Means-tested income support, portfolio choice and decumulation in retirement.

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Means-testing of benefits can help underfunded public pension systems

The effect of means testing on wealthier households is unclear.

- But the ‘near eligible’ poor may not be influenced (Ziliak 2003; Hurst and Ziliak 2004)
- Rich may be unaffected when welfare loss of reaching eligibility exceeds utility value of payments (Hubbard et al. 1995; Sefton et al. 2008)
- Others find ‘a large effect on the elderly’s saving behavior, including the richest ones’ (de Nardi et al. 2006).
Contributions of this study: theoretical model and empirical evaluation

- Solve dynamic consumption and investment problem of the means-tested household, post-retirement
- Create an annual wealth series for HILDA using Age Pension data
- Compute estimates of annual draw-down for Age Pension households
- Compute household-level portfolios
- Econometric evaluation of theoretical predictions
Theory: pension encourages rapid draw-down early in retirement
Conclusions

- Theory: pension encourages rapid draw-down early in retirement
- Theory: risky asset exposure is optimally higher and non-constant

Empirics: poorer households decumulate in retirement; wealthier households accumulate.
Empirics: some evidence for faster decumulation early in retirement
Empirics: motives for saving outweigh incentives of means-test for wealth
Empirics: risk of portfolios is higher for wealthier households
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Retirement consumption and portfolio decisions are made jointly.

- Consider a standard consumption and investment problem for a risk averse pensioner
- Pensioner owns home
- Can invest in a stock index and a bond
- May be eligible for Age Pension
- Fixed time horizon
Two means tests apply to the Age Pension.

- Income - income from financial assets is deemed to accrue at fixed rates
  - e.g. up to $41K deemed 4% p.a., then 6% per annum.
- All post-retirement income assumed from investments, therefore wealth
- Translate wealth into income equivalents so income test becomes wealth test
- Assets - most assets, excluding family home, are assessable
- Paid least pension under both tests.
The assets test taper is steeper, but the income test applies to more pensioners.

The tests introduce piece-wise linear constraints into the optimisation problem.

Age Pension as a function of wealth under 2008 tests.

![Graph showing the relationship between age pension and wealth under 2008 tests. The graph includes two lines: one representing the income test and the other the assets test. The lines show how the pension decreases as wealth increases.]
Numerical simulations confirm high consumption early in retirement.

Initial wealth = $500K, risk premium 1%, volatility 20%, horizon 20 yrs, \( \delta = 0.97 \), expected returns, log utility
Portfolio allocations are high and decreasing in the risky asset.

![Graph showing portfolio weight vs. age for different pension scenarios](image-url)
Portfolio allocations are high and decreasing in the risky asset.

- Optimal allocation (for these parameters) without pension is 25:75 risky to risk-free asset at all wealth levels
- Pension is low-volatility asset negatively correlated with risky asset
- Creates a hedge against risky asset, encourages higher exposure
- Two influences
  - NPV of future pension payments (risk exposure declines with age)
  - Steepness of negative correlation with wealth (risk exposure higher under income taper)
- Creates a transfer of risk towards public sector
Decumulation rates are higher for those on the steeper taper.

For 2006 tests, $A_2 = 330K$, $V_i = 188K$, max pension from 82K

% change in wealth

-6 -5 -4 -3 -2 -1 0 1

age

66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82

V(0)=$100\,000

V(0)=$190\,000

V(0)=$300\,000

no pension

assets test

income test
Summary

Theory predicts that means-tested public transfers will

- Raise early-retirement consumption over the baseline path
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- Raise consumption of households in the steeper taper relative to those on the flatter
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- Raise early-retirement consumption over the baseline path
- Raise consumption of households in the steeper taper relative to those on the flatter
- Induce higher exposure to risk in portfolio allocations
- Create optimally non-constant portfolio allocations over retirement
Questions

- Do Australian retirees decumulate?
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- Conditioning on age, health and intention to leave a bequest, do households on the steeper taper decumulate faster?
- What types of patterns are evident in portfolio allocation and is there evidence of higher risk exposure?
2006 HILDA wealth survey indicates lower levels of financial assets after retirement.

Total and financial assets of surveyed households, HILDA 2006.

a. Total assets

b. Financial assets
Wealthier households are more than 70% exposed to risky assets

HILDA Age Pension portfolio allocation by wealth quintile 2006.

- **a. All assets**
- **b. Non-home assets**
HILDA can also tell us about the time-path of wealth for Age Pensioners.

We select single and couple households who, for all waves in the survey, are:

1. 65+ years of age
2. Receive Age Pension
3. Fully retired from paid work
4. Live alone (as single or couple)
5. Own their own home

Infer annual wealth using reported Age pension payment
Adjust wealth for transitory shocks using HILDA portfolios
In aggregate, there is mild evidence of decumulation.

### Implied real wealth of single and couple AP households, 2002 prices.

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
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<td><strong>couples</strong></td>
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<tr>
<td>mean</td>
<td>216.70</td>
<td>217.54</td>
<td>202.63</td>
<td>203.32</td>
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<tr>
<td>median</td>
<td>202.02</td>
<td>200.60</td>
<td>173.28</td>
<td>161.38</td>
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<tr>
<td>std dev</td>
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<td>64.30</td>
<td>77.64</td>
<td>88.94</td>
<td>86.70</td>
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<tr>
<td><strong>singles</strong></td>
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<tr>
<td>mean</td>
<td>132.00</td>
<td>134.28</td>
<td>119.29</td>
<td>128.52</td>
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<tr>
<td>median</td>
<td>115.43</td>
<td>118.54</td>
<td>94.06</td>
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<tr>
<td>std dev</td>
<td>51.34</td>
<td>50.15</td>
<td>56.54</td>
<td>60.07</td>
<td>64.69</td>
</tr>
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</table>
Preliminary panel estimation: savings subject to taper, health, bequests precaution and age.

Estimate

$$\tilde{s}_{it} = \alpha + \beta D_{a,it} + \sum_j \delta_j D_{j,it} + \sum_j \gamma_k D_{j,it} D_{a,it} + e_{it}$$

where $\tilde{s}_{it}$ is percentage change in wealth $D_{a,it}$ is an indicator for asset-test taper for household $i$ in period $t$

$D_{j,it}$ are indicators for general saving intentions, precautionary motives, bequest motives, health, expected health, and newly retired (age<70)

- Estimate as pooled least squares adjusted for serial correlation.
- 136 single, 110 couple decision units over four years.
## Panel least squares estimation results.

<table>
<thead>
<tr>
<th>dependent variable:</th>
<th>log change in real deflated wealth</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>single</td>
</tr>
<tr>
<td>constant</td>
<td>-0.039</td>
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<tr>
<td>asset taper</td>
<td>0.069</td>
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<tr>
<td>newly retired</td>
<td>-0.048</td>
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<td>newly retired × asset taper</td>
<td>-0.060</td>
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<tr>
<td>bequest</td>
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<tr>
<td>bequest × asset taper</td>
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<tr>
<td>poor health</td>
<td>-0.029</td>
</tr>
<tr>
<td>poor health × asset taper</td>
<td>0.099</td>
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<tr>
<td>poor expected health</td>
<td></td>
</tr>
<tr>
<td>p. expected health × asset taper</td>
<td></td>
</tr>
</tbody>
</table>
Households on the flatter taper spend faster than those on the steeper taper

- The coefficient on the indicator for the steeper taper is positive and significant
- Asset-taper households tend to save more
- Some evidence that early in retirement, households spend more quickly
- Some evidence that couple households with bequest motives save more
- Income taper households dissave around 4% p.a.
Summary

- Households with less wealth dissave more rapidly
- Wealthier households tend to save
- Means-test tapers encourage faster draw-down early in retirement
- Couples appear to draw-down faster but care about bequests
- Comparing wealth distribution over time with Lorenz dominance tests indicates no decrease in inequality between households
Do Australian Age Pensioners decumulate?
- yes, if less wealthy, but no or more slowly, if more wealthy

Do the means-tests tapers create incentives to decumulate faster?
- some evidence for faster decumulation in early-retirement

Little evidence for increasing equality over time in wealth distribution.
Indicator variables.

\( hhhealth_b = 1 \) if at least one household member reports general health as **fair** or **poor** and is zero if **good**, **very good**, **excellent** or **declined to comment**.

\( hhhealth_{eb} = 1 \) if at least one household member answers true to ‘**I expect my health to get worse**’.

\( hhsave = 1 \) if household answers the question ‘Which of the following statements comes closest to describing your (and your family’s) savings habits?’ as

- Save whatever is leftover - no regular plan
- Spend regular income save other income
- Save regularly by putting money aside each month; and zero if they reported that they do not save or did not answer.

\( hhprecaution_{2(6)} = 1 \) if the household answers yes to at least one of the following questions in the 2002(6) wave: ‘Which of the following comes closest to describing your (and your family’s) current reason for saving? 1. For emergencies/in case of unemployment or illness and/or 2. Medical/dental expenses.

\( hhbequest_{2(6)} = 1 \) if the household answers yes to at least one of the following question in the 2002(6) wave: ‘Which of the following comes closest to describing your (and your family’s) current reason for saving? 1. Education for children and grandchildren and/or 2. To help children or other relatives.'