Heterogeneous Capital and the Secular Accumulation of Wealth: Land is back...and should be taxed

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ECFIN Annual Research Conference, Nov. 20

Introduction

- Rising inequality has become a great concern in most countries. In particular wealth inequality.
- In particular, capital is mainly concentrated at the top income decile: "*about 60-70% of the capital is owned by the top capital decile*"
- A particular measure of wealth conventionnally called $\beta = K/Y$, has been shown to increase in the last decades relative to national income in many countries including France: Piketty (2014), Piketty and Saez (2013).
- Today: discussion on trends; re-interpretation; consequences for optimal taxation.

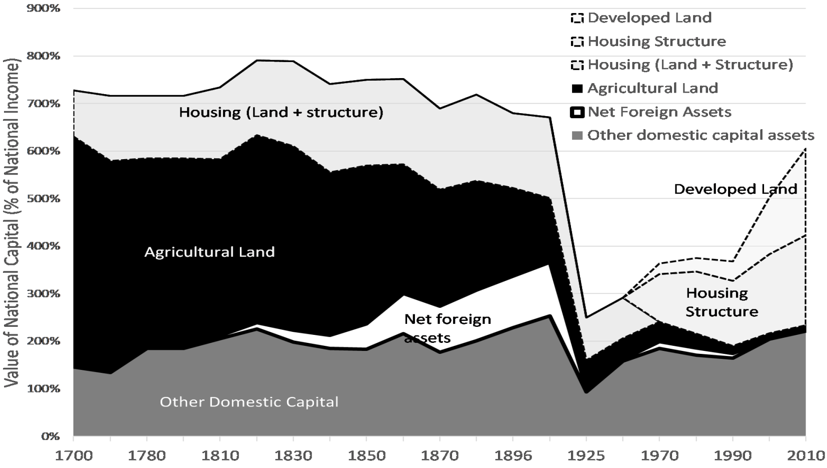
According to *Capital in the XXIst century*

- World alternates periods of rising and declining inequality.
- We are in a phase of a rise in inequality.

  "Divergence forces may dominate as it seems to be the case in the beginning of the XXIst century. We may return to the level of inequality of the XIXe century."

- **Exploding accumulation of wealth due to** rate of return on capital larger than the growth rate of GDP $r > g$.
- Low growth (g) and high returns to capital (r) lead to a snowball effect.

$\beta = K/Y$ in France



Puzzle

A basic identity does not seem to hold:

$$\alpha = r \times \beta$$

- $\alpha = rK/Y$, the share of capital income in the national income .
- r is the rate of returns of capital (*assumed constant*).
- $\beta = K/Y$ is the ratio capital/income.

For a given rate of returns, **capital/income ratio and the share of capital income co-move together**.

Puzzle and new research directions

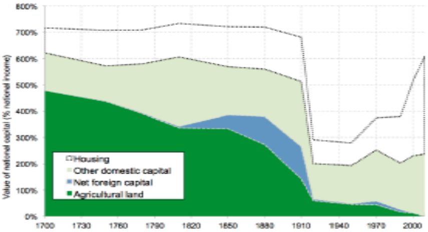
Identity

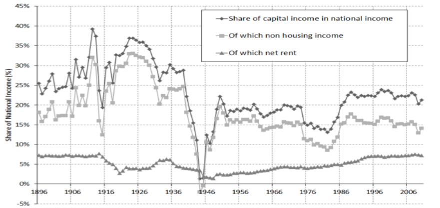
$$\alpha = r \times \beta$$

- $\alpha = rK/Y$, the share of capital income in the national income **is rather stable in the data**.
- r is the rate of returns of capital (*assumed constant*).
- $\beta = K/Y$ is the ratio capital/income **has increased fast**.

In the data, there is an apparent discrepancy between the LHS and the RHS.

$\beta = K/Y$ (left) and $\alpha = rK/Y$ (right) in France

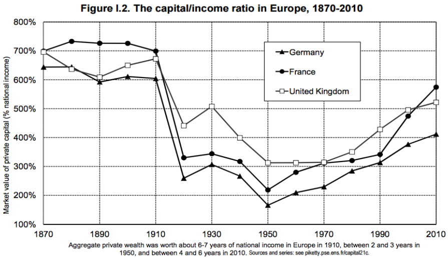


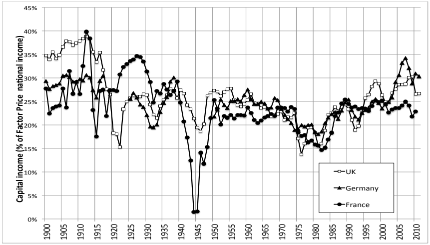


Sources: INSEE and Piketty (http://piketty.pse.ens.fr/en/capital21c).
Note: The upper series is the addition of implicit and monetary rents (lowest series) and non housing capital income (intermediate series). From the 1990s, we can see a decrease in capital income which is compensated by a rise in the amount of rents.

Figure 8: Decomposition of the share of capital income in French national income

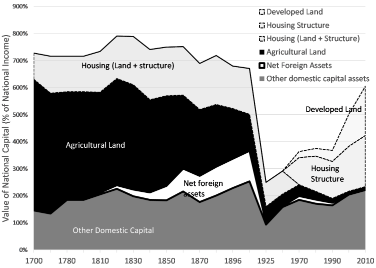
$\beta = K/Y$ (left) and $\alpha = rK/Y$ (right) UK, GER



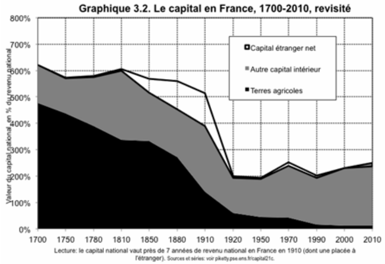


Importance of housing in K/Y over the centuries

Removing housing from capital:



(a)



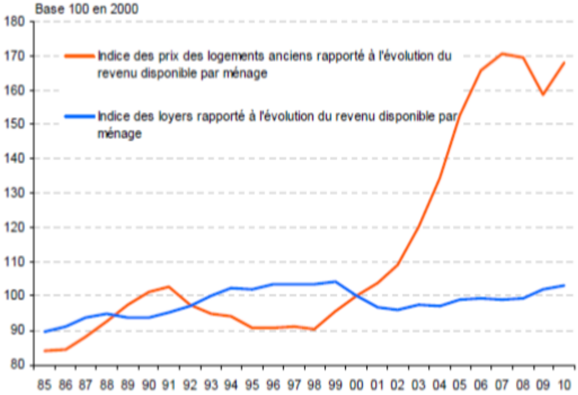
(b)

Do we need to include housing in K/Y?

- Yes. It is a highly specific asset and capital.
  - In particular, it is mostly occupied by owners.
    - Does not produce direct returns for owners.
  - Owners save a rent instead.
  - Returns may not be aligned with price.

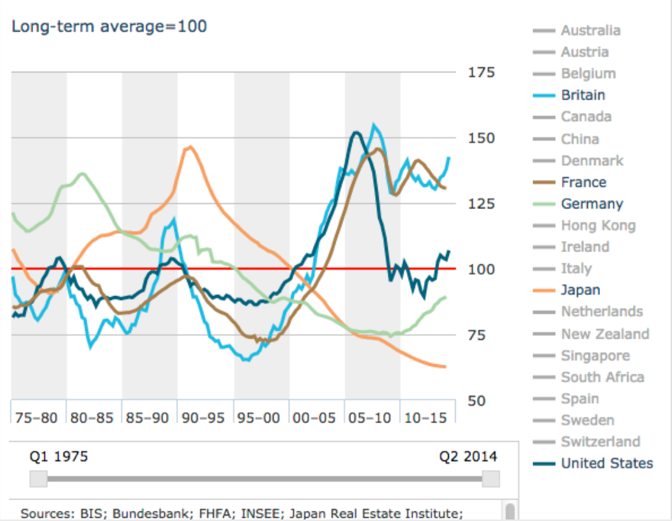
Divergence in Housing prices and Rents, France

Red (housing prices/income) vs. blue (rents/income)



Source : CGEDD d'après Insee, bases de données notariales et indices Notaires-Insee désaisonnalisés

Divergence in Housing prices and Rents



Measurement issues

- For measurement, two methodological choices:
  - Either K estimated at current market price,
  - or at the price of dividends (here, the rental price of housing).
- In principle the two measurements concepts lead to identical results.

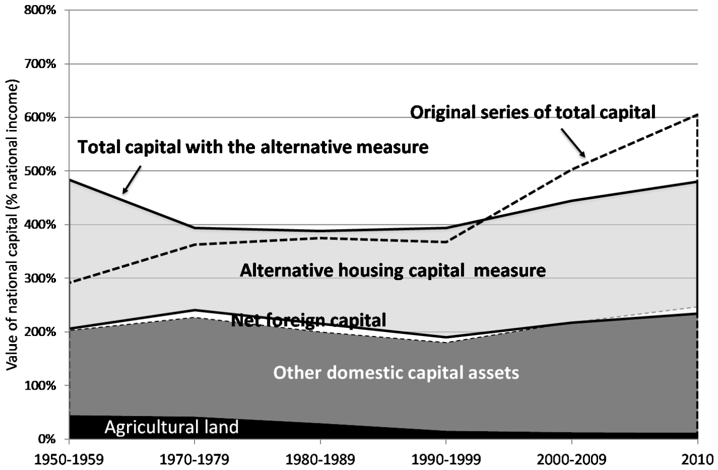
Measuring capital

- **But if rents and housing prices diverge, as is the case in many countries since the 90's, the choice does matter.**
- And turns out to have important implications on optimal taxation.

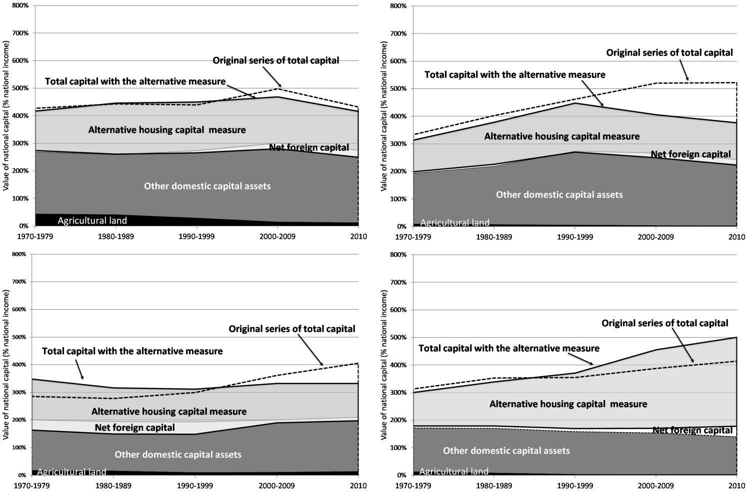
From wealth to capital

- Easy to do the following exercise : recalculate K/Y not as a wealth but as a capital *in dividing* K_H *by housing prices and multiply it by a rent index*.
  - Done in early version of this paper: Odran Bonnet, P-H Bono, Guillaume Chapelle et Etienne Wasmer (April 2014 in French / May 2014 in English).
- It turns out that capital / national income is flat since 1950 in most countries.
  - And 1950 was historical low. So we currently would be at the low level of K/Y.

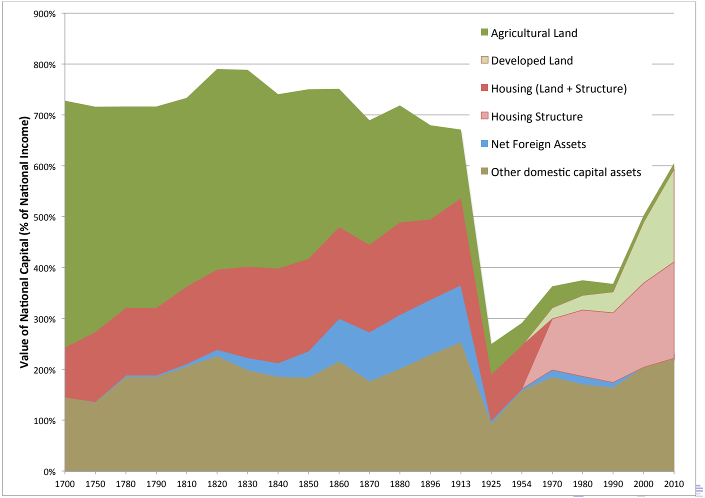
From wealth to capital for **France**



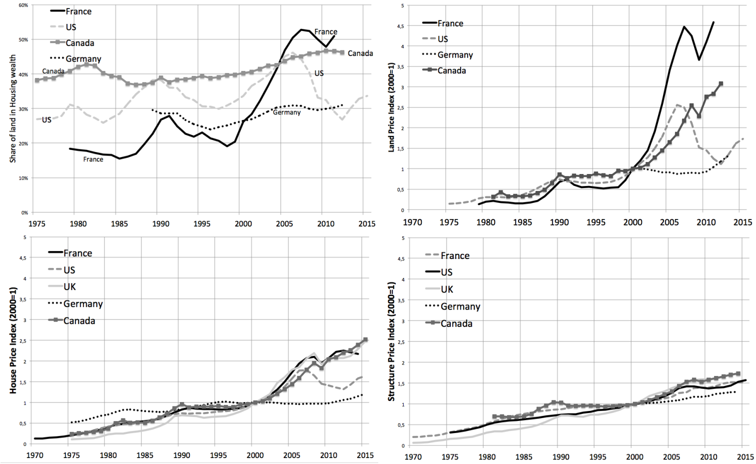
From wealth to capital for US, **UK, CAN** and GER



Mostly land price (Reichlin; Knoll, Schularick and Steger)



Last fact: mostly **land price** II (Reichlin; Schularick et al.)



Optimal taxation framework, starts from Judd (1985)

- In Judd: **two types of agents, one type of capital ; one aggregate consumption good**.
  - Capitalists own capital and invest.
  - Workers consume their wage and do not save.
- Main (second best) result in Judd: optimal taxation implies no tax on capital/
- No distortion on capital investment.
- **But what if capital is heterogeneous and in particular includes housing?**

We extend Judd (1985) as follows:

- Still two types of agents, **two types of capital**, *land/housing and productive capital*; still one aggregate consumption good.
  - **Capitalists/owners** own all land and capital. They choose investment ; consume land minus what they supply on rental market.
  - **Workers/tenants** consume their wage and housing.
- Supply of land/housing is inelastic.

First best results: overview

The First best: *in a world where capitalists/landowners own all capital of the economy (Judd), optimal taxation implies:*

- No taxation of effective rents in the absence of taxation of implicit rents (no distortions on supply of rental housing).
- No taxation of physical capital (so as to avoid under-accumulation of physical capital).
- A positive level of taxation of property.
  - Level exactly compensates exactly for the absence of property rights on wealth (capital and housing) of tenants and workers ; shares output and costs of depreciation of capital; the transfer ensures equal income between landowners and workers/tenants.
- A tax on both paid and imputed rents on the one hand, or a tax on residency for both owner-occupyers and tenants on the other hand, are alternative to the first best tax on capital.

The second best may be the relevant approach

- **If the optimal property tax is impossible**, then a tax on capital or a tax on rents (excluding imputed rents) may be alternatives:*second best distorsive taxes*.
- May be the case in specific contexts.
  - **In the absence of land registration or cadastre** (that is, a systematic administrative record of land property by governement authorities).
    - E.g. Van der Molen (2014) : 30 to 50 countries have or are about to have detailed land administration systems.
    - More than 140 countries don't have one.
  - Political constraint as the **cap on the property tax** as in California proposition 13 (June 6, 1978): cut property taxes down to 1% (for both homestead and commercial property) ; limited the growth rate of future assessments to 2%.

Second best results: overview

The Second best: *In a world where the following instruments only are available to the decision maker: a tax on capital, a lump sum benefit to workers and a tax on rents; but not a tax on land:*

- Optimal taxation implies a zero optimal tax on capital.
- Positive optimal tax on rents.
- Consequently the stock of capital in the second best remains equal to the stock of capital in the first best.
- NB: this is true in a range of parameters larger than those applying to Straub and Werning's criticism of Judd's results: housing stabilizes savings in the economy.

Second best results, focus

- Start from the conjecture that capital taxation is not a second best taxation. We can prove that:
- **Proposition** *The optimal rent tax is positive and given by*

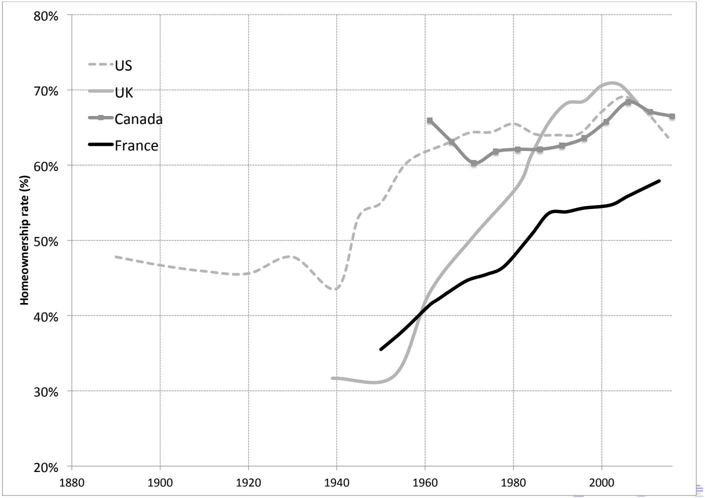
$$\tau^*(a) = \frac{1-\alpha_c}{\epsilon_s} \tag{1}$$

where $\alpha_c = \gamma U_C / u_c$ *is the relative weight of the capitalist/landlord with respect to the worker/tenant in units of marginal utility of consumption and* ϵ_s *is the supply elasticity of rental housing with respect to the net rent.*

More first best results with a Middle Class

- Two class economy: XIX^{th} century view of the world.
- XX^{th} century: access to property by a growing fraction of the population.
- Paradoxically: they have benefited from the surge in housing prices. But possible generational effects.
- Assume "a middle class" living several (two) periods.

A rise in home ownership : FR, UK, US, CA



More first best results with a Middle Class

- Assume "a middle class" living several (two) periods.
  - In period 1, they are not owners ; they save to buy housing; in period 2, they live in their house, sell it at the end of it and consume.

With a middle class saving through housing

- The first best can in general no longer be achieved by a tax on property, except under a Golden Rule.
- The property tax can even be shown to raise housing prices because it raises demand for housing through the saving motives;
- Housing price increases when three parameters are shifted: an increase in the size of the middle class; an increase in total population relative to land; and when a subsidy to new purchases of housing raises demand for property.
- Their effects on other variables and in particular on rents and K/Y however differs (see next slide)

With a middle class saving through housing

(...)

- An increase in the size of the middle class raises the productivity of population; this increases the number of homeowners and raises housing prices, and inflate the K/Y ratio;
- Growing population raises housing prices but with a decline in K/Y because GDP and capital increase faster;
- Subsidy to housing purchases for the middle-class reduces rents and marginally raises housing prices and welfare per capita, as well as increase K/Y;
- A decline in discounting lead to a rise in housing prices relative to rents and raises K/Y;
- A shift in preferences for ownership lead to a rise in prices and a more moderate increase in K/Y.

Summary

- **Our results merge Judd (1985)/Chamley (1986) with Henry George's theorem (Arnott 1979):** *At an optimal city size, a land rent tax is the only tax needed.*
- Rejoins similar attempts that have been made.
  - Stiglitz (2015): taxing land would increase the consumption of workers, in a setting with only one consumption good and no housing services.
  - Eerola et alii. (2013): representative agent with utility from consumption, housing (composed by its structure but no land), and leisure. 1st best: identical tax treatment of capitals. In 2nd best, different

Simulation and parameter choices

- Housing spendings represent 20 to 25% of revenues for tenants or owner-occupyers (mortgage or implicit rents), and estimates of the share of land are between 40 and 50%. A value of 0.13 is thus the share of land.

Simulation results, summary

- No tax on capital needed.
- Tax rate on property: 0.8/30 (a generation), that is 2.66% in the model without middle-class.
- Tax rate on property: 0.47/30 (a generation), that is 1.57% in the model with a middle-class.
- "Macron-compatible" (recent implementation of the reform of "Impôt sur la Fortune".

Conclusions

1. Debate on wealth inequality welcome.
2. Housing has contributed to inequality, not in the way usually perceived, rather on an intergenerational perspective.
3. On a normative viewpoint:
   3.1 Tax land in the first best but do not tax productive capital.
   3.2 Tax rents in the second best if land and imputed rents are not taxable.
   3.3 With middle class: same results.