percent of U.S. private net worth is devoted to future consumption, with the rest destined for intergenerational transfer. White (1978) used aggregate data on the age structure of the population, age earnings and age consumption profiles along with a variety of parametric assumptions and concludes that the life cycle model can account for only about a quarter of aggregate saving. Though their accounting frameworks are somewhat different and though they use different data, and only cross section data at that, Darby and White reach essentially the same conclusion as Kotlikoff and Summers because the basic shapes of U.S. cross section age earnings and age consumption profiles and the longitudinal profiles that can reasonably be inferred from the cross section profiles are quite different from those of the textbook life cycle model.

Calculations of Life Cycle and Transfer Wealth Using Flow Data

The analyses just described directly calculate life cycle wealth and indirectly infer the stock of transfer wealth. Obviously it would be very useful to corroborate these results with direct evidence on intergenerational transfers. Kotlikoff and Summers
Table 4  Intergenerational Transfers as a Source of Capital Accumulation, 1986

<table>
<thead>
<tr>
<th>Transfer Category</th>
<th>Annual Flow ($ billions)</th>
<th>Stock of Transfer Wealth ($ billions) (r - n = 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Given to:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>32.69</td>
<td>1346.7</td>
</tr>
<tr>
<td>Parents</td>
<td>3.37</td>
<td>-104.3</td>
</tr>
<tr>
<td>Grandparents</td>
<td>0.07</td>
<td>-4.0</td>
</tr>
<tr>
<td>Grandchildren</td>
<td>5.05</td>
<td>416.2</td>
</tr>
<tr>
<td>Trusts</td>
<td>14.17</td>
<td>576.1</td>
</tr>
<tr>
<td>Life Insurance</td>
<td>7.84</td>
<td>258.3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>63.19</strong></td>
<td><strong>2489.3</strong></td>
</tr>
<tr>
<td>Intended Transfers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Payments</td>
<td>35.29</td>
<td>1441.5</td>
</tr>
<tr>
<td>Bequests</td>
<td>105.00</td>
<td>3708.1</td>
</tr>
<tr>
<td><strong>As a % of net worth</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intended Transfers</td>
<td>0.53</td>
<td>20.8</td>
</tr>
<tr>
<td>College Expenses</td>
<td>0.29</td>
<td>12.0</td>
</tr>
<tr>
<td>Bequests</td>
<td>0.88</td>
<td>31.0</td>
</tr>
</tbody>
</table>

*Source: Authors' calculations from the Survey of Consumer Finances.*

*Aggregate net worth in the SCF in 1986 is $11,976 billion.*

transfers and then convert the flow to a stock using steady-state assumptions. This produces a lower-bound estimate of wealth due to intended transfers. Details of these calculations can be found in the first part of the Appendix.

The first column of Table 4 presents our estimates that the gross flow of intended transfers in 1986 was about $63 billion, with the majority being support given from one household to another. The annual total of college payments was another $35 billion, and estimated bequests were another $105 billion. Our next task was to convert the annual flow of transfers into a stock of wealth. The equations behind this calculation appear in the second part of the Appendix. The conversion of a flow of transfers into a stock of transfer wealth requires obtaining values for a number of parameters: the flow of transfers in the current year (denoted by t), the growth rate of transfers (n), the interest rate (r), and the ages at which people receive transfers (I), give transfers (G), and die (D).

These parameters can be inferred from a variety of sources. For example, Kotlikoff and Summers (1981) estimate historical averages of a real rate of return of r = .045 and a real rate of GDP growth of .035. We set the growth

---

7 Life-cycle wealth cannot be inferred by taking the difference between estimated intended transfer wealth and net worth, because some of that difference is due to intended bequests.
<table>
<thead>
<tr>
<th>Intertemporal Elasticity of Substitution ($\gamma$)</th>
<th>Elasticity of Substitution between consumption and leisure ($\rho$)</th>
<th>Elasticity of Substitution in Production ($\sigma$)</th>
<th>Steady State Efficiency Gain from Consumption Tax (% Lifetime Wealth)</th>
<th>Steady State Change in Real Wage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>0.80</td>
<td>1.0</td>
<td>0.29%</td>
<td>6%</td>
</tr>
<tr>
<td>0.10</td>
<td>0.80</td>
<td>1.0</td>
<td>0.37</td>
<td>6</td>
</tr>
<tr>
<td>0.50</td>
<td>0.80</td>
<td>1.0</td>
<td>0.28</td>
<td>6</td>
</tr>
<tr>
<td>0.25</td>
<td>0.30</td>
<td>1.0</td>
<td>0.25</td>
<td>6</td>
</tr>
<tr>
<td>0.25</td>
<td>1.50</td>
<td>1.0</td>
<td>0.36</td>
<td>5</td>
</tr>
<tr>
<td>0.25</td>
<td>0.80</td>
<td>0.8</td>
<td>0.19</td>
<td>4</td>
</tr>
<tr>
<td>0.25</td>
<td>0.80</td>
<td>1.25</td>
<td>0.45</td>
<td>8</td>
</tr>
</tbody>
</table>

All policy experiments are relative to an income tax at an initial tax rate of 15%.
Source: Auerbach and Kotlikoff (1987, Table 5.4).

![Graph of capital formation over time](image-url)

**Figure 5.3.** The impact on capital formation of tax reform.

Source: courtesy of Jim Poterba
Figure 5.4. The welfare effects of tax reform.

Source: courtesy of Jim Poterba
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If we take a longer run perspective, then the twentieth-century U-shaped pattern looks even more spectacular. The inheritance flow was relatively stable around 20–25% of national income throughout the 1820–1910 period (with a slight upward trend), before being divided by a factor of about 5–6 between 1910 and the 1950s, and then multiplied by a factor of about 3–4 between the 1950s and the 2000s.

These are truly enormous historical variations, but they appear to be well founded empirically. In particular, we find similar patterns with our two fully independent estimates of the inheritance flow. The gap between our “economic flow” (computed from national wealth estimates, mortality tables, and observed age-wealth profiles) and “fiscal flow” series (computed from bequest and gift tax data) can be interpreted as a measure of tax evasion and other measurement errors. This gap appears to approximately constant over time and relatively small, so that our two series deliver fairly consistent long-run patterns (see Figure I).

If we use disposable income (national income minus taxes plus cash transfers) rather than national income as the denominator, then we find that the inheritance flow observed in the early twenty-first century is back to about 20%, that is, approximately the same level as that observed one century ago. This comes from the fact that disposable income was as high as 90–95% of national income in 2008, according to our latest data point (2008), it is now close to 15% (see Figure I).
agreed that such redistribution should take the form of moving wealth from the top quintile to the bottom three quintiles. In short, although Americans tend to be relatively more favorable toward economic inequality than members of other countries (Osberg & Smeeding, 2006), Americans’ consensus about the ideal distribution of wealth within the United States
Private wealth / national income ratios, 1970-2010

Authors' computations using country national accounts. Private wealth = non-financial assets + financial assets - financial liabilities (household & non-profit sectors)

Source: Piketty and Zucman '13
Private wealth / national income ratios 1870-2010

Authors' computations using country national accounts. Private wealth = non-financial assets + financial assets - financial liabilities (household & non-profit sectors)

Source: Piketty and Zucman '13
The changing nature of national wealth, US 1770-2010 (incl. slaves)

National wealth = agricultural land + housing + other domestic capital goods + net foreign assets

Source: Piketty and Zucman '13
The changing nature of national wealth, UK 1700-2010

National wealth = agricultural land + housing + other domestic capital goods + net foreign assets

Source: Piketty, Handbook chapter, 2014
The changing nature of national wealth, France 1700-2010

National wealth = agricultural land + housing + other domestic capital goods + net foreign assets

Source: Piketty, Handbook chapter, 2014
Figure S11.3. The share of inherited wealth in aggregate wealth, France 1850-2100 (2010-2100: g=1.7%, r=3.0%)

Source: Piketty, Handbook chapter, 2014
Figure S11.4. The share of inherited wealth in aggregate wealth, France 1850-2100 (2010-2100: g=1.7%, r=3.0%)

Source: Piketty, Handbook chapter, 2014
Figure 11.12. The inheritance flow in Europe 1900-2010

Source: Piketty, Handbook chapter, 2014
Figure 11: National wealth in 1770-1810: Old vs. New world

- Other domestic capital
- Housing
- Slaves
- Agricultural Land

Figure 12: Capital shares in factor-price national income 1975-2010

Source: Piketty and Zucman (2014)
Figure 10.5. Wealth inequality in the U.S., 1810-2010

The top 10% wealth holders own about 80% of total wealth in 1910, and 75% today.

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

Source: Piketty (2014)
Until the mid 20th century, wealth inequality was higher in Europe than in the United States.

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

Source: Piketty (2014)
The rate of return to capital (after tax and capital losses) fell below the growth rate during the 20th century, and may again surpass it in the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c

Source: Piketty (2014)
Inherited wealth represents 80-90% of total wealth in France in the 19th century; this share fell to 40%-50% during the 20th century, and might return to 80%-90% during the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c

Source: Piketty (2014)
Besides the income tax, the government can also level the playing field with the federal estate tax.

The Federal Estate Tax (also known as the Death Tax) applies when a deceased person leaves more than $5 million in wealth to his or her heirs. Wealth left to a spouse or charitable organizations is exempt from estate tax.

Only 1 person out of 1000 is wealthy enough to face the estate tax.

Average Americans do not have anything close to $5 million in wealth, so the estate tax does not affect them and they can pass on their property to their children tax-free.

Eliminating the estate tax would allow the very richest families to pass down all of their wealth to their children tax-free. Hence, children of rich people would also start off very rich themselves.

Increasing the estate tax is a way to level the playing field between the children of wealthy parents and children of middle-class parents.
The composition of capital income in the U.S., 1913-2013

- Housing rents (net of mortgages)
- Noncorporate business profits
- Corporate profits
- Profits & interest paid to pensions
- Net interest

Source: Saez and Zucman (2014)
The composition of household wealth in the U.S., 1913-2013

- Housing (net of mortgages)
- Sole proprietorships & partnerships
- Equities
- Currency, deposits and bonds
- Pensions

Source: Saez and Zucman (2014)
Top 10% Wealth Shares: Comparing Estimates

Capitalized Incomes (Saez-Zucman)

SCF (Kennickell)
Top 1% Wealth Shares: Comparing Estimates

Source: Saez and Zucman (2014)
Composition of the bottom 90% wealth share

- Business assets
- Housing (net of mortgages)
- Equities & fixed claims (net of non-mortgage debt)
- Pensions

Source: Saez and Zucman (2014)
The top decile (the top 10% highest wealth holders) owns 80-90% of total wealth in 1810-1910, and 60-65% today.

Source: Piketty and Zucman '14, handbook chapter
The top decile owns 80-90% of total wealth in 1810-1910, and 70% today.

Source: Piketty and Zucman '14, handbook chapter
The top 10% holds 80-90% of total wealth in 1810-1910, and 55-60% today.

Figure 3.4. Wealth inequality in Sweden, 1810-2010

Source: Piketty and Zucman '14, handbook chapter
The top 10% wealth holders own about 80% of total wealth in 1929, and 75% today.

Figure 3.5. Wealth inequality in the U.S., 1810-2010
Inherited wealth represents 80-90% of total wealth in France in the 19th century; this share fell to 40%-50% during the 20th century, and is back to about 60-70% in the early 21st century.

Source: Piketty and Zucman ’14, handbook chapter
The inheritance flow follows a U-shaped curve in France as well as in the U.K. and Germany. It is possible that gifts are underestimated in the U.K. at the end of the period.

Source: Piketty and Zucman '14, handbook chapter
The inheritance share in aggregate wealth accumulation follows a U-shaped curve in France and Germany (and to a more limited extent in the U.K. and Germany. It is possible that gifts are under-estimated in the U.K. at the end of the period.

Source: Piketty and Zucman '14, handbook chapter
Top 0.1% wealth share in the U.S., 1913-2012
Top wealth shares: decomposing the top 1%

- Top 0.5%-0.1%
- Top 0.1%-0.01%
- Top 1%-0.5%
- Top 0.01%
- Top 0.01%