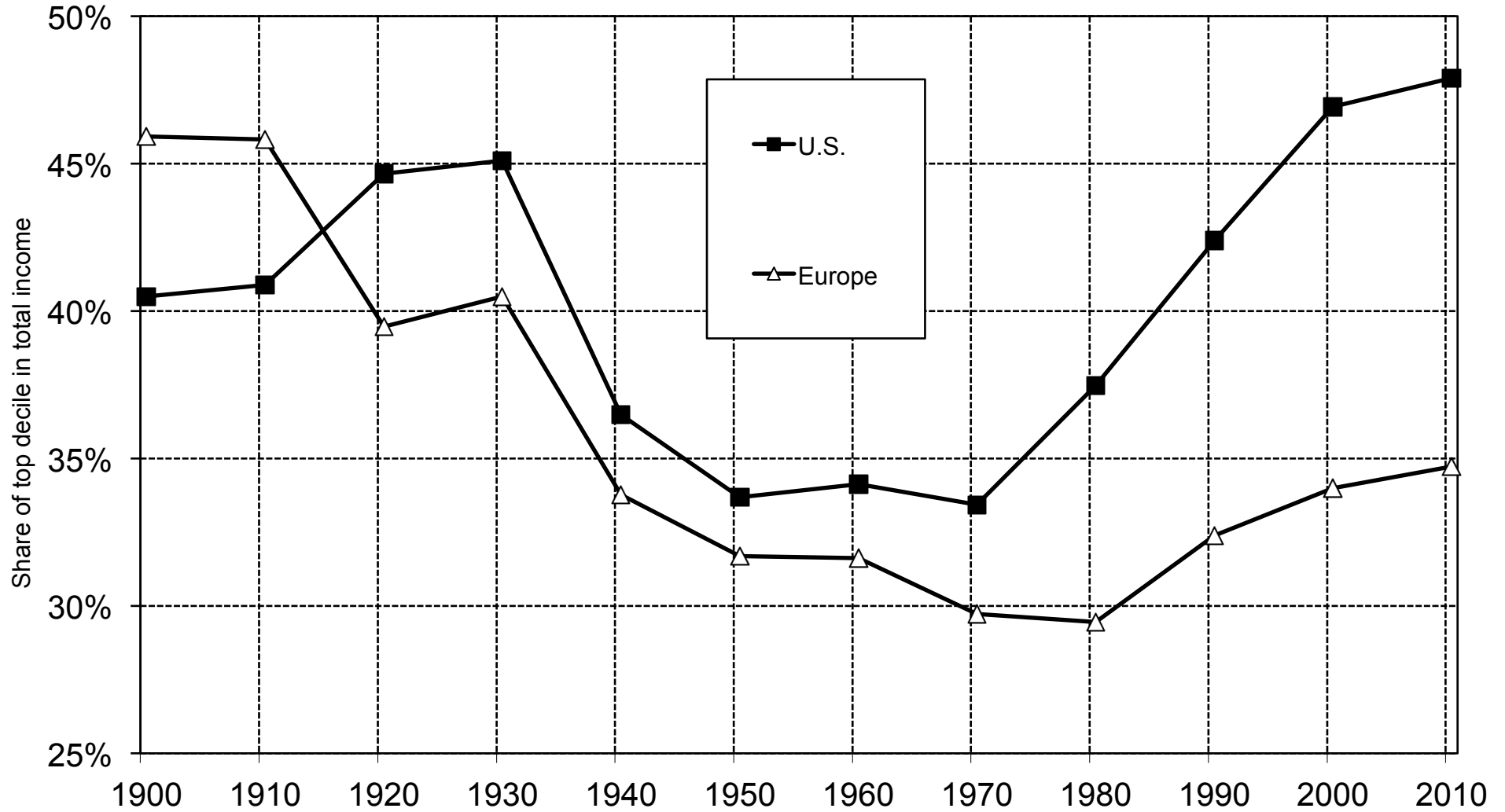
Figure 9.7. The top decile income share: Europe and the U.S., 1900-2010



In the 1950s-1970s, the top decile income share was about 30-35% of total income in Europe as in the U.S.

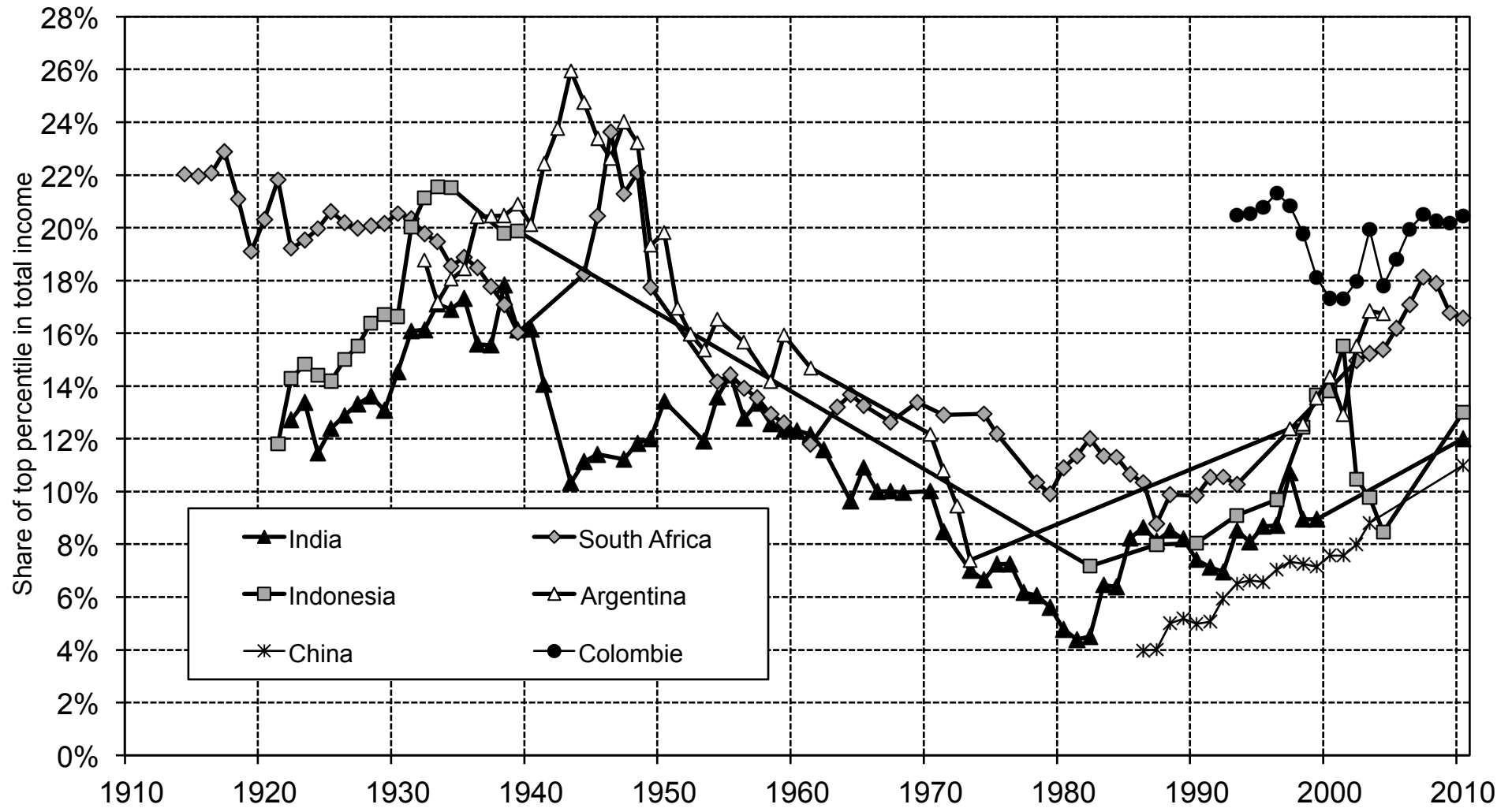
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 9.8. Income inequality: Europe vs. the United States, 1900-2010



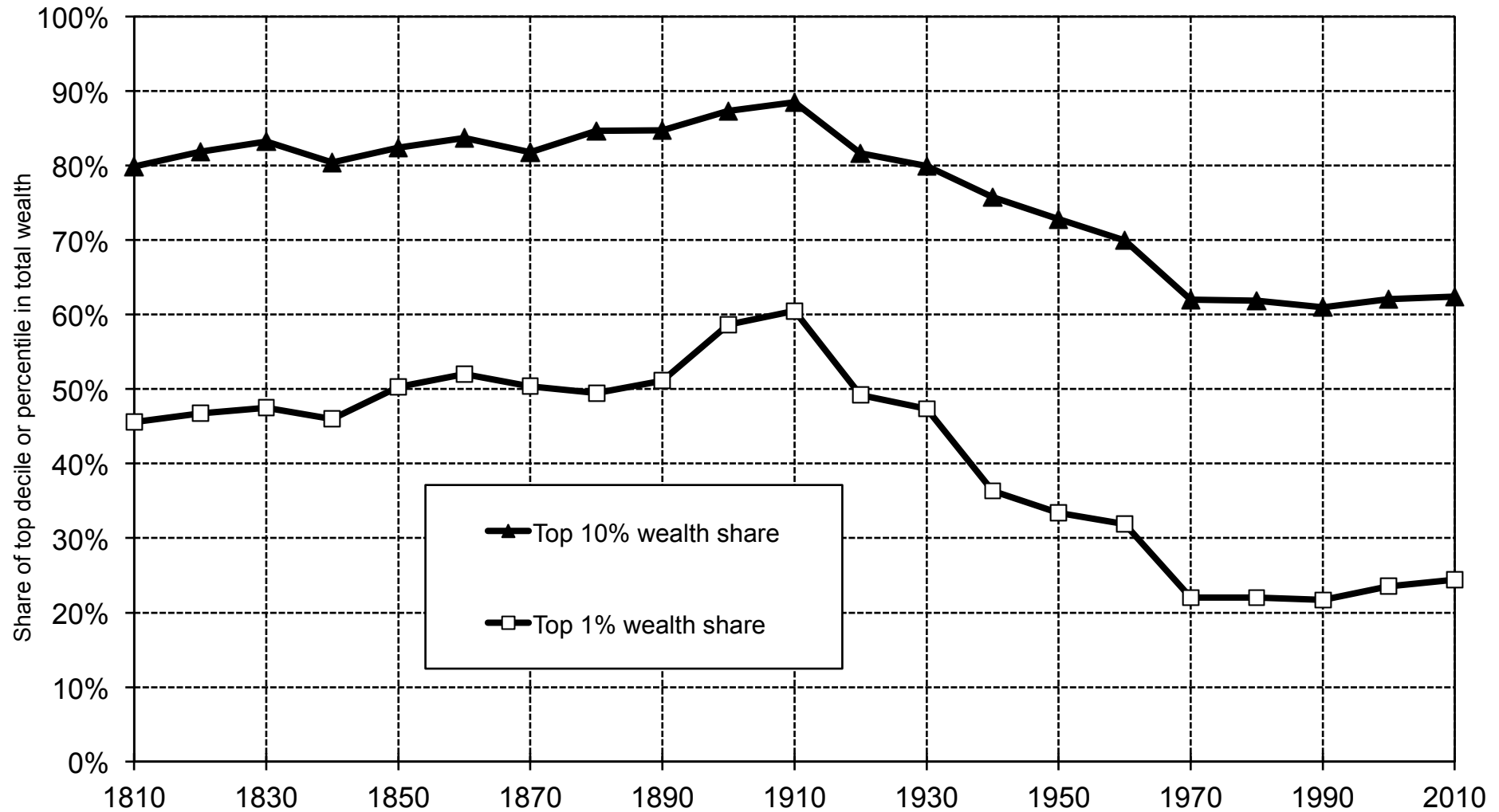
The top decile income share was higher in Europe than in the U.S. in 1900-1910; it is a lot higher in the U.S. in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 9.9. Income inequality in emerging countries, 1910-2010



Measured by the top percentile income share, income inequality rose in emerging countries since the 1980s, but ranks below U.S. level in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 10.1. Wealth inequality in France, 1810-2010



The top decile (the top 10% highest wealth holders) owns 80-90% of total wealth in 1810-1910, and 60-65% today.

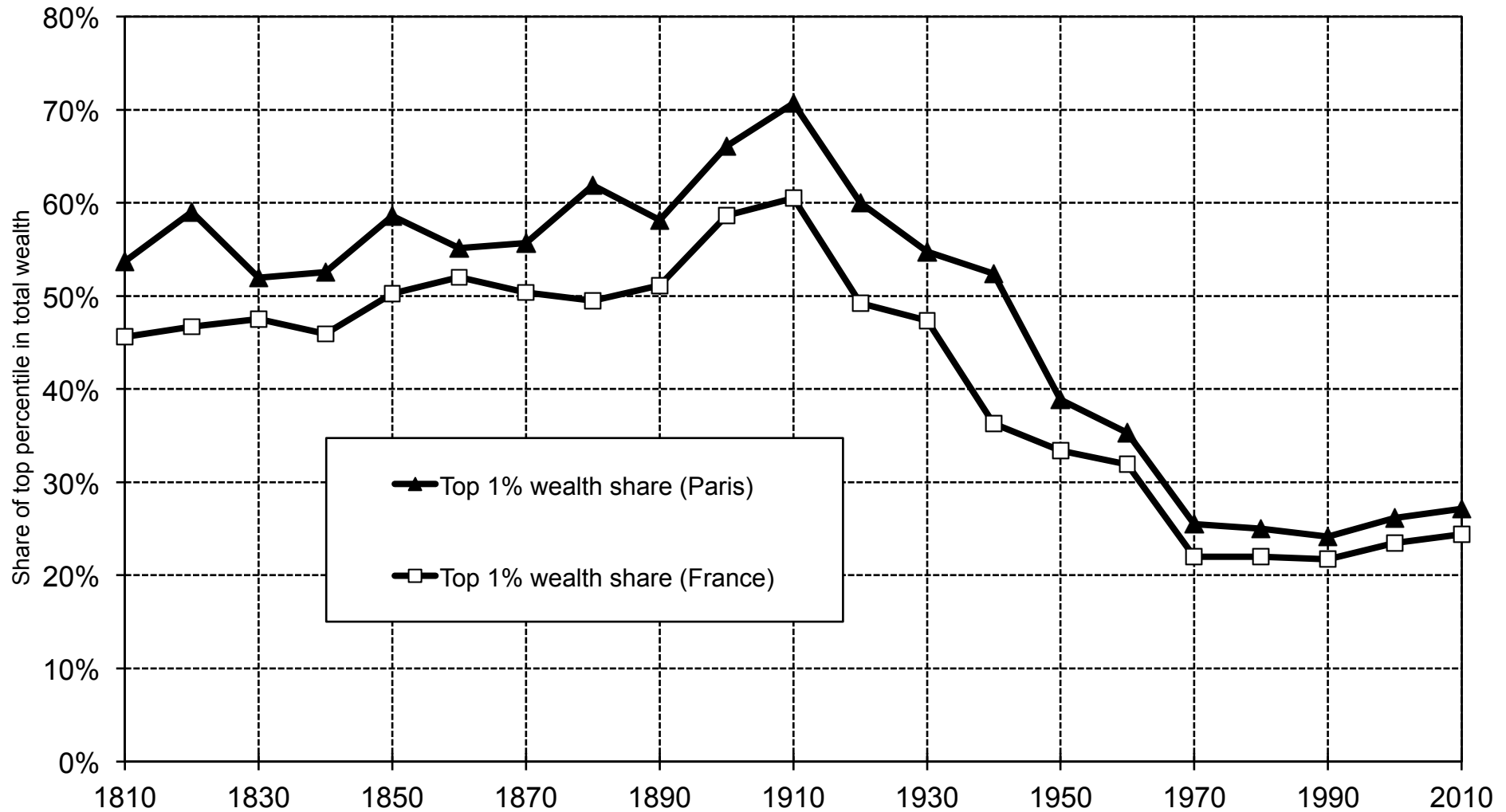
Sources and series: see piketty.pse.ens.fr/capital21c.

Table 10.1. The composition of Parisian portfolios in 1872-1912

	Real estate assets (buildings, houses, land,.)	incl. Real estate Paris	incl. Real estate Province (outside Paris)	Financial assets	incl. Equity	incl. Private bonds	incl. Public bonds	incl. Other financial assets (cash, deposits, etc.)	Furnitures, jewels, etc.
Composition of total wealth									
1872	42%	29%	13%	56%	15%	19%	13%	9%	2%
1912	36%	25%	11%	62%	20%	19%	14%	9%	3%
Composition of top 1% wealth holders portfolios									
1872	43%	30%	13%	55%	16%	16%	13%	10%	2%
1912	32%	22%	10%	65%	24%	19%	14%	8%	2%
Composition of next 9%									
1872	42%	27%	15%	56%	14%	22%	13%	7%	2%
1912	41%	30%	12%	55%	14%	18%	15%	9%	3%
Composition of next 40%									
1872	27%	1%	26%	62%	13%	25%	16%	9%	11%
1912	31%	7%	24%	58%	12%	14%	14%	18%	10%

In 1912, real estate assets made up 36% of total wealth in Paris, financial assets made up 62%, and furnitures, jewels, etc. 3%. Sources: see piketty.pse.ens.fr/capital21c.

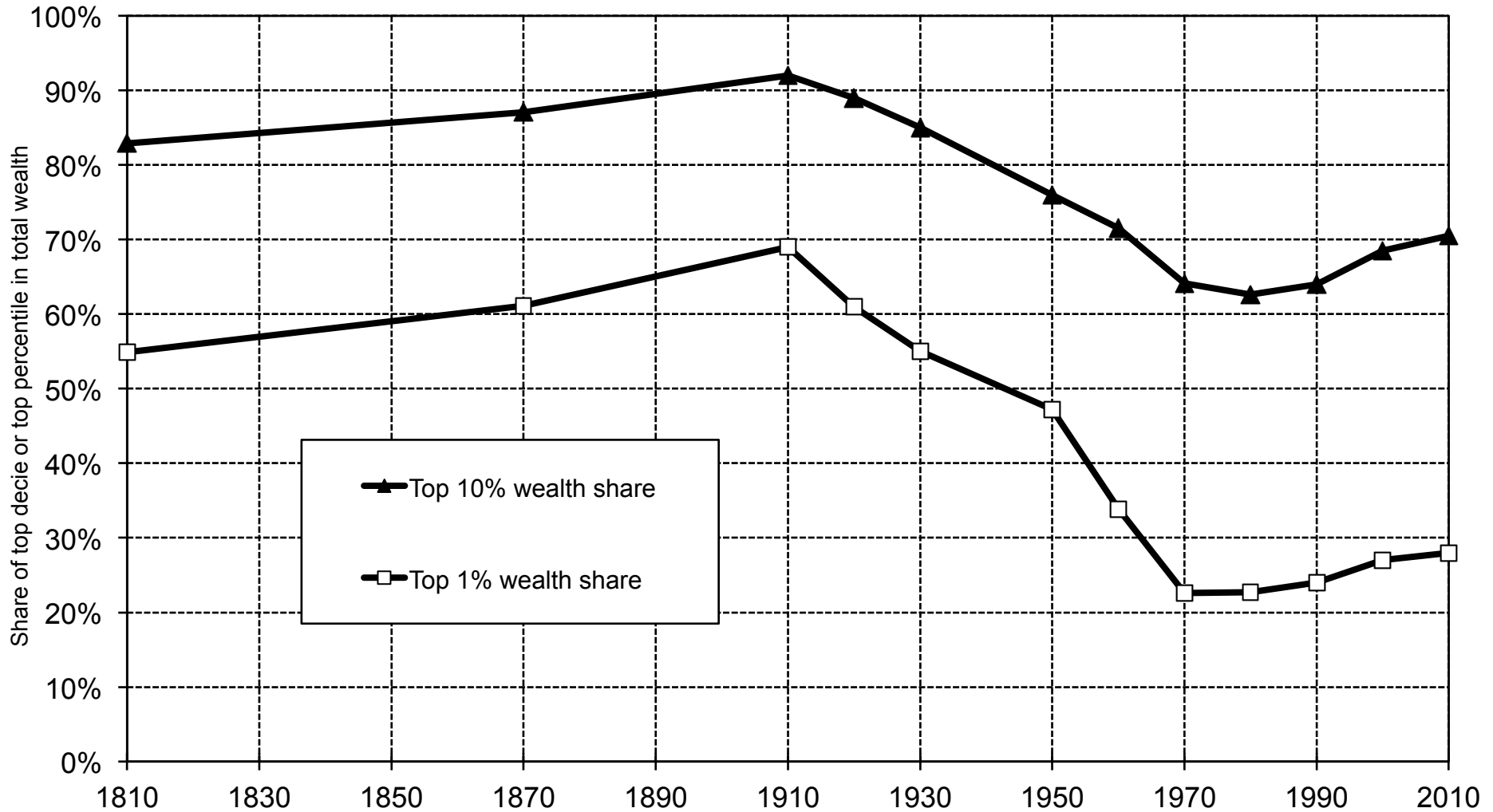
Figure 10.2. Wealth inequality : Paris vs. France, 1810-2010



The top percentile (the top 1% wealth holders) owns 70% of aggregate wealth in Paris at the eve of World War I.

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

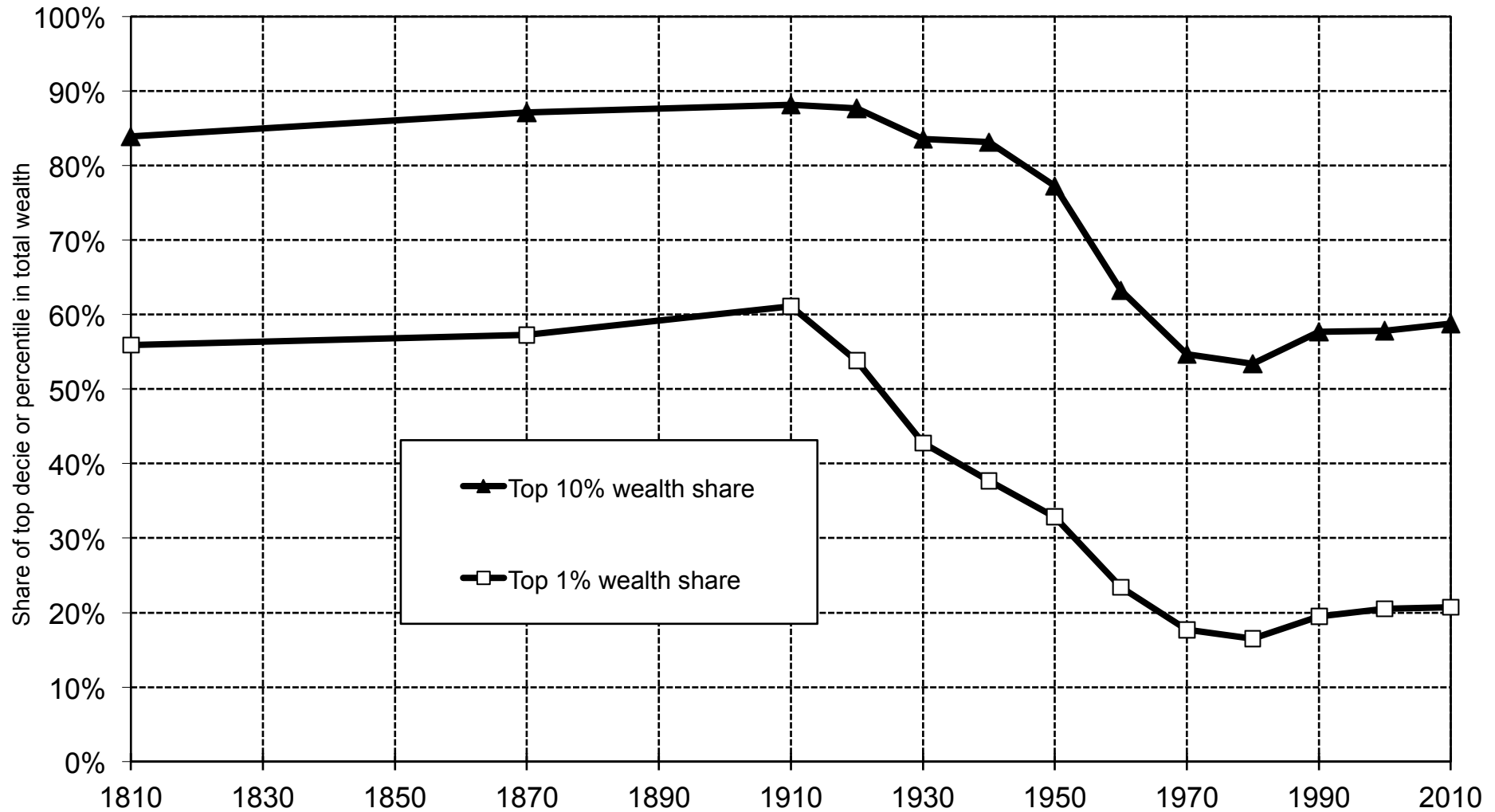
Figure 10.3. Wealth inequality in Britain, 1810-2010



The top decile owns 80-90% of total wealth in 1810-1910, and 70% today.

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

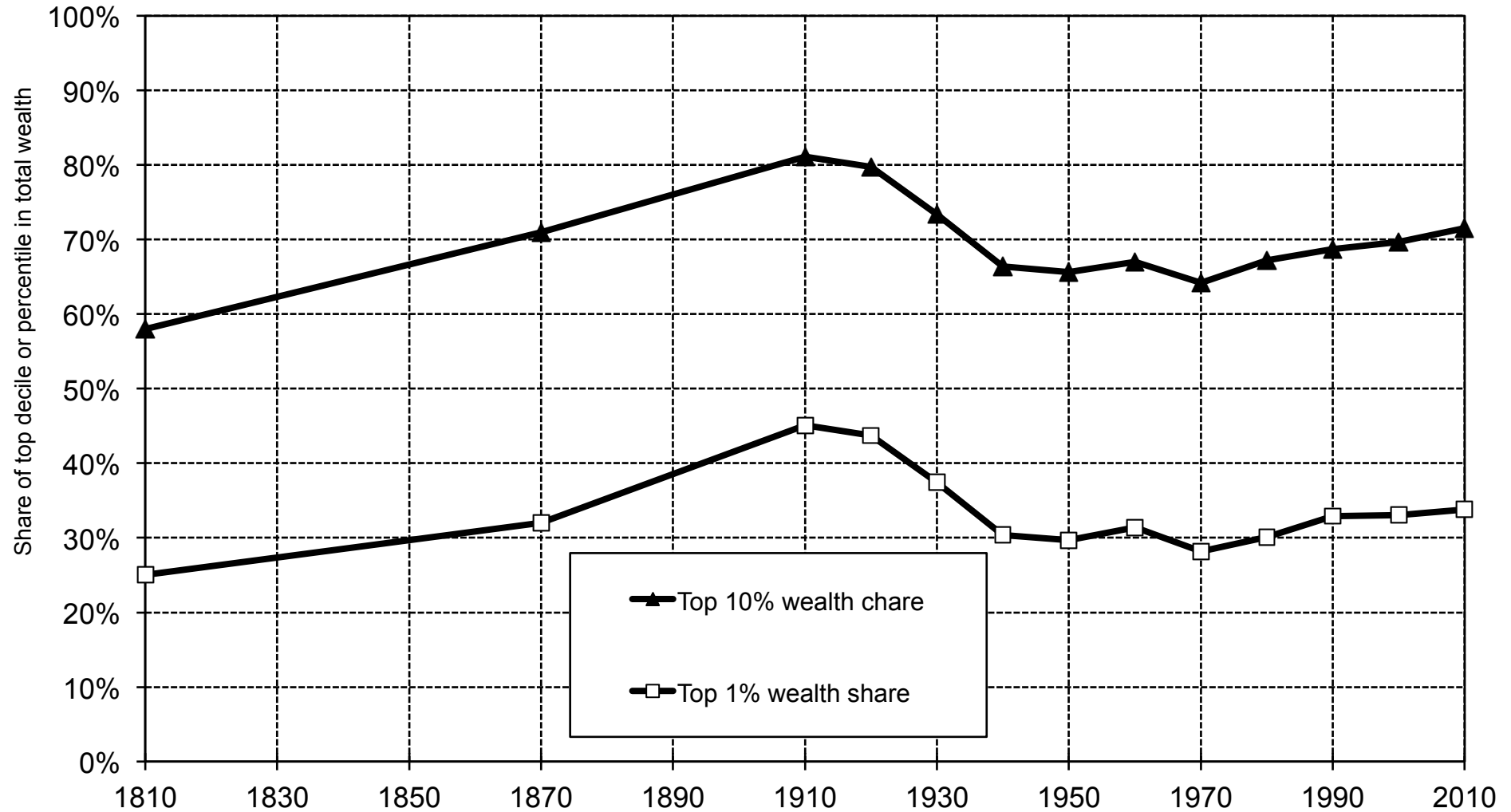
Figure 10.4. Wealth inequality in Sweden, 1810-2010



The top 10% holds 80-90% of total wealth in 1810-1910, and 55-60% today.

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

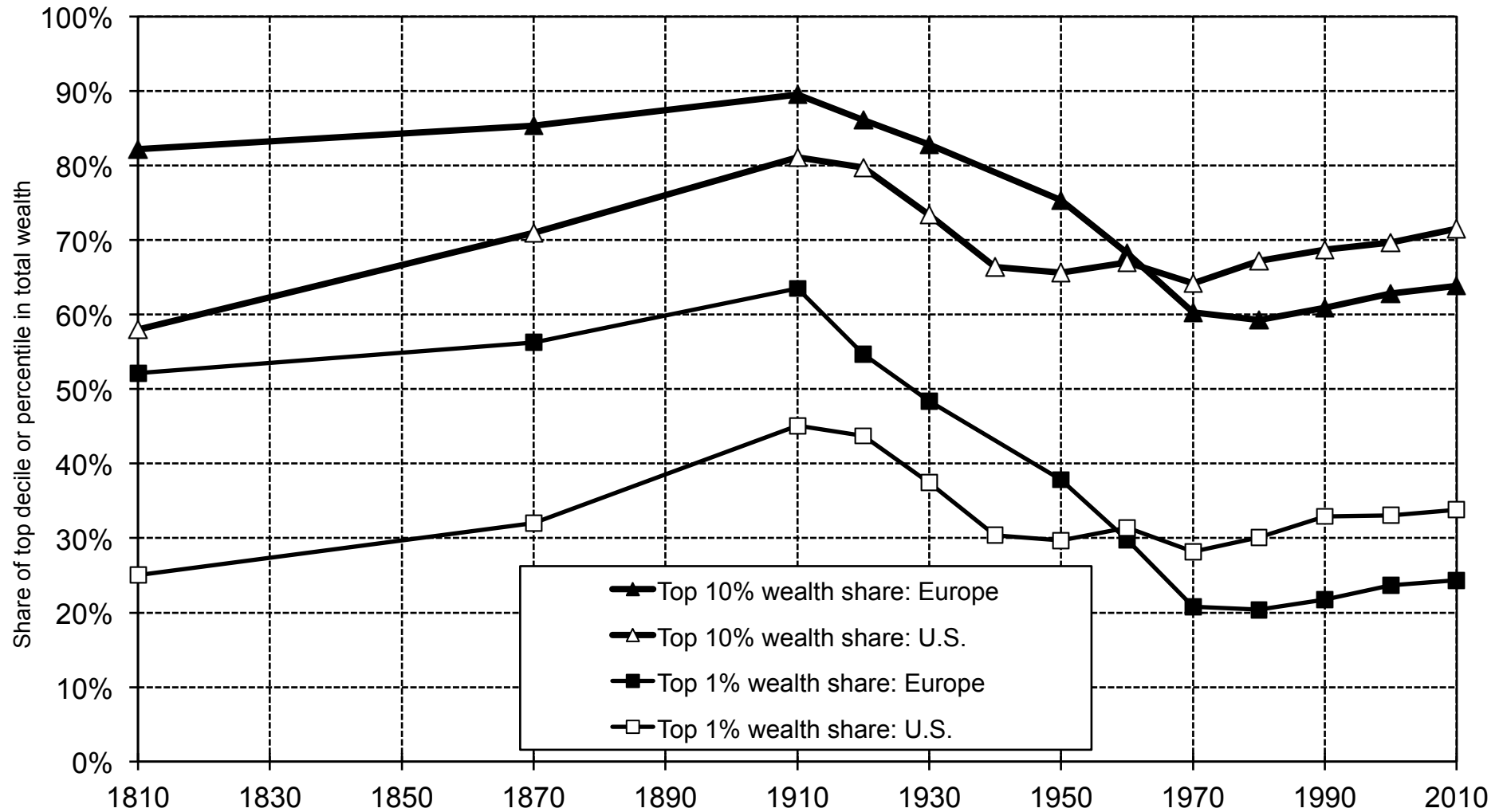
Figure 10.5. Wealth inequality in the U.S., 1810-2010



The top 10% wealth holders own about 80% of total wealth in 1910, and 75% today.

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

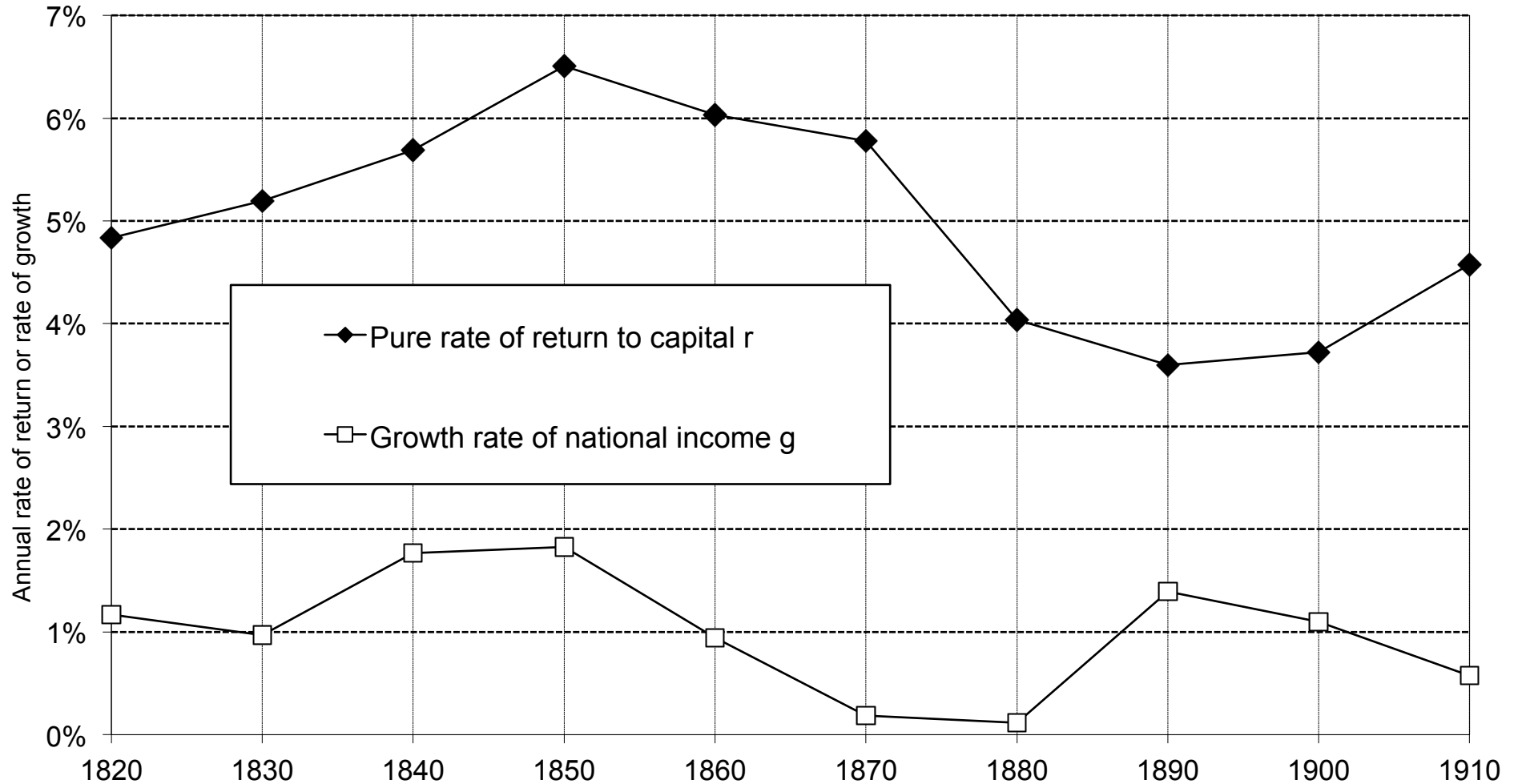
Figure 10.6. Wealth inequality: Europe and the U.S., 1810-2010



Until the mid 20th century, wealth inequality was higher in Europe than in the United States.

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

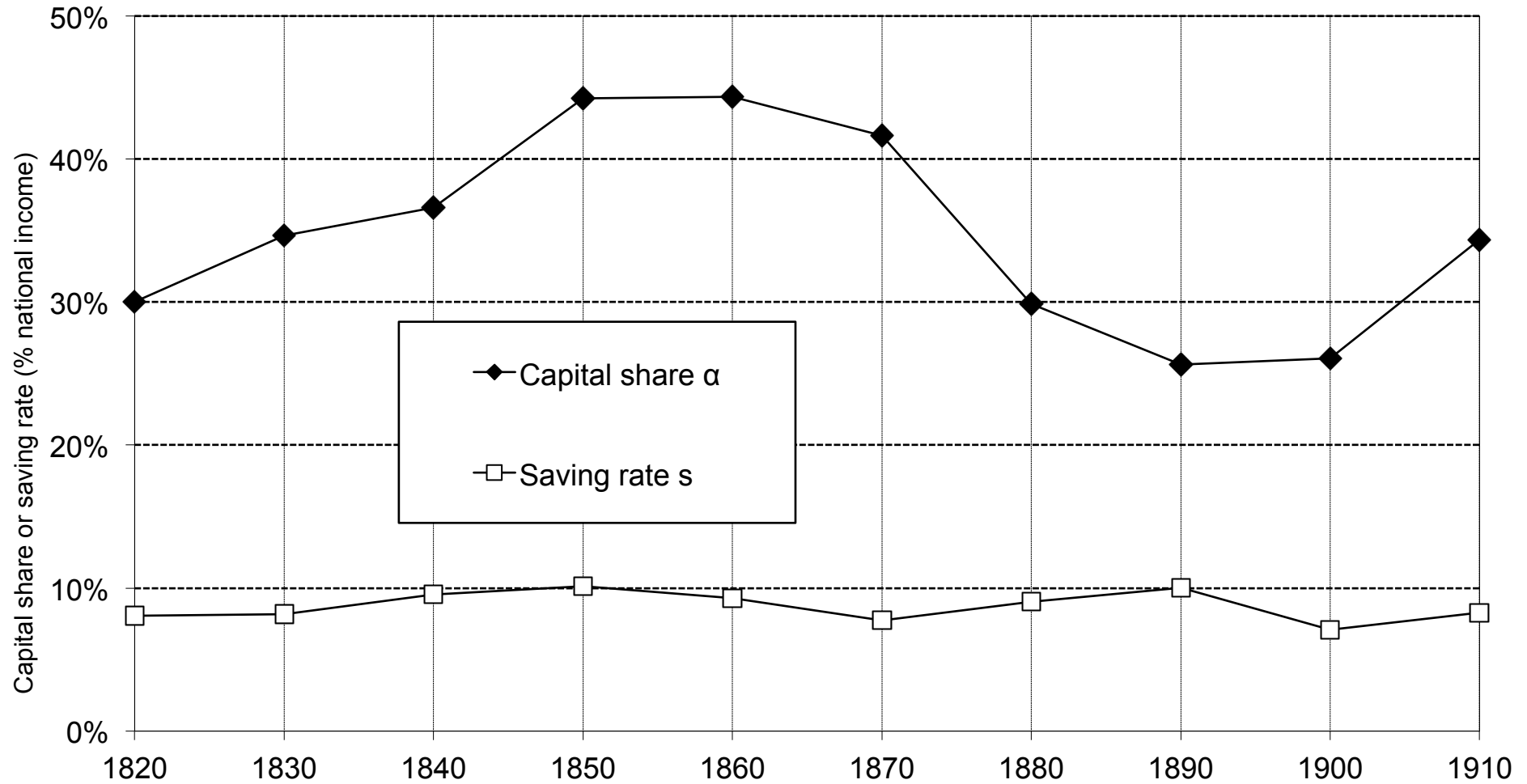
Figure 10.7. Return to capital and growth: France 1820-1913



The rate of return on capital is a lot higher than the growth rate in France between 1820 and 1913.

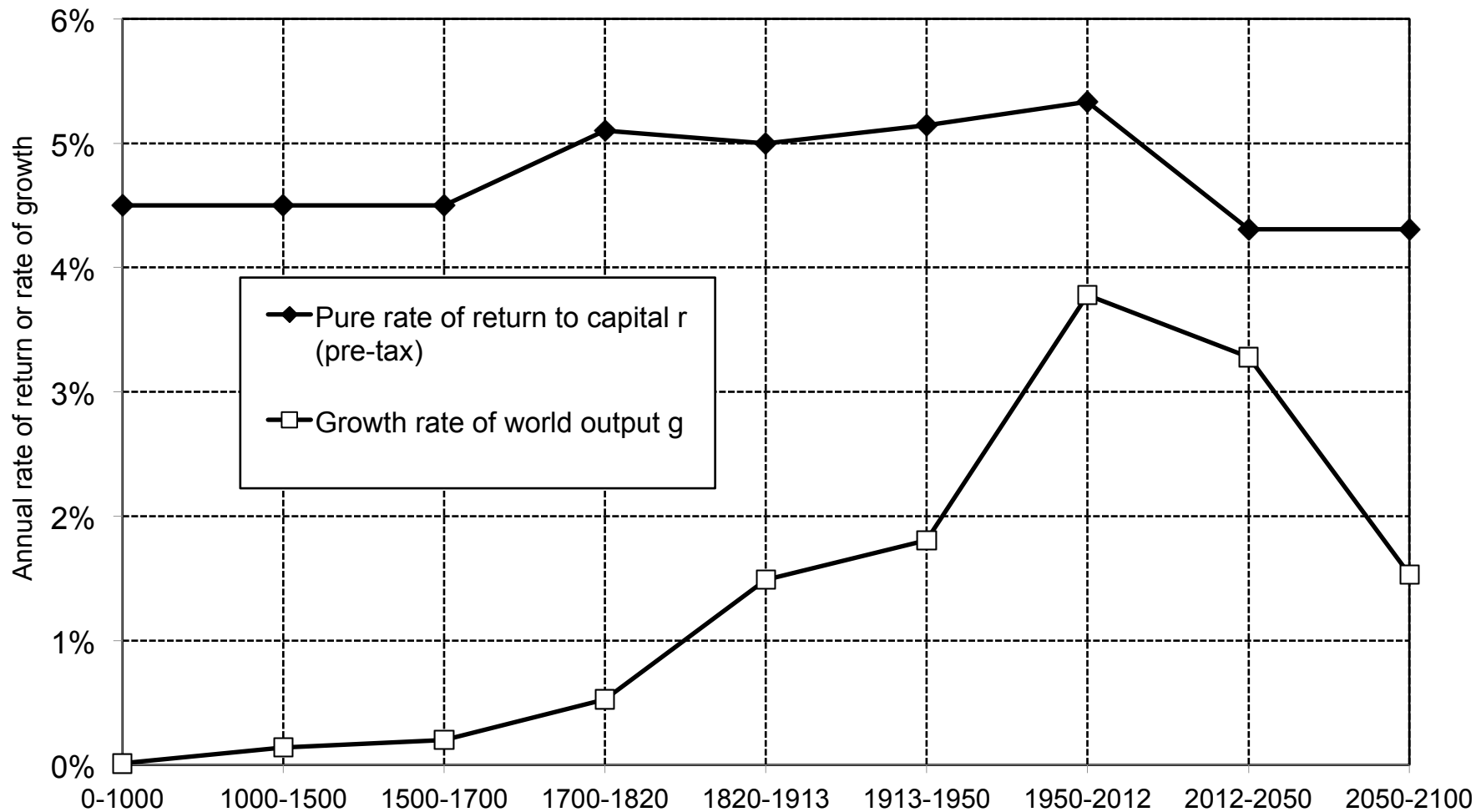
Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 10.8. Capital share and saving rate: France 1820-1913



The share of capital income in national income is much larger than the saving rate in France between 1820 and 1913. Sources and series: see piketty.pse.ens.fr/capital21c.

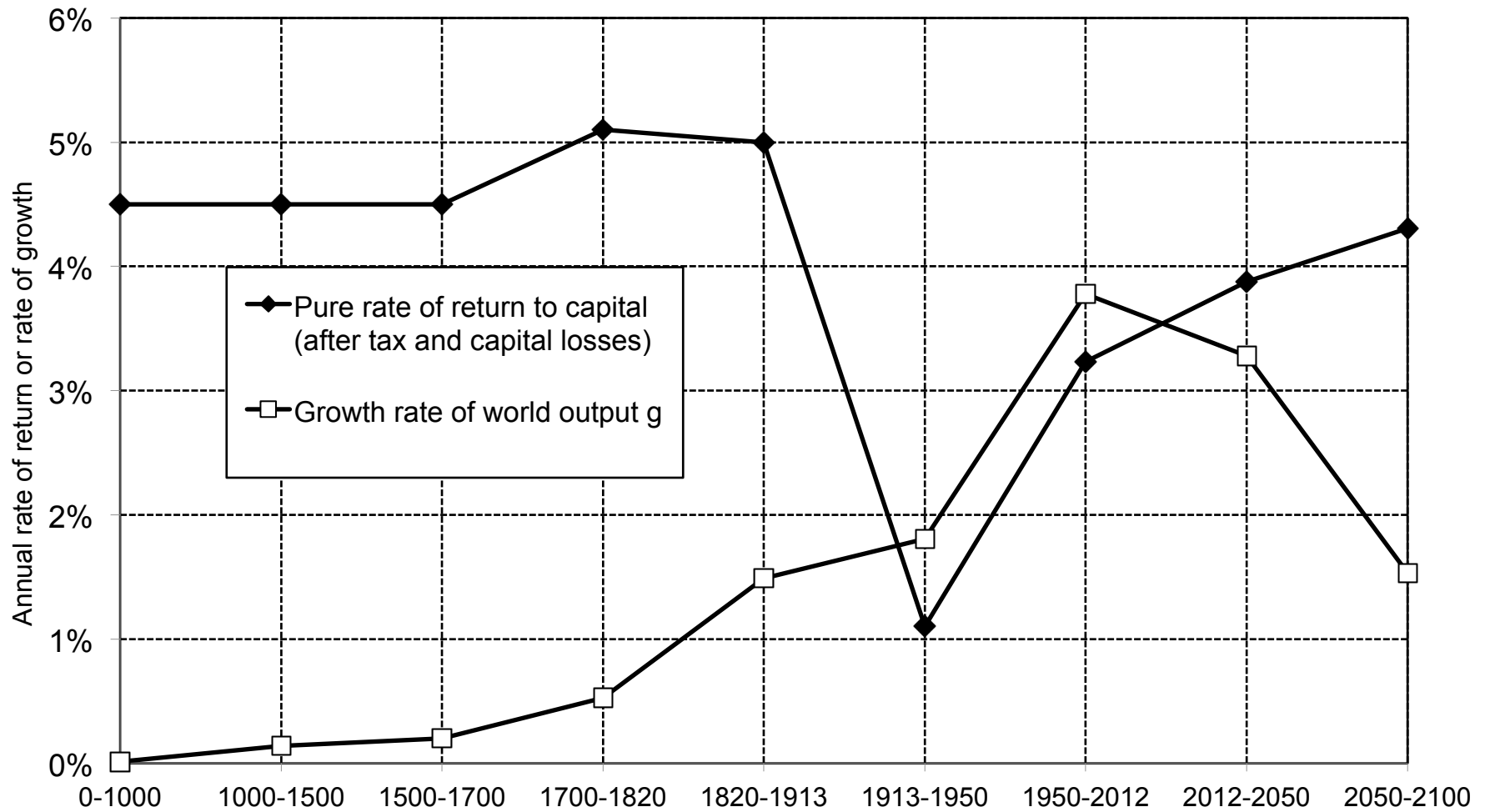
Figure 10.9. Rate of return vs. growth rate at the world level, from Antiquity until 2100



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

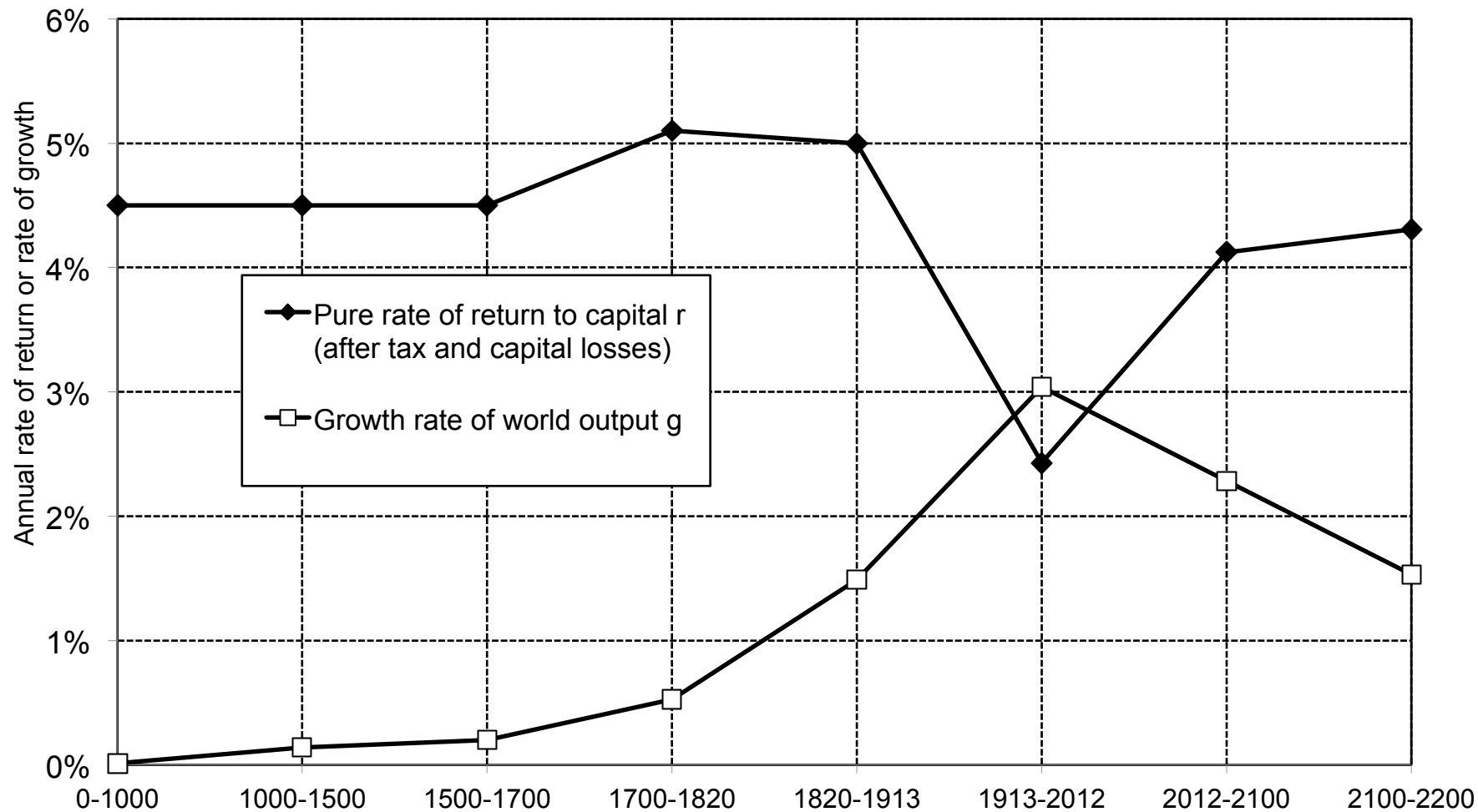
Sources and series: see piketty.pse.ens.fr/capital21c

Figure 10.10. After tax rate of return vs. growth rate at the world level, from Antiquity until 2100



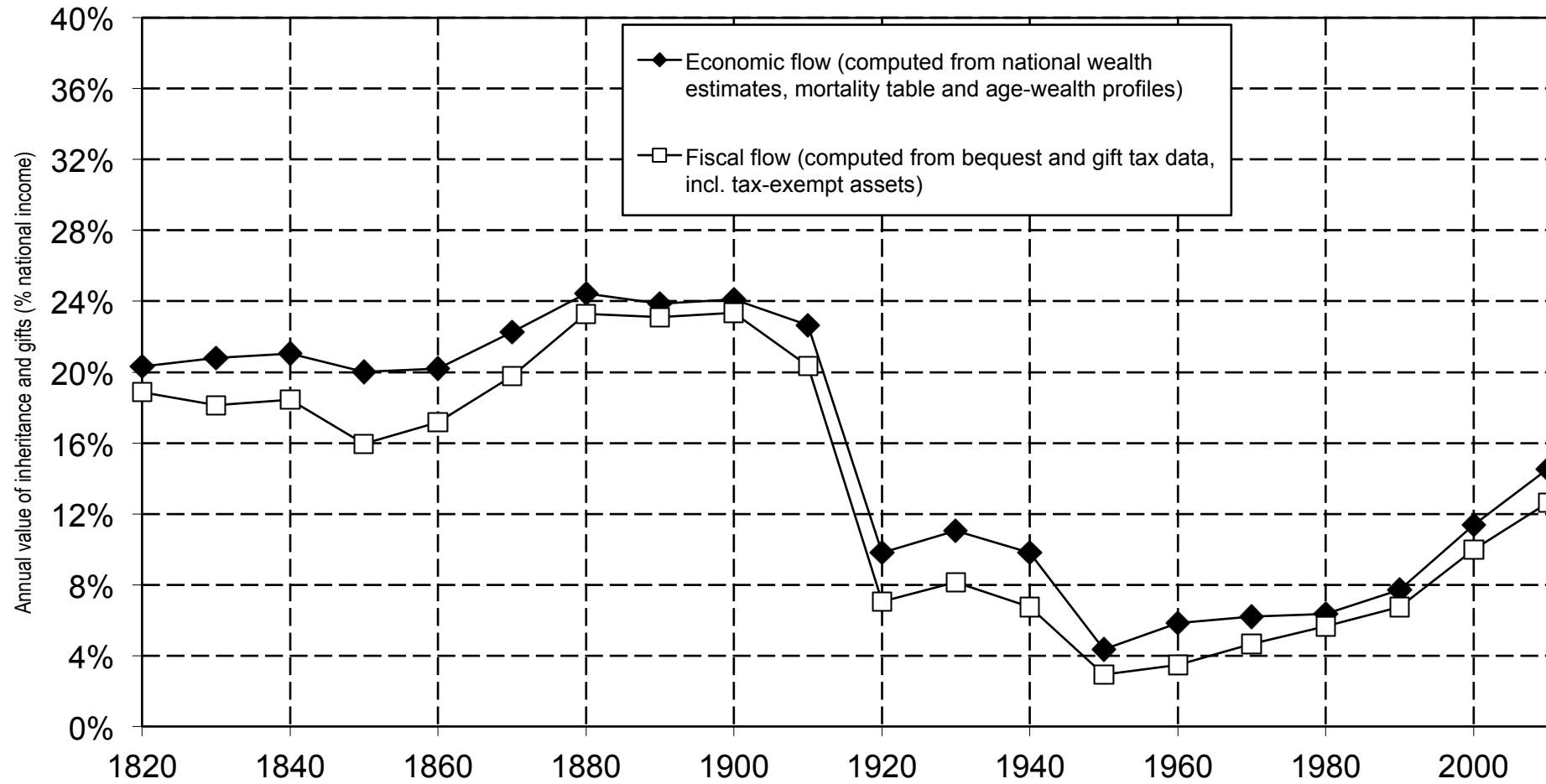
The rate of return to capital (after tax and capital losses) fell below the growth rate during the 20th century, and may again surpass it in the 21st century. Sources and series : see piketty.pse.ens.fr/capital21c

Figure 10.11. After tax rate of return vs. growth rate at the world level, from Antiquity until 2200



The rate of return to capital (after tax and capital losses) fell below the growth rate during the 20th century, and might again surpass it in the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 11.1. The annual inheritance flow as a fraction of national income, France 1820-2010



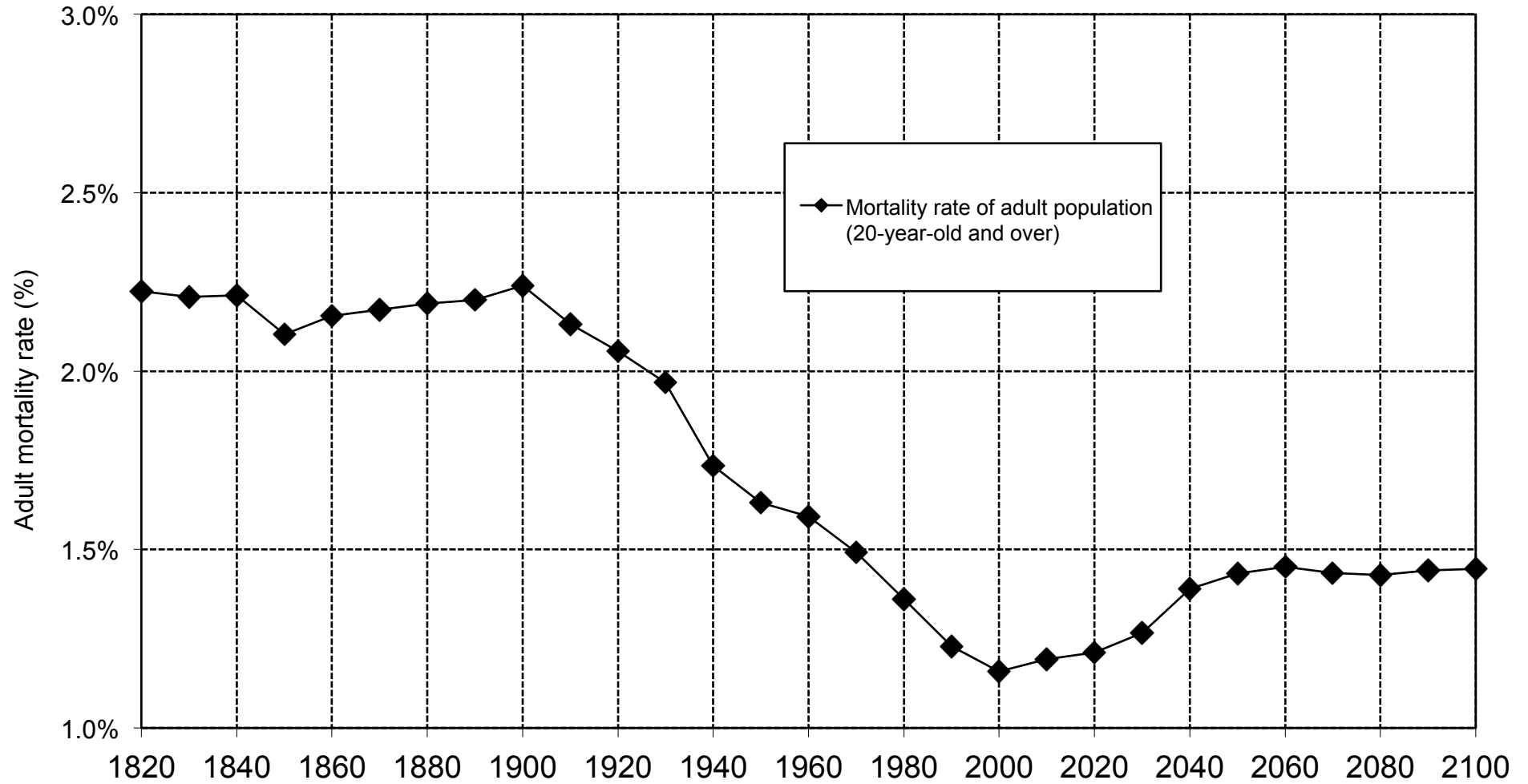
The annual inheritance flow was about 20-25% of national income during the 19th century and until 1914; it then fell to less than 5% in the 1950s, and returned to about 15% in 2010. Sources and series: see piketty.pse.ens.fr/capital21c.

Table 11.1. The age-wealth profile in France, 1820-2010

Average wealth of each age group (% of average wealth of 50-59 year-old)	20-29 year	30-39 year	40-49 year	50-59 year	60-69 year	70-79 year	80 year and over
1820	29%	37%	47%	100%	134%	148%	153%
1850	28%	37%	52%	100%	128%	144%	142%
1880	30%	39%	61%	100%	148%	166%	220%
1902	26%	57%	65%	100%	172%	176%	238%
1912	23%	54%	72%	100%	158%	178%	257%
1931	22%	59%	77%	100%	123%	137%	143%
1947	23%	52%	77%	100%	99%	76%	62%
1960	28%	52%	74%	100%	110%	101%	87%
1984	19%	55%	83%	100%	118%	113%	105%
2000	19%	46%	66%	100%	122%	121%	118%
2010	25%	42%	74%	100%	111%	106%	134%

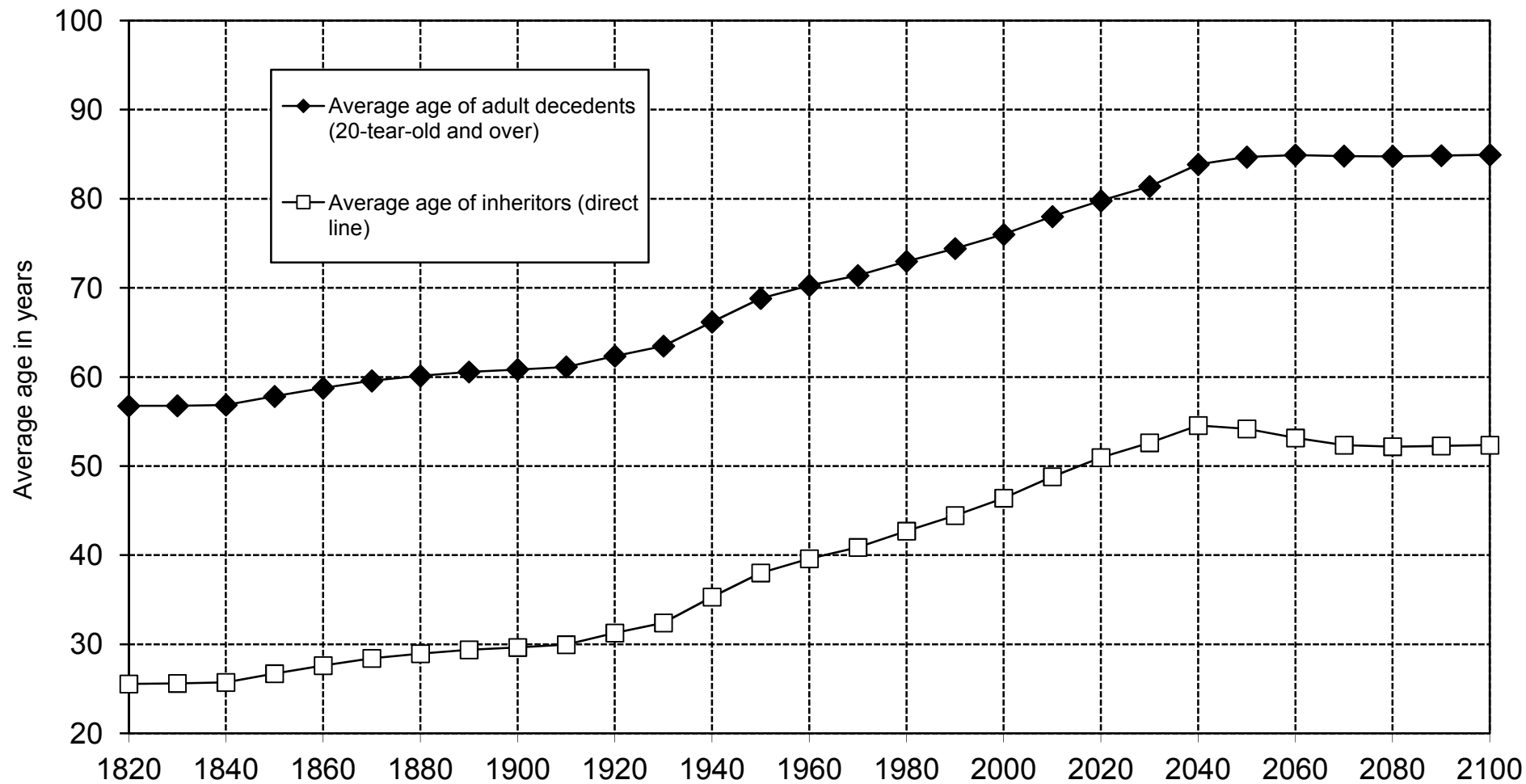
In 1820, the average wealth of individuals aged 60 to 69 was 34% higher than that of 50-to-59 year-old, and the average wealth of those aged 80 and over was 53% higher than that of 50-to-59 year old. Sources: see piketty.pse.ens.fr/capital21c.

Figure 11.2. The mortality rate in France 1820-2100



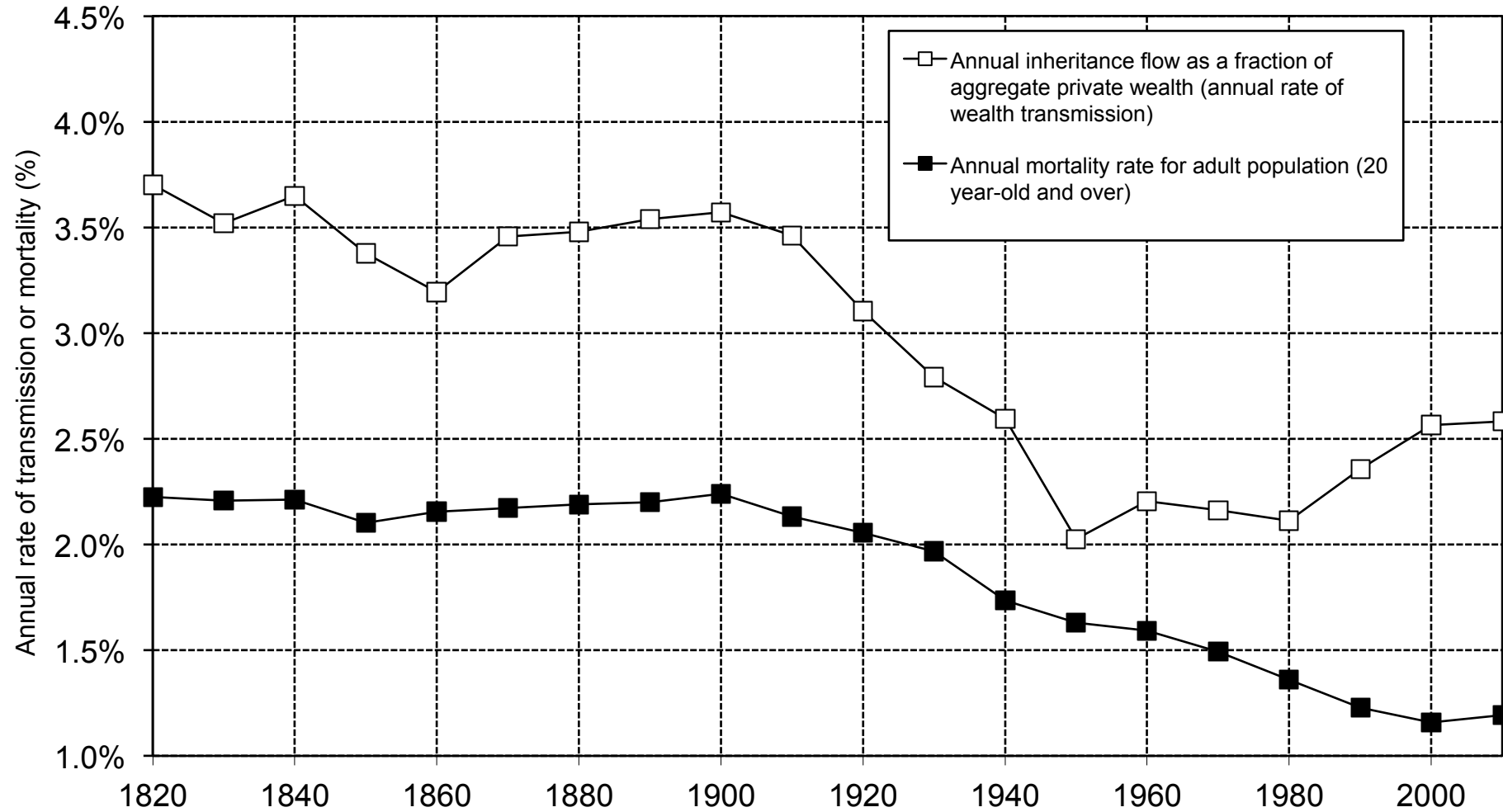
The mortality rate fell in France during the 20th century (rise of life expectancy), and should increase somewhat during the 21st century (baby-boom effect). Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 11.3. Average age of decedents and inheritors, France 1820-2100



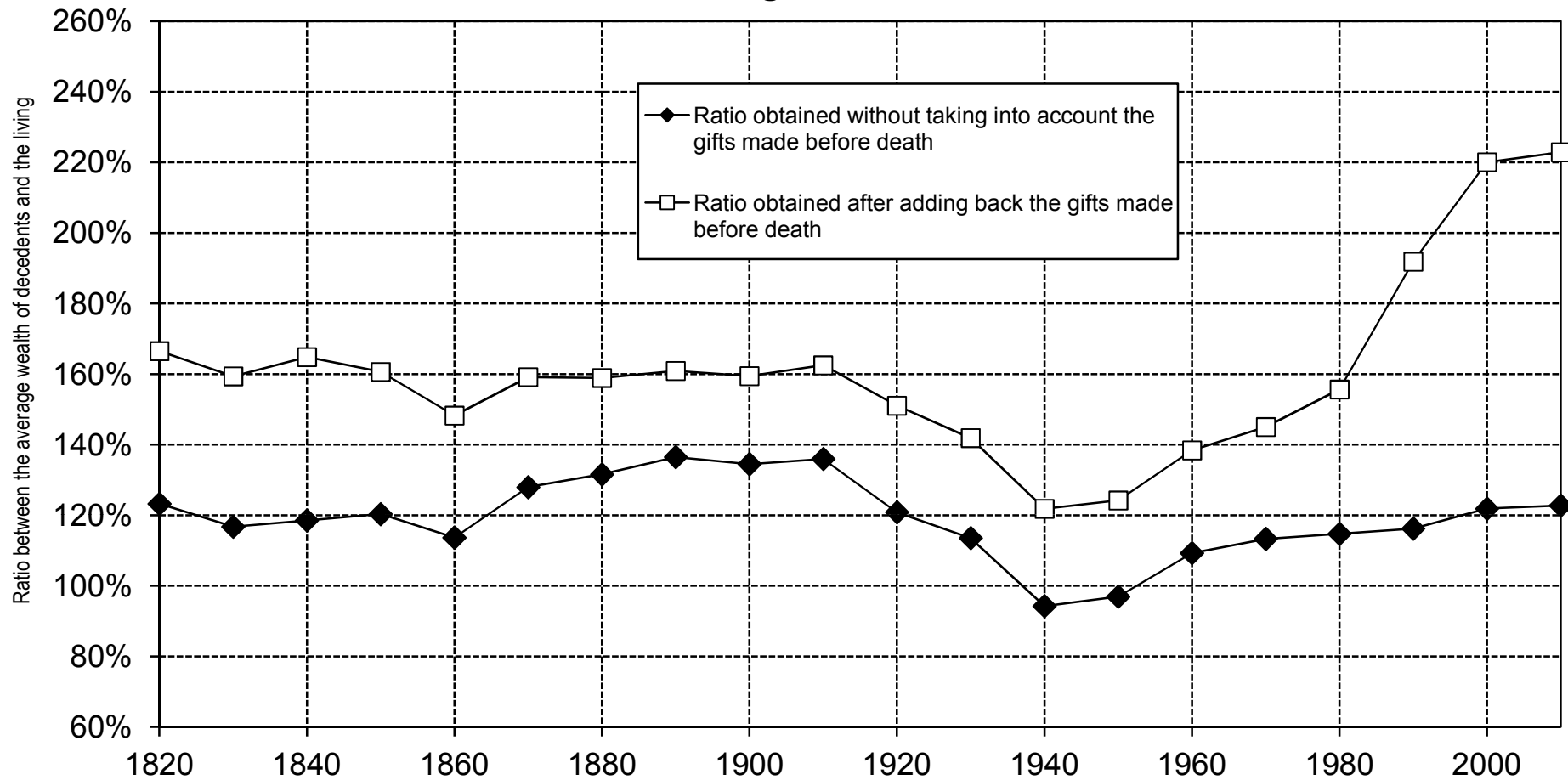
The average of (adult) decedents rose from less than 60 years to almost 80 years during the 20th century, and the average age at the time of inheritance rose from 30 years to 50 years. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 11.4. Inheritance flow vs. mortality rate, France 1820-2010



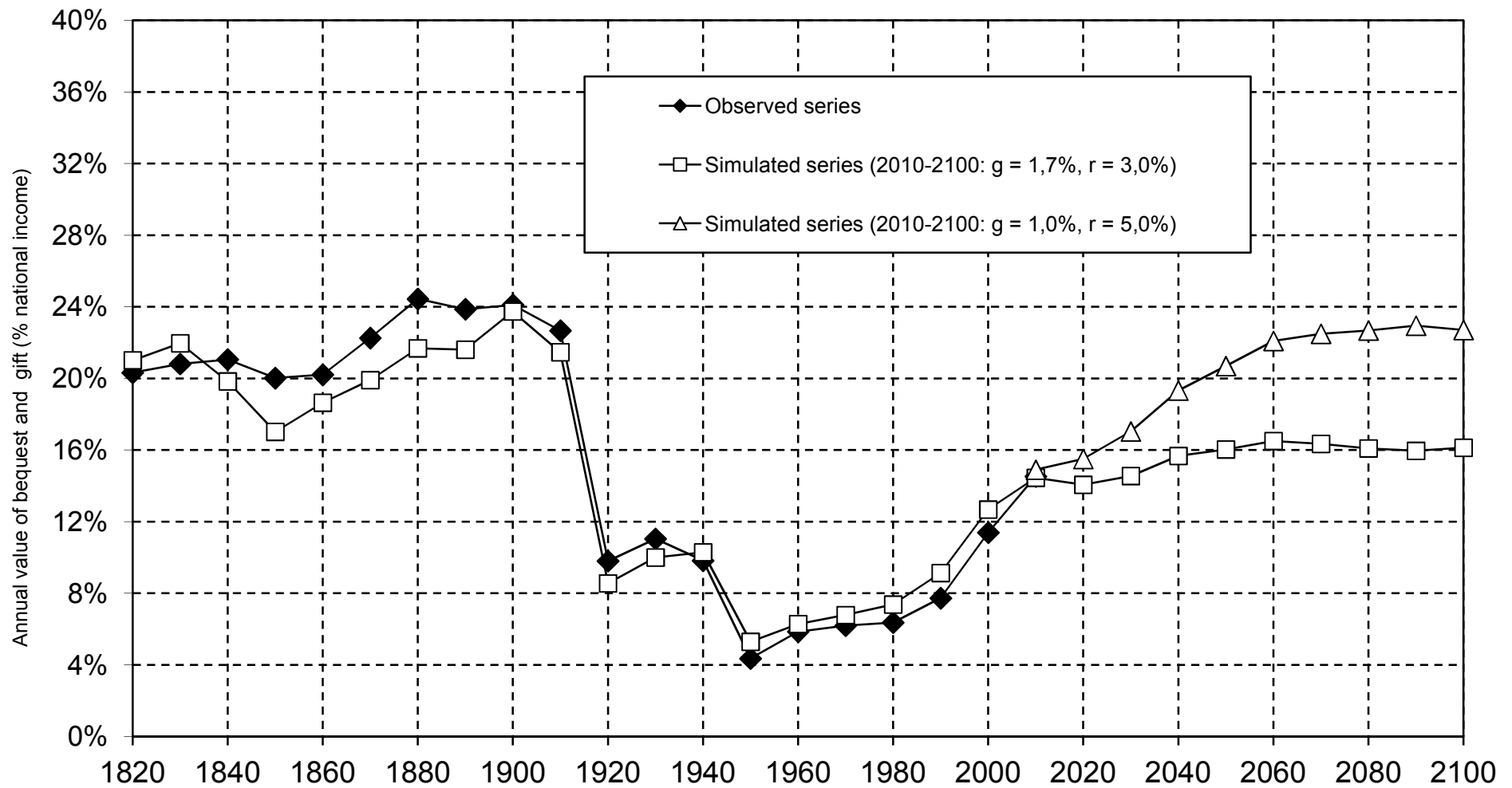
The annual flow of inheritance (bequests and gifts) is equal to about 2.5% of aggregate wealth in 2000-2010, vs. 1.2% for the mortality rate. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 11.5. The ratio between average wealth at death and average wealth of the living, France 1820-2010



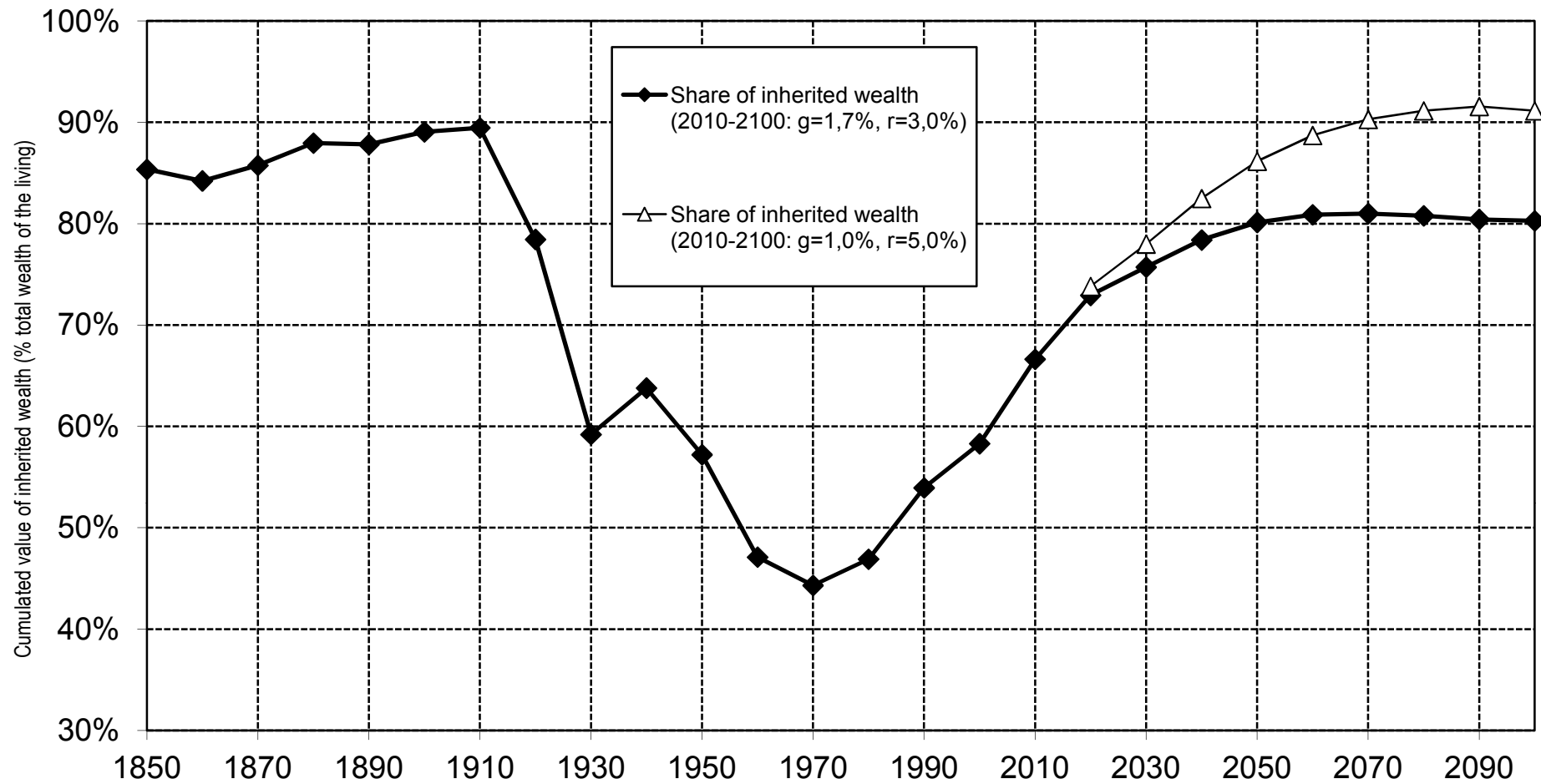
In 2000-2010, the average wealth at death is 20% higher than that of the living if one omits the gifts that were made before death, but more than twice as large if one re-integrates gifts. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 11.6. Observed and simulated inheritance flow, France 1820-2100



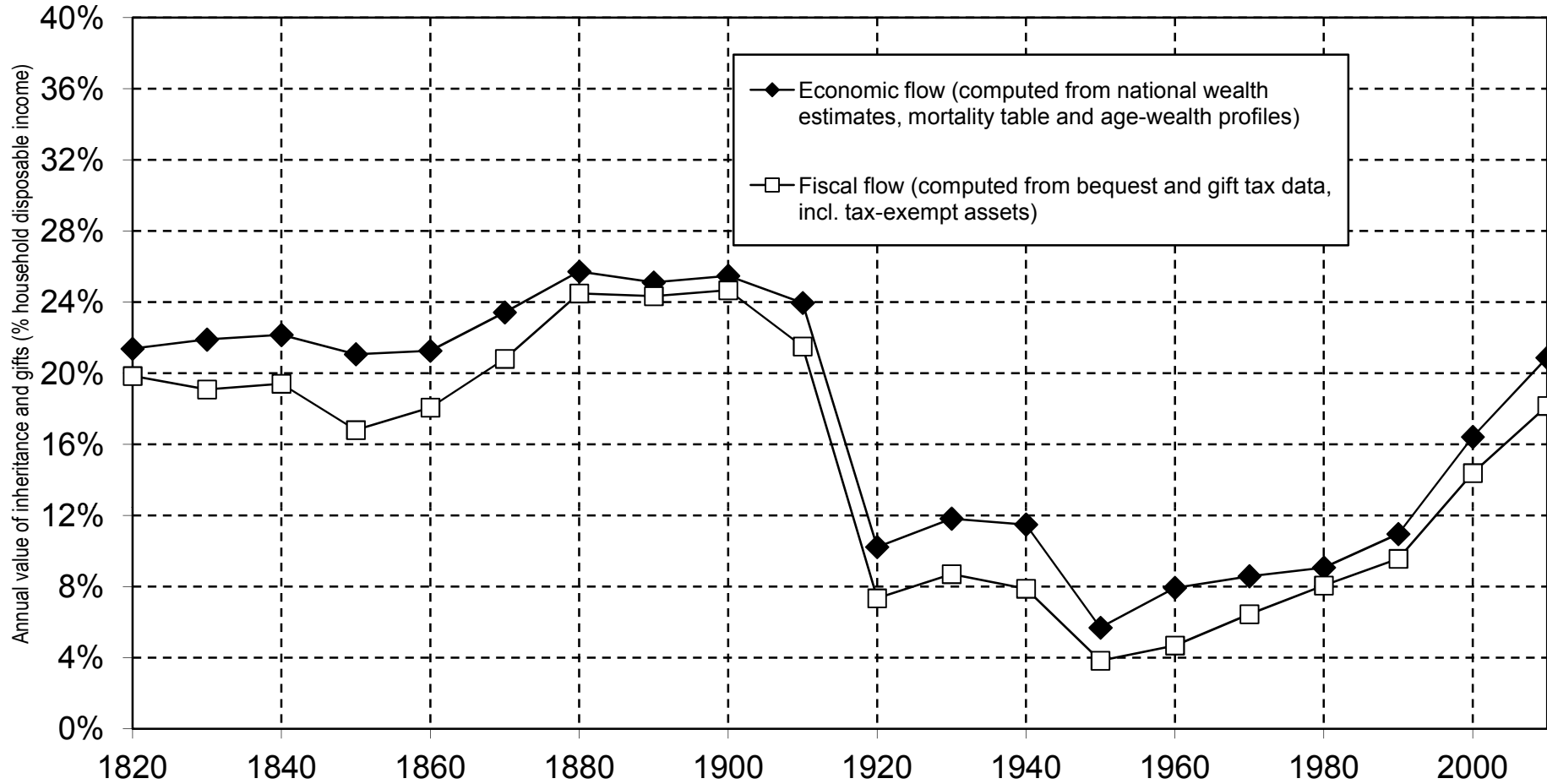
Simulations based upon the theoretical model indicate that the level of the inheritance flow in the 21st century will depend upon the growth rate and the net rate of return to capital. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 11.7. The share of inherited wealth in total wealth, France 1850-2100



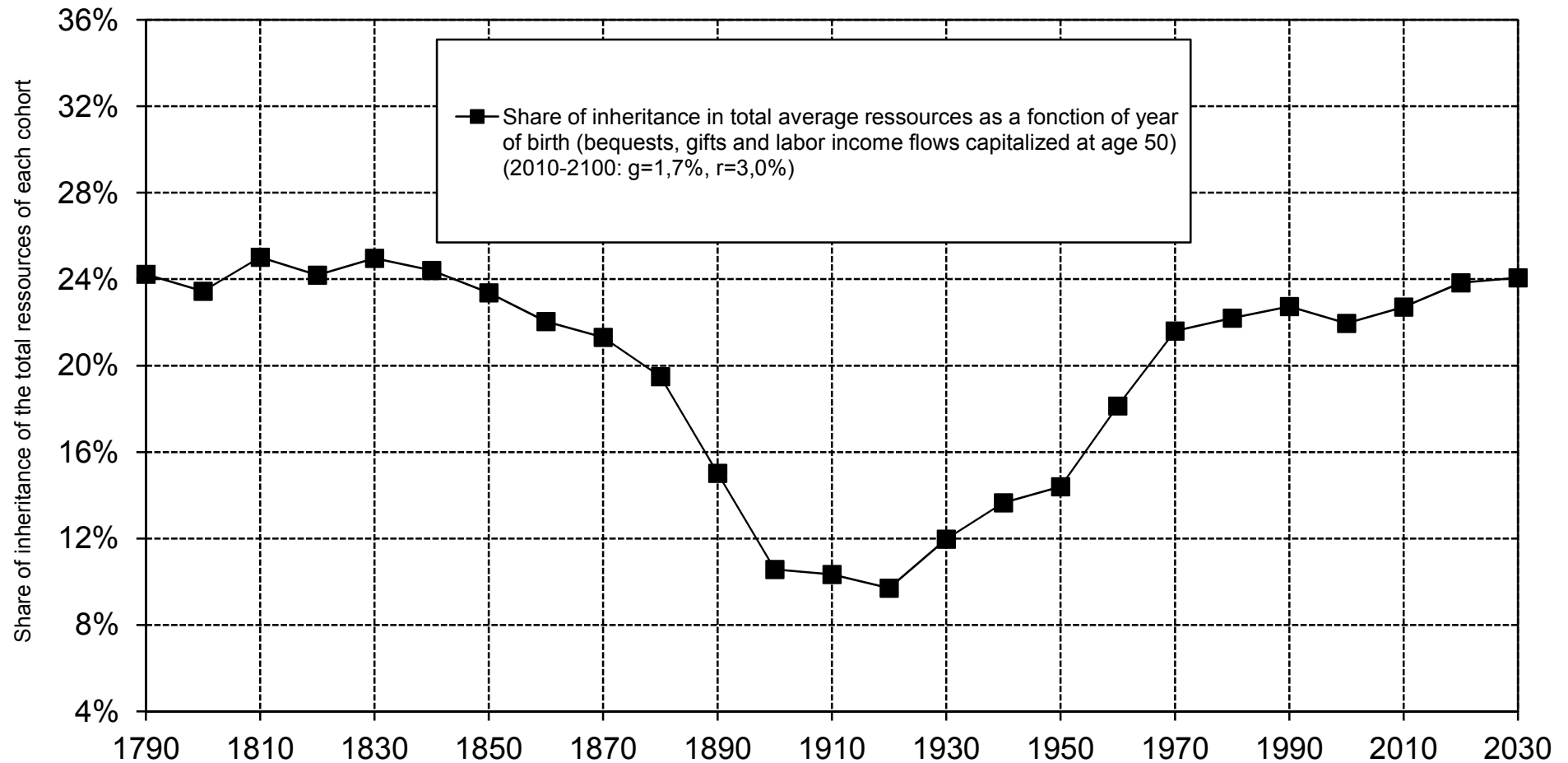
Inherited wealth represents 80-90% of total wealth in France in the 19th century; this share fell to 40%-50% during the 20th century, and might return to 80%-90% during the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c

Figure 11.8. The annual inheritance flow as a fraction of household disposable income, France 1820-2010



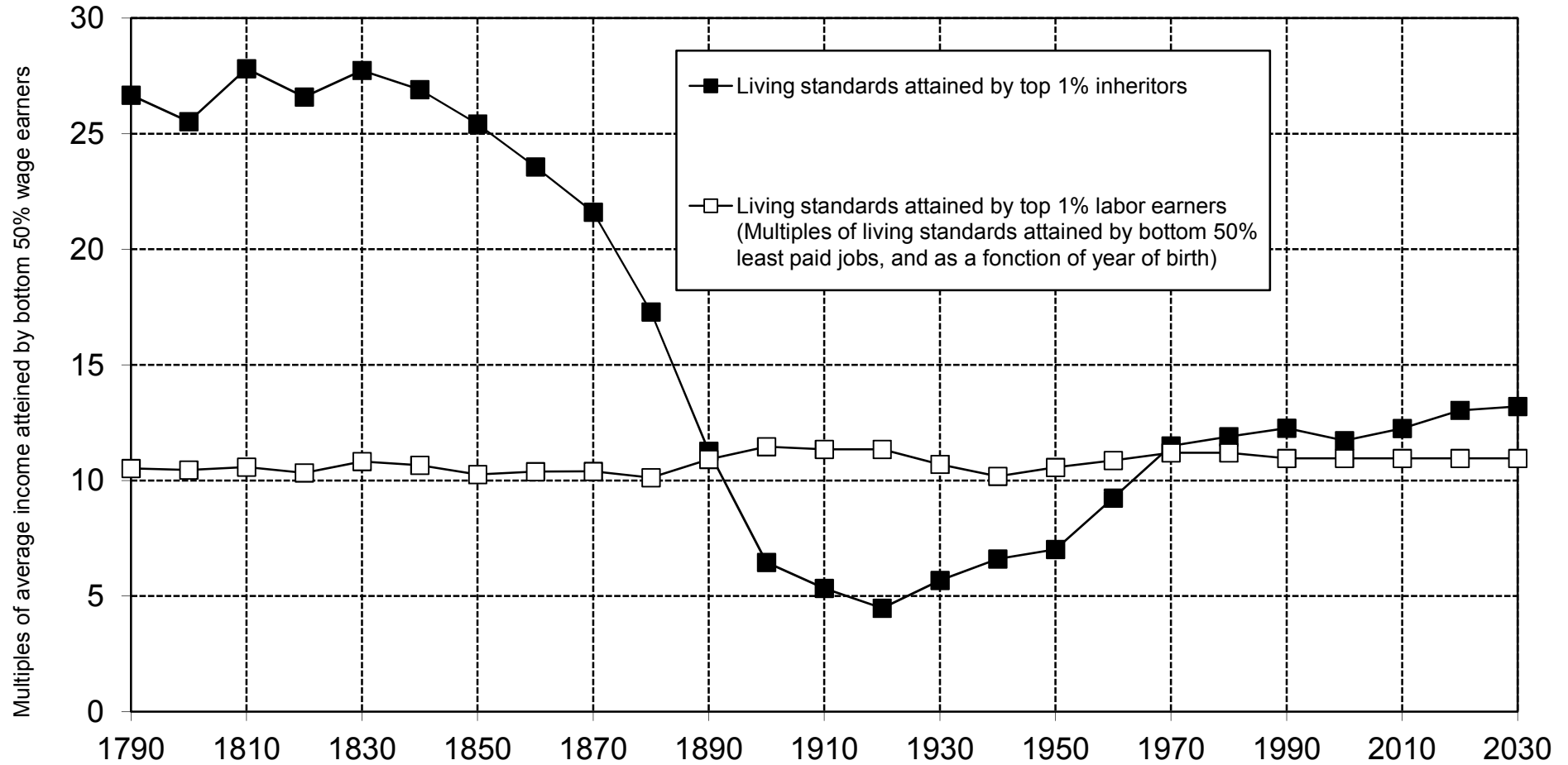
Expressed as a fraction of household disposable income (rather than national income), the annual inheritance flow is about 20% in 2010, i.e. close to its 19th century level. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 11.9. The share of inheritance in the total resources (inheritance and work) of cohorts born in 1790-2030



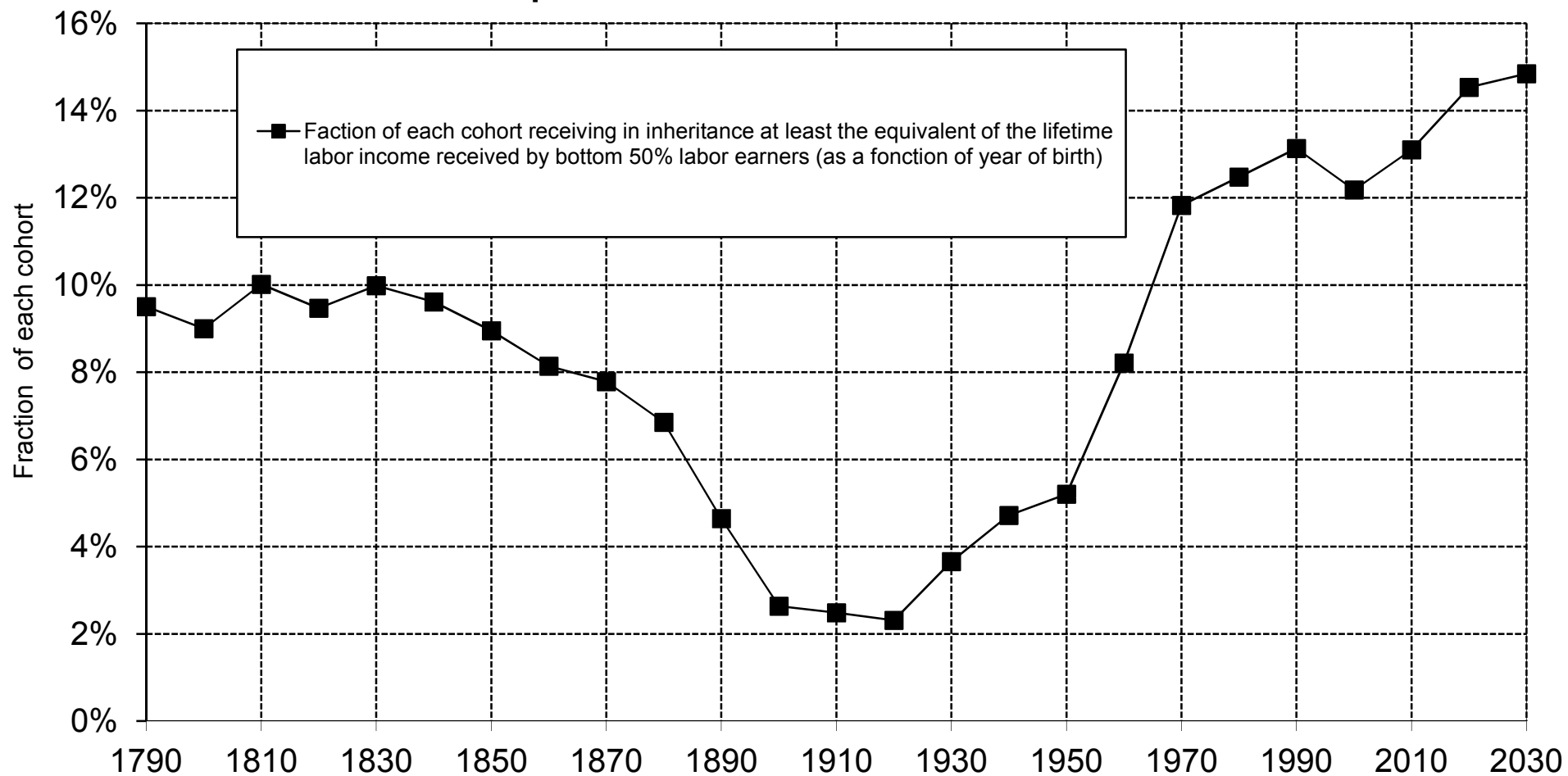
Inheritance made about 25% of the resources of 19th century cohorts, down to less than 10% for cohorts born in 1910-1920 (who should have inherited in 1950-1960). Sources and series: see piketty.pse.ens.fr/capital21c.

**Figure 11.10. The dilemma of Rastignac
for cohorts born in years 1790-2030**



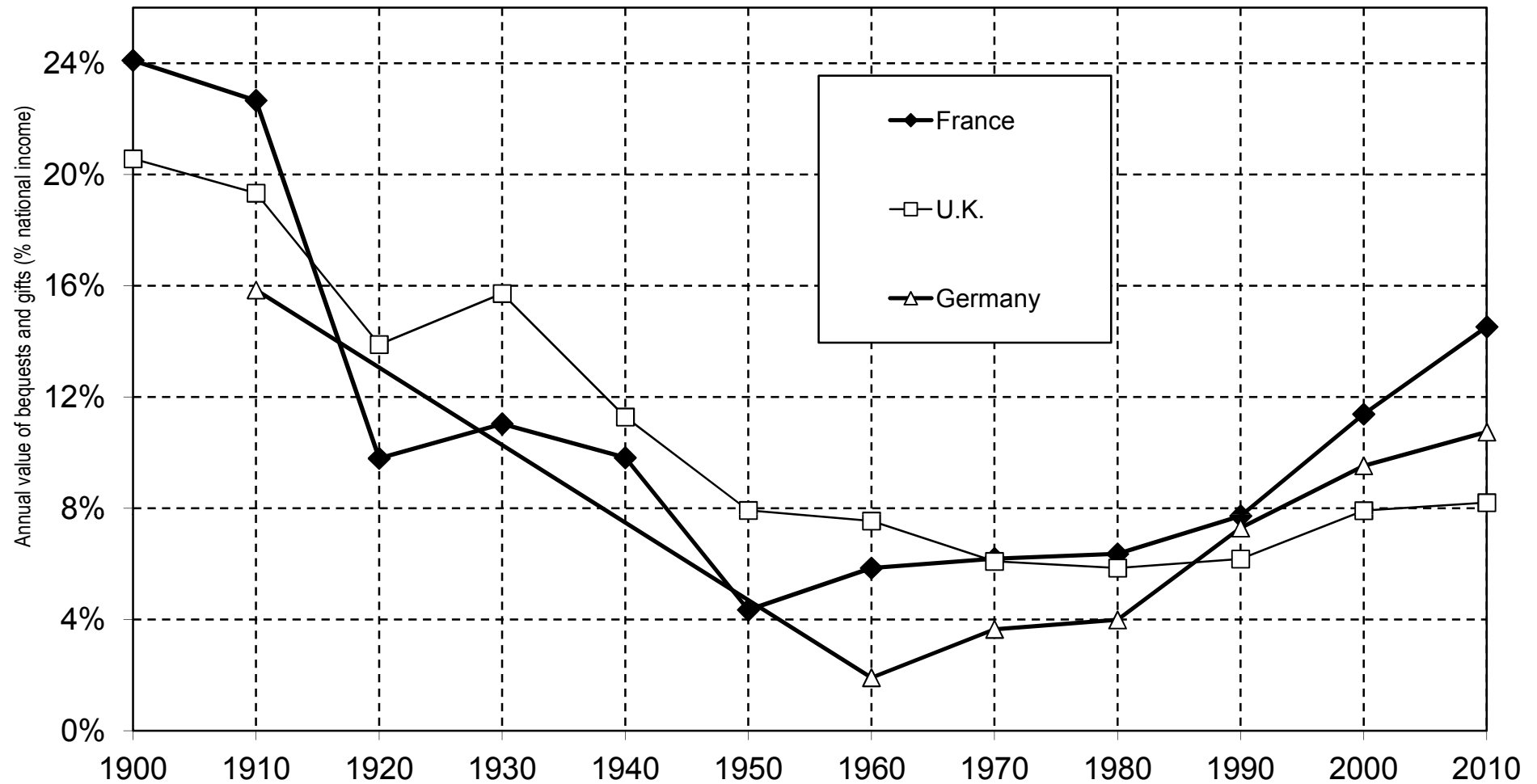
In the 19th century, the living standards that could be attained by the top 1% inheritors were a lot higher than those that could be attained by the top 1% labor earners. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 11.11. Which fraction of a cohort receives in inheritance the equivalent of a lifetime labor income?



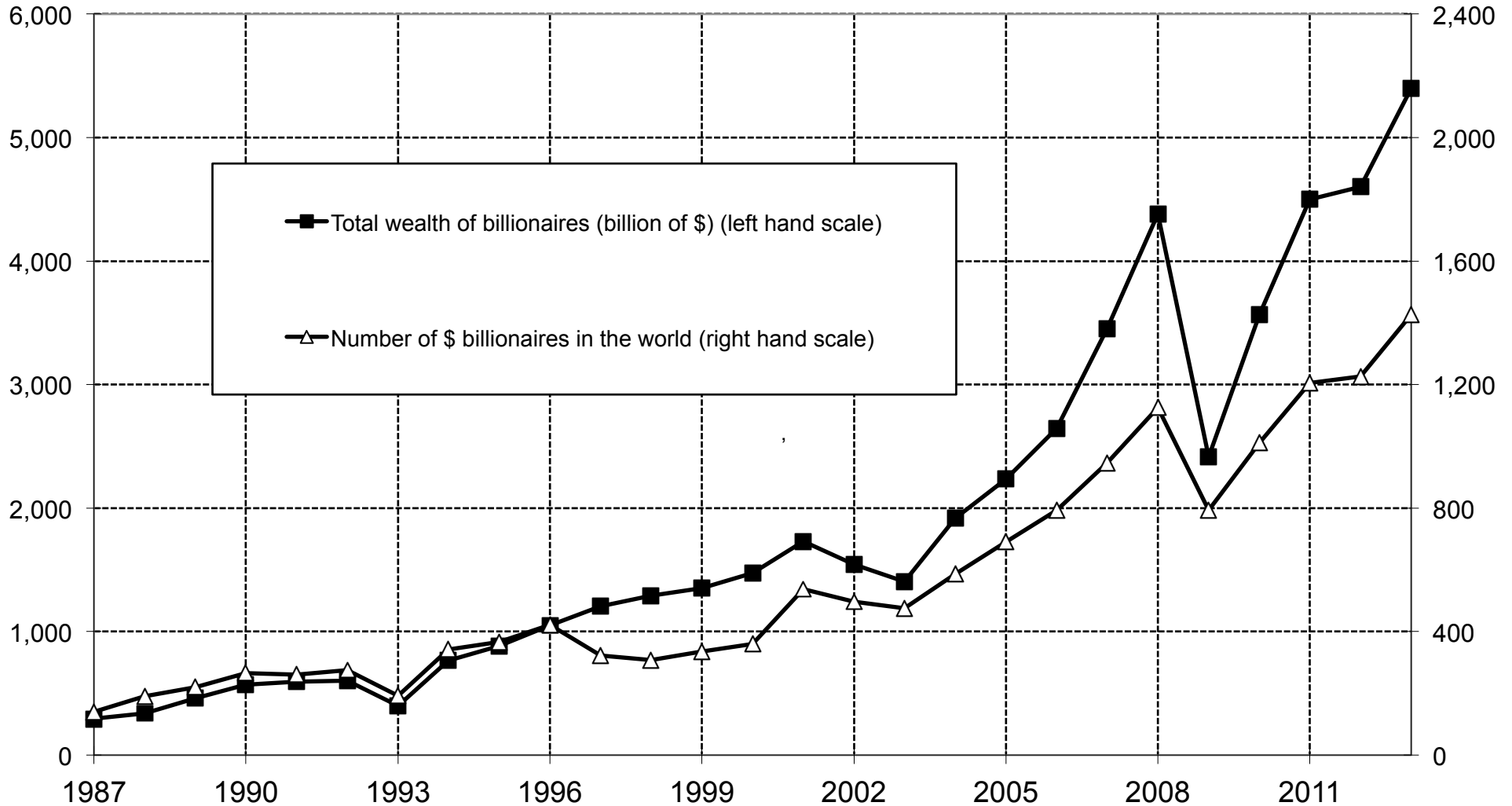
Within the cohorts born around 1970-1980, 12-14% of individuals receive in inheritance the equivalent of the lifetime labor income received by the bottom 50% less well paid workers. Sources and series : see piketty.pse.ens.fr/capital21c

Figure 11.12. The inheritance flow in Europe 1900-2010



The inheritance flow follows a U-shaped curve in France as well as in the U.K. and Germany. It is possible that gifts are underestimated in the U.K. at the end of the period. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 12.1. The world billionaires according to Forbes, 1987-2013



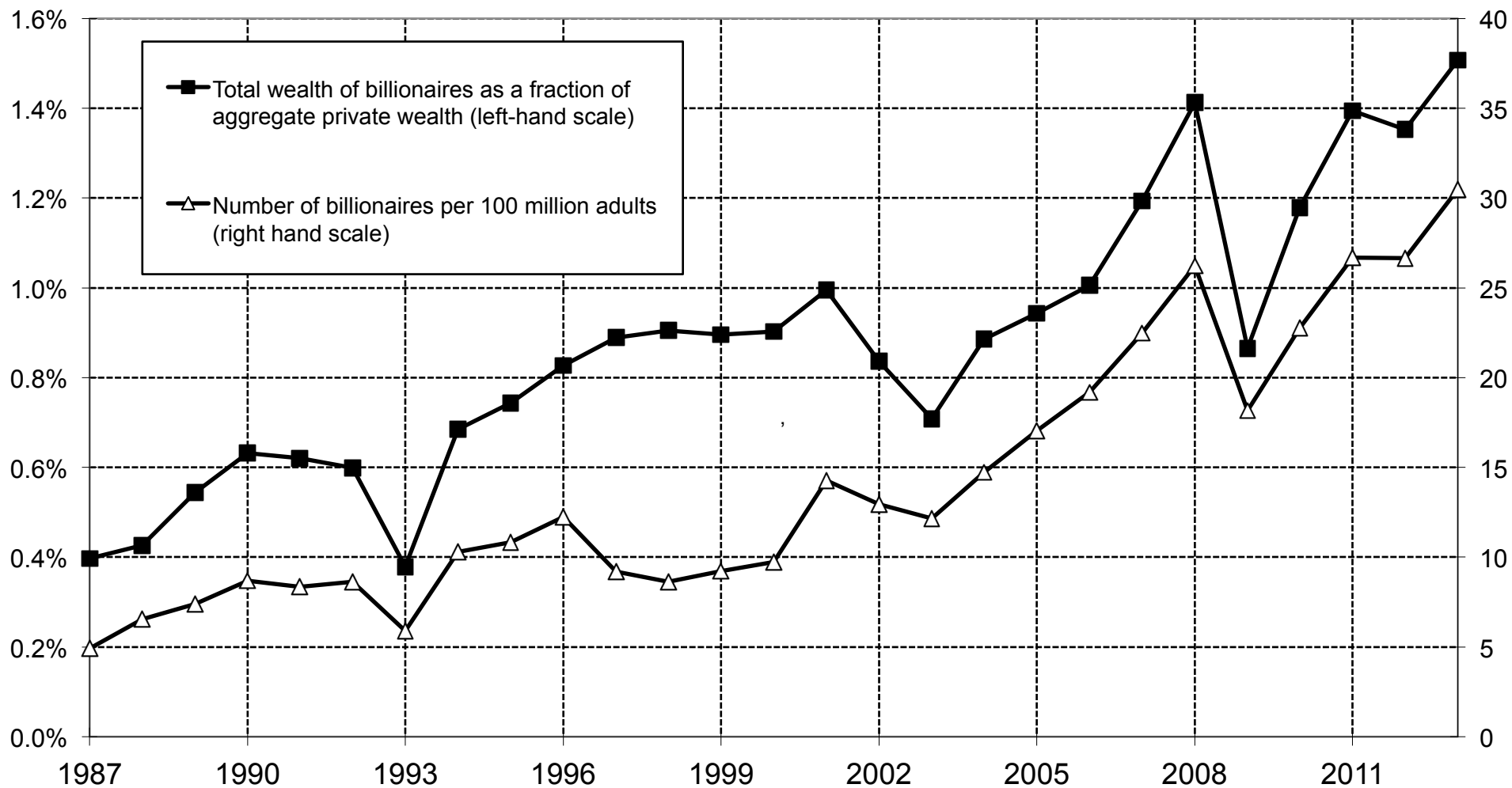
Between 1987 and 2013, the number of \$ billionaires rose according to Forbes from 140 to 1400, and their total wealth rose from 300 to 5 400 billion dollars. Sources and series: see piketty.pse.ens.fr/capital21c.

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 (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.

Figure 12.2. Billionaires as a fraction of global population and wealth 1987-2013



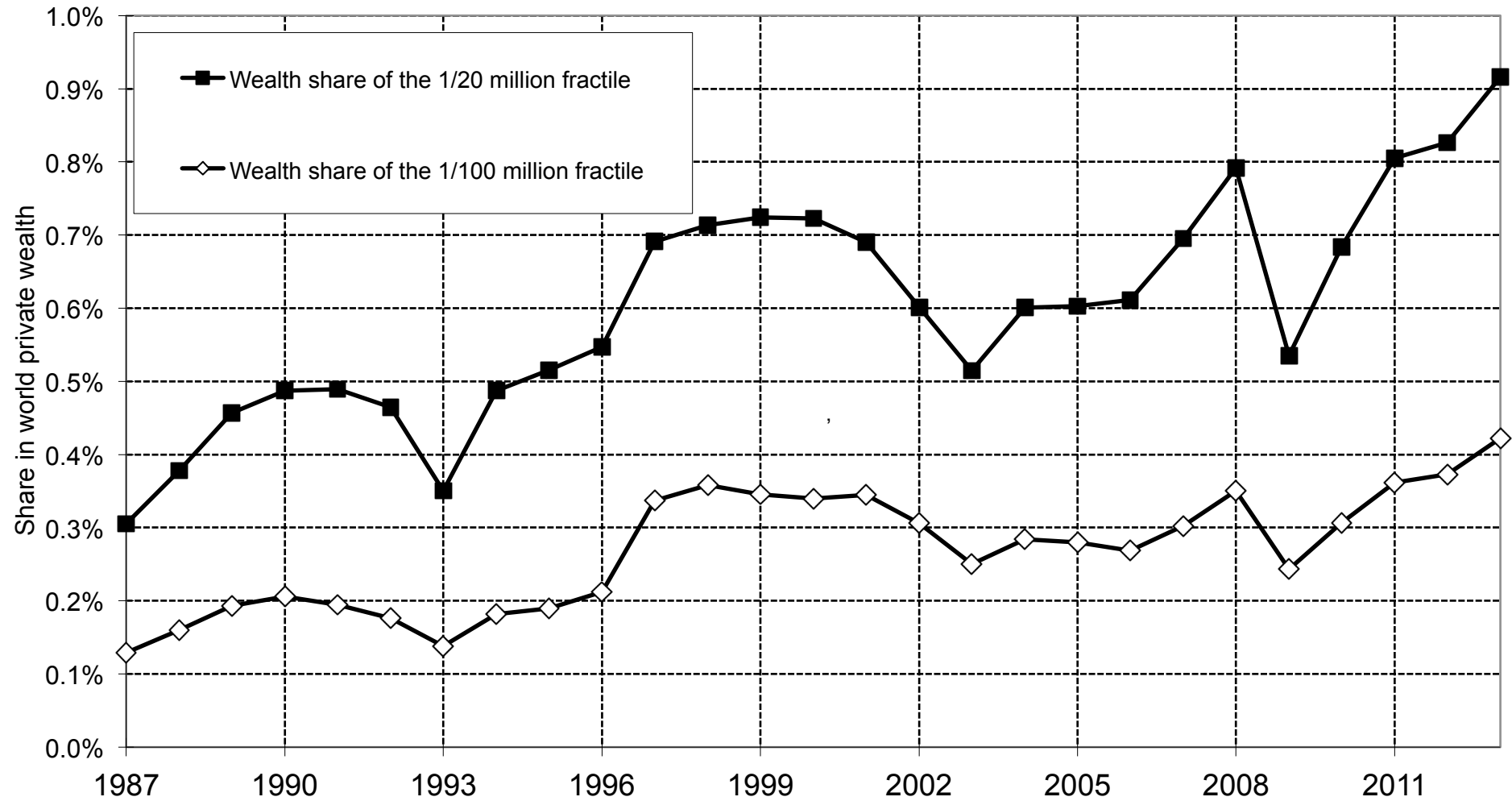
Between 1987 and 2013, the number of billionaires per 100 million adults rose from 5 to 30, and their share in aggregate private wealth rose from 0.4% to 1.5%. Sources and series: see piketty.pse.ens.fr/capital21c.

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

<i>Average real annual rate of return (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%

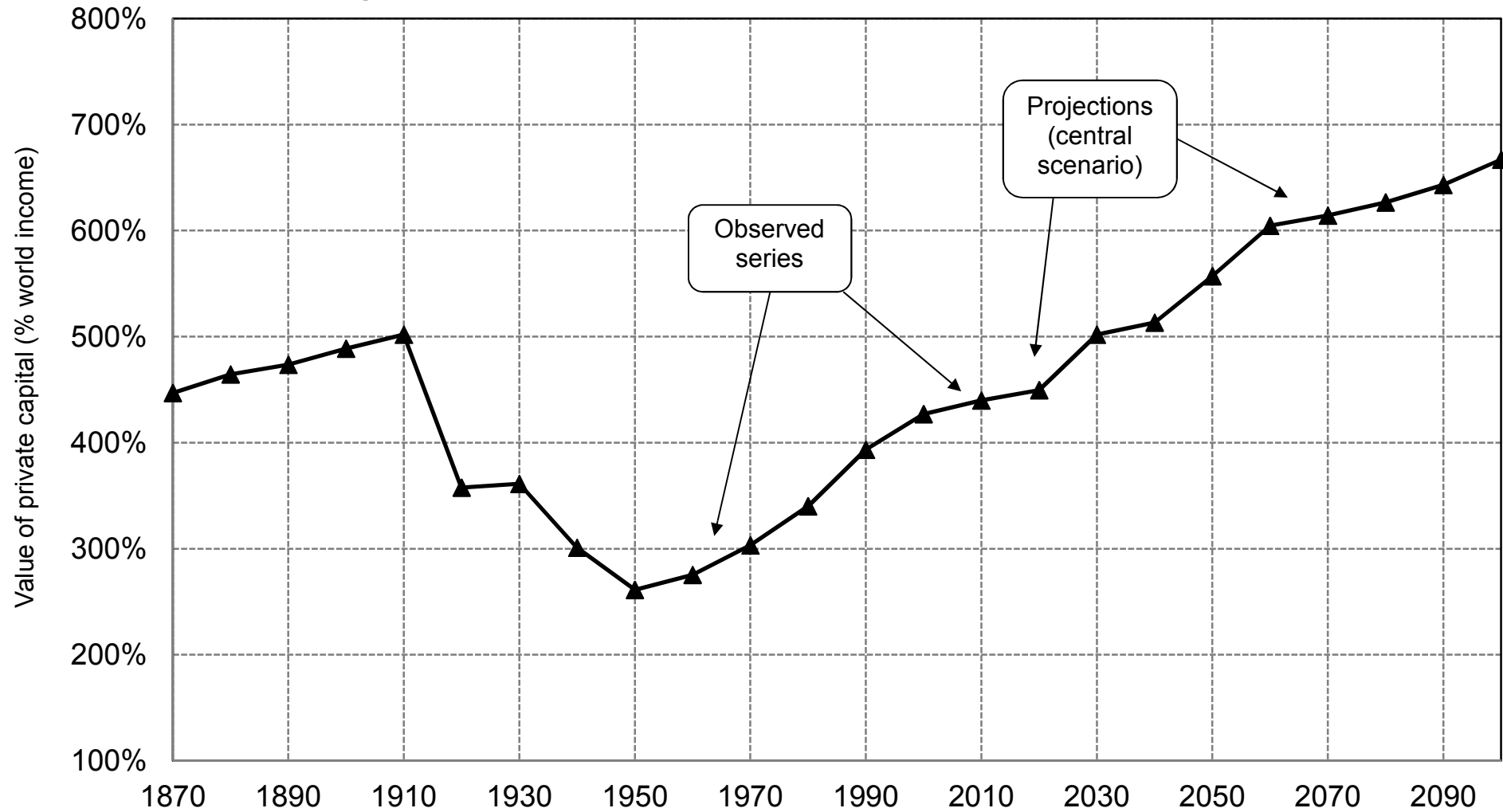
Between 1980 and 2010, U.S. universities earned an average real return of 8.2% on their capital endowments, and all the more so for higher endowments. All returns reported here are net of inflation (2.4% per year between 1980 and 2010) and of all administrative costs and financial fees. Sources: see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

Figure 12.3. The share of top wealth fractiles in world wealth, 1987-2013



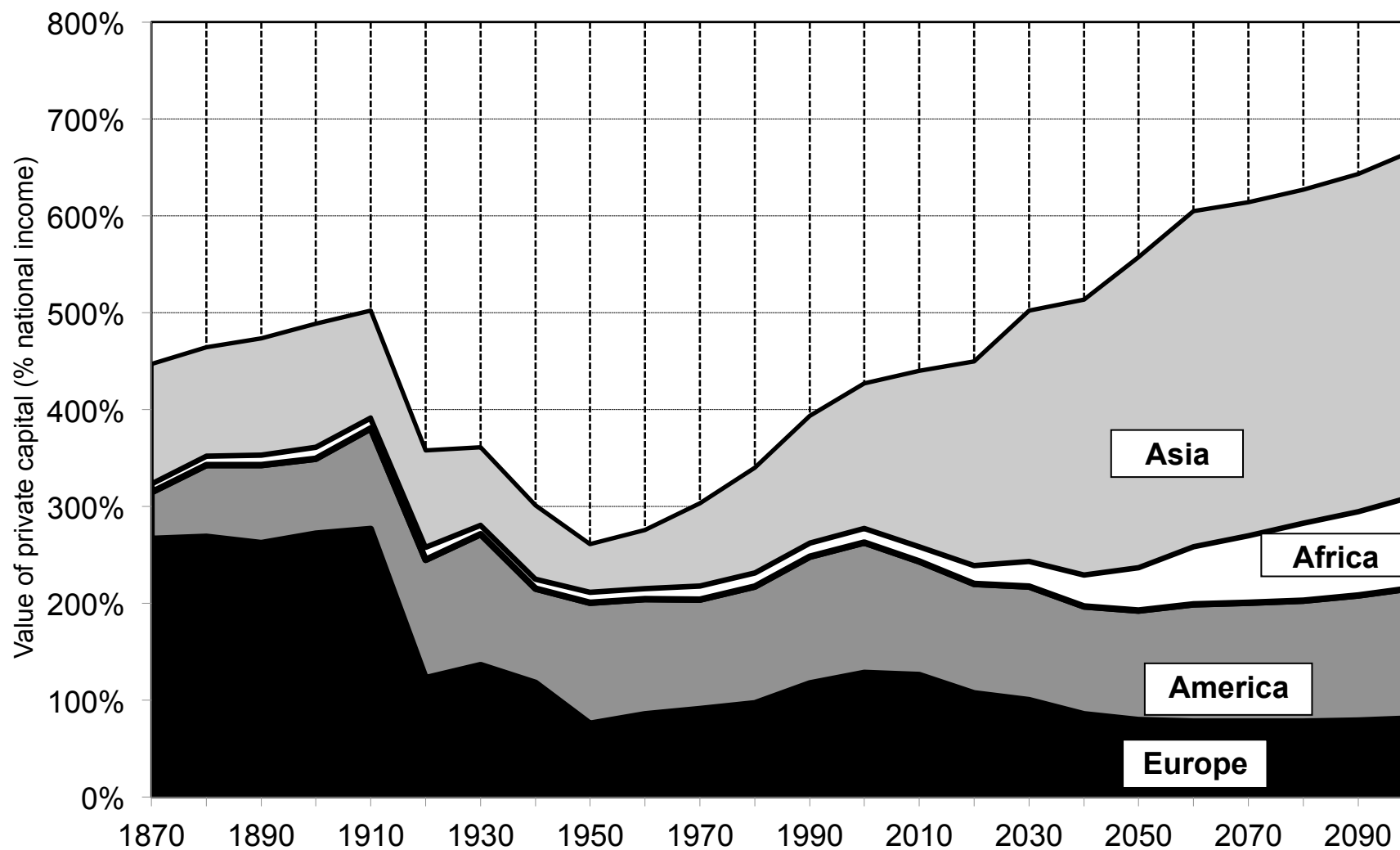
Between 1987 and 2013, the share of the top 1/20 million fractile rose from 0.3% to 0.9% of world wealth, and the share of the top 1/100 million fractile rose from 0.1% to 0.4%. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 12.4. The world capital/income ratio, 1870-2100



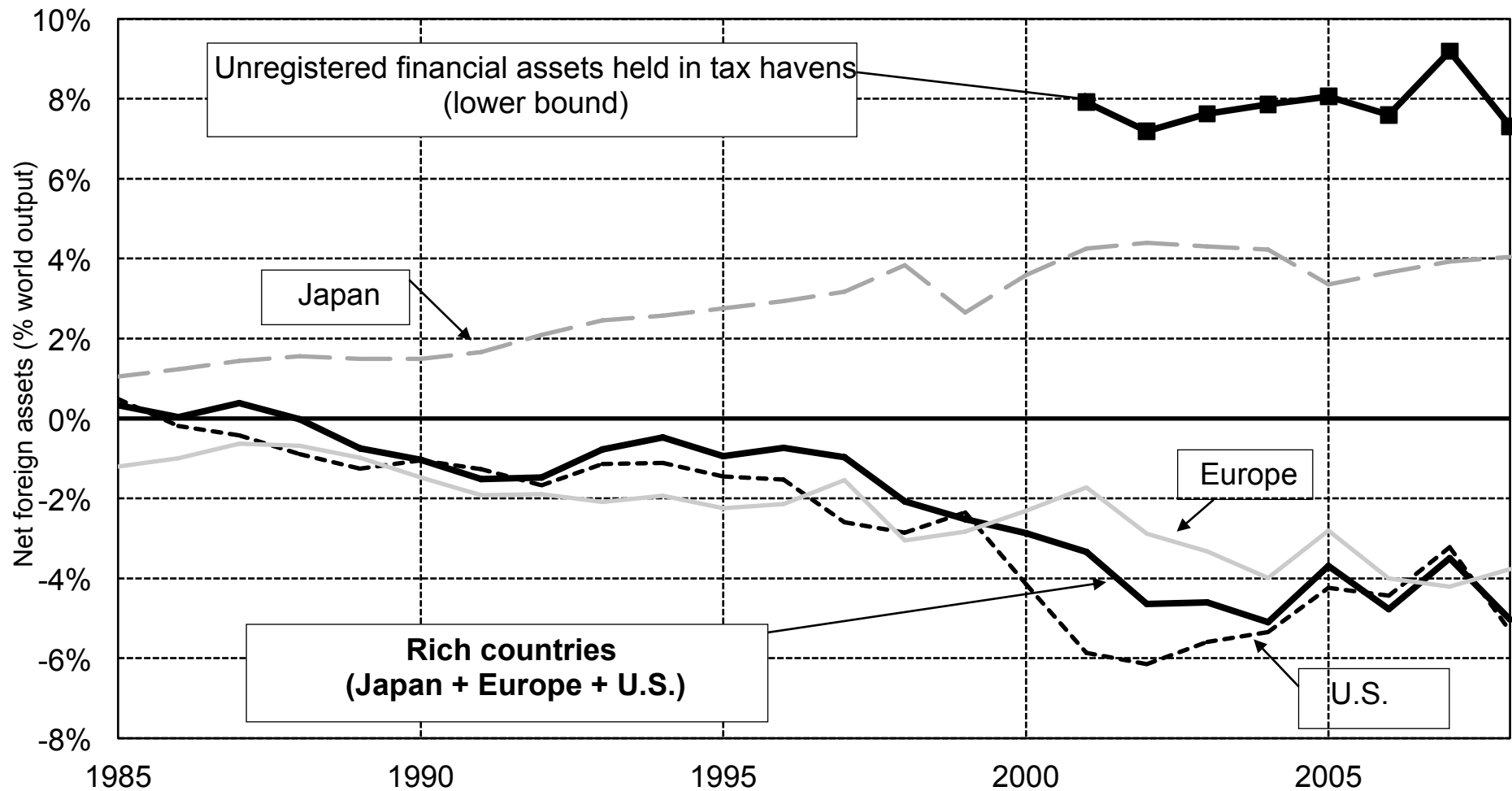
According to the simulations (central scenario), the world capital/income ratio might be near to 700% by the end of the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 12.5. The distribution of world capital 1870-2100



According to the central scenario, Asian countries should own about half of world capital by the end of the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c.

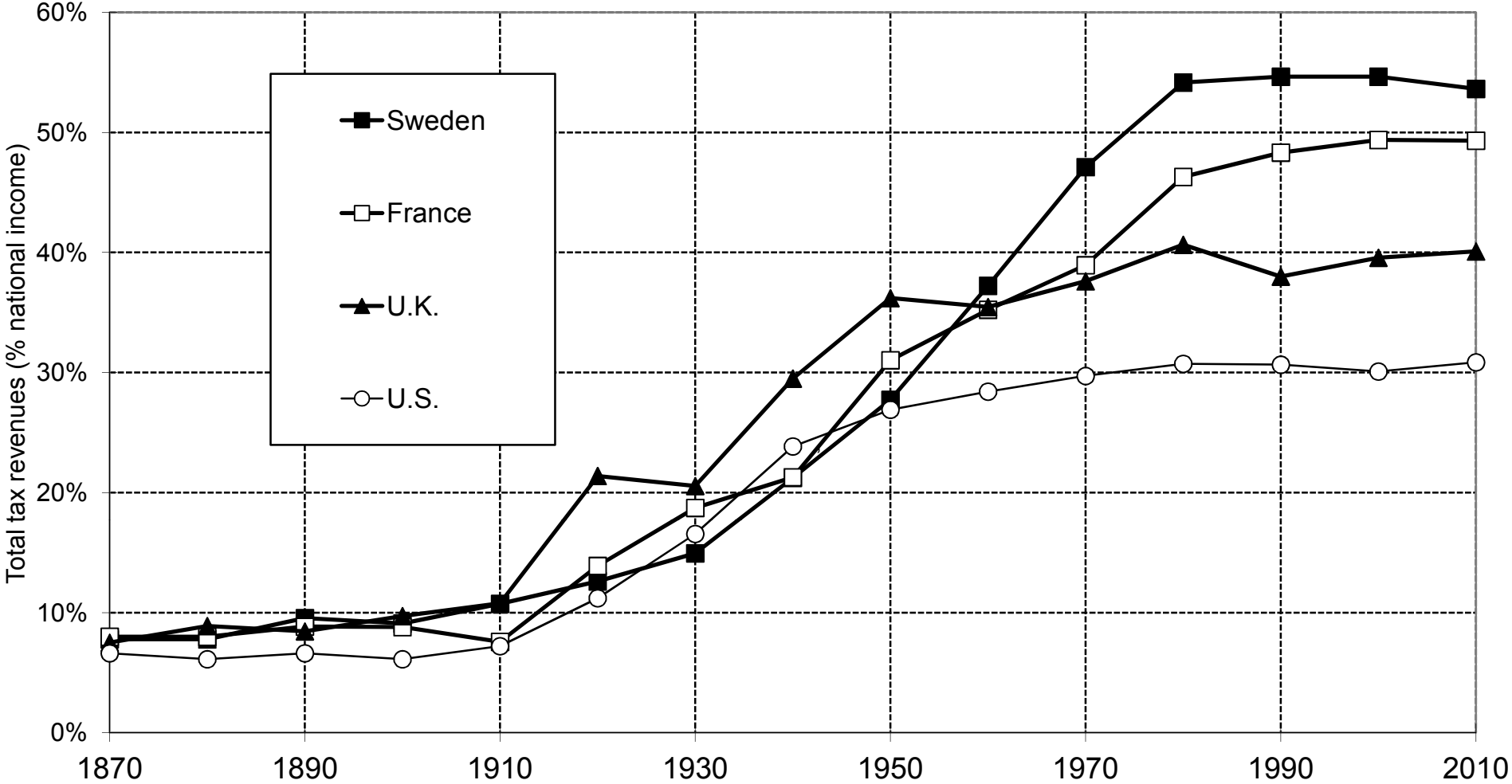
Figure 12.6. The net foreign asset position of rich countries



Unregistered financial assets held in tax havens are higher than the official net foreign debt of rich countries.

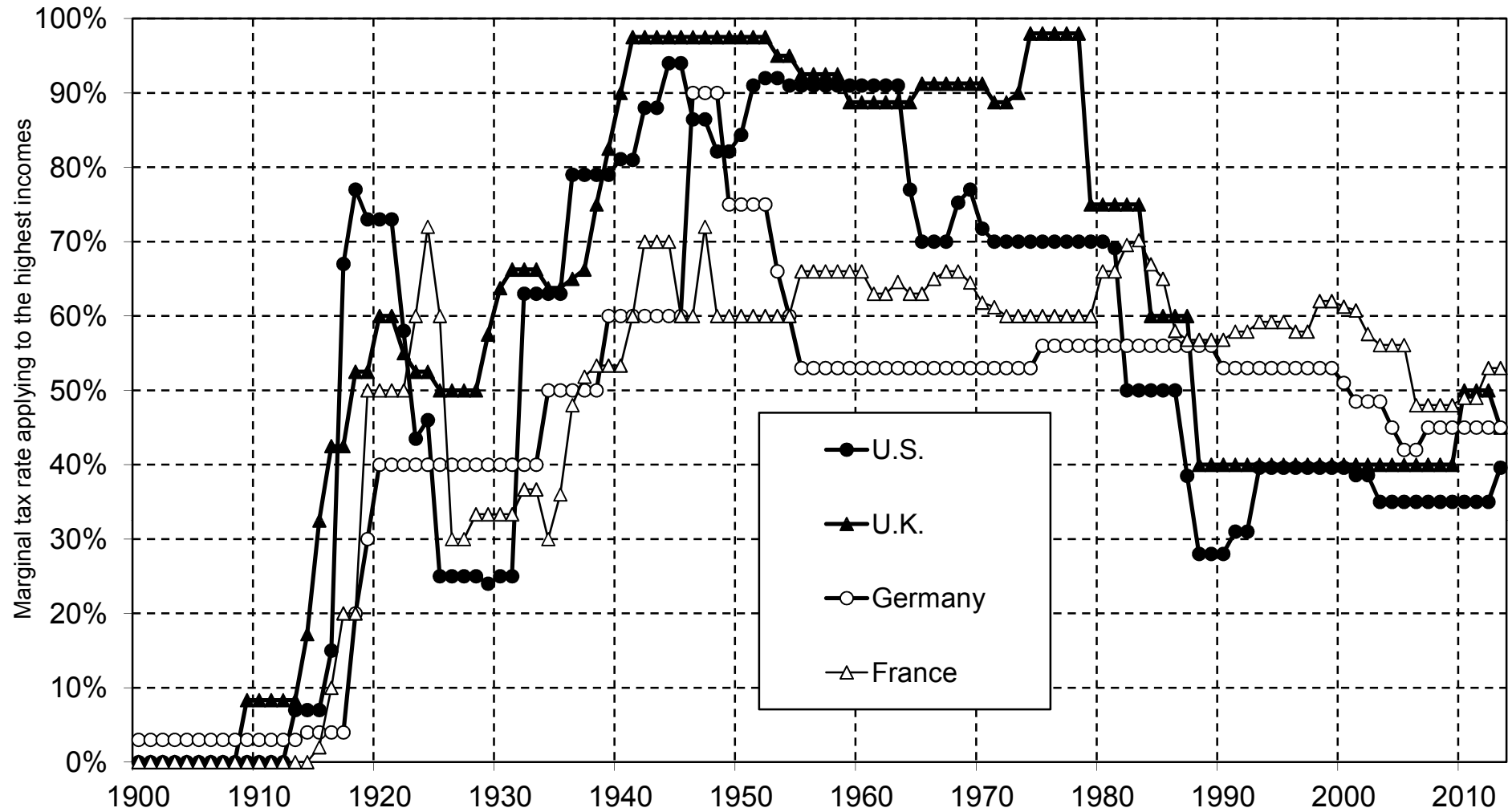
Sources and series: see piketty.pse.ens.fr/capital21c.

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



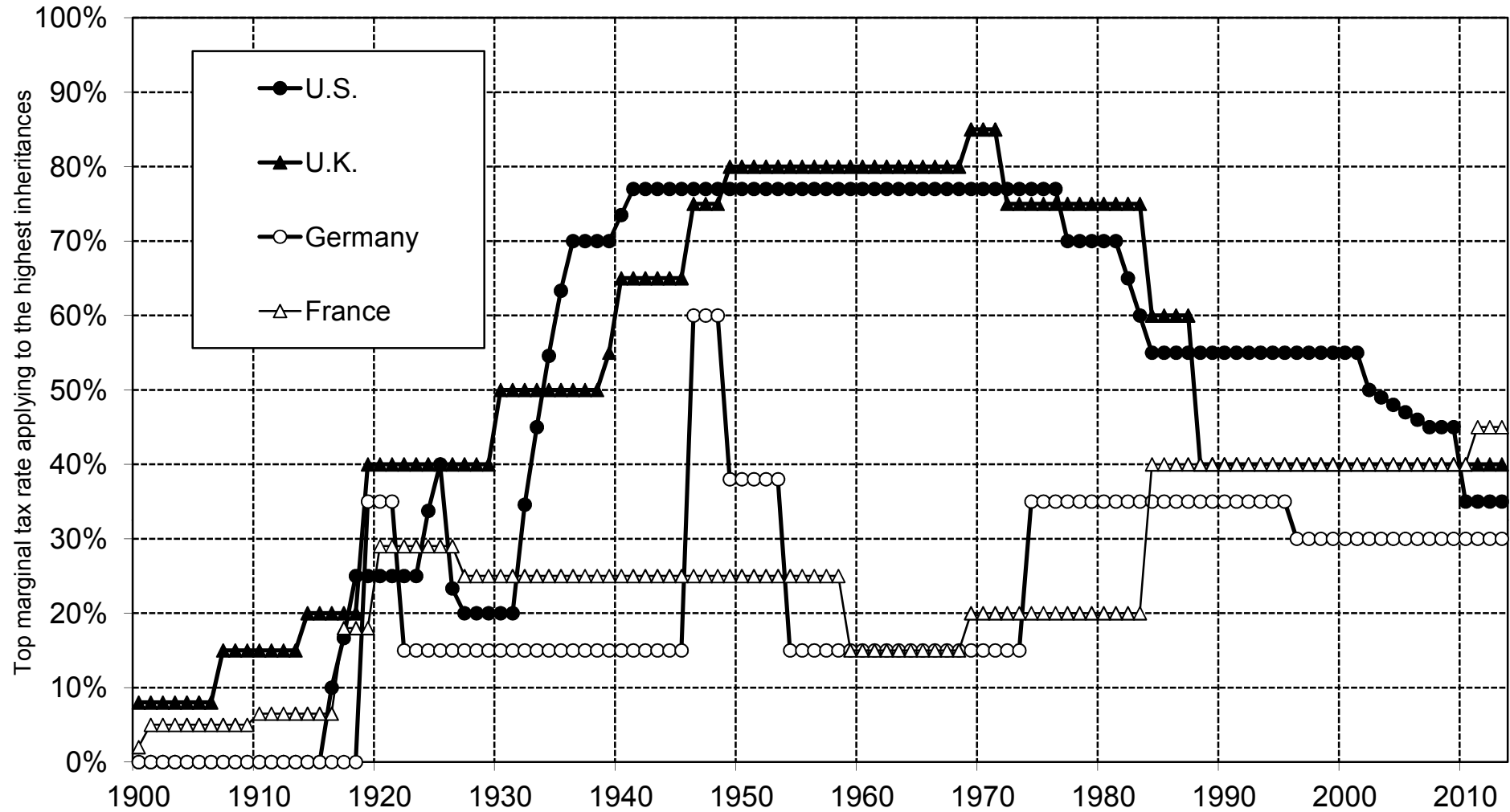
Total tax revenues were less than 10% of national income in rich countries until 1900-1910; they represent between 30% and 55% of national income in 2000-2010. Sources and series: see piketty.pse.ens.fr/capital21c.

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.