**Public Economics: Tax & Transfer Policies**
*(Master PPD & APE, Paris School of Economics)*
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**Lecture 5: Wealth & property taxes over time & across countries**
*(check on line for updated versions)*

# Roadmap of lecture 5

- Basic notions & notations

- Reminder: what is capital?

- Key distinction: taxes on flow vs taxes on stock

- Inheritance taxes

- Progressive wealth taxes

- Property taxes

# 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 → **see next lecture for explicit dynamic models; today = mostly a description of existing capital taxes**

# Reminder: what is capital?

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

    (≈ housing assets + business assets: about 50-50)

  $Y_K$ = 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 economic history course for more details

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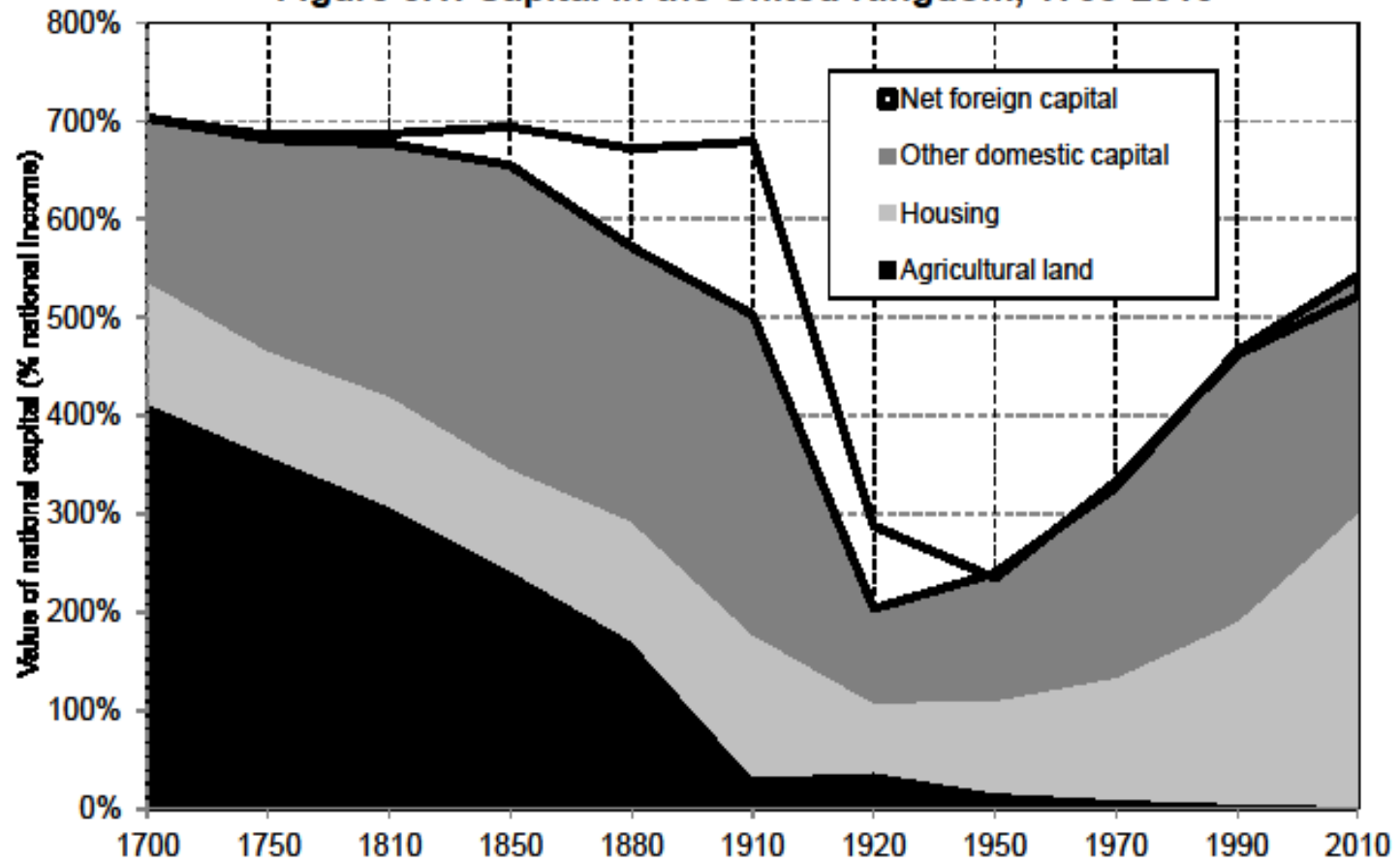


National capital is worth about 7 years of national income in the United Kingdom in 1700 (including 4 in agricultural land). Sources and series: see piketty.pse.ens.fr/capital21c.

Figure 5.5. Private and public capital in rich countries, 1970-2010
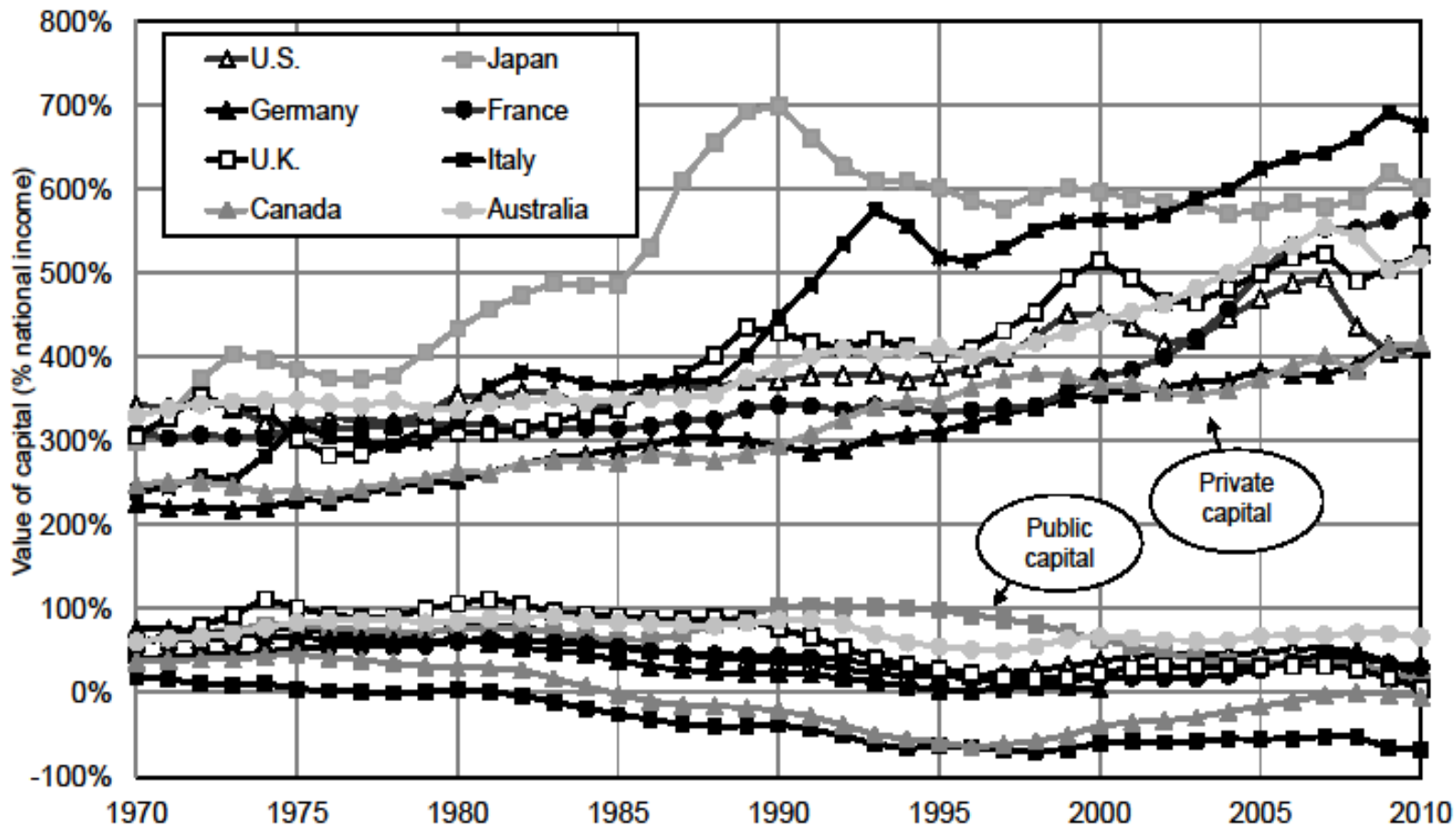
In Italy, private capital rose from 240% to 680% of national income between 1970 and 2010, while public capital droptped from 20% to -70%. Sources and series:  see piketty.pse.ens.fr/capital21c.

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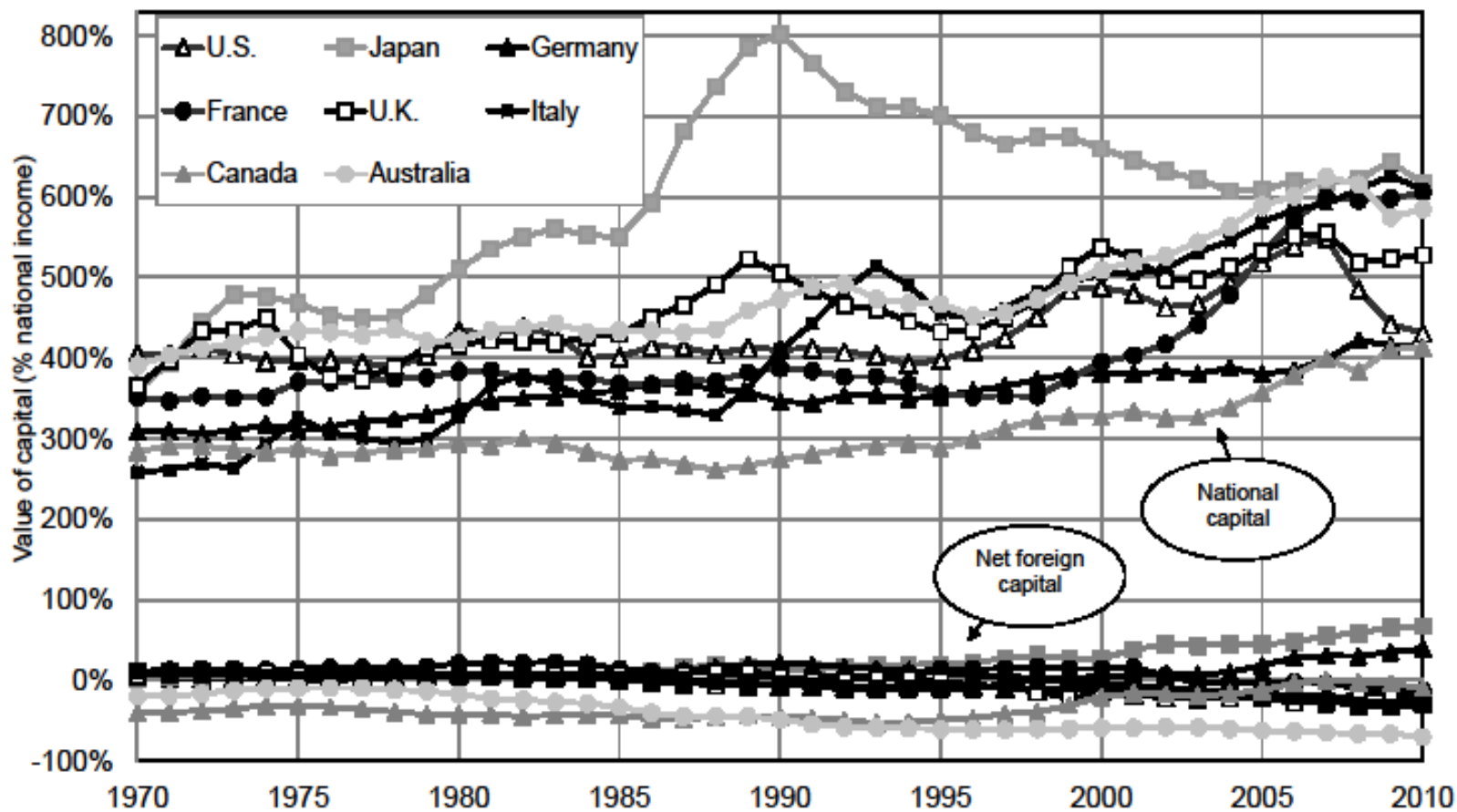


Net foreign assets held by Japan and Germany are worth between 0,5 and 1 year of national income in 2010.

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

# Key distinction: taxes on flows versus stock

- Total tax burden EU27 ≈ 39% of GDP, incl. 9% in capital taxes (US: 28%, incl. 8% in capital taxes). See [Eurostat 2013](Eurostat 2013)

- With a capital share $\alpha=Y_k/Y \approx 30\%$, this is equivalent to an average tax rate ≈ 30% on all capital income flows

- With a capital/income ratio $\beta=K/Y \approx 600\%$, this is equivalent to an average tax rate ≈ 1,5% on the capital stock

$\rightarrow$ 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 $\tau_k$ 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 $\tau_k$=1% per year or to tax capital income flow at $t_k$=20% per year
- If r=4%, then $\tau_k$=1% on stock $\longleftrightarrow$ $t_k$=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 $\tau_k$=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%, $\tau_k$=1% on stock $\longleftrightarrow$ $t_k$=10% on income flow

- If if $r_i$=2%, $\tau_k$=1% on stock $\longleftrightarrow$ $t_k$=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 Guvenen et al 2016)

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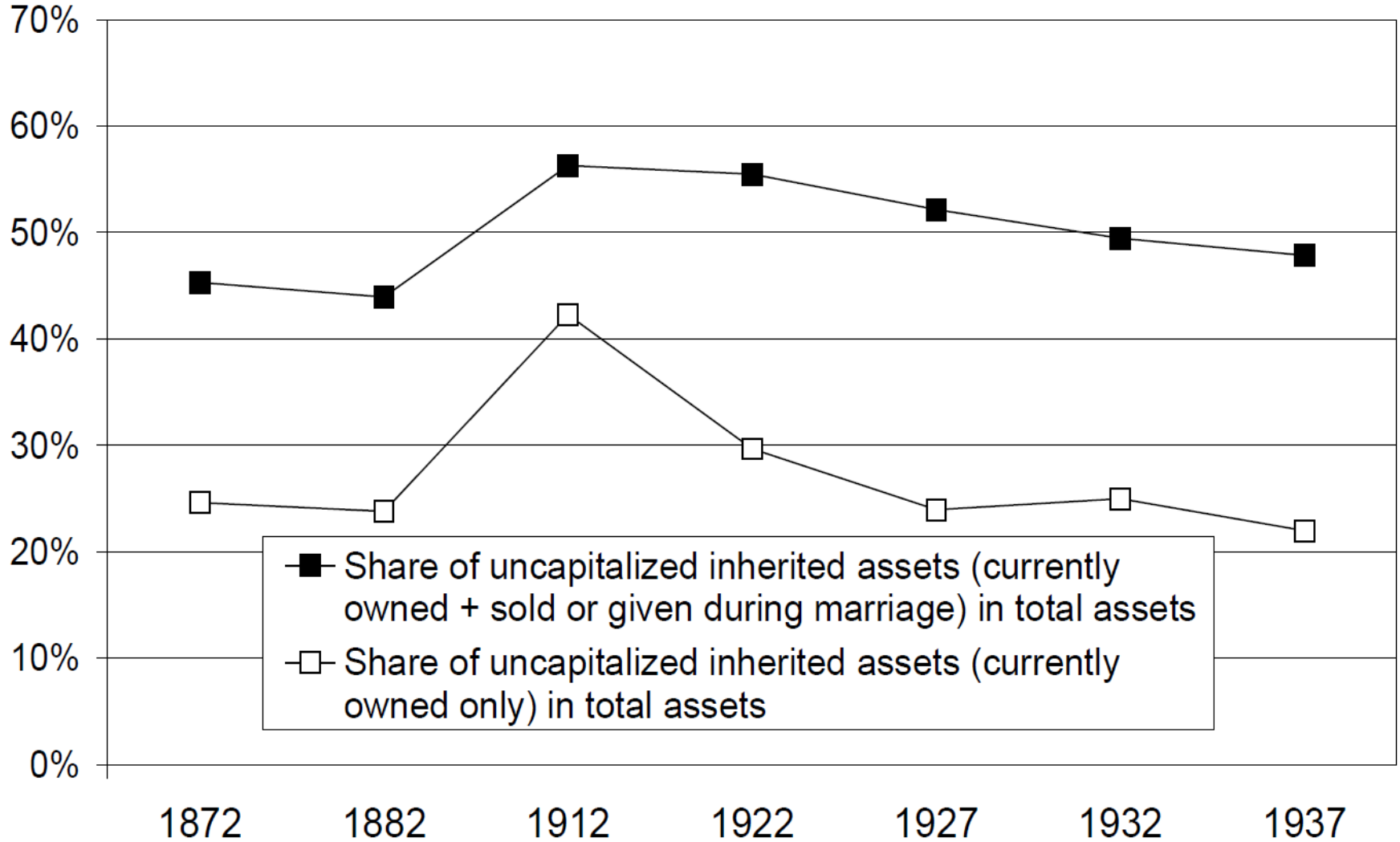
  (say, 20%-30% of a 10% tax base)

# Exemple 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.

**Figure 4: Porfolio reallocations during mariage**

Share of uncapitalized inherited assets (currently owned + sold or given during marriage) in total assets

Share of uncapitalized inherited assets (currently owned only) in total assets

## Marginal vs average tax rates: illustration with French 2012-2013 Inheritance Tax

French 2012-2013 tax schedule (applied to 2012-2013 decedents):

*(barème des droits de successions)*

(see www.impots.gouv.fr)

| Inheritance brackets (in excess of exemption) | | Marginal tax rate |
|---|---|---|
| (€) | | (%) |
| 0 | 8 072 | 5,0% |
| 8 072 | 12 109 | 10,0% |
| 12 109 | 15 932 | 15,0% |
| 15 932 | 552 324 | 20,0% |
| 552 324 | 902 838 | 30,0% |
| 902 838 | 1 805 677 | 40,0% |
| 1 805 677 | | 45,0% |

This tax schedule applies "in direct line", i.e. for

transmissions from parents to children, on individual

estate shares ("parts successorales")

**The exemption for children is equal to:    100 000**

**Inter vivos gift: exemption every 15 year**

Spouses: tax exempt

Note: until 2011, top rate = 40% instead of 45%

**Key change in 2012: in 2007-2011, children exemption = 150 000€, every 6 year**

I.e. if they start giving to their children at age 50 and die at age 80, each parent could transmit 6 x 150 000€ = 900 000€ to

each children with zero tax; i.e. a couple with two children could transmit 3,6 millions € with zero tax.

Since 2012, such parents can "only" transmit 4 x (3 x 100 000€) = 1,2 millions € with zero tax

In practice, less than 5% of direct line transmissions pay inheritance taxes (but this depends a lot on tax planning)

(in 1992-2006: children exemption = 50 000€, every 10 year)

**Exemple 1: married couple with wealth w = 1 million € and two kids, no inter vivos gift**

Assumption: each spouse owns 500 000€, and the couple wishes to transmit 500 000€ to each kid

Assume that the first decedent transmits the full property of 500 000€ to kids; then the second decedent transmits the remaining 500 000€ to the kids

Inheritance tax at first death: 5% x (8 072-0) + 10% x (12 109-8 072)+ 15% x (15 932-12 109) + 20% x (250 000 - 15 932 - 100 000) = 28 194€ = 11,3% of 250 000€

Estate tax at second death = same computation = 28 194€ = 11,3% of 250 000€

Total estate tax paid by each children = 56 389€ = 11,3% of 500 000€

**Total inheritance tax paid = 112 777€ = 11,3% of 1 000 000€**
Effective tax rate = 11,3%  < Marginal tax rate=20%

**Exemple 2: married couple with wealth w = 10 million € and two kids, no inter vivos gift**

Assumption: each spouse owns 5 millions €, and the couple wishes to transmit 5 millions € to each kid

Assume that the first decedent transmits the full property of 5 millions € to kids; then the second decedent transmits the remaining 5 millions € to the kids

Inheritance tax at first death: 5% x (8 072-0) + 10% x (12 109-8 072)+ 15% x (15 932-12 109) + 20% x (552 324 - 15 932) + 30% x (902 838 - 552 324) + 40% x (1 805 677 - 902 838) + 45% x (2 500 000 - 1 805 677 - 100 000) = 842 394€ = 33,7% of 2 500 000€

Estate tax at second death = same computation = 842 394€ = 33,7% of 2 500 000€

Total inheritance tax paid by each children = 1 684 789€ = 33,7% of 5 000 000€

**Total inheritance tax paid = 3 369 577 € = 33,7% of 10 000 000€**

Effective tax rate = 33,7%  < Marginal tax rate = 45%

- Other 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*, Palgrave 2015, Chap. 5

# Figure 14.2. Top inheritance tax rates, 1900-2013
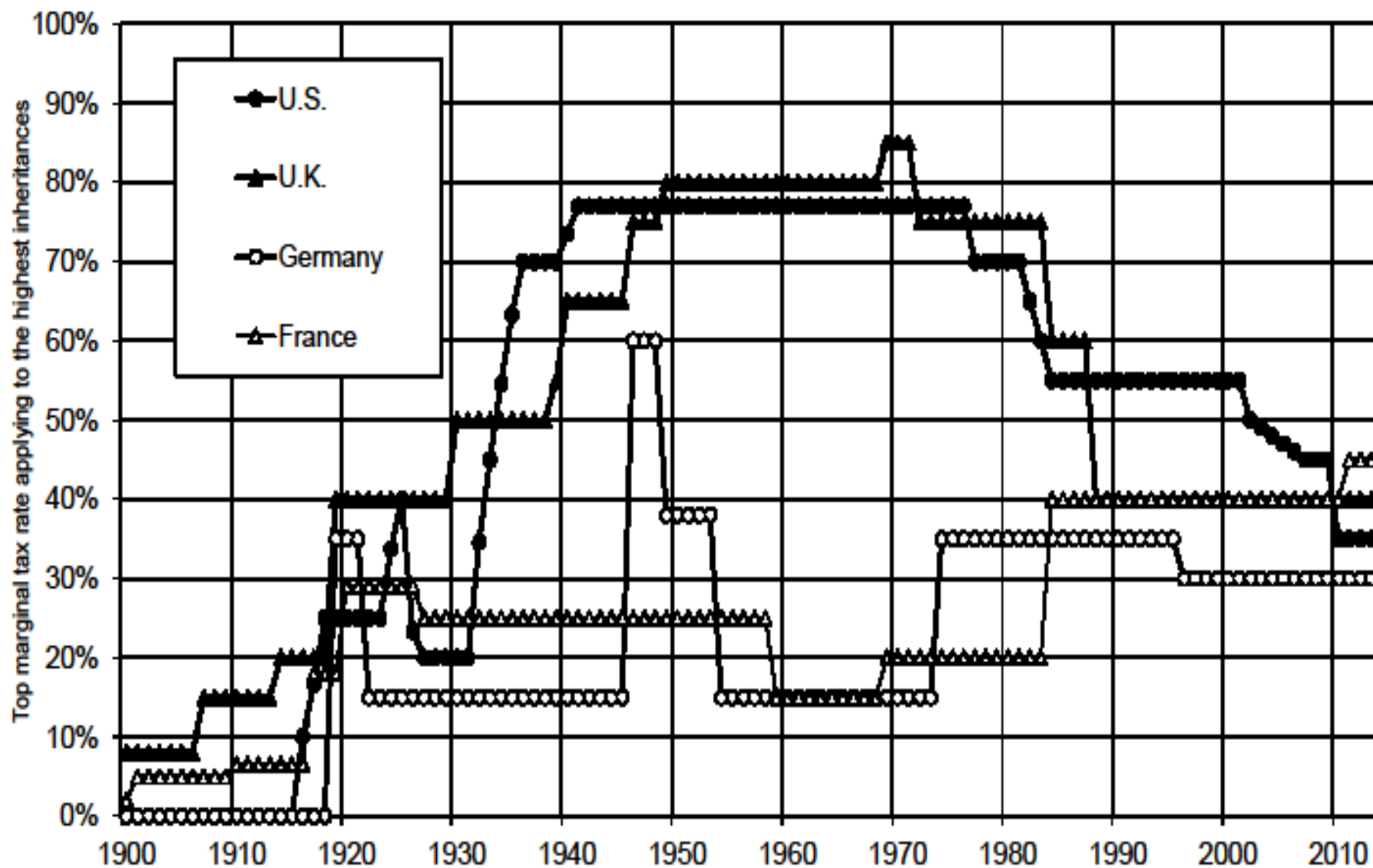


The top marginal tax rate of the inheritance tax (applying to the highest inheritances) in the U.S. dropped from 70% in 1980 to 35% in 2013. Sources and series: see piketty.pse.ens.fr/capital21c.

# Progressive wealth taxes

- Exemple with French ISF: see excel file

- On the evolution of the French wealth tax (ISF) :

- See Zucman, G., "Les hauts patrimoines fuient-ils l'ISF? Une estimation sur la période 1995-2006 », PSE Master Thesis, 2008 [article in pdf format]  : not much evidence of capital flight; maybe because it's already very easy to pay little ISF (many exemption regimes)

- See also G. Du Rietz, M. Henrekson, « Swedish Wealth Taxation (1911–2007) », in *Swedish Taxation: Developments since 1862*, Palgrave 2015, Chap. 6

- See also H. Glennester, "A Wealth Tax Abandonned: The Role of UK Treasury 1974-1976", LSE 2011

## Marginal vs average tax rates: illustration with French 2008-11 Wealth Tax

| French 2008 wealth tax schedule (applied to 1/1/2008 wealth): | threshold | marg. rate |
|---|---|---|
| *(barème de l'impôt sur la fortune (ISF))* | (€) | (%) |
| (see www.impots.gouv.fr) | 770 000 | 0,55% |
| | 1 240 000 | 0,75% |
| | 2 450 000 | 1,00% |
| | 3 850 000 | 1,30% |
| | 7 360 000 | 1,65% |
| | 16 020 000 | 1,80% |

**(no major reform in 2008-2011, except small adjustement for inflation)**

**Exemple with wealth w = 1 million €**

0,55% x (1 000 000 - 770 000) = 1 265€ = 0,13% of 1 000 000 €

 **>>> marginal wealth tax rate = 0,55%, average wealth tax rate = 0,13%**

Implicit wealth income tax rate:
If r = 2%, i.e. rw = 20 000€, then average wealth income tax rate = 6,32%
If r = 10%, i.e. rw = 100 000€, then average wealth income tax rate = 1,26%

**Exemple with wealth w = 10 million €**

0,55% x (1 240 000 - 770 000) + 0,75% x (2 450 000 - 1 240 000) + 1% x (3 850 000 - 2 450 000)
 + 1,30% x (7 360 000 - 3 850 000) + 1,65% x (10 000 000 - 7 360 000) = 114 850€ = 1,15% of 10 000 000 €

 **>>> marginal wealth tax rate = 1,65%, average wealth tax rate = 1,15%**

Implicit wealth income tax rate:
If r = 2%, i.e. rw = 200 000€, then average wealth income tax rate = 57,43%
If r = 5%, i.e. rw = 500 000€, then average wealth income tax rate = 22,96%
If r = 10%, i.e. rw = 1 000 000€, then average wealth income tax rate = 11,48%

## Marginal vs average tax rates: illustration with French 2012 Wealth Tax

| French 2013 wealth tax schedule (applied to 1/1/2013 wealth): | threshold | marg. rate |
|---|---|---|
| *(barème de l'impôt sur la fortune (ISF))* | (€) | (%) |
| (see www.impots.gouv.fr) | 800 000 | 0,50% |
| | 1 310 000 | 0,70% |
| | 2 570 000 | 1,00% |
| | 5 000 000 | 1,25% |
| | 10 000 000 | 1,50% |

# Wealth taxes vs property taxes

- Progressive taxes on net wealth (real estate + business + financial assets – debt) exist in  Switzerland, France, Spain. They used to exist in Sweden and Germany (abolished during 2000s, mostly because of valuation problems)

- Most common wealth tax: « property tax » = proportional tax on real estate assets

- UK « mansion tax »: progressive tax on real estate transactions (higher rate above 1m£ or 2m£)

- 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