Public Policy, Personal Saving, and Retirement Security

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MIT and NBER
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Personal Saving: Key Component of Retirement Preparation

- Personal saving + employer (pension) saving + public programs = retirement support
- Many public policies over the lifecycle can affect private (= personal + pension) saving
- Accumulation-related policies: “what is the public cost of too little personal saving?”
  (induced transfer)*(1+MCPF)?
- Means-tested public programs: “how will retirement accumulations respond?”
Lecture Outline

- Stylized facts about personal saving & wealth
- Lessons from lifecycle models and the “saving adequacy” debate
- Tax-favoured retirement saving programs: experience and economic issues
- Behavioural models of saving: auto-enrollment and its effects
Private Retirement Saving in the UK: Limited Outside Pensions

- Investment income accounts for less than 5% of income for bottom 60% of UK retirees (DWP)
- 65-69 Year Olds in 2005 (Crossley & O’Dea 2010)
  - Median financial wealth $\approx £12,000$
  - 75th Percentile £52,000; 90th percentile £145,000
- Homeownership rate is 74% for 65-69 year olds, 64% own homes with no mortgage

- Data from Health and Retirement Survey
- Compute expected present discounted value of annuity streams
- No “tax adjustment” for wealth components
- Some under-reporting of personal retirement account holdings
### Wealth Distribution (000s): Singles

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Percentile of Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Social Security</td>
<td>$0</td>
</tr>
<tr>
<td>Financial Assets</td>
<td>0</td>
</tr>
<tr>
<td>Home Equity</td>
<td>0</td>
</tr>
<tr>
<td>DB Pension</td>
<td>0</td>
</tr>
<tr>
<td>Personal Retirement Acc’ts</td>
<td>0</td>
</tr>
<tr>
<td>Financial Assets + PRA</td>
<td>0</td>
</tr>
<tr>
<td>Net Worth</td>
<td>157.9</td>
</tr>
</tbody>
</table>
## Wealth Distribution: Couples

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Percentile of Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Social Security</td>
<td>$0</td>
</tr>
<tr>
<td>Financial Assets</td>
<td>0</td>
</tr>
<tr>
<td>Home Equity</td>
<td>12.0</td>
</tr>
<tr>
<td>DB Pension</td>
<td>0</td>
</tr>
<tr>
<td>Personal Retirement Acc’ts</td>
<td>0</td>
</tr>
<tr>
<td>Financial Assets + PRA</td>
<td>0.3</td>
</tr>
<tr>
<td>Net Worth</td>
<td>346.9</td>
</tr>
</tbody>
</table>
Do Low Financial Wealth Holdings “Reject” the LCH?

- Cannot discuss personal saving as though there were no pensions and public programs
- Progressive programs (state pension, Social Security) yield high replacement rates at low incomes
- Distinguish adequacy of annual consumption flow vs. preparation for financial emergency
Textbook Lifecycle Model
Saving “Adequacy” in Textbook Model

- Three variables
  \{\text{Wealth at age } R, \text{ interest rate, } (T-R)\}
  fix post-retirement consumption level $C_R$
- Adequacy depends on $C_R$ relative to level of pre-retirement consumption
What Actually Determines Saving Adequacy?

- Time preference rate
- Mortality risk profile
- Distribution of late-life expenses (health care)
- Liquidity constraints
- Expected rates of return
- Risk aversion
- Access to other sources of retirement income support (DB plans, state pension)
Questions for a 50-Year-Old Couple

- When will we retire? Do we control that?
- How long do we expect to live? How likely are we to live to be much older?
- Modest or lavish retirement lifestyle?
- How much of our retirement are we likely to spend as a couple?
- What government benefits will we receive?
- Will we support our children, or they support us?
- How will we pay for health care & long term care?
- What returns do we expect, and how much risk can we bear?
Three Empirical Strategies for Measuring “Saving Adequacy”

- Projections of income replacement rate: Ratio of projected post-retirement income to pre-retirement income
- Comparisons of actual wealth with target wealth stock from lifecycle model
- Examination of ex post consumption or wealth outcomes for retirees
- Each has strengths and weaknesses, none fully captures all uncertainties
Replacement Rate Analysis

- Example: Boston College RRC *National Retirement Risk Index*
- Assumes retirement at age 65, forecasts future earnings for younger workers
- Annuitizes all financial assets, purchases reverse annuity mortgage at 65
- Challenges: measuring taxes, equivalence scale for pre- vs. post-retirement periods
- “At risk” = 10% or larger projected drop in consumption after retirement
## Retirement Risk Index Findings, Households at Risk, 2009

<table>
<thead>
<tr>
<th>Category</th>
<th>“Early Boomers”</th>
<th>“Late Boomers”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom third of income distribution</td>
<td>48%</td>
<td>62%</td>
</tr>
<tr>
<td>Middle third</td>
<td>38</td>
<td>46</td>
</tr>
<tr>
<td>Top third</td>
<td>37</td>
<td>36</td>
</tr>
<tr>
<td>All</td>
<td>41</td>
<td>48</td>
</tr>
</tbody>
</table>
Target Wealth Comparisons

- Example: Scholz, Seshadri, Khitatraku (JPE 2006)
- Compares actual wealth stock with target measure derived from lifecycle model
- Model-dependent, results are sensitive to which components of wealth are included and (for pre-retirees) assumed saving path
- How much precautionary wealth do households “need”? 
- Sensitive to social safety net (in the U.S., especially medical insurance)

<table>
<thead>
<tr>
<th>Earnings Decile</th>
<th>% Below Target</th>
<th>Deficit Given Below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
<td>30.4%</td>
<td>$2,481</td>
</tr>
<tr>
<td>4th</td>
<td>19.4</td>
<td>4,730</td>
</tr>
<tr>
<td>7th</td>
<td>9.9</td>
<td>11,379</td>
</tr>
<tr>
<td>Highest</td>
<td>5.4</td>
<td>25,855</td>
</tr>
<tr>
<td>All</td>
<td>15.6</td>
<td>5,260</td>
</tr>
</tbody>
</table>
General Pattern of Findings

- Even with progressive benefit programs, lowest income households are at greatest risk although absolute size of shortfall may be small.
- Role of housing equity as a potential financial asset is important.
- Substantial heterogeneity in personal wealth holdings at all income levels.
Ex Post Analysis of Consumption and Wealth Trajectories

- Substantial number of households experience consumption drop at retirement
- How much reflects labour market surprise?
## Financial Assets One Year Before Death – Did They Have Enough?

### Single-Person Households

| Assets | Annuity Income | 
|--------|----------------|---|
|        | < $10K | $10-20K | $20-30K | > $30K | All |
| ≤ 0    | 12%    | 11%    | 1%      | 1%     | 25% |
| < $10K | 24     | 28     | 4       | 1      | 57  |
| < $25K | 26     | 33     | 6       | 2      | 67  |
| < $50K | 28     | 38     | 7       | 3      | 75  |
| All    | 32     | 50     | 12      | 6      | 100 |

Source: PVW (2012).
Ways to Encourage Private Saving

- Encourage private saving in taxable accounts
- Public “nudge” for private saving: IRAs
- Public “nudge” and workplace provision with employee control: 401(k)s, other DC plans
- Public “nudge” and workplace provision with employer control: DB plans
- Public mandate: Required employer plans or government-managed private accounts
- Mandatory public plan: Social Security/State Pension
“Personal Retirement Accounts”

- Found in tax systems in most countries
- Vary in structure and limitations
- General principle: consumption tax treatment of saving in income tax systems (is this “tax favoured”?)
- Most countries restrict amount of eligible saving (why ceilings not floors?)
Budget Set with Personal Retirement Account

Period 0

Period 1

E(1+r(1-t))

Slope = -(1+r(1-t))

Slope = -(1+r)

E

E

Period 0
Design Features in PRAs

- Limits on contributions (max? min? what affects the marginal return to saving?)
- Whether to match contributions (government or employer)
- Pre-tax vs. Post-tax contributions
- Restrictions on asset allocation
- Whether to mandate withdrawals and/or annuitisation beginning at some age
Account Design: EET vs. TEE

- Taxable Account:  \( V_{\text{taxable}} = (1-T_0)\times e^{(1-T_1)rT} \)
- TEE: Contributions after-tax, returns and distributions are tax free:  \( V_{\text{TEE}} = (1-T_0)\times e^{rT} \)
- EET: Contributions before-tax, returns are tax-free, distributions are fully taxed:  \( V_{\text{EET}} = (1-T_1)\times e^{rT} \)
- Incentives of EET = TEE with fixed tax rates
- Tax revenue paths differ; perceptions, too?
- Benefit of tax deferral is low when \( r \approx 0 \)
PRAs in the UK: Current Rules

- Tax relief on pension contributions
- Personal pensions: relief at 20% tax rate on up to £2880 contributions (£3600 pretax)
- Annual Allowance: limit on total tax-favoured contributions (£255K in 2010-11, £50K for 2011-12); no limit on total contributions
- Lump sum of 25% tax-free at maturity
- “Lifetime allowance:” £1.8M pre-2012, £1.5M after, 25% (55%) tax on excess pension (lump sum)
PRAs in the US: IRAs and 401(k)s

- IRAs: Annual pre-tax contribution limited to $5000 ($6000 if over 50) for households with income below $90,000
- Two IRA options, “Roth” = TEE or “Regular” = EET (with same limit, rollover option)
- 10% penalty tax on withdrawals prior to age 59 ½
- Required minimum distributions (RMDs) starting at age 70 ½
- “Roll-over contributions” from DC plans
401(k)s: More Important than IRAs

- Higher contribution limits ($16K plus $6K “catchup” for persons over 50)
- Employer matching so returns are more attractive
- Decision to offer 401(k) is made by employer
- Some leakage: hardship withdrawals and loans
- Potential to “roll over” 401(k) to IRA
Questions About Individual-Based Systems

- Are contributions adequate? Do the households that need more resources respond to saving incentives?
- Are investment risk levels “appropriate”?
- Do these programs raise personal saving? National saving?
- Are balances drawn down too quickly?
Challenges when Relying on Individual Saving Initiatives

- Financial literacy: Many households lack decision-making tools and expertise
- Self-commitment problems: Follow through on saving plans is low
- Both factors underlie calls for default programs
IRA Summary Information, 2010 (Holden & Schrass (2010))

- 42% of households have IRAs
- Median total IRA balance in 2008, 65-69 year olds with IRAs: $54K (mean = $145K)
- Median, 55-59 year olds: $28K (mean = $77K)
- 55% of traditional IRAs included a rollover
- Median rollover share of IRA balance: 75%
## IRA Ownership, 2010

<table>
<thead>
<tr>
<th>Household Income</th>
<th>Ownership Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $25,000</td>
<td>11%</td>
</tr>
<tr>
<td>$25-35,000</td>
<td>24</td>
</tr>
<tr>
<td>$35-50,000</td>
<td>31</td>
</tr>
<tr>
<td>$50-75,000</td>
<td>36</td>
</tr>
<tr>
<td>$75-100,000</td>
<td>43</td>
</tr>
<tr>
<td>$100-200,000</td>
<td>54</td>
</tr>
<tr>
<td>&gt; $200,000</td>
<td>65</td>
</tr>
</tbody>
</table>

Source: Holden and Schrass (2010)
### Average 401(k) Balances, 2010

<table>
<thead>
<tr>
<th>Age</th>
<th>Job Tenure (Years)</th>
<th>5-10</th>
<th>10-20</th>
<th>20-30</th>
<th>&gt; 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>40s</td>
<td>$52K</td>
<td></td>
<td>$88K</td>
<td>$132K</td>
<td>n.a.</td>
</tr>
<tr>
<td>50s</td>
<td>57</td>
<td></td>
<td>98</td>
<td>180</td>
<td>194</td>
</tr>
<tr>
<td>60s</td>
<td>53</td>
<td></td>
<td>90</td>
<td>160</td>
<td>202</td>
</tr>
</tbody>
</table>

How Does PRA Access Affect Personal Saving

- Key challenge is finding exogenous variation in access to tax-favored saving vehicle
- In many cases eligibility related to household attributes or varies only with time
- 401(k) eligibility: chosen by employer
  - Do employees choose employers based on benefit options?
  - Do employers offer programs based on demand from workforce?
Margins of Substitution for Contributions to PRAs

- Other financial assets
- Pension assets – employer sponsored plans
- Housing equity
- Holy grail: data linking consumption spending to access to 401(k)s
Do 401(k) Savers Accumulate Less Saving Elsewhere?

  \[ A_{a,i} = \alpha_a + X_i \beta_a + E_i \gamma_a + u_{a,i} \]
- Benjamin (2003): Propensity score matching of 401(k) eligibles & ineligibles
- Gelber (2011): Consumer durables (cars) and 401(k) eligibility
### Asset Coefficients on 401(k) Eligibility (PVW (1995))

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>1581</td>
<td>1378</td>
<td>2061</td>
<td>2033</td>
</tr>
<tr>
<td>10-20</td>
<td>1902</td>
<td>1997</td>
<td>2404</td>
<td>4045</td>
</tr>
<tr>
<td>20-30</td>
<td>2624</td>
<td>2558</td>
<td>4206</td>
<td>5499</td>
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<tr>
<td>30-40</td>
<td>4605</td>
<td>3256</td>
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<td>8683</td>
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<td>40-50</td>
<td>6726</td>
<td>6206</td>
<td>12588</td>
<td>14470</td>
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<td>50-75</td>
<td>14108</td>
<td>10080</td>
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<td>26093</td>
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<tr>
<td>&gt; 75</td>
<td>30971</td>
<td>29842</td>
<td>57348</td>
<td>51080</td>
</tr>
</tbody>
</table>
Enhancing Take-up of Retirement Saving Plans

- Education targeted at individuals: Improve financial literacy and planning capacity
- Encourage or require employers to adopt voluntary plans
- Mandate employers to adopt plans, default individuals into the plans (various “opt out” provisions)
- Mandatory automatic saving program
Early Evidence that 401(k) Defaults Matter

- Madrian / Shea (2001) study of 401(k)s
- Enrollment rate before auto-enroll: 57%
- Enrollment rate after auto-enroll: 86% (n.b. 83% after 20 years at firm pre-auto-enroll)
- Concentration of auto-enrollees at 3% contribution rate
Beyond Defaults and Participation: Other “Behavioural” Findings

- Workers forego matching contributions even when they can withdraw immediately
- Social learning matters: Duflo-Saez study of university librarians
- Opting out of defaults is relatively rare
Designing Default Options

- What default contribution rate and asset allocation?
  - Default choices are sticky
  - Save More Tomorrow: Benartzi/Thaler

- Defaults have different effects at different points in the distribution:
  - Otherwise low savers save more
  - Some potentially higher savers save less

- What is the cost of defaulting households into a “one size fits all” program?
Why Do Defaults Matter?
Challenge to Consumer Theory

- Opting out is costly (time and effort)
- Default is an anchor
- Procrastination in opting out
- Lack of attention

Bernheim, Fradkin, Popov (2011) explore potential welfare effects of defaults in each of these cases
Behavioural Welfare Economics and the Analysis of Defaults

- Social planner is choosing default rule subject to some assumption about why it matters
- Need to model the gain/loss to households from following default, and the cost of changing
- This is a promising direction for research in retirement saving and public economics more generally