# Behavioral Impediments to Valuing Annuities: Evidence on the Effects of Complexity and Choice Bracketing

Jeffrey R. Brown, Arie Kapteyn, Erzo F.P. Luttmer, Olivia S. Mitchell, and Anya Samek

# Motivation

- Longstanding question: Annuity Puzzle
  - Standard models predict most/all wealth should be annuitized. E.g., Yaari (1965), Davidoff, Brown, Diamond (2005)
  - Actual annuity holdings are much lower than standard models predict. E.g., less than 5% maximize the Social Security annuity by deferring claiming until age 70
- What gives? Are the models wrong or do people make mistakes? (Or both?)
- Important for policy
  - Should Social Security continue to be paid as an annuity?
  - Pension rules on cashing out vs. annuitization
  - Tax treatment of or incentives for annuities

# Where this paper fits in

- Get causal evidence on some of the *mechanisms* leading to deviations from rational decision making
- Get evidence on an *intervention* to reduce the deviation from rational decision making.

# Outline

- Introduction (done)
- Survey design
- Sell-Buy spread, descriptive statistics and interpretation
- Effects of experimental interventions
  - Complexity
  - Consequence message (to reduce narrow choice bracketing)
  - Secondary interventions
- Conclusion

# Survey design

- Understanding America Study (UAS): online panel of adult Americans recruited via address-based sampling
- Survey fielded June-October 2016
- Average duration 14 minutes. Paid $10 for completion
- 5,521 panelists invited, 83% responded to invitation, and of those 99% completed the survey
- Rich dataset of cognition and demographic variables appended from other UAS surveys. Match rate 90%
- Final sample: 4,060 observations

# Introducing the vignette

Information about the vignette person (e.g., “Mr. Jones”)

- 60 years old, single, no children
- Will retire and claim benefits at age 65
- Expected SS benefits of $800; will have $100,000 saved by age 65
- Doctors have told him that he will “almost certainly be alive at age 75” but “almost certainly not live beyond age 85”

UnderStandingAmericaStudy

In the next few questions, we are going to ask you to give some advice to Mr. Jones for when he retires. You will be happy to know that whatever advice you give Mr. Jones, he will not owe any taxes on the amounts shown and his benefits will keep up with inflation. There is no right or wrong answer; we just want to know what you think.

Mr. Jones is a single, 60-year old man with no children. He will retire and claim his Social Security benefits at 65. When he retires, he will have $100,000 saved for his retirement, and he will receive $800 in monthly Social Security benefits. Based on his current health and family history, doctors have told Mr. Jones that he will almost certainly be alive at age 75 but almost certainly will not live beyond age 85.

<< Back | Next >>

# Giving advice on selling SS annuity

Ask respondent to give advice to Mr. Jones on whether to sell a SS benefit increase of $100/month for $30,000.

Screen 1:

UnderStandingAmericaStudy

Suppose that the Social Security Administration is considering a new policy that gives people more choice in how they want to receive their benefits. As part of this policy, Mr. Jones is asked to make a choice between two money amounts.

What should Mr. Jones do?

- (●) Receive his expected Social Security benefit of $800 per month and receive a one-time payment of $30,000 from Social Security at age 65.
- ( ) Receive a Social Security benefit of $900 per month starting at age 65.

<< Back | Next >>

# Giving advice on selling SS annuity

Advised to sell for $30,000 → Sell valuation < $30,000

Next, try a lower sell price: $10,000

Screen 2:

UnderStandingAmericaStudy

Now we ask you the same question but with a different amount for the one-time payment.

What should Mr. Jones do?

- ○ Receive his expected Social Security benefit of $800 per month and receive a one-time payment of $10,000 from Social Security at age 65.
- ● Receive a Social Security benefit of $900 per month starting at age 65.

<< Back | Next >>

# Giving advice on selling SS annuity

Advised not to sell for $10,000 → $10k < valuation < $30k

Next, try a higher sell price: $20,000

Screen 3:

UnderStandingAmericaStudy

Now we ask you the same question but with a different amount for the one-time payment.

What should Mr. Jones do?

- ○ Receive his expected Social Security benefit of $800 per month and receive a one-time payment of $20,000 from Social Security at age 65.
- ● Receive a Social Security benefit of $900 per month starting at age 65.

<< Back | Next >>

# Continue until 5 choices are made

- This puts sell valuation in one of 32 (=$2^5$) bins
- The starting value was randomized between $10k, $20k, and $30k to test for anchoring
- To make sure details where not consequential, we randomize:
  - Name: Smith or Jones
  - Gender: Mr. or Mrs.
  - The monthly SS benefits: $800, $1200, $1600, $2000
- Ask 5 similar questions to get a buy valuation
- Randomize whether sell or buy valuation is asked first

# Giving advice on buying SS annuity

Advise Mr. Jones on whether to buy a SS benefit increase of $100/month for $30,000.

Screen 1:

UnderStandingAmericaStudy

Now consider a different way of giving people more choice in how they want to receive their benefits. As part of this policy, Mr. Jones is asked to make a choice between two money amounts.

- ○ Receive his expected Social Security benefit of $800 per month and make a one-time **payment** of $30,000 to Social Security at age 65.
- ● Receive a Social Security benefit of $700 per month starting at age 65.

<< Back | Next >>

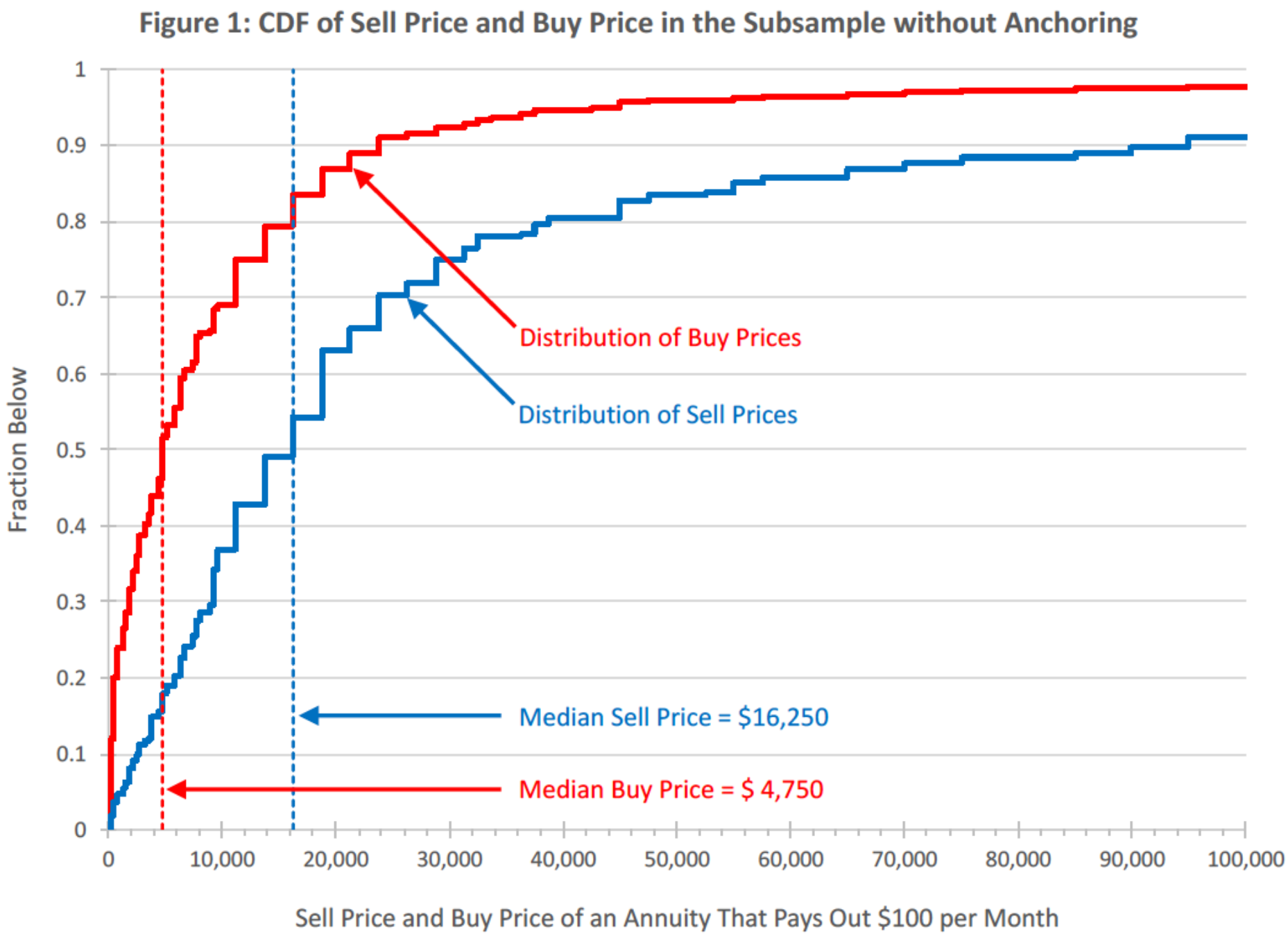
Figure 1: CDF of Sell Price and Buy Price in the Subsample without Anchoring
Fraction Below
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
10,000
20,000
30,000
40,000
50,000
60,000
70,000
80,000
90,000
100,000
Distribution of Buy Prices
Distribution of Sell Prices
Median Sell Price = $16,250
Median Buy Price = $ 4,750
Sell Price and Buy Price of an Annuity That Pays Out $100 per Month

# Huge Sell-Buy Spread. Why?

- Standard rational preferences imply that valuation for *marginal* increase or decrease is the same …
- but the median sell valuation is 4 times greater
  - Not due to status quo bias: status quo of $800 in SS benefits without any one-time payment wasn't a choice
  - Not due to declining demand for annuities (i.e., the fact that $100 is not exactly marginal)
    - Buy value: value of forgoing a cut from $800 to $700
    - Sell value: value of forgoing an increase from $800 to $900
  - Not due to policy risk: same effect on buy and sell value
  - Not due to advising in a vignette: similar finding in Brown et al. 2017 on buy and sell value for an annuity for oneself

# One explanation for Sell-Buy Spread: Reluctance to trade asset that is difficult to value

- An explanation from Brown et al. (2017):
  - People rely on the heuristic to be reluctant to trade something they find difficult to value
  - The heuristic protects against being taken advantage off
  - Reluctance means: buy only at very low price, and sell only at very high price
- We replicate supporting evidence from Brown et al.:
  - The sell-buy spread is higher for respondents with lower cognitive ability
  - Sell values are negatively correlated with buy values (due to variation across people in ability to value the annuity)

# Key outcome measure: Sell-Buy Spread

- For marginal change in SS: any difference between buy and sell price is a deviation from rationality

- Define Spread as absolute difference between log sell value and log buy value (following Brown et al. 2017)

# Experimental design

Two main treatments (orthogonal):

1. Complexity treatment
   - Change vignette to make evaluating the annuity harder by:
     (i) giving a wider range of age of death, or
     (ii) presenting irrelevant information
2. Consequence message (to reduce narrow choice bracketing)
   - *Before* giving advice on selling or buying annuities, we induce the respondent to think about how to spend down wealth during retirement
   - Use a vignette with a *different* name and gender for this

# Complexity treatments:

- No added complexity
  "Based on his current health and family history, doctors have told Mr. Jones that he will almost certainly be alive at age 75 but almost certainly will not live beyond age 85."
- Complexity: Wide age range
  "Based on his current health and family history, doctors have told Mr. Jones that he has an 80% chance of being alive at age 70, a 50% chance of being alive at age 80, a 20% chance of being alive at age 90, and a 10% chance of being alive at age 95."
- Complexity: Added information
  "Social Security rules state that you need at least 40 credits, or 10 years of work, to qualify for Social Security – and Mr. Jones qualifies since he has worked for 30 years. Since Mr. Jones was born in 1956, his full retirement age is 66 years and 4 months, but he is eligible to start claiming starting at 62. […] Based on his current health and family history, doctors have told Mr. Jones that he will almost certainly be alive at age 75 but almost certainly will not live beyond age 85."

# Consequence message, part 1

Advisor to a vignette person explains consequences of:

- spending down “savings relatively slowly” (risk of not enjoying the money) versus
- spending down “savings relatively quickly” (risk of running out of money)

UnderStandingAmericaStudy

First, we will show you a story about Mrs. Smith. Please pay close attention to the story, because at the end we will ask you two questions about the story. You will receive an additional $1 for each question you answer correctly.

Mrs. Smith is a single, 65-year old woman with no children, and she is as healthy as the typical 65-year old woman. She just retired and receives her monthly Social Security check. She is talking with her financial adviser on how to spend her substantial savings in retirement.

Her advisor explains that she could decide to spend down her savings relatively slowly. In this case, she will be less likely to run out of money. But now she runs a risk of not getting to enjoy all her money during her lifetime.

Her advisor explains that she could also decide to spend down her savings relatively quickly. In this case, she will be more likely to be able to enjoy her money during her lifetime. But she also runs a risk of running out of money while alive and having to cut back on her spending as a result.

Next >>

We follow this up with some test questions to see if they paid attention (they get $1 for each correct answer)

# Baseline estimates of treatments

**Table 4: Treatment Effects on the Sell-Buy Spread**

| | (1) | |
|---|---|---|
| Explanatory variables: | Sell-Buy Spread | |
| Complexity treatment | 0.131** | (0.065) |
| Consequence message treatment | -0.141** | (0.062) |
| Cognition index | -0.788*** | (0.043) |
| Sell question first | 0.166*** | (0.062) |
| P-value on lump-sum starting values | 0.623 | |
| P-value on lump-sum shown first | 0.633 | |
| P-value on SS benefit amounts | 0.249 | |
| P-value on vignette names | 0.375 | |
| Demographic controls | Yes | |
| $R^2$ | 0.157 | |
| N | 4,060 | |

# Narrow choice bracketing

- Annuity payouts are uncertain
  - If viewed in isolation (narrow choice bracketing): feels like a *"risky"* product because it has an uncertain payout
  - If viewed jointly with the problem of how to draw down assets during retirement: the uncertainty of the payout helps with consumption smoothing (because the payout is correlated with longevity) → feels like a "*safe*" product
- The consequence message induces respondents to think about annuities jointly with the asset draw down problem
- Consistent with research by Brown et al. (2008, 2013) and Beshears et al. (2014):
  - lower demand for annuities when they are described using investment terms (in which case annuities feel risky) than in terms of consumption (in which case the uncertain payout serves as insurance)

# Implications

- Deviations from rationality imply that one cannot take observed annuity demand as a revealed preference
  - E.g., the fact that Social Security is paid out as an annuity (rather than a lump sum) could maximize welfare despite low levels of observed demand for annuities.
- Findings on role of complexity
  - Relatively little scope for interventions; annuity decision is inherently complex (need to think about future and stochastic outcomes)
- Findings on role of choice bracketing
  - More scope for interventions to improve quality of annuity choice: induce people to make a link with consumption planning in retirement (and frame it as such)

# Thank you!