Economics of Inequality

(Master PPD & APE, Paris School of Economics)

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Lecture 2: The dynamics of capital/income ratios: private vs public capital

(Tuesday September 30th 2014)

(check on line for updated versions)

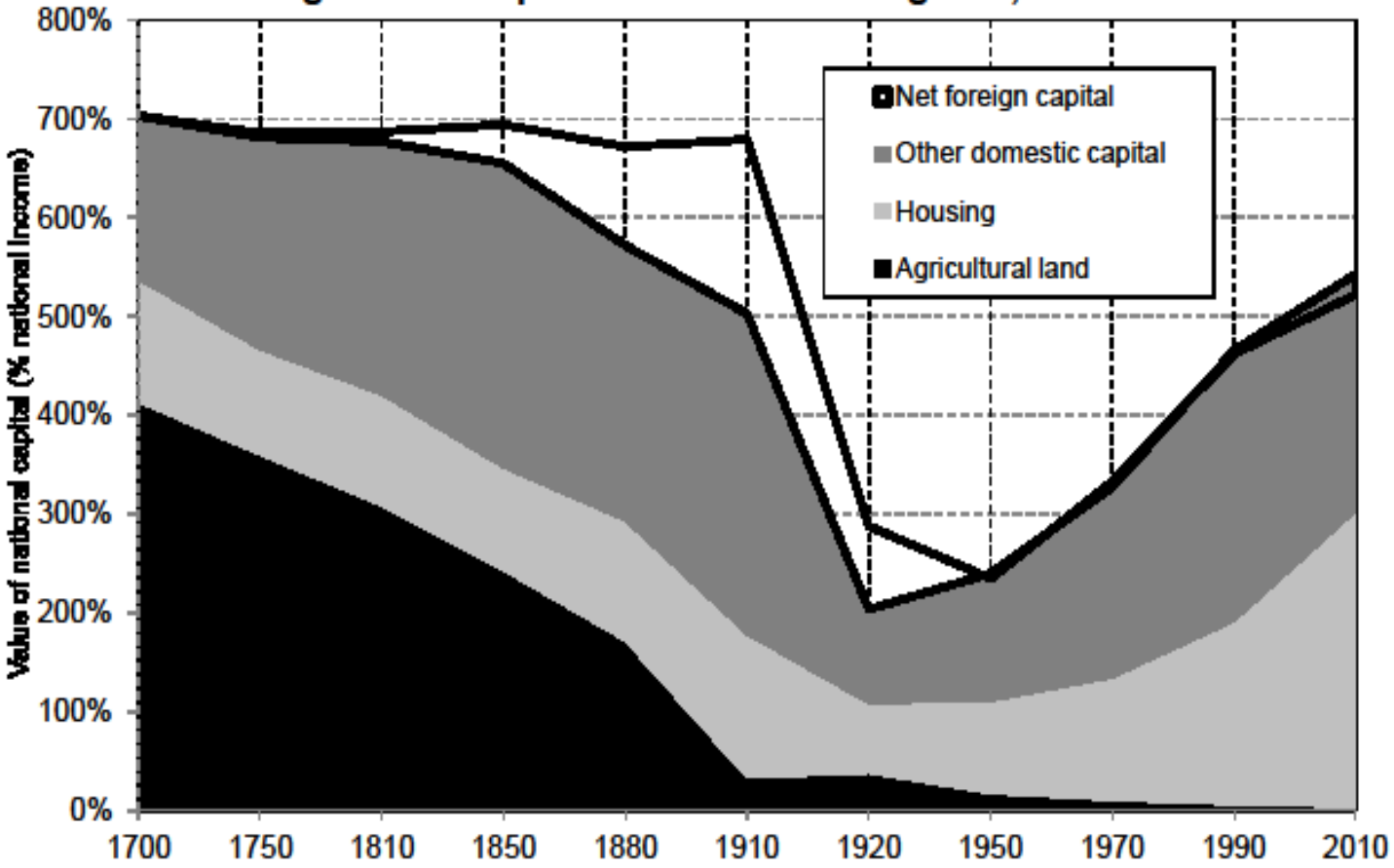
The very long-run: Britain and France 1700-2010

- Long tradition of national wealth estimates in Britain and France in the 18th-19th centuries: Britain: Petty, King, Giffen, etc.; France: Vauban, Lavoisier, Colson, etc.
- National balance sheets: estimates of all assets and liabilities held by residents of a country (and by the government) (« Bilans patrimoniaux par pays »)
- These estimates are not sufficientely precise to study short-run fluctuations; but they are fine to study broad orders of magnitudes and long-run evolutions
- See « Capital is Back – Wealth-Income Ratios in Rich Countries 1700-2010 », 2013, Data Appendix, Database, for detailed bibliography and methodological issues

- Longest series: Britain and France national wealth/national income ratio $\beta_n = W_n/Y$ over 1700-2010
- National wealth W_n = Private wealth W + Public (or government) wealth W_g
- W_n = Domestic capital K + Net foreign assets NFA
- Domestic capital K = agricultural land + residential housing + other domestic k (=offices, structures, machines, patents, etc. used by firms and administrations)
- Two major facts: (1) huge U-shaped curve: $\beta_n \approx 700\%$ over 1700-1910, down to 200-300% around 1950, up to 500-600% in 2000-2010

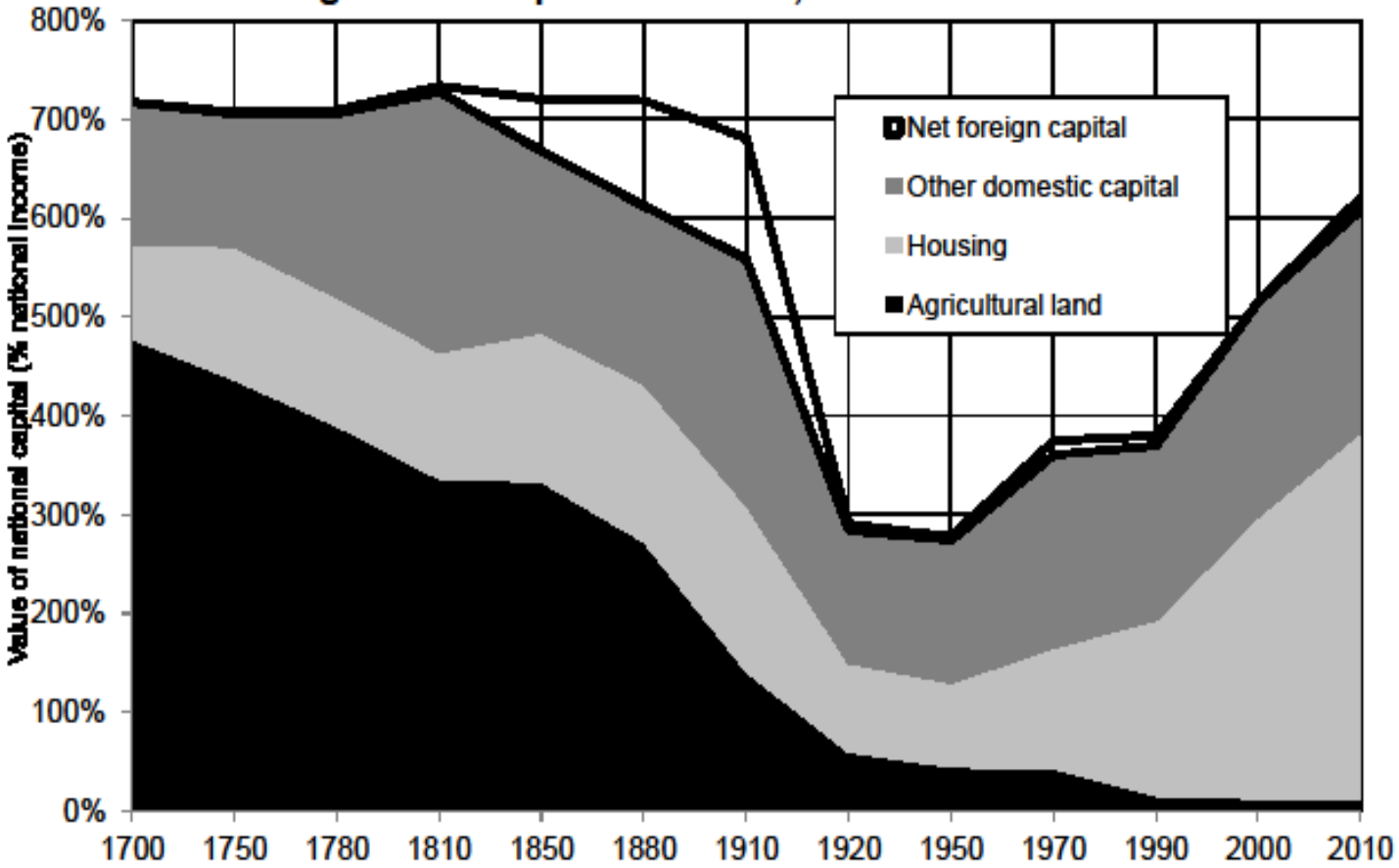
(2) Radical change in the nature of wealth (agricultural land has been gradually replaced by housing, business and financial capital), but total value of wealth did not change much in the very long run

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



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

Figure 3.2. Capital in France, 1700-2010



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

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

The rise and fall of foreign assets

- NFA close to 0 in 1700-1800 and 1950-2010, but very large in 1870-1910 = the height of the « first globalization » and of colonial empires
- In 1910, NFA≈200% of Y in UK, ≈100% in France
- These enormous net foreign assets disappeared between 1910 and 1950 and never reappeared (but large cross-border gross positions developed since 1970s-80s: « second globalization »)
- 2010: Y ≈ 30 000€, W_n ≈ 180 000€ ($\beta_n \approx 6$), including 90 000€ in housing and 90 000€ in other domestic k (financial assets invested in firms and govt)
- 1700: assume Y ≈ 30 000€, then W_n ≈ 210 000€ ($\beta_n \approx 7$), including 150 000€ in agricultural land and 60 000€ in housing and other domestic capital
- 1910 (UK): assume Y ≈ 30 000€, then W_n ≈ 210 000€ ($\beta_n \approx 7$), including 60 000€ in housing, 90 000€ in other domestic capital and 60 000€ in net foreign assets

- With NFA as large as 100-200% Y, the net foreign capital income is very large: around 1900-1910, as large as 5% Y in France and 10% Y in Britain (average rate of return r=5%)
- In effect, both countries were able to have permanent trade deficits (about 2% Y in 1870-1910) and still to have a current account surplus and to accumulate more foreign reserves; i.e. they were consuming more than they what were producing, and at the same time they were getting richer
- Two conclusions: (1) it's nice to be a owner; (2) there's no point accumulating trade surpluses for ever

Private versus public wealth

- National wealth W_n = Private wealth W + Public wealth W_g
- Private wealth = private assets – private debt
- Public wealth = public assets – public debt
- Today, in most rich countries, public wealth close to 0 (public assets ≈ public debt ≈ 100% Y), and private wealth ≈ 95-100% of national wealth
- But it has not always been like this: sometime the govt owns a significant part of national wealth (20-30% in 1950s-60s in W. Europe; 80% in USSR); sometime govt wealth<0 (huge debt), so that private wealth is significantly larger than national wealth

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).

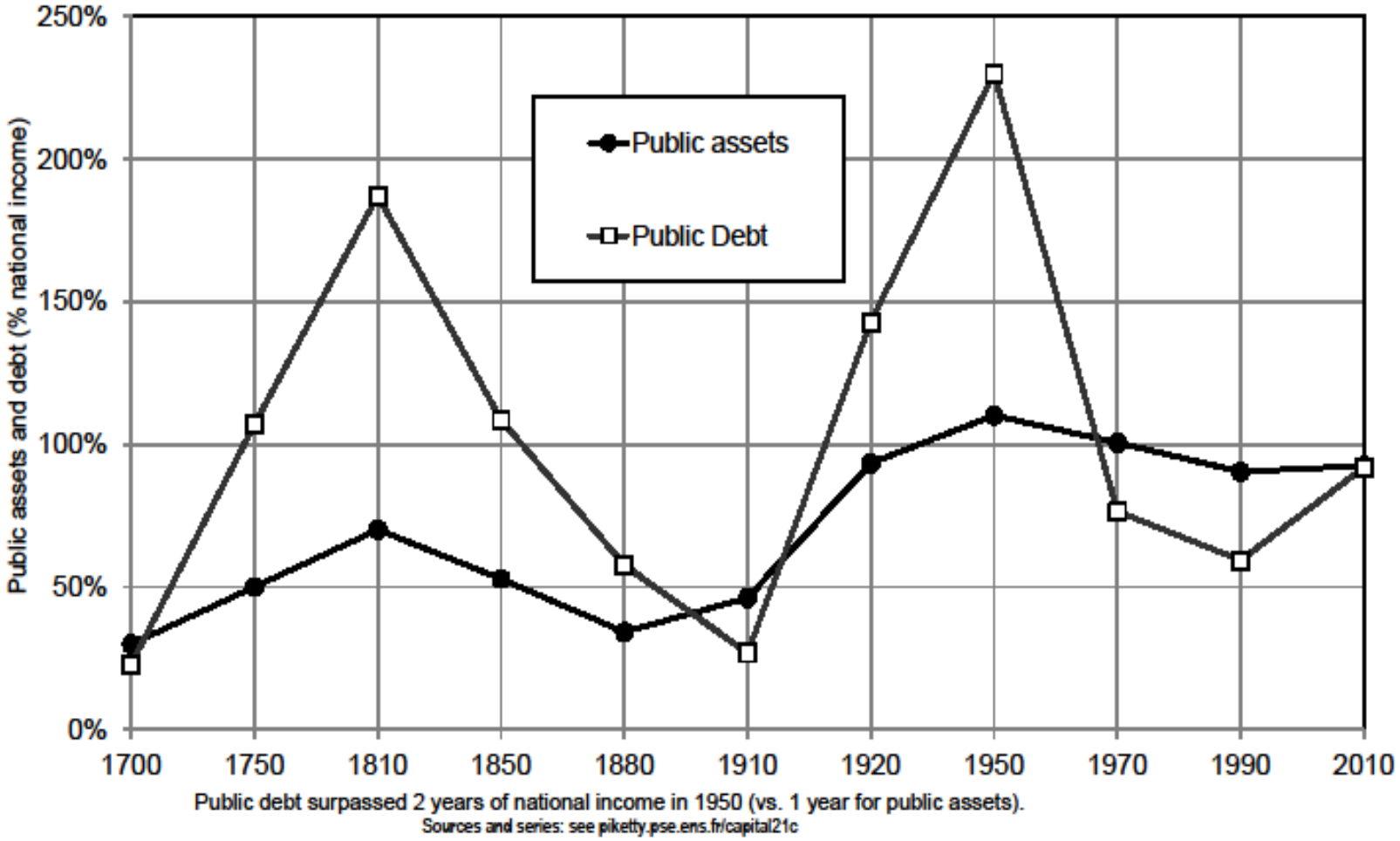
Sources: see piketty.pse.ens.fr/capital21c.

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.

Britain: public debt and Ricardian equivalence

- Britain = the country with the longest historical episodes of public debt: about 200% of Y around 1810-1820 (it took a century to reduce it below 50% by 1910, after a century of budget surpluses), and about 200% of Y again around 1950 (it was reduced faster, thanks to inflation)
- Big difference with France (large inflation and/or repudiation during 1790s & World Wars 1 and 2) and Germany (the country with the largest inflation in 1910-1950, even excluding 1924)
- Britain always paid back its debt (limited inflation, except 1950-1980); this is why it took so long to reduce debt, especially during 19c

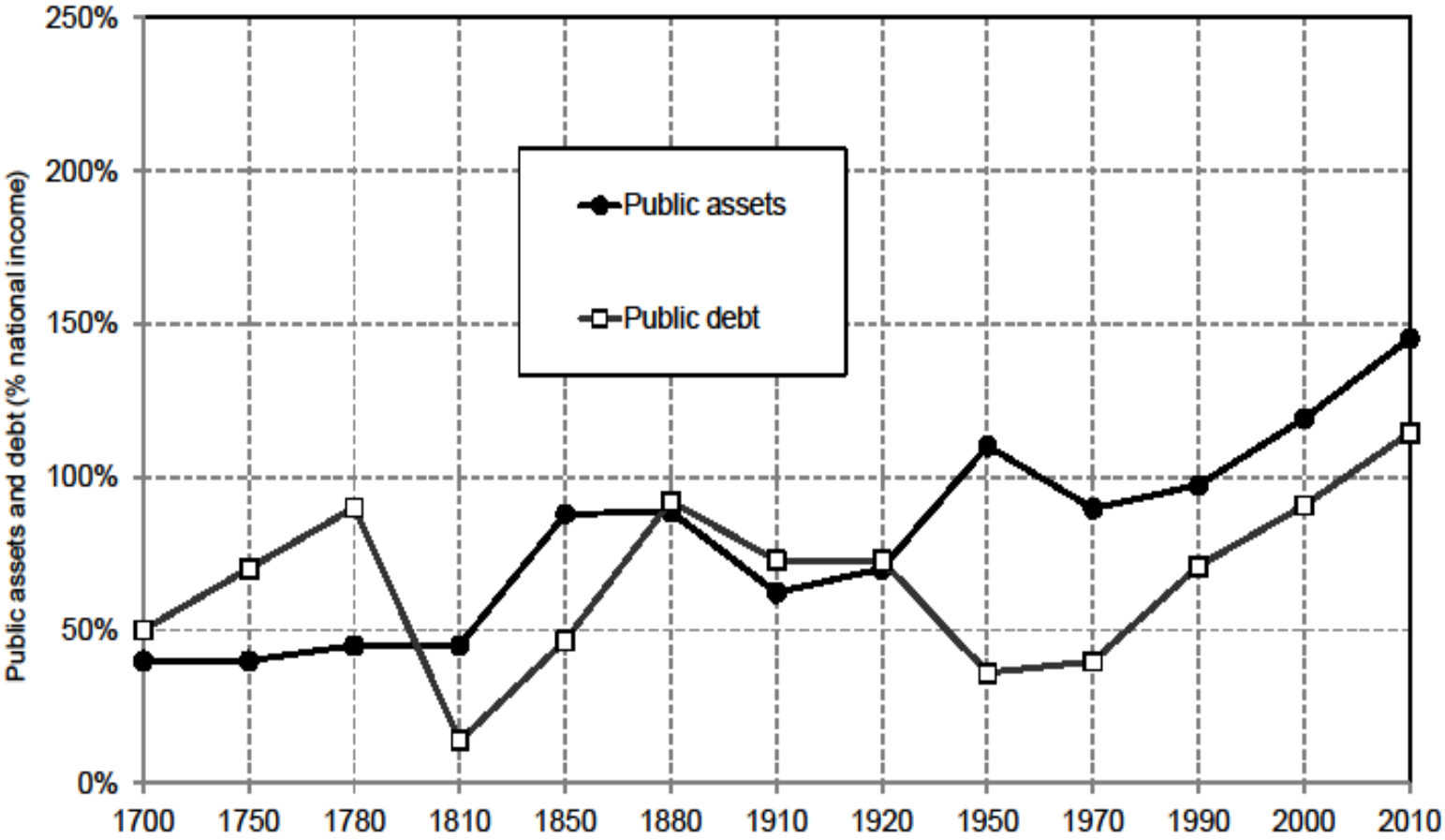
Figure 3.3. Public wealth in the United Kingdom, 1700-2010



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

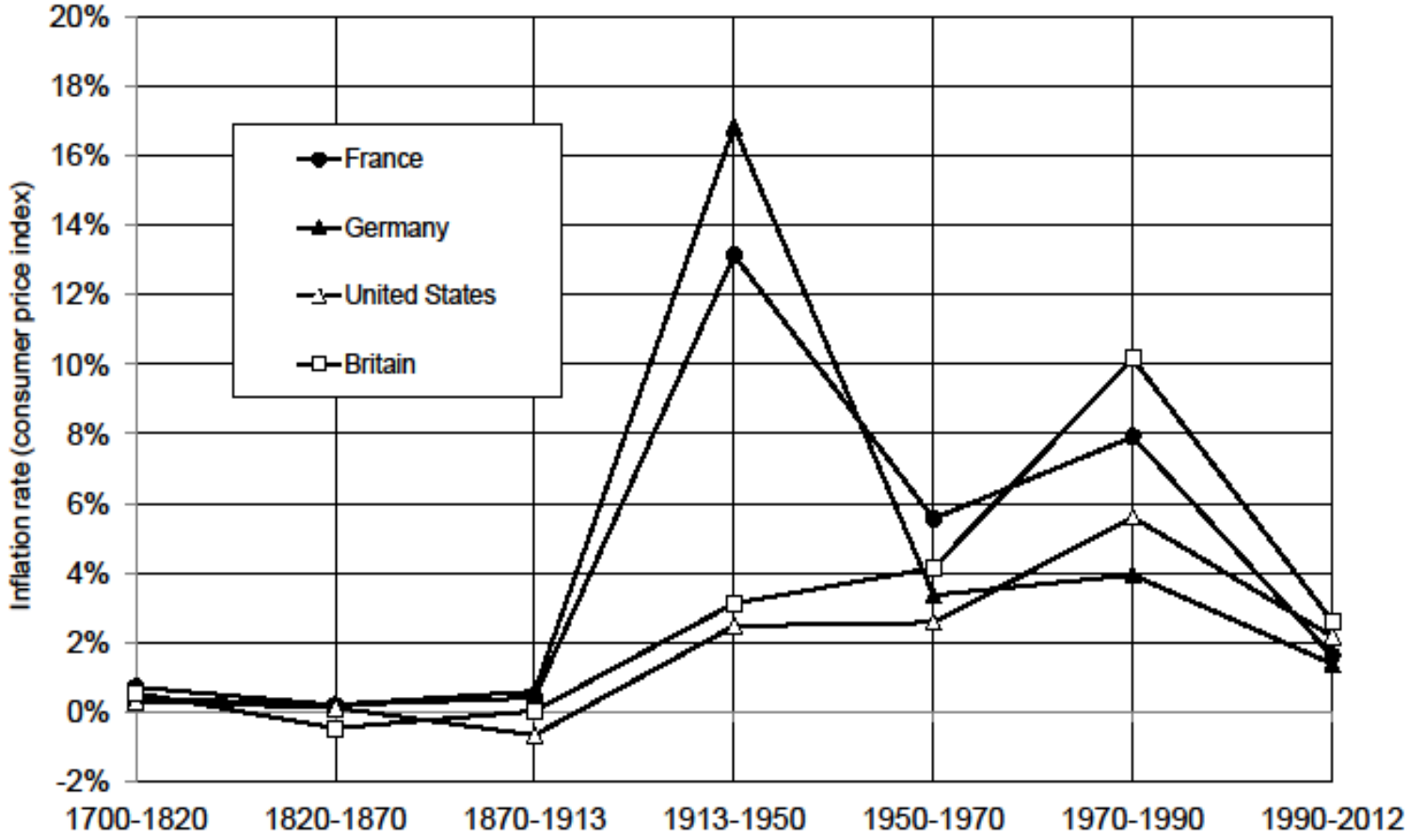
Sources and series: see piketty.pse.ens.fr/capital21c

Figure 3.4. Public wealth in France, 1700-2010



Public debt is about 1 year of national income in Frabce in 1780 as in 1880 and in 2000-2010.
Sources and series: see piketty.pse.ens.fr/capital21c

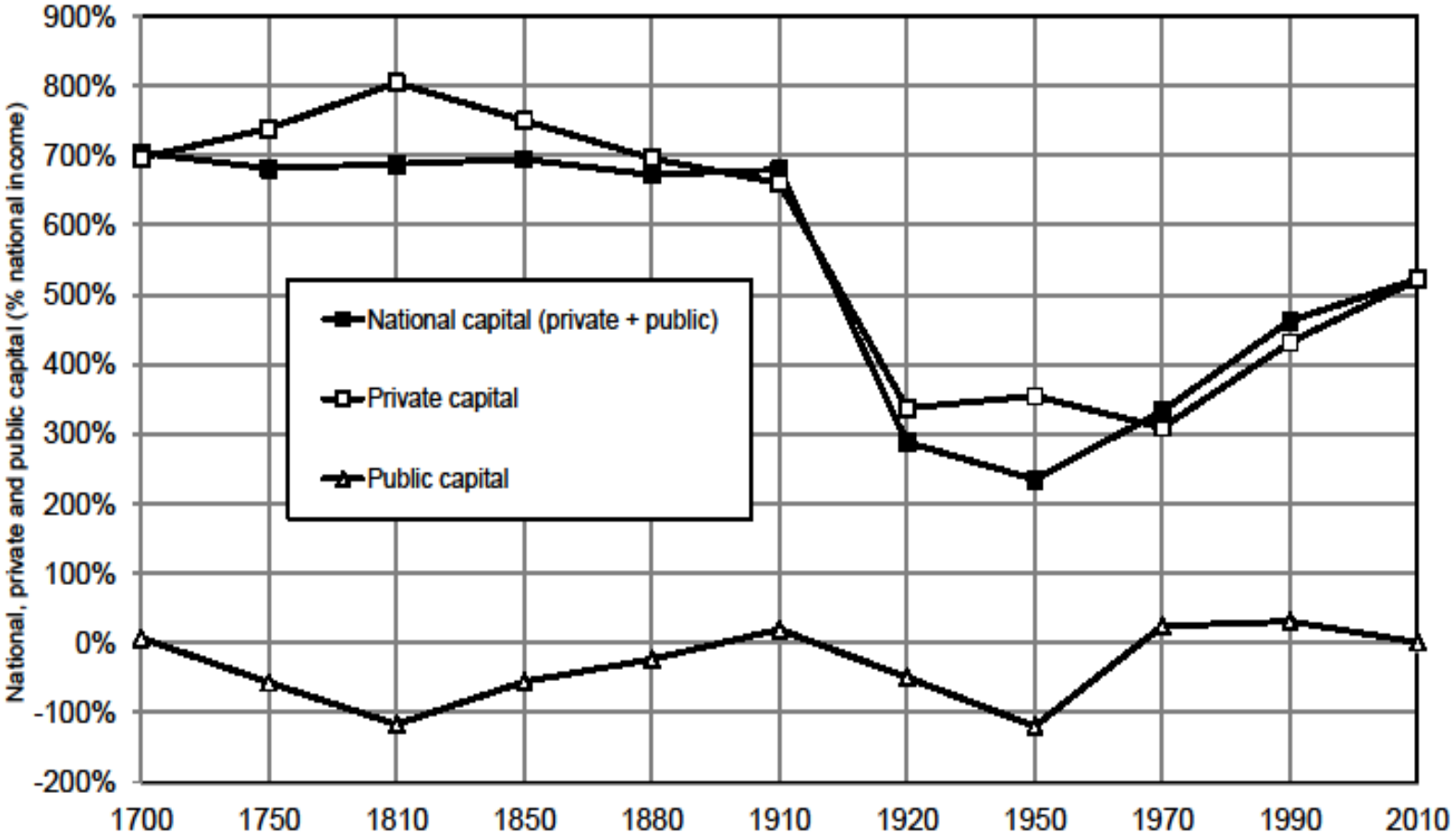
Figure 2.6. Inflation since the industrial revolution



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.

- Q.: What is the impact of public debt on capital accumulation?
- A.: It depends on how the private saving responds to public deficit
- National saving S_n = private saving S + public saving S_g (<0 if public deficit)
- Suppose $dS_g<0$ (public deficit↑)
- If dS=0 (no private saving response), then $dS_n<0$ → decline in national wealth W_n : in effect public deficits absorb part of private saving (=« crowding out »)
- But if dS>0, i.e. private saving increase in order to absorb the extra deficit, then crowding-out might be limited
- In case $dS=-dS_g$, then $dS_n=0$: national saving and national wealth are unaffected by public deficit
- = apparently what happened in UK 1810-1830: huge public debt, but no decline in private investment; extra private saving by British wealth holders, so that we observe a rise in private wealth, and no decline in national wealth = what Ricardo observes in 1817

Figure 3.5. Private and public capital in the U.K., 1700-2010



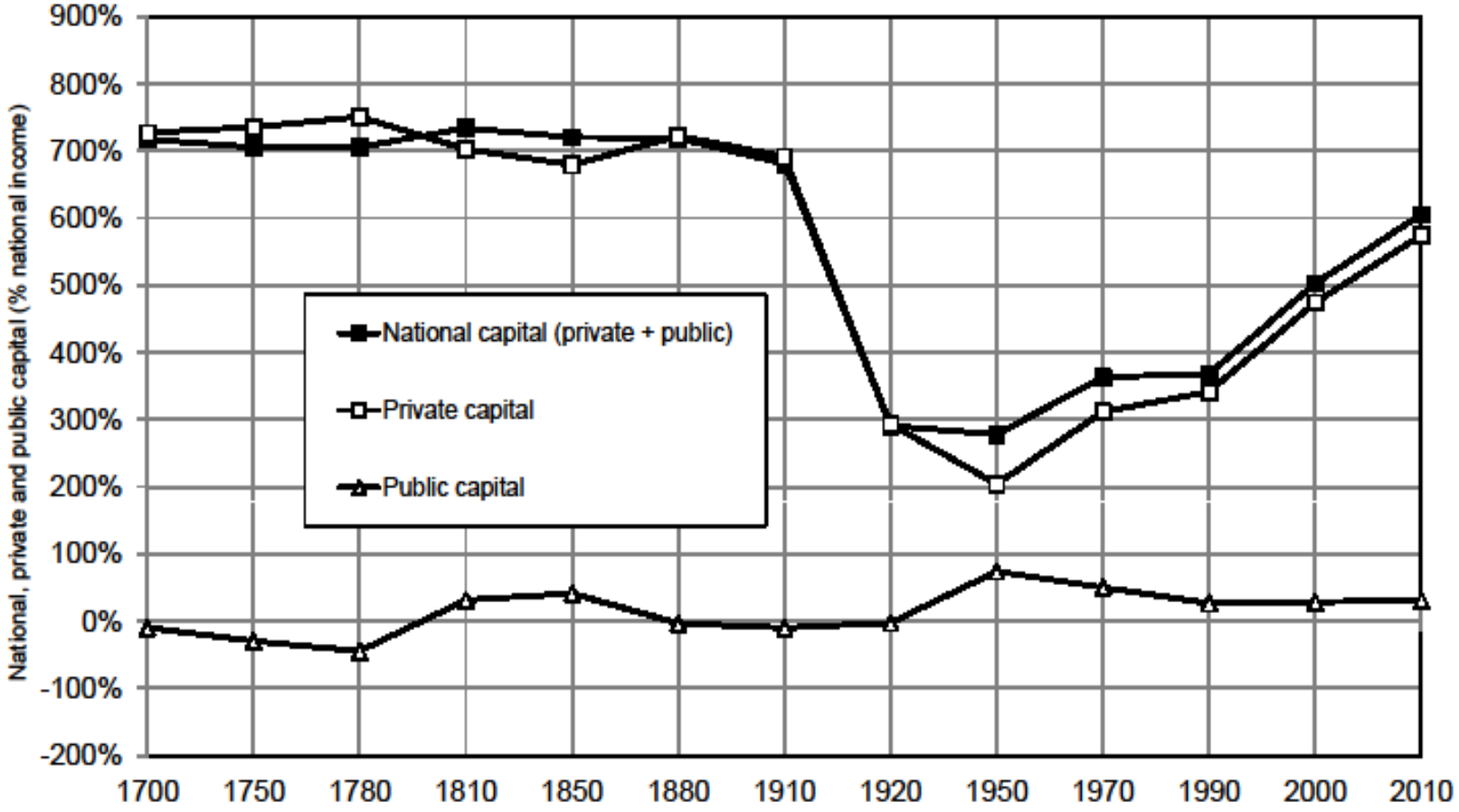
In 1810, private capital is worth 8 years of national income in the United Kingdom (vs. 7 years for national capital).
Sources and series: see piketty.pse.ens.fr/capital21c.

- Key question: why was there no crowding out?
- Barro 1974: in a representative agent model, rational agents should anticipate that they will pay more taxes in the future if today's public deficit increase, so they save more in order to make reserves (for themselves or their successors) so as to pay these taxes in the future → the timing of taxes is irrelevant, « debt neutrality » (see also Barro 1987, Clark 2001)
- Pb: it is unclear whether the representative agent model makes sense to study these issues; in 19c Britain, the agents holding public debt (=top 1% or top 10% wealth holders) are not the same as those paying taxes (=the entire population)
- Public debt always involves large transfers between income groups: for high wealth agents, it is better to lend money than to pay taxes… as long as the debt is paid back = big difference between 19c and 20c; will 21c be more like 19c, i.e. debt will be paid back?
- Whether the Ricardian equivalence holds depends on the prosperity of private savers, the rate of return that they are being offered, the ability of the govt to convince them that they will be paid back; in 19c UK, r was high, and govt highly credible

France: a mixed economy in 1950-1980

- Historically, high public debt in France was always inflated away (more difficult with €)
- In 1950, public debt<30% Y, and public assets >120% Y (public buildings + nationalized firms), so that net public wealth close to 100% Y; given that private wealth was close to 200% Y at that time, this means that in effect the govt owned about 1/3 of national wealth (and over 2/3 of large companies)
- Same pattern in Germany 1950 (and Britain 1970) = the postwar mixed economy
- Rise in public debt + privatization of public assets played a big role in rise of private wealth since 1980 (see next lecture)

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



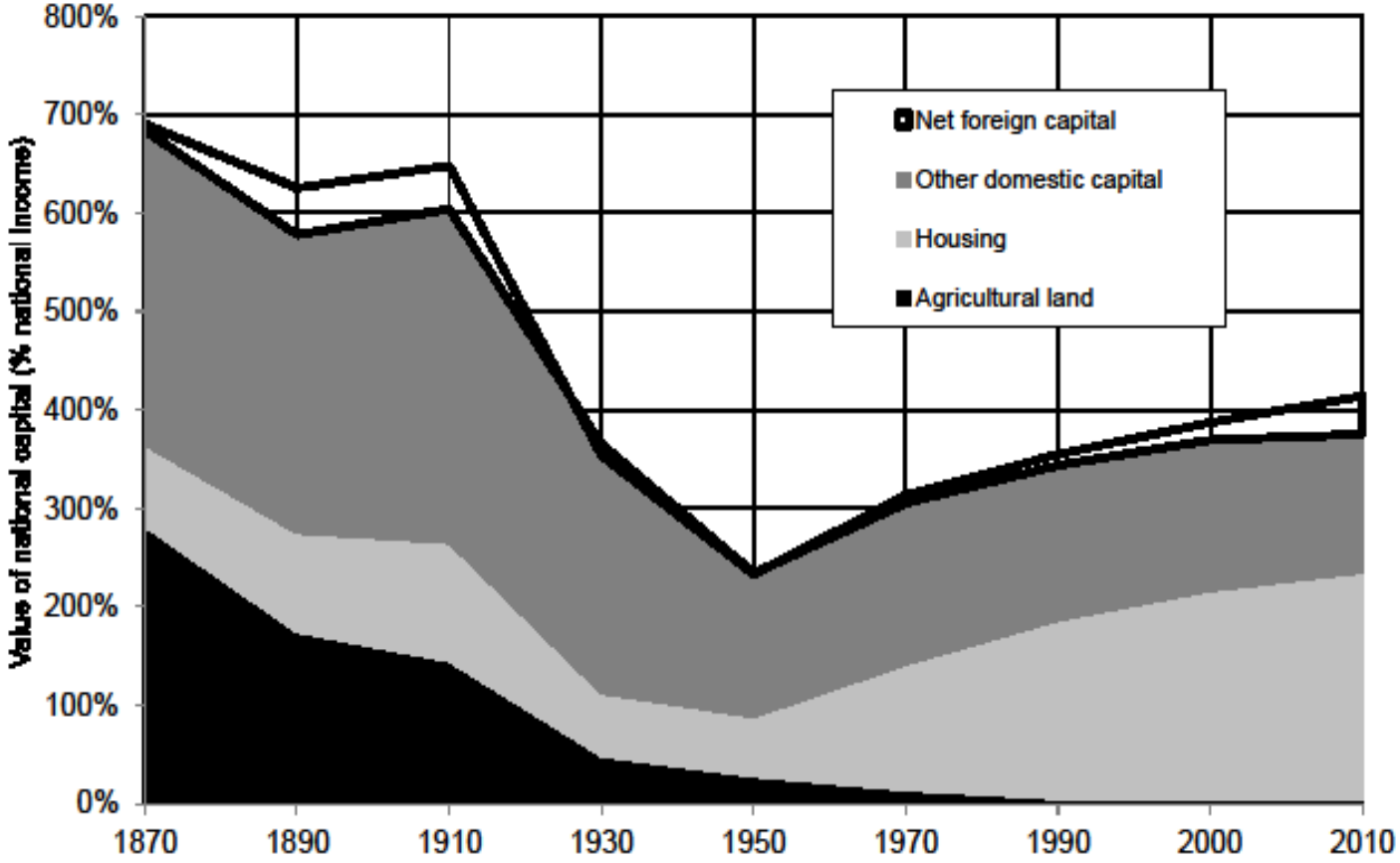
In 1950, public capital is worth almost 1 year of national income, vs. 2 years for private capital.

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

Capital in Germany

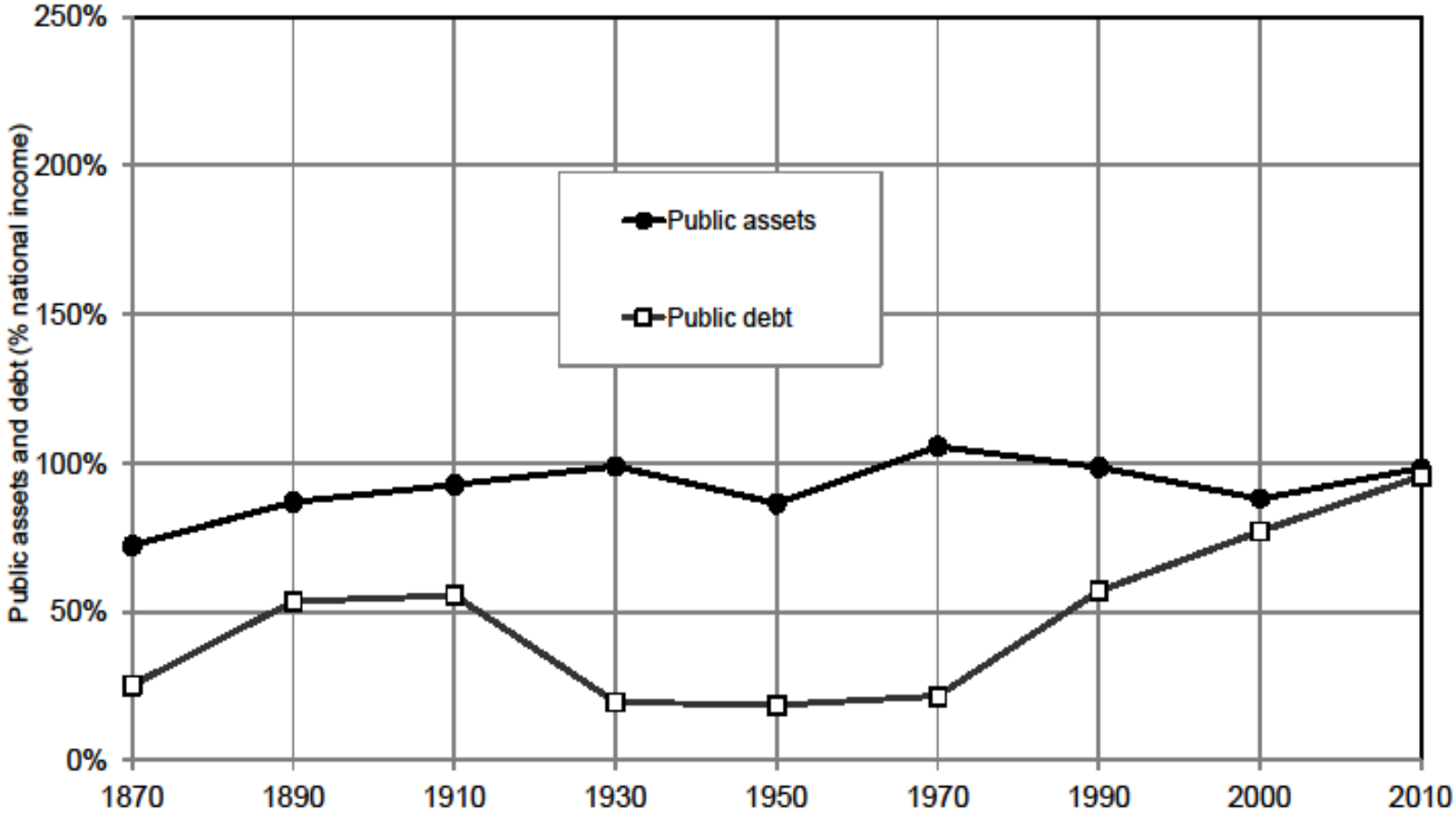
- Same general pattern as in Britain and France
- Except that NFA smaller in Germany in 1870-1910 (no colonial empire, late industrialization)
- Except that the level of β_n is lower in Germany during 1950-2010 period: lower real estate prices, lower stock market prices (stakeholder capitalism?)
- Except that NFA has been rising a lot in 1990s-2000s

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.

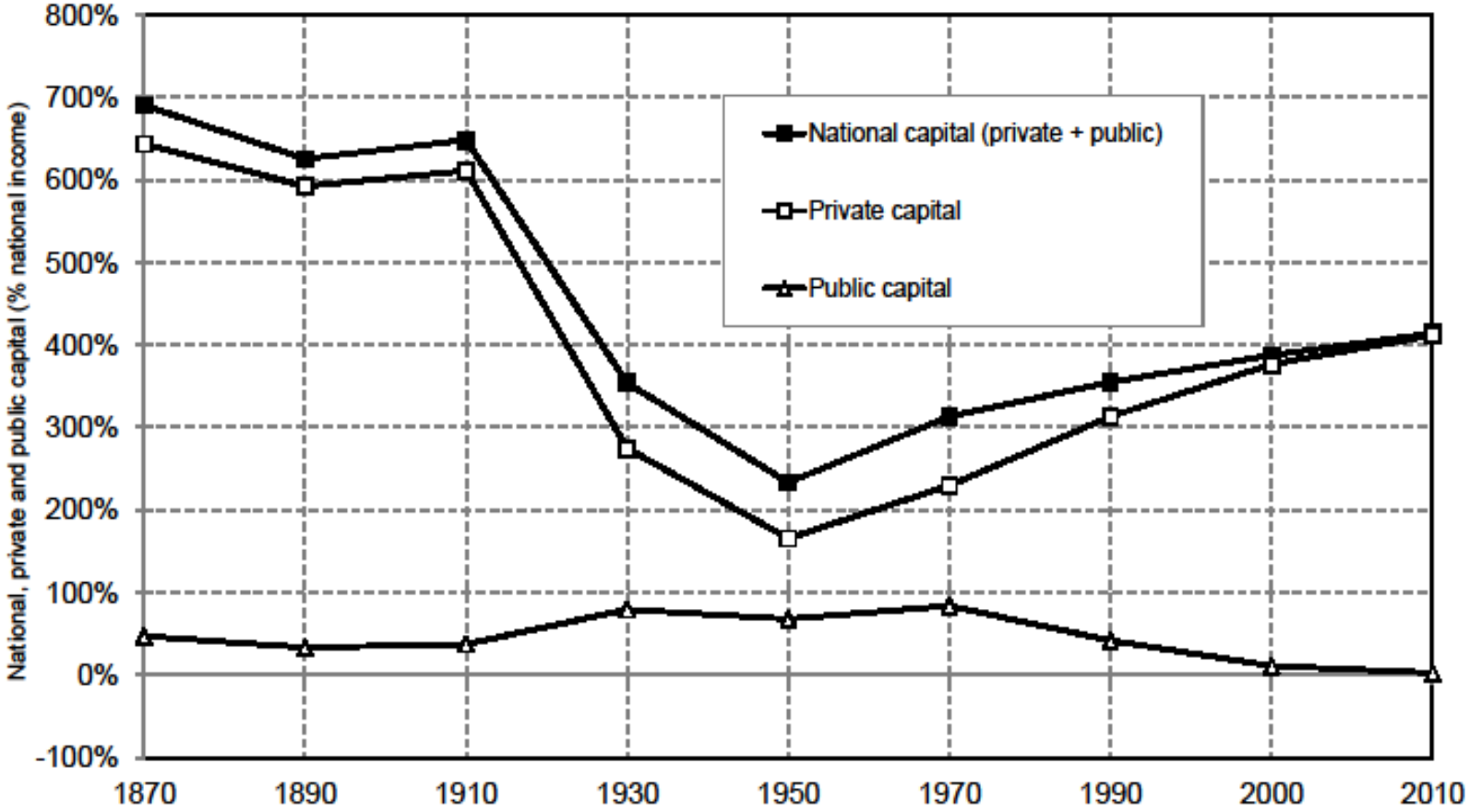
Figure 4.2. Public wealth in Germany, 1870-2010



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.

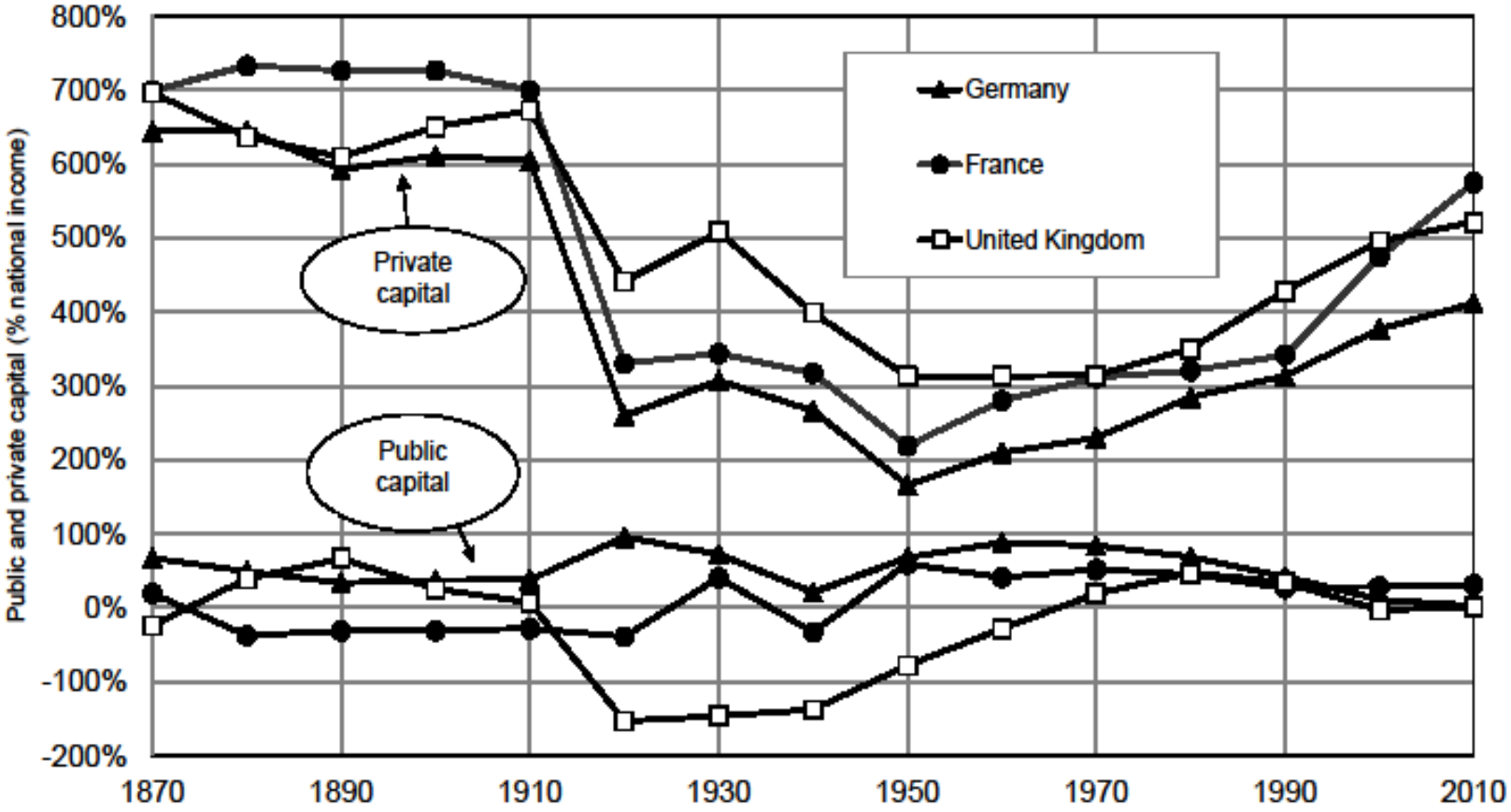
Figure 4.3. Private and public capital in Germany, 1870-2010



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

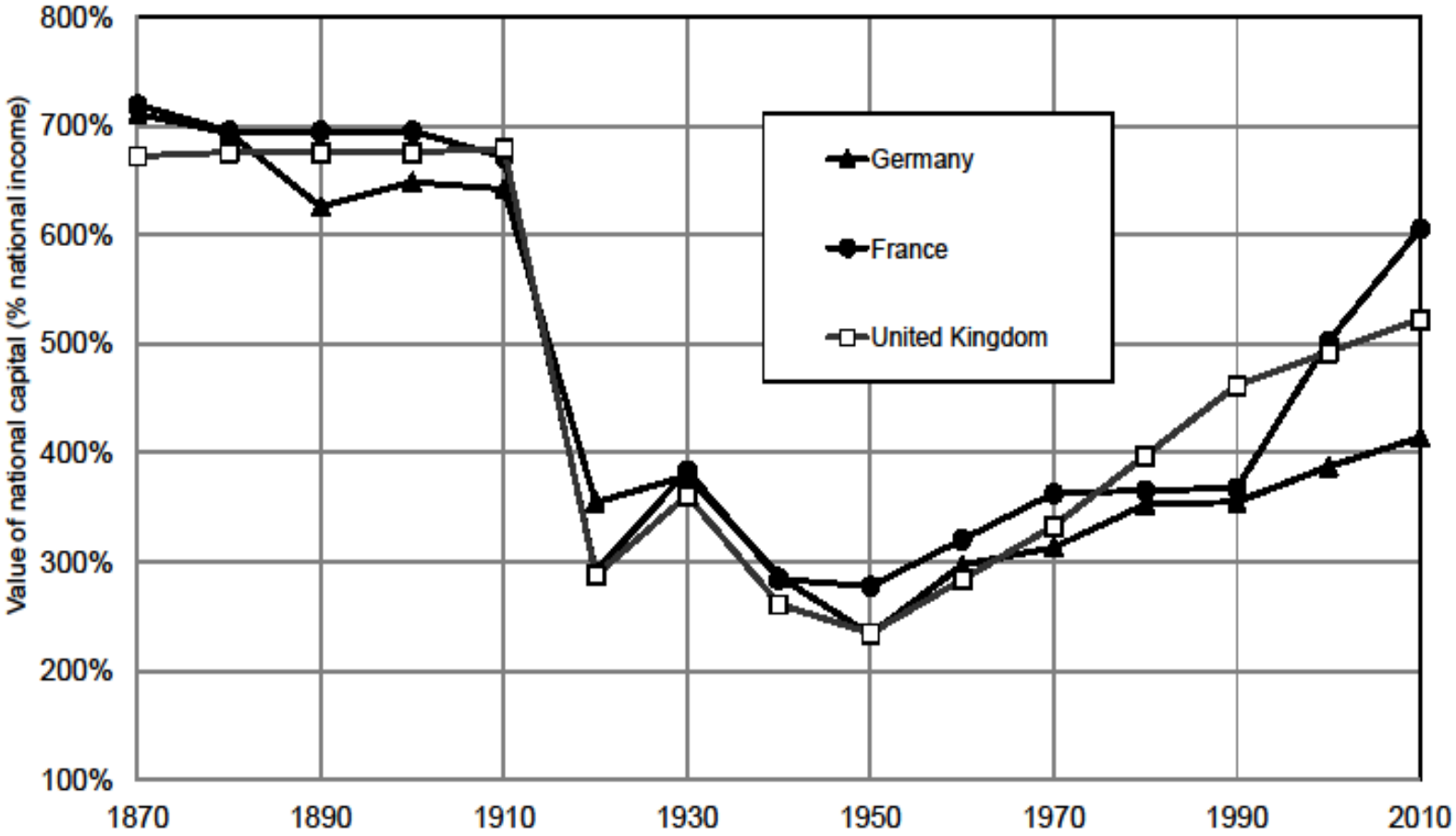
Sources and series: see piketty.pse.ens.fr/capital21c

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

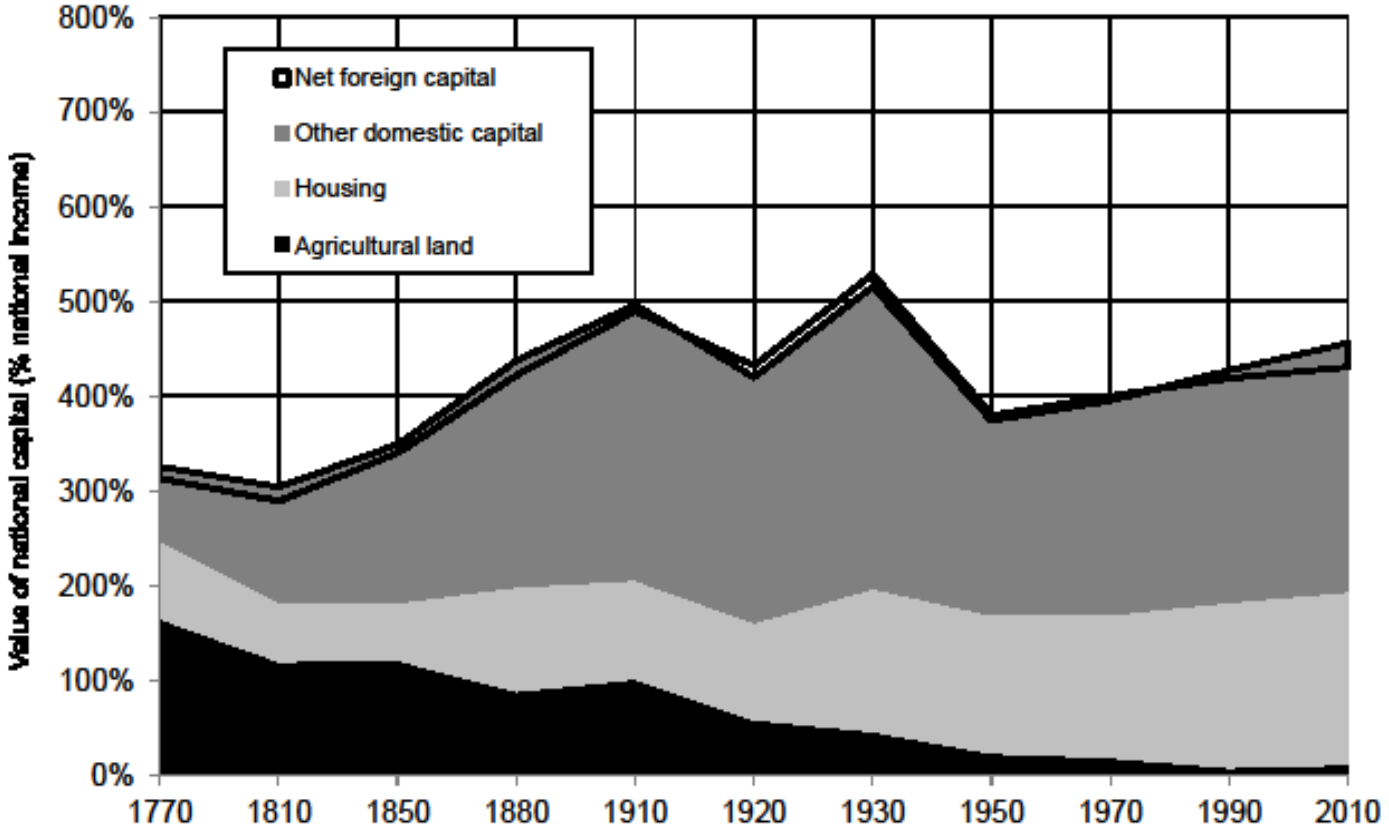


National capital (sum of public and private capital) is worth between 2 and 3 years of national income in Europe in 1950. Sources and series: see piketty.pse.ens.fr/capital21c

Capital in America

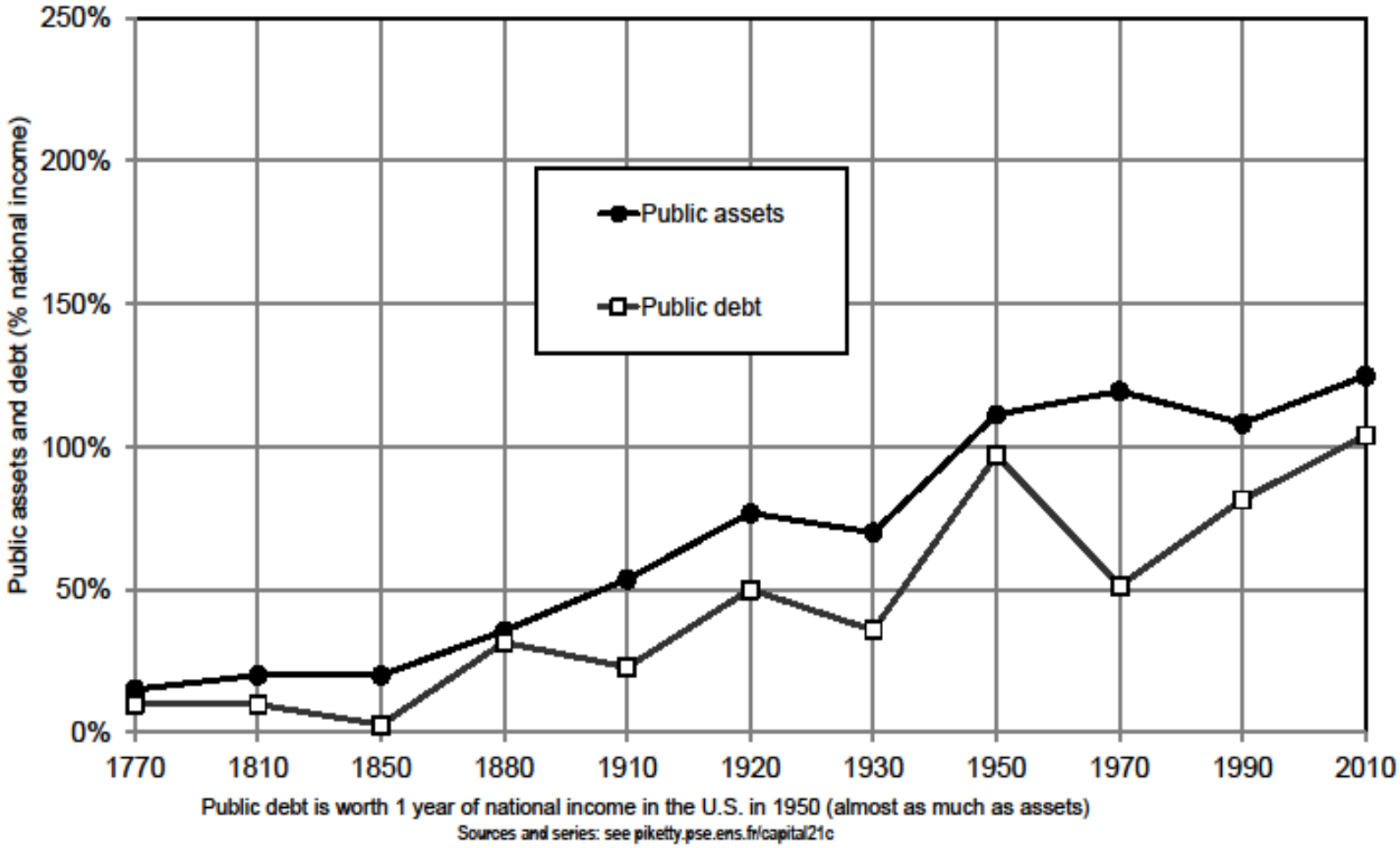
- Very different historical pattern than in Europe
- Rising β_n during 19c, almost stable in 20c
- Level of β_n generally smaller than in Europe, particularly in 19c
- Two factors: less time to accumulate capital; lower land price (more land in volume, but less land in value)
- NFA always close to 0 in US; but <0 in Canada

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.

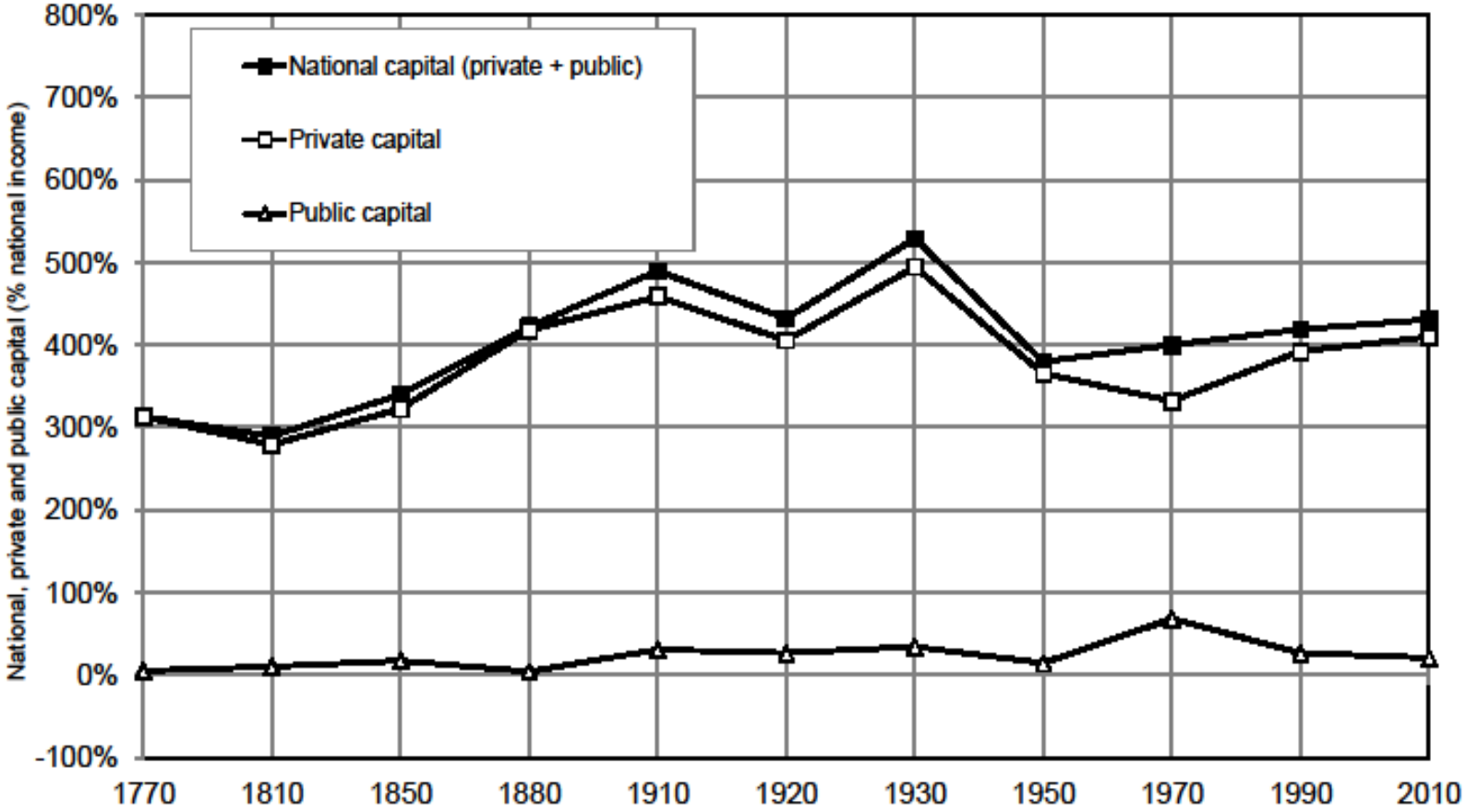
Figure 4.7. Public wealth in the United States, 1770-2010



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

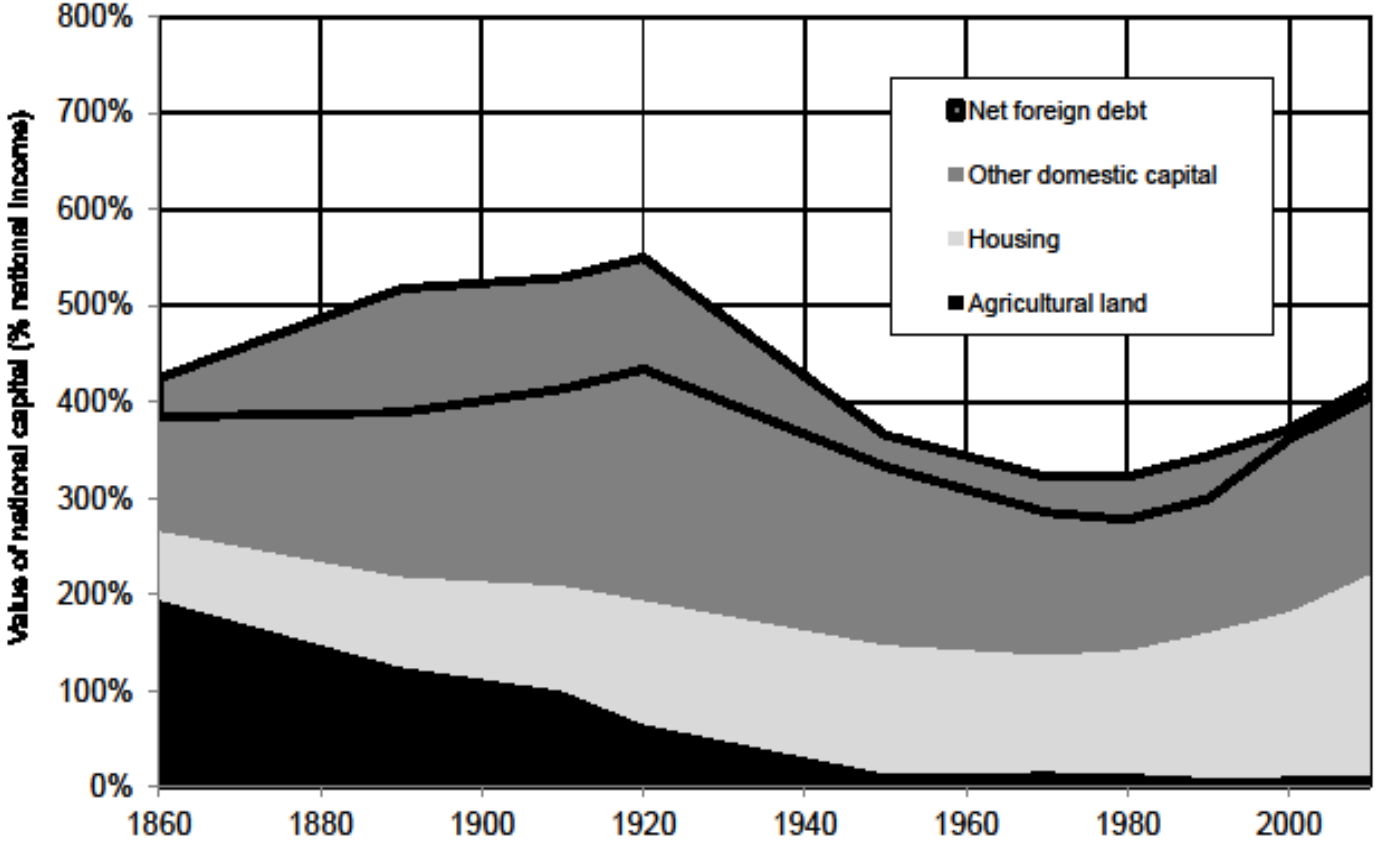
Figure 4.8. Private and public capital in the U.S., 1770-2010



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

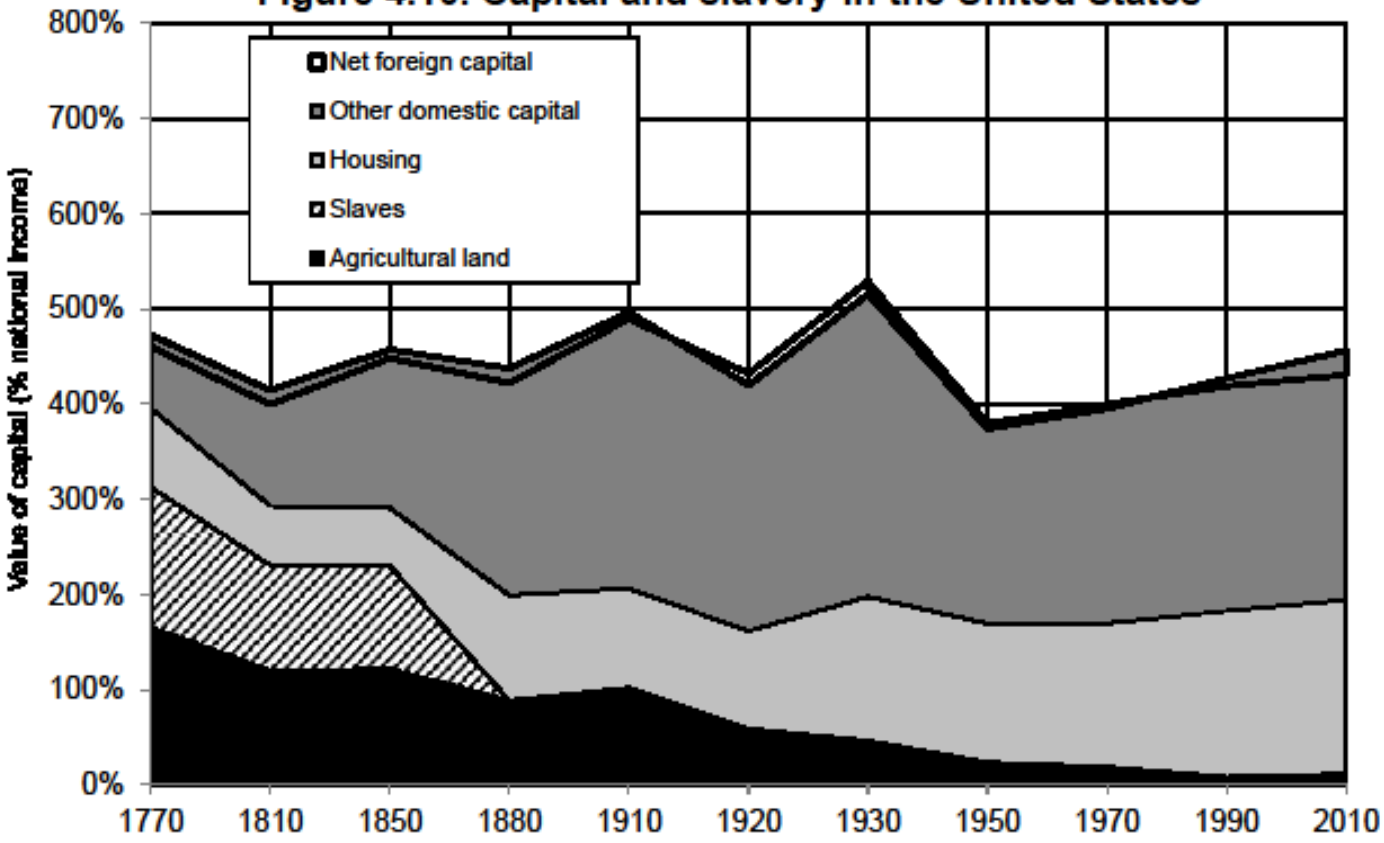


In Canada, a substantial part of domestic capital has always been helf by the rest of the world, so that national capital has always been less than domsetic capital. Sources and series: see piketty.pse.ens.fr/capital21c

Capital and slavery in the US

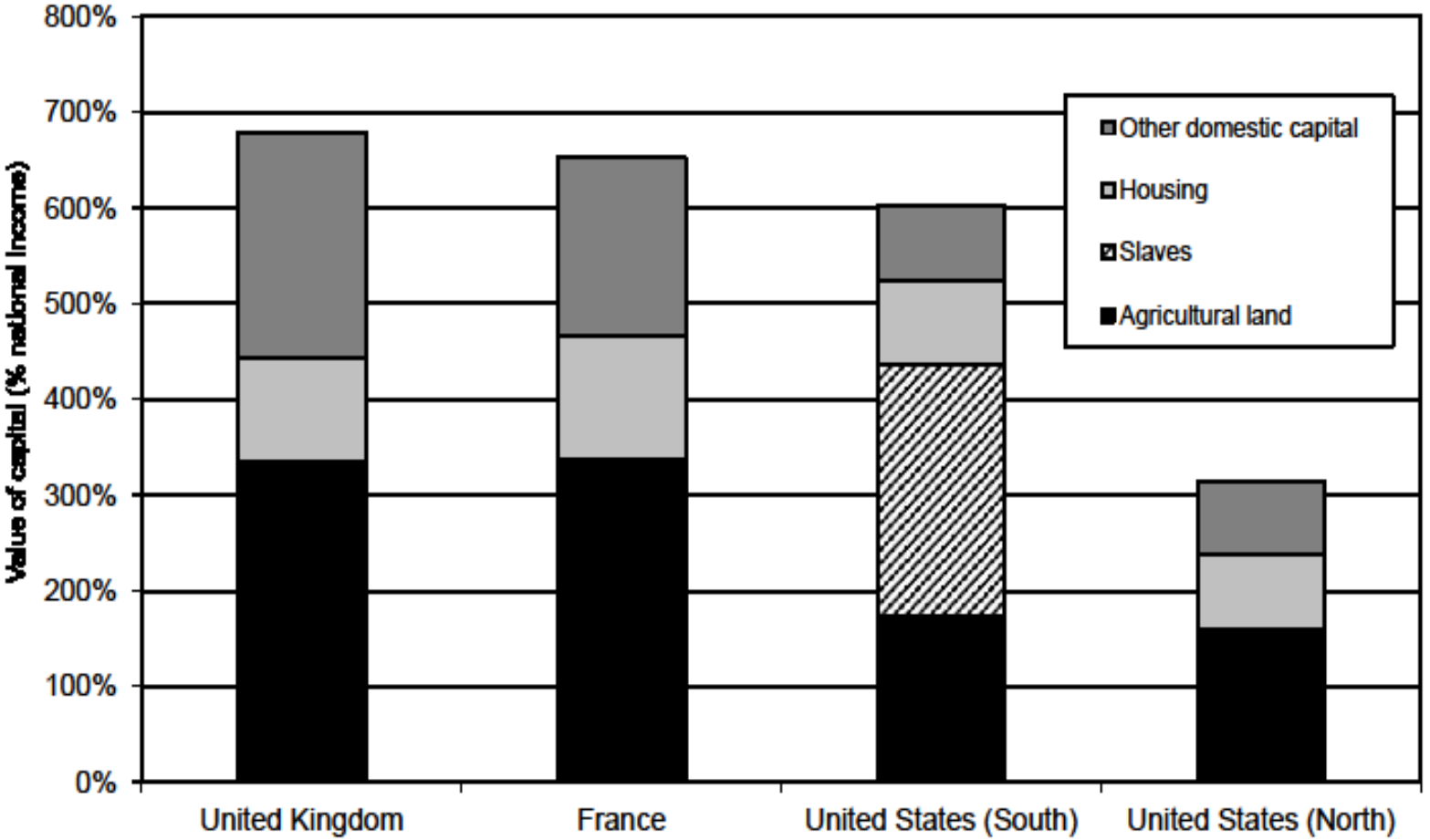
- In the US 1770-1865, market value of slaves ≈ 150% of Y ≈ as much as agricultural land
- In Southern US, slaves ≈ 300% of Y, so that total private wealth (incl.slaves) = as large as in Europe
- Huge historical literature on US slavery system: Fogel, etc. (see Data Appendix)
- See also recent research on compensation to slave owners after the abolition of slavery in Britain 1833 (see UCL project) and France (Haiti debt 1825) (see also Graeber, Debt – The first 5000 years)

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 mush 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.

On the value of human capital

- Extreme case: if a tiny fraction owns the rest of the population, then the value of slaves (=human capital) can be much larger than non-human capital
- Simple computation: assume marginal products of capital and labor are such as capital share = α (= r β) and labor share = 1-α (Cobb-Douglas production function: $Y=F(K,L)=K^{\alpha}L^{1-\alpha}$); if future labor income flows are capitalized at the same rate r, then the value of human capital should be = $(1-\alpha)/r$ **(more on this: see lectures 3-4)**
- If α=30%, 1-α=70%, r=5%, then market value of (non-human) capital = α/r = 600%, and market value of human capital (slaves) = 1400%; total capital = 2000% (=1/r)

- **I.e. the market value of human k has always been higher than the market value of non-human k, simply because labor share >50%**

- But outside slave societies, it really does not make much sense to compute a market value of human capital: in modern legal systems, one cannot sell one's labor force on a permanent basis