Wealth and Inheritance in the Long Run

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• **There are two ways to become rich**: either through one’s own work, or through inheritance

• In Ancien Regime societies, as well as in 19\textsuperscript{C} and early 20\textsuperscript{C}, it was obvious to everybody that the inheritance channel was important
• Inheritance and successors were everywhere in the 19\textsuperscript{C} literature: Balzac, Jane Austen, etc.
• Inheritance flows were huge not only in novels; but also in 19\textsuperscript{C} tax data: major economic, social and political issue
• **Question:** Does inheritance belong to the past? Did modern growth kill the inheritance channel? E.g. due to the natural rise of human capital and meritocracy?

• This lecture answers « NO » to this question: I show that inherited wealth will probably play as big a role in 21\textsuperscript{c} capitalism as it did in 19\textsuperscript{c} capitalism.

Lecture based upon T. Piketty, « On the long run evolution of inheritance: France 1820-2050 », QJE 2011 (available on line at piketty.pse.ens.fr) and on on-going similar work on US, UK, Germany and Italy.
Figure 1: Annual inheritance flow as a fraction of national income, France 1820-2008

- Economic flow (computed from national wealth estimates, mortality tables and observed age-wealth profiles)
- Fiscal flow (computed from observed bequest and gift tax data, inc. tax exempt assets)
Figure 2: Annual inheritance flow as a fraction of disposable income, France 1820-2008

- Economic flow (computed from national wealth estimates, mortality tables and observed age-wealth profiles)
- Fiscal flow (computed from observed bequest and gift tax data, inc. tax exempt assets)
• An annual inheritance flow around 20%-25% of disposable income is a very large flow

• E.g. it is much larger than the annual flow of new savings (typically around 10%-15% of disposable income), which itself comes in part from the return to inheritance (it’s easier to save if you have inherited your house & have no rent to pay)

• An annual inheritance flow around 20%-25% of disposable income means that total, cumulated inherited wealth represents the vast majority of aggregate wealth (typically above 80%-90% of aggregate wealth), and vastly dominates self-made wealth
• Main lesson: with $g$ low & $r > g$, inheritance is bound to dominate new wealth; the past eats up the future

$g$ = growth rate of national income and output
$r$ = rate of return to wealth = \((\text{interest + dividend + rent + profits + capital gains etc.})/(\text{net financial + real estate wealth})\)

• Intuition: with $r > g$ & $g$ low (say $r=4\%-5\%$ vs $g=1\%-2\%$) (=19C & 21C), wealth coming from the past is being capitalized faster than growth; heirs just need to save a fraction $g/r$ of the return to inherited wealth

• It is only in countries and time periods with $g$ exceptionally high that self-made wealth dominates inherited wealth (Europe in 1950s-70s or China today)
This lecture: two issues

(1) The return of wealth
(Be careful with « human capital » illusion: human k did not replace old-style financial & real estate wealth)

(2) The return of inherited wealth
(Be careful with « war of ages » illusion: the war of ages did not replace class war; inter-generational inequality did not replace intra-generational inequality)

(=continuation of « World Top Incomes Database » project)
1. The return of wealth

- The « human capital » illusion: « in today’s modern economies, what matters is human capital and education, not old-style financial or real estate wealth »

- Technocractic model: Parsons, Galbraith, Becker
  (unidimensional class structure based upon human K)

- But the share of old-style capital income (rent, interest, dividend, etc.) in national income is the same in 2010 as in 1910 (about 30%), and the aggregate wealth-income ratio is also the same in 2010 as in 1910 (about 600%) 

- Today in France, Italy, UK: $\beta = W/Y \approx 600\%$

  Per adult national income $Y \approx 35\,000\,€$

  Per adult private wealth $W \approx 200\,000\,€$

(wealth = financial assets + real estate assets – financial liabilities)
(on average, households own wealth equal to about 6 years of income)
Wealth-income ratio in France 1820-2010

- Aggregate private wealth as a fraction of national income
Wealth-income ratio: France vs UK 1820-2010

Private wealth-national income ratios, 1970-2010
• There are several long-run effects explaining the return of high wealth-income ratios:

- it took a long time to recover from world war shocks (1913 stock mkt & real estate capitalization recovered during 2000s)
- financial deregulation & tax competition → rising capital shares and wealth-income ratios
- growth slowdown in rich countries: $r > g$
  → rise of wealth-income and inheritance-income ratios
  + rise of wealth inequality (amplifying mechanism)
  
  ($r = \text{rate of return to wealth}$, $g = \text{productivity growth + pop growth}$)

• **Aggregate effect: Harrod-Domar-Solow formula:** $\beta^* = s/g$
  
  ($\beta^* = \text{wealth-income ratio}$, $s = \text{saving rate}$)
  
  (i.e. $s=10\%$, $g=2\% \rightarrow \beta^*=500\%$; if $g=1\%$, then $\beta^*=1000\%$)
  
  (i.e. if we save 10% of income each year, then in the long run we accumulate 5 years of income if growth rate is 2%)

  → highly unstable process if growth rate is low
2. The return of inherited wealth

- In principle, one could very well observe a return of wealth without a return of inherited wealth.

- I.e. it could be that the rise of aggregate wealth-income ratio is due mostly to the rise of life-cycle wealth (pension funds).

- Modigliani life-cycle theory: people save for their old days and die with zero wealth, so that inheritance flows are small.
• However the Modigliani story happens to be partly wrong (except in the 50s-60s, when there’s not much left to inherit…): pension wealth is a limited part of wealth (<5% in France… but 30% in the UK)

• Bequest flow-national income ratio $B/Y = \mu \, m \, W/Y$
  (with $m =$ mortality rate, $\mu =$ relative wealth of decedents)

• $B/Y$ has almost returned to 1910 level, both because of $W/Y$ and of $\mu$
• Dynastic model: $\mu = (D-A)/H$, $m=1/(D-A)$, so that $\mu \, m = 1/H$
  and $B/Y = \beta/H$
  ($A =$ adulthood $= 20$, $H =$ parenthood $= 30$, $D =$death $= 60-80$)

• General saving model: with $g$ low & $r > g$, $B/Y \to \beta/H$
  $\to$ with $\beta=600\%$ & $H=$generation length$=30$ years, then $B/Y \approx 20\%$, i.e. annual inheritance flow $\approx 20\%$ national income
Figure 10: Steady-state cross-sectional age-wealth profile in the dynastic model with demographic noise.

- (average wealth of age group)/(average wealth of adults)
Figure 8: The ratio between average wealth of decedents and average wealth of the living in France 1820-2008

- Excluding inter-vivos gifts
- Including inter-vivos gifts into decedents' wealth
<table>
<thead>
<tr>
<th>Year</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>70-79</th>
<th>80+</th>
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<tbody>
<tr>
<td>1827</td>
<td>50%</td>
<td>63%</td>
<td>73%</td>
<td>100%</td>
<td>113%</td>
<td>114%</td>
<td>122%</td>
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<tr>
<td>1857</td>
<td>57%</td>
<td>58%</td>
<td>86%</td>
<td>100%</td>
<td>141%</td>
<td>125%</td>
<td>154%</td>
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<td>1887</td>
<td>45%</td>
<td>33%</td>
<td>63%</td>
<td>100%</td>
<td>152%</td>
<td>213%</td>
<td>225%</td>
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<tr>
<td>1902</td>
<td>26%</td>
<td>57%</td>
<td>78%</td>
<td>100%</td>
<td>172%</td>
<td>176%</td>
<td>233%</td>
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<td>1912</td>
<td>23%</td>
<td>54%</td>
<td>74%</td>
<td>100%</td>
<td>158%</td>
<td>176%</td>
<td>237%</td>
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<tr>
<td>1931</td>
<td>22%</td>
<td>59%</td>
<td>77%</td>
<td>100%</td>
<td>123%</td>
<td>137%</td>
<td>143%</td>
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<tr>
<td>1947</td>
<td>23%</td>
<td>52%</td>
<td>77%</td>
<td>100%</td>
<td>99%</td>
<td>76%</td>
<td>62%</td>
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<tr>
<td>1960</td>
<td>28%</td>
<td>52%</td>
<td>74%</td>
<td>100%</td>
<td>110%</td>
<td>101%</td>
<td>87%</td>
</tr>
<tr>
<td>1984</td>
<td>19%</td>
<td>55%</td>
<td>83%</td>
<td>100%</td>
<td>118%</td>
<td>113%</td>
<td>105%</td>
</tr>
<tr>
<td>2000</td>
<td>19%</td>
<td>46%</td>
<td>66%</td>
<td>100%</td>
<td>122%</td>
<td>121%</td>
<td>118%</td>
</tr>
<tr>
<td>2006</td>
<td>25%</td>
<td>42%</td>
<td>74%</td>
<td>100%</td>
<td>111%</td>
<td>106%</td>
<td>134%</td>
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</tbody>
</table>
Figure 9: Observed vs simulated inheritance flow B/Y, France 1820-2100

- Observed series
- Simulated series (2010-2100: $g=1.7\%$, $(1-t)r=3.0\%$)
- Simulated series (2010-2100: $g=1.0\%$, $(1-t)r=5.0\%$)
The share of inherited wealth in total wealth

- Modigliani AER 1986, JEP 1988: inheritance = 20% of total U.S. wealth
- Kotlikoff-Summers JPE 1981, JEP 1988: inheritance = 80% of total U.S. wealth
- Three problems with this controversy: - Bad data
  - We do not live in a stationary world: life-cycle wealth was much more important in the 1950s-1970s than it is today
  - We do not live in a representative-agent world → new definition of inheritance share
→ my findings show that the share of inherited wealth has changed a lot over time, but that it is generally much closer to Kotlikoff-Summers (80%) than Modigliani (20%)
Figure 18: The share of non-capitalized inheritance in aggregate wealth accumulation, France 1850-2100

- ■ non-capitalized inherited wealth as a fraction of aggregate private wealth
- ▲ low-growth, high-return scenario
Back to distributional analysis: macro ratios determine who is the dominant social class

- 19th century: top successors dominate top labor earners
  → rentier society (Balzac, Jane Austen, etc.)
- For cohorts born in 1910s-1950s, inheritance did not matter too much → labor-based, meritocratic society
- But for cohorts born in the 1970s-1980s & after, inheritance matters a lot
  → 21st century class structure will be intermediate between 19th rentier society than to 20th century meritocratic society – and possibly closer to the former (more unequal in some dimens., less in others)
- The rise of human capital & meritocracy was an illusion.. especially with a labor-based tax system
Table 3: Intra-cohort distributions of labor income and inheritance, France, 1910 vs 2010

<table>
<thead>
<tr>
<th>Shares in aggregate labor income or inherited wealth</th>
<th>Labor income 1910-2010</th>
<th>Inherited wealth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 10% &quot;Upper Class&quot;</td>
<td>30%</td>
<td>90% 60%</td>
</tr>
<tr>
<td>incl. Top 1% &quot;Very Rich&quot;</td>
<td>6%</td>
<td>50% 25%</td>
</tr>
<tr>
<td>incl. Other 9% &quot;Rich&quot;</td>
<td>24%</td>
<td>40% 35%</td>
</tr>
<tr>
<td>Middle 40% &quot;Middle Class&quot;</td>
<td>40%</td>
<td>5% 35%</td>
</tr>
<tr>
<td>Bottom 50% &quot;Poor&quot;</td>
<td>30%</td>
<td>5% 5%</td>
</tr>
</tbody>
</table>
Figure 15: Cohort fraction inheriting more than bottom 50% lifetime labor resources (cohorts born in 1820-2020)

- ■ benchmark scenario
- ▲ low-growth, high-return scenario
Figure 14: Top 1% successors vs top 1% labor income earners (cohorts born in 1820-2020)

- top 1% inheritance resources as a fraction of bottom 50% labor resources
- top 1% labor resources as a fraction of bottom 50% labor resources
- low-growth, high-return scenario
What have we learned?

• A world with \( g \) low & \( r > g \) is gloomy for workers with zero initial wealth… especially if global tax competition drives capital taxes to 0%… especially if top labor incomes take a rising share of aggregate labor income

\[ \rightarrow \text{A world with } g = 1-2\% \text{ (=long-run world technological frontier?) is not very different from a world with } g = 0\% \text{ (Marx-Ricardo)} \]

• From a \( r \)-vs-\( g \) viewpoint, 21\textsuperscript{c} maybe not too different from 19\textsuperscript{c} – but still better than Ancien Regime… except that nobody tried to depict AR as meritocratic…
The meritocratic illusion

Democracies rely on meritocratic values: in order to reconcile the principle of political equality with observed socio-economic inequalities, they need to justify inequality by merit and/or common utility

- But effective meritocracy does not come naturally from technical progress & market forces; it requires specific policies & institutions

- Two (quasi-)illusions: (1) human K didn’t replace financial K (2) war of ages didn’t replace war of classes

- « Meritocratic extremism » : the rise of working rich & the return of inherited wealth can seem contradictory; but they go hand in hand in 21c discourse: working rich are often viewed as the only cure against the return of inheritance – except of course for bottom 90% workers…
Convergence vs divergence

• **Convergence forces do exist**: diffusion of knowledge btw countries (fostered by econ & fin integration) & wth countries (fostered by adequate educ institutions)

• **But divergence forces can be stronger**:
  1. When top earners set their own pay, there’s no limit to rent extraction → top income shares can diverge
  2. The wealth accumulation process contains several divergence forces, especially with $r > g$ → a lot depends on the net-of-tax global rate of return $r$ on large diversified portfolios: if $r=5\%-6\%$ in 2010-2050 (=what we observe in 1980-2010 for large Forbes fortunes, or Abu Dhabi sovereign fund, or Harvard endowment), then global wealth divergence is very likely
More competitive & efficient markets won’t help to curb divergence forces:

(1) Competition and greed fuel the grabbing hand mechanism; with imperfect information, competitive forces not enough to get pay = marginal product; only confiscatory top rates can calm down top incomes

(2) The more efficient the markets, the sharper the capital vs labor distinction; with highly developed k markets, any dull successor can get a high rate of return

- $r > g = \text{nothing to do with market imperfections}$
- Standard model: $r = \delta + \sigma g > g$ (Golden rule)

→ The important point about capitalism is that $r$ is large ($r > g \rightarrow$ tax capital, otherwise society is dominated by rentiers), volatile and unpredictable ($\rightarrow$ financial crisis)
Supplementary slides
Figure 13: Labor & capital shares in (factor-price) national income, France 1820-2008

- Labor share
- Capital share
THE WORLD TOP INCOMES DATABASE
TOP INCOMES OVER THE 20TH CENTURY

A Contrast Between Continental European and English-Speaking Countries

Edited by A. B. Atkinson & T. Piketty

TOP INCOMES FROM A GLOBAL PERSPECTIVE

Edited by A. B. Atkinson & T. Piketty
FIGURE 1
The Top Decile Income Share in the United States, 1917-2010

Source: Piketty and Saez (2003), series updated to 2010.
Income is defined as market income including realized capital gains (excludes government transfers).
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FIGURE 2
Decomposing the Top Decile US Income Share into 3 Groups, 1913-2010

Share of total income accruing to each group

- ▲ Top 1% (incomes above $352,000 in 2010)
- ▲ Top 5-1% (incomes between $150,000 and $352,000)
- ▲ Top 10-5% (incomes between $108,000 and $150,000)
Top 1% share: English Speaking countries (U-shaped), 1910-2010

- United States
- United Kingdom
- Canada
- Australia
- Ireland
- New Zealand
Top 1% share: Continental Europe and Japan (L-shaped), 1900-2010

Top Percentile Share (in percent)
Top 1% share: Developing and emerging countries, 1920-2010
Top Decile Income Shares 1910-2010

Why did top incomes rise so much?

- Hard to account for observed cross-country variations with a pure technological, marginal-product story

- One popular view: US today = working rich get their marginal product (globalization, superstars); Europe today (& US 1970s) = market prices for high skills are distorted downwards (social norms, etc.)

→ very naïve view of the top end labor market…

& very ideological: we have zero evidence on the marginal product of top executives; it could well be that prices are distorted upwards…
A more realistic view: grabbing hand model = marginal products are unobservable; top executives have an obvious incentive to convince shareholders & subordinates that they are worth a lot; no market convergence because constantly changing corporate & job structure (& costs of experimentation → competition not enough)

when pay setters set their own pay, there’s no limit to rent extraction... unless confiscatory tax rates at the very top

(memo: US top tax rate (1m$+) 1932-1980 = 82%)
(no more fringe benefits than today)

(see Piketty-Saez-Stantcheva, NBER WP 2011)
Top marginal income tax rate applying to top income

U.S.  U.K.  Germany  France

Table 1. Top Percentile Share and Average Income Growth in the US

<table>
<thead>
<tr>
<th>Period</th>
<th>Average Income Real Annual Growth (1)</th>
<th>Top 1% Incomes Real Annual Growth (2)</th>
<th>Bottom 99% Incomes Real Annual Growth (3)</th>
<th>Fraction of total growth captured by top 1% (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976-2007</td>
<td>1.2%</td>
<td>4.4%</td>
<td>0.6%</td>
<td>58%</td>
</tr>
<tr>
<td>Clinton Expansion</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1993-2000</td>
<td>4.0%</td>
<td>10.3%</td>
<td>2.7%</td>
<td>45%</td>
</tr>
<tr>
<td>Bush Expansion</td>
<td></td>
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<tr>
<td>2002-2007</td>
<td>3.0%</td>
<td>10.1%</td>
<td>1.3%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Computations based on family market income including realized capital gains (before individual taxes). Incomes are deflated using the Consumer Price Index (and using the CPI-U-RS before 1992). Column (4) reports the fraction of total real family income growth captured by the top 1%. For example, from 2002 to 2007, average real family incomes grew by 3.0% annually but 65% of that growth accrued to the top 1% while only 35% of that growth accrued to the bottom 99% of US families. Source: Piketty and Saez (2003), series updated to 2007 in August 2009 using final IRS tax statistics.
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- Simulated series (2010-2100: g=1.0%, (1-t)r=5.0%)
The meritocratic illusion

Democrats rely on meritocratic values: in order to reconcile the principle of political equality with observed socio-economic inequalities, they need to justify inequality by merit and/or common utility

- But effective meritocracy does not come naturally; it requires specific policies & institutions
- Two (quasi-)illusions: (1) human K didn’t replace financial K (2) war of ages didn’t replace war of classes
- (1) Technocratic model: Parsons, Galbraith, Becker (unidimensional class structure based upon human K)
- But no long run decline of capital share in national income
- (2) Lifecycle wealth model: Modigliani
- But no long run decline of inherited share in national wealth