The Annuity Puzzle

- Economic models predict demand for annuities
- But empirically, demand is low:
  - Lottery winners take $$$
  - SS claiming at 62
  - High take-up of lump sum option in DB plans
  - Low take annuity options in DC plan (when offered)
What is Behavioral Economics?

**Traditional Economics**

**Behavioral Economics**

Limited Annuity Demand: Rational Explanations
Rational Explanations for Limited Annuity Demand

- **Annuity prices are not actuarially fair**
  - Why?
    - Adverse selection—the average annuitant has a longer expected lifespan than the average non-annuitant
    - Aggregate mortality risk
  - BUT, this is probably not sufficient to explain low levels of annuitization
  - Simulations suggest that the loads do not offset the utility gains from annuitization
  - Deferred social security claiming is actuarially fair, and few individuals delay social security claiming

- **Sufficient pre-existing annuitization**
  - Probably true for lower income individuals with high social security replacement rates
  - Does not explain low rates of annuitization for middle-to upper-income households

- **Risk sharing in couples**
  - Informal insurance—reduces formal insurance demand
  - BUT, no increase in annuitization upon death of a spouse
Rational Explanations for Limited Annuity Demand

- **Bequest motives**
  - Less than full annuitization optimal
  - Would predict partial annuitization rather than absence of annuitization

- **Incomplete annuity markets**
  - Inflation protection
  - Irreversibility $\Rightarrow$ lack of liquidity
    - Demand for liquidity would predict partial annuitization

- **Counterparty risk (fear that insurance company will go bankrupt)**

Limited Annuity Demand: Behavioral Explanations
What is Behavioral Economics?

Traditional Economics

Behavioral Economics

Behavioral Explanations for Limited Annuity Demand

Almost everything about the psychology of annuitization makes annuitization seem like a bad choice
### The Psychology of Insurance

<table>
<thead>
<tr>
<th>Homeowners insurance</th>
<th>Longevity insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insurable event</strong></td>
<td>Fire, storm damage, theft—BAD THINGS</td>
</tr>
<tr>
<td><strong>Payout</strong></td>
<td>Big lump sum after large loss</td>
</tr>
<tr>
<td><strong>Premiums</strong></td>
<td>Dribble of premiums spread out over time</td>
</tr>
<tr>
<td><strong>If no event happens...</strong></td>
<td>No fire—GOOD</td>
</tr>
<tr>
<td></td>
<td>Small regret over small premiums “paid for nothing”</td>
</tr>
</tbody>
</table>

An annuity doesn’t “feel” like a traditional form of insurance

### Behavioral Explanations for Limited Annuity Demand: Present Bias

<table>
<thead>
<tr>
<th>TODAY</th>
<th>THE FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Large cost to purchase annuity</td>
<td>□ Small stream of monthly payments</td>
</tr>
<tr>
<td>□ Looms large</td>
<td></td>
</tr>
</tbody>
</table>

Present bias ➔ future payment streams heavily discounted
Behavioral Explanations for Limited Annuity Demand: Investment Risk

Simple 2-period Example with 50% Mortality Risk

<table>
<thead>
<tr>
<th>Morality</th>
<th>Payout</th>
<th>“Annuity” Investment</th>
<th>Bond “Investment”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live</td>
<td>2</td>
<td></td>
<td>Live</td>
</tr>
<tr>
<td>Die</td>
<td>0</td>
<td>Annuity looks risky by comparison</td>
<td>Die</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bonds looks safe. Same payout whether I live or die.</td>
<td>1</td>
</tr>
</tbody>
</table>

Behavioral Explanations for Limited Annuity Demand: Loss Aversion

How I Lose
- Die young ➔ annuity a bad investment
  - Losses loom large (2x equal-sized gains)
  - Happens sooner

How I Gain
- Live long ➔ annuity a good investment
  - Gains matter less than losses
  - Happen in distant future (discounted)
Behavioral Explanations for Limited Annuity Demand: Probability Misperceptions

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct answer</th>
<th>Fraction with correct answer</th>
<th>Leading incorrect answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>An individual who reaches age 65 has a life expectancy of age 85. What are the chances he or she will live beyond that age?</td>
<td>50%</td>
<td>32%</td>
<td>25%</td>
</tr>
<tr>
<td>Considering a 65-year-old couple, what is the likelihood of one or both of them living to the age of 97?</td>
<td>25%</td>
<td>16%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Source: MetLife Retirement Income IQ Test (2003) and (2011)

Behavioral Explanations for Limited Annuity Demand: Loss of Control
Behavioral Explanations for Limited Annuity Demand: Loss of Control

Langer (1975) finds that experimental subjects will pay more for a lottery ticket if they pick the number themselves

- Annuities require that an investor give control of their wealth to a third-party (the insurance company)
  - No annuity = control over wealth
  - Annuity = no control (limited future liquidity)

Behavioral Explanations for Limited Annuity Demand: Complexity ➔ Focus on Cash

<table>
<thead>
<tr>
<th>PAYOUT OPTION</th>
<th>AMOUNT</th>
</tr>
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<tbody>
<tr>
<td>Lump sum distribution</td>
<td>$300,000</td>
</tr>
<tr>
<td>Single life annuity</td>
<td>$2,000/month</td>
</tr>
<tr>
<td>Joint and survivor annuity</td>
<td>$1,500/month</td>
</tr>
<tr>
<td>Single life annuity with COLA</td>
<td>$1,600/month</td>
</tr>
<tr>
<td>Joint and survivor annuity with COLA</td>
<td>$1,200/month</td>
</tr>
<tr>
<td>Single life annuity with 5 year period certain</td>
<td>$1,900/month</td>
</tr>
<tr>
<td>Joint and survivor annuity with 5 year period certain</td>
<td>$1,400/month</td>
</tr>
<tr>
<td>Single life annuity with 10 year period certain</td>
<td>$1,800/month</td>
</tr>
<tr>
<td>Joint and survivor annuity with 10 year period certain</td>
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</tr>
<tr>
<td>Joint and survivor annuity with reduced survivor benefit</td>
<td>$1,700/month</td>
</tr>
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...etc.
Choice Architecture

*Choice architecture*
The design of the environment and context in which choices are made
Elements of Choice Architecture

- Number of options
- Order of options
- Structure of options
- Framing of the options/the choice
- Process around the choice
- Timing of the choice
- Frequency of the choice
- Location of the choice

Choice architecture
The design of the environment and context in which choices are made

Choice Architecture:
The Default Option

The default retirement plan type strongly influences whether employees are in a DB or a DC plan

Source: Goda and Manchester (2010)
Choice Architecture:
Future Self Visualization

- Fraction of Current Pay Allocated to Retirement

Source: Hershfield et al. (2011)
The Moment You’ve Been Waiting For...

Face aged to 2047 with the app AgingBooth

Choice Architecture: Preference Checklist

<table>
<thead>
<tr>
<th>Preference checklist items, study 1</th>
<th>Items of worrying claiming benefits later</th>
</tr>
</thead>
<tbody>
<tr>
<td>I want to collect Social Security as soon as possible because Social Security may run out of money soon.</td>
<td>Since personally can’t afford to spend on medical bills as they get older, I’ll delay claiming as long as possible—that way I’ll have more money when I’ll probably need it most.</td>
</tr>
<tr>
<td>I don’t want to have to work until I’m old— I want to enjoy some non-work time with friends and family.</td>
<td>I will probably work part-time as the years go on—that way I can put off collecting my benefits.</td>
</tr>
<tr>
<td>My family does not have a history of living long, so I don’t expect to live a long time either.</td>
<td>My family has a history of living long, so I expect to live a long time too—I wouldn’t want to run out of money when I’m old.</td>
</tr>
<tr>
<td>I don’t like my job anymore, so claiming benefits now would let me leave that bad situation.</td>
<td>I want to work as long as I physically can—only health problems would stop me from working.</td>
</tr>
<tr>
<td>Instead of waiting until 70 years old to get the highest benefits, it is best to claim early and collect the money.</td>
<td>As long as I am doing something I really like, I want to keep working past my full retirement age.</td>
</tr>
<tr>
<td>Waiting to claim benefits does not increase the check that much, so it’s not worth waiting.</td>
<td>Social Security is the best annuity out there, and waiting longer to collect gets you more money and makes it even better.</td>
</tr>
<tr>
<td>A lot of my friends and peers have already retired and claimed benefits.</td>
<td>I’ve been paying into Social Security my whole life, and now I want to get as much money back as possible.</td>
</tr>
<tr>
<td>Due to the economy and scarcity of jobs, I might be forced to start collecting early.</td>
<td>I am comfortable with my current income level, so I can afford to delay claiming as long as possible.</td>
</tr>
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The Impact of a Preference Checklist on the Preferred Social Security Claiming Age


Choice Architecture: Preference Checklist

Choice Architecture: Framing

What is the chance that you will live to age:
- 65?
- 75?
- 85?
- 95?

What is the chance that you will die by age:
- 65?
- 75?
- 85?
- 95?

Choice Architecture:
Framing

- Evidence on how framing impacts annuitization choices:
  - *Investment vs. insurance*: Framing annuitization as an investment reduces annuitization
  - *Flexibility and control*: Framing annuitization as a limit on flexibility and control reduces annuitization
  - *All or nothing*: Framing annuitization as an all-or-nothing choice reduces annuitization
  - *Inflation protection*: Highlighting the value of inflation protection increases COLA adoption


Choice Architecture:
Decision Support Tools to Reduce Complexity

- Sequential decision-making
  - Put the important decision front and center:
    - What fraction of retirement wealth to annuitize?
  - Keep subsequent decisions to customize features simple
    - Ask a few key questions and use these to guide the display of subsequent choices
    - Use helpful groupings (grocery store analogy)
    - Bilateral choices (eye doctor analogy)
The Choice Architecture Continuum

Annuitization Rate

0% 100%

Behaviorally Informed Annuity Design
Behaviorally Informed Annuity Design: Guaranteed Payout Option

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Behaviorally Informed Annuity Design: Annual Bonus

- **Standard Annuity ($2,000/month)**
- **Annuity with bonus ($1,900/month + $1,200 in month of your choosing)**

60% chose annuity with bonus

40% chose a standard annuity

The demand for an annuity with a one-time annual bonus is consistent with a desire for commitment (to save) due to self control problems.

Source: Beshears et al., 2013
Behaviorally Informed Annuity Design: Deferred Annuity + Right to Cancel

- Right to cancel
  - Reduces potential for ex ante worry about ex post regret
  - Status quo bias after annuity purchase → reduced desire to cancel

Behavioral Economics and Public Policy Toward Lifetime Income

What does an understanding of behavioral economics bring to the policy table?

- Additional motives for policy intervention
- New policy tools
- Ways in increase the effectiveness of traditional policy tools