Wealth, inequality & assets: where is Europe heading?

Thomas Piketty
Paris School of Economics
DG ECFIN Annual Research Conference
Brussels, November 23rd 2010
Can we study macro issues without looking at distributions?

- Distribution & balanced growth = key question asked by 19\textsuperscript{c} economists
- Many came with apocalyptic answers
- Ricardo-Marx: a small group in society (land owners or capitalists) will capture an ever growing share of income & wealth; no balanced growth path can occur
- During 20\textsuperscript{c}, a more optimistic consensus emerged: “growth is a rising tide that lifts all boats” (Kuznets 1953; cold war context)
• But inequality ↑ since 1970s destroyed this fragile consensus (US 1976-2007: >50% of total growth was absorbed by top 1%)

• 2007-2010 crisis also raised doubts about balanced devt path… did rising inequality cause the crash? will stock options & bonuses, or oil-rich countries & China, or tax havens, absorb an ever growing share of world ressources in 21C capitalism?

→ 19C economists raised the right questions; we need to adress these questions again; we have no strong reason to believe in balanced growth path; it is high time to put distribution back into mainstream macroeconomics
This talk: two points

• 1. The rise of inequality & the crisis
   (Atkinson-Piketty-Saez, « Top Incomes in the Long Run of History » JEL 2010)

• 2. Wealth & inheritance in a low growth world: where is Europe heading?
1. The Rise of inequality & the crisis

- Top income project: 23 countries, annual series over most of 20C. **Two main findings:**
  - **The fall of rentiers:** inequality ↓ during first half of 20C = top capital incomes hit by 1914-1945 capital shocks; never fully recovered, possibly because of progressive taxation → no long run decline of earnings inequality; nothing to do with a Kuznets-type process
  - **The rise of working rich:** inequality ↑ since 1970s; mostly due to top labor incomes → what happened? did it cause the crash?
TOP INCOMES OVER THE 20TH CENTURY

A Contrast Between Continental European and English-Speaking Countries

Edited by A. B. Atkinson & T. Piketty
FIGURE 1
The Top Decile Income Share in the United States, 1917-2007

Income is defined as market income including realized capital gains (excludes government transfers).
FIGURE 2
Decomposing the Top Decile US Income Share into 3 Groups, 1913-2007
<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>4.0%</td>
<td>10.3%</td>
<td>2.7%</td>
<td>45%</td>
</tr>
<tr>
<td>1993-2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bush Expansion</td>
<td>3.0%</td>
<td>10.1%</td>
<td>1.3%</td>
<td>65%</td>
</tr>
<tr>
<td>2002-2007</td>
<td></td>
<td></td>
<td></td>
<td></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.
Did inequality ↑ cause the crash?

- My own view: - global financial systems are so fragile that they can crash without inequality↑
  - but inequality ↑ does put extra stress on the financial system; large financial transactions between income gainers & loosers; **domestic imbalances are even bigger than global imbalances**
  - Europe: this effect can get much bigger in the future
Figure 7A. Top 1% share: English Speaking countries (U-shaped), 1910-2005
Figure 7B. Top 1% Share: Middle Europe and Japan (L-shaped), 1900-2005
2. Wealth in a low growth world

- Wealth inequality did not decline very much in the long run
- What made 20c societies less unequal & more meritocratic than 19c societies is the decline in the share of inherited wealth
- But this was purely temporary: with $g$ small & $r > g$, inherited wealth is bound to dominate again self-made wealth in the future
- Europe: with negative population growth, this $r > g$ effect is likely to become very large
The share of inheritance in lifetime resources received by French cohorts born in 1820-2020

- average inheritance as a fraction of average lifetime labor income resources (all inheritance and labor resources capitalized at age 50) (benchmark scenario: 2010-2100: g=1.7%, (1-t)r=3.0%)
- low-growth, high-return scenario (2010-2100: g=1.0%, (1-t)r=5.0%)
Policy implications

- A world with $g_{\text{low}} \& r > g$ is gloomy for workers with zero inherited wealth
  ... especially if global tax competition drives capital taxes to 0% and the tax system relies entirely on labor income
  ... especially if top labor incomes take a rising share of aggregate labor income
  → let’s unite to tax capital & top labor at the EU level; otherwise the future looks gloom
Why are US working rich so rich?

- Hard to account for obs. 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 (social norms, etc.)

→ very naïve view of the top labor market…

& very ideological: we have zero evidence on the marginal product of top executives; social norms can also go the other way…
Another 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) → 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 rate (1m$+) 1932-1980 = 82%) (no more fringe benefits than today)
• A more consensual view: the truth must be somewhere in between these two views; we know very little; top labor market institutions & pay setting processes are important and ought to attract more research; be careful with low quality survey data (with bad coverage of the top)
The return of inheritance

- **Distributional issue**: wealth inequality ↓ during 20\textsuperscript{C}. .. but not that much (see table)

- **Macro issue**: aggregate inheritance flow vs aggregate labor income
  → this is the issue explored in « On the Long Run Evolution of Inheritance – France 1820-2050 »
<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><strong>Top 10% &quot;Upper Class&quot;</strong></td>
<td>30%</td>
<td>1910 90%</td>
</tr>
<tr>
<td>incl. Top 1% &quot;Very Rich&quot;</td>
<td>6%</td>
<td>2010 60%</td>
</tr>
<tr>
<td>incl. Other 9% &quot;Rich&quot;</td>
<td>24%</td>
<td>50% 25%</td>
</tr>
<tr>
<td><strong>Middle 40% &quot;Middle Class&quot;</strong></td>
<td>40%</td>
<td>40% 35%</td>
</tr>
<tr>
<td><strong>Bottom 50% &quot;Poor&quot;</strong></td>
<td>30%</td>
<td>5% 5%</td>
</tr>
</tbody>
</table>
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, incl. tax exempt assets)
What this paper does

• Documents this fact
• Develops a simple theoretical model explaining & reproducing this fact
• **Main lesson: with r>g, inheritance is bound to play a key role & to dominate new wealth**
• **Intuition:** with r>g (& g low), 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 → \( b_y = \frac{\beta}{H} \)
  → with \( \beta = 600\% \) & \( H = 30 \), then \( b_y = 20\% \)
• It is only in countries & time periods with g exceptionally high that self-made wealth dominates inherited wealth
Figure 9: Observed vs simulated inheritance flow B/Y, France 1820-2100

- Observed series
- Squares: Simulated series (2010-2100: g=1.7%, (1-t)r=3.0%)
- Triangles: Simulated series (2010-2100: g=1.0%, (1-t)r=5.0%)
Back to distributional analysis

• For cohorts born in the 1910s-1950s, inheritance did not matter too much → labor-based, meritocratic society

• But for cohorts born in the 1970s & after, inheritance matters a lot → 21\textsuperscript{c} closer to 19\textsuperscript{c} rentier society than to 20\textsuperscript{c} merit society

• The rise of human capital was an illusion .. especially with a labor-based tax system
Figure 16: Top 1% successors vs top 1% labor income earners (cohorts born in 1820-2020)

- ■ top 1% inheritance as a fraction of bottom 50% labor resources
- □ top 1% labor as a fraction of bottom 50% labor resources
- ▲ low-growth, high-return scenario
Figure 15: Top 10% successors vs top 10% labor income earners (cohorts born in 1820-2020)

- ■ top 10% inheritance as a fraction of bottom 50% labor resources
- ○ top 10% labor as a fraction of bottom 50% labor resources
- △ low growth, high return scenario
<table>
<thead>
<tr>
<th>Lifetime resources capitalized at age 50</th>
<th>Labor income</th>
<th>Inherited wealth</th>
<th>Inherited wealth with 1910 distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top 10% “Upper Class”</strong></td>
<td>4 740 000 €</td>
<td>2 640 000 €</td>
<td>3 960 000 €</td>
</tr>
<tr>
<td>incl. Top 1% “Very Rich”</td>
<td>9 480 000 €</td>
<td>11 000 000 €</td>
<td>22 000 000 €</td>
</tr>
<tr>
<td>incl. Other 9% “Rich”</td>
<td>4 210 000 €</td>
<td>1 710 000 €</td>
<td>1 960 000 €</td>
</tr>
<tr>
<td><strong>Middle 40% “Middle Class”</strong></td>
<td>1 580 000 €</td>
<td>390 000 €</td>
<td>60 000 €</td>
</tr>
<tr>
<td><strong>Bottom 50% “Poor”</strong></td>
<td>950 000 €</td>
<td>40 000 €</td>
<td>40 000 €</td>
</tr>
<tr>
<td>Cohorts averages (€ 2009)</td>
<td>1 580 000 €</td>
<td>440 000 €</td>
<td>440 000 €</td>
</tr>
</tbody>
</table>
Supplementary slides
Figure 14: Top 50% successors vs bottom 50% labor income earners (cohorts born in 1820-2020)

- top 50% inheritance as a fraction of bottom 50% lifetime labor income resources
- low-growth, high-return scenario
Figure 17: Cohort fraction inheriting more than bottom 50% lifetime labor resources (cohorts born in 1820-2020)

- benchmark scenario
- low-growth, high-return scenario
Computing inheritance flows: simple macro arithmetic

\[ \frac{B_t}{Y_t} = \mu_t \cdot m_t \cdot \frac{W_t}{Y_t} \]

- \( \frac{W_t}{Y_t} = \) aggregate wealth/income ratio
- \( m_t = \) aggregate mortality rate
- \( \mu_t = \) ratio between average wealth of decedents and average wealth of the living (= age-wealth profile)

→ The U-shaped pattern of inheritance is the product of three U-shaped effects
Figure 2: Wealth-income ratio in France 1820-2008

- Aggregate private wealth as a fraction of national income
<table>
<thead>
<tr>
<th></th>
<th>Real growth rate of national income</th>
<th>Real growth rate of private wealth</th>
<th>Savings-induced wealth growth rate</th>
<th>Capital-gains-induced wealth growth rate</th>
<th>Memo: Consumer price inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1820-2009</td>
<td>1.8%</td>
<td>1.8%</td>
<td>2.1%</td>
<td>-0.3%</td>
<td>4.4%</td>
</tr>
<tr>
<td>1820-1913</td>
<td>1.0%</td>
<td>1.3%</td>
<td>1.4%</td>
<td>-0.1%</td>
<td>0.5%</td>
</tr>
<tr>
<td>1913-2009</td>
<td>2.6%</td>
<td>2.4%</td>
<td>2.9%</td>
<td>-0.4%</td>
<td>8.3%</td>
</tr>
<tr>
<td>1913-1949</td>
<td>1.3%</td>
<td>-1.7%</td>
<td>0.9%</td>
<td>-2.6%</td>
<td>13.9%</td>
</tr>
<tr>
<td>1949-1979</td>
<td>5.2%</td>
<td>6.2%</td>
<td>5.4%</td>
<td>0.8%</td>
<td>6.4%</td>
</tr>
<tr>
<td>1979-2009</td>
<td>1.7%</td>
<td>3.8%</td>
<td>2.8%</td>
<td>1.0%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>
Figure 4: The ratio between average wealth of decedents and average wealth of the living France 1820-2008

- $\mu$ (excluding inter-vivos gifts)
- $\mu^*$ (including inter-vivos gifts)
Figure 5: Inheritance flow vs mortality rate in France, 1820-2008

- □ Annual inheritance flow as a fraction of aggregate private wealth
- ■ Adult mortality rate (20-yr-old & over)
Steady-state inheritance flows

- Standard models: $r = \theta + \sigma g = \alpha g/s (>g)$
- Everybody becomes adult at age $A$, has one kid at age $H$, inherits at age $I$, and dies at age $D \rightarrow I = D-H$, $m = 1/(D-A)$
- Dynastic or class saving: $\mu = (D-A)/H$
  \[ \rightarrow b_y = \mu \cdot m \cdot \beta = \beta/H \]

- Proposition: As $g \rightarrow 0$, $b_y \rightarrow \beta/H$
Figure 6: Steady-state cross-sectional age-wealth profile in the class savings model ($s_L=0$, $s_K>0$)

(average wealth of age group)/(average wealth of adults)
Figure 7: Steady-state cross-sectional age-wealth profile in the class savings model with demographic noise

- (average wealth of age group)/(average wealth of adults)
Figure 8: Private savings rate in France 1820-2008

- Private savings (personal savings + net corporate retained earnings) as a fraction of national income
Figure 10: Labor & capital shares in national income, France 1820-2008

- Labor share
- Capital share
Figure 11: Rate of return vs growth rate France 1820-1913

- • Rate of return on private wealth \( r = \alpha / \beta \)
- □ Growth rate of national income \( g \)
Figure 12: Capital share vs savings rate France 1820-1913

- Capital share $\alpha$

- Savings rate $s$
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
Figure 19: The share of capitalized inheritance in aggregate wealth accumulation, France 1900-2100

- • capitalized inherited wealth as a fraction of aggregate private wealth
- ▲ low-growth, high-return scenario
<table>
<thead>
<tr>
<th>Period</th>
<th>Growth rate of national income</th>
<th>Rate of return on private wealth</th>
<th>Capital tax rate</th>
<th>After-tax rate of return</th>
<th>Real rate of capital gains</th>
<th>Rate of capital destruct. (wars)</th>
<th>After-tax real rate of return (incl. k gains &amp; losses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1820-2009</td>
<td>1.8%</td>
<td>6.8%</td>
<td>19%</td>
<td>5.4%</td>
<td>-0.1%</td>
<td>-0.3%</td>
<td>5.0%</td>
</tr>
<tr>
<td>1820-1913</td>
<td>1.0%</td>
<td>5.9%</td>
<td>8%</td>
<td>5.4%</td>
<td>-0.1%</td>
<td>0.0%</td>
<td>5.3%</td>
</tr>
<tr>
<td>1913-2009</td>
<td>2.6%</td>
<td>7.8%</td>
<td>31%</td>
<td>5.4%</td>
<td>-0.1%</td>
<td>-0.7%</td>
<td>4.6%</td>
</tr>
<tr>
<td>1913-1949</td>
<td>1.3%</td>
<td>7.9%</td>
<td>21%</td>
<td>6.4%</td>
<td>-2.6%</td>
<td>-2.0%</td>
<td>1.8%</td>
</tr>
<tr>
<td>1949-1979</td>
<td>5.2%</td>
<td>9.0%</td>
<td>34%</td>
<td>6.0%</td>
<td>0.8%</td>
<td>0.0%</td>
<td>6.8%</td>
</tr>
<tr>
<td>1979-2009</td>
<td>1.7%</td>
<td>6.9%</td>
<td>39%</td>
<td>4.3%</td>
<td>1.0%</td>
<td>0.0%</td>
<td>5.3%</td>
</tr>
</tbody>
</table>