What Makes Annuitization More Appealing?

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Abstract: We conduct and analyze two large surveys of hypothetical annuitization choices. We find that allowing individuals to annuitize a fraction of their wealth increases annuitization relative to a situation where annuitization is an “all or nothing” decision. Very few respondents choose declining real payout streams over flat or increasing real payout streams of equivalent expected present value. Highlighting the effects of inflation increases demand for cost of living adjustments. Frames that focus on flexibility, control, and investment risk significantly reduce annuitization. A majority of respondents prefer to receive an extra “bonus” payment during one month of the year that is funded by slightly lower payments in the remaining months. Concerns about later-life income, spending flexibility, and counterparty risk are the most important self-reported motives that influence the annuitization decision, whereas the bequest motive is reported to have little influence on this decision.

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I. Introduction

Many households resist annuitization. When a lump-sum payment is available in a U.S. defined benefit (DB) pension plan, about half of households take their entire retirement benefit as a lump sum, even though the annuity is the default option and opting out requires time-consuming paperwork (Mottola and Utkus, 2007; Benartzi, Previtero, and Thaler, 2011; Previtero, 2012). Only 10% of defined contribution (DC) plan participants who leave their jobs after age 65 annuitize their assets (Johnson, Burman, and Kobes, 2004). Resistance to annuitization is referred to as the “annuitization puzzle” (Modigliani, 1986), since the benefit of buying insurance against outliving one’s savings should create strong demand for annuities (Yaari, 1965).

In this paper, we identify some of the factors that influence consumer attitudes toward annuitization, focusing on product design and choice architecture. To study this issue, we field two large surveys in which we elicit hypothetical annuitization choices from individuals aged 50 to 75. We examine 1) what factors people say are important to their annuitization choices, 2) how offering “partial annuitization,” rather than an all-or-nothing choice, influences outcomes, 3) what intertemporal slope of annuity payouts people prefer, 4) whether altering the framing\(^1\) used to describe options influences the rate of annuitization, and 5) whether there is demand for an annuity product that makes an extra “bonus” payment during one month of the year that is funded by slightly lower payments in the remaining months.

The use of a survey such as this one has advantages and disadvantages. On the positive side, we can ask questions that directly measure specific preferences, including preferences for products not available on the market. We can also examine economic environments that differ from the current one. On the negative side, the choices people make do not influence their actual life outcomes, so the results may not correspond to the choices people would make in real-life settings. Surveys like this provide a starting point for designing field experiments with large stakes.

Five findings emerge from our surveys. First, respondents report that three considerations (one positive and two negative) are the most important for their choices about annuitization: “Want to make sure I have enough income later in life,” “Want flexibility in the timing of my

\(^1\) We abuse the “framing” terminology slightly by using it to describe some treatments that not only present the choice in a different way, but also provide some additional information.
spending,” and “Worried about company not being able to pay me in the future.” This third factor suggests that policy makers could increase annuity demand if they adopt policies that reduce the fear of counterparty risk. For example, policy makers could make more salient existing institutions that mitigate counterparty risk, including back-stop state insurance funds. Current regulations ban insurance companies from mentioning back-stop funds in their marketing materials. Although such bans are conceptually defensible, since they reduce moral hazard problems by encouraging consumers to be selective in their choice of insurance companies, they may also have the perverse effect of decreasing annuity demand.

Second, we find that a substantial fraction of people choose partial annuitization when it is offered, and that offering partial annuitization rather than an “all-or-nothing” annuitization choice increases both the percentage of people choosing any annuitization and the average percentage of pension balances that are annuitized. Many DB pension plans offer individuals a choice between taking a lump sum and an annuity. The U.S. Treasury Department recently proposed a new regulation to make it easier for DB plans to offer a combination of an annuity and a lump sum (Federal Register, 2012). Our finding suggests that this proposal will increase annuitization in plans that already offer a lump sum withdrawal option.

Third, holding the present value of expected payments fixed, very few respondents choose declining real income paths. Our respondents prefer flat or rising real paths. This result underscores how puzzling the paucity of inflation-indexed annuities in the marketplace is. We find that highlighting the effects of inflation on real payout values increases people’s demand for cost of living adjustments (COLAs). This result also contrasts with the empirical fact that holding household composition fixed, real consumption declines by about 2% per year during retirement (Hurd and Rohwedder, 2011).

Fourth, we find that two framing changes significantly reduce demand for annuitization relative to a neutral frame: one that focuses on flexibility and control, and a second that focuses on investment risk. Four other framing changes do not have a significant effect on annuitization: explaining that the annuity being offered is a better deal than what could be purchased on the

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2 A 2011 Aon Hewitt survey of 227 DB plan sponsors found that over 40% offered a lump sum option, and over 20% more responded that they were “very likely to implement” or “somewhat likely to implement” a lump sum payment option in the future (Aon Hewitt, 2011). It is thought that many employees perceive the annuitization versus lump sum choice as being an “all-or-nothing” choice (http://www.treasury.gov/press-center/press-releases/Documents/02012%20Retirement%20Security%20Factsheet.pdf).
open market, presenting the total expected undiscounted lifetime payments from the annuity, explaining that the annuity provides insurance against outliving one’s savings, and explaining that the annuity transfers money from states where one is dead and the marginal utility of money is low to states where one is alive and the marginal utility of money is high.

Finally, we find that 60% of our subjects prefer a product that pays an annual bonus in a month of their choosing over a traditional uniform-payout annuity. Annual bonuses expand annuitants’ control over their high-frequency payout streams without jeopardizing the low-frequency withdrawal restrictions that make longevity insurance possible. The preference for such a product is consistent with subjects’ statement that they value flexibility in the timing of their spending. Allowing more customization of payout streams may increase annuity demand. Other customization schemes are easy to imagine, such as multiple intra-year bonuses or age-contingent payout slopes.

This study contributes to a large existing literature on the determinants of annuity demand. For example, other authors have explored the importance of adverse selection (Mitchell et al., 1999; Finkelstein and Poterba, 2004), bequest motives (Friedman and Warshawsky, 1990; Brown, 2001; Inkmann, Lopes, and Michaelides, 2011; Ameriks et al., 2011; Lockwood, 2012), unexpected healthcare expenses (Pang and Warshawsky, 2010; Ameriks et al., 2011), recent stock market returns (Chalmers and Reuter, 2012; Previtero, 2012), means-tested government benefits (Pashchenko, 2010), Social Security (Bernheim, 1991; Dushi and Webb, 2004), incomplete markets (Davidoff, Brown, and Diamond, 2005), and framing (Brown et al., 2008; Agnew et al., 2008; Brown, Kapteyn, and Mitchell, 2012).

The paper is structured as follows. In Section II, we describe our two surveys. In Section III, we present summary statistics on our sample, and in section IV, we present our empirical results. Section V discusses the implications of our findings for the design of pensions and annuity products.

II. Survey design

We designed two surveys and used the online survey firm Toluna to administer them to 1,000 (Survey 1) and 4,130 (Survey 2) U.S. residents ages 50-75 in August 2011 and June 2012,
respectively. The median times taken to complete the surveys were 13 minutes (Survey 1) and 8 minutes (Survey 2). Participants in both surveys made hypothetical pension choices. They then ranked the importance of different reasons for their choices and answered a set of demographic questions. The surveys are shown in an online appendix.

A. Survey 1

In Survey 1, the participants were asked to make choices under the following hypothetical scenario: “Just before you retire at age 65, you are working for a company that will give you pension payments every month for the rest of your life after you retire. This income is guaranteed, but the payments will stop when you die. You will also receive Social Security benefits every month for the rest of your life after you retire.” Note that this scenario is like that of a traditional defined benefit (DB) pension plan.

Respondents were told that they should assume that inflation would be 2% for the rest of their lives. We described inflation as follows: “With inflation, prices rise, so you get less for your money than you used to. For example, suppose a basket of groceries costs you $100 today. A year later, the same groceries will cost you $102. The price of the groceries has gone up because there has been inflation.” They were also told that “the interest rate will be 5% for the rest of your life.”

Participants made choices about the intertemporal slope of their annuity payouts, whether to receive intra-year “bonus” payments, and how much of their pension stream to cash out and receive as a lump sum. In each case, the payment streams were chosen such that the present value of the options’ expected payouts were the same, based on the stated interest rate and Social Security mortality tables (averaging male and female mortalities together). We included no fees or markups for costs. In order to avoid depressing annuitization demand due to any negative associations participants might have with existing annuities, nowhere in the survey did we use the word “annuity” or “annuitization.”

Slope of annuity payouts

In the first question, participants were told, “Suppose the company lets you choose

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3 Participants were part of a large panel maintained by Toluna who are paid for their participation in each survey.
between the following two retirement income options. The total cost to the company of providing these lifetime payments to you is expected to be the same under either option.” The two options were the following:

A) Match-Inflation Income: “Your first year of monthly payments will sum to $24,200. Your monthly payments will rise by 2% each year for the rest of your life. The increase in your payments will match the increase in prices (inflation).”

B) Steady Income: “Your first year of monthly payments will sum to $29,000. Your monthly payments will stay the same for the rest of your life. Because inflation is 2% each year, the amount you can buy with your income will fall by 2% each year.”

Below these descriptions and before they were asked to make their choice, subjects were shown three graphs. The first was a graph depicting “the likelihood that a person aged 65 today will live to at least age 70, 75, 80, 85, 90, 95, and 100.” The graph’s mortality probabilities were the average of male and female mortalities. The second was a graph showing how much something that costs $1 today would cost in the future, from age 65 to 100. The third graph showed the yearly nominal amount received under each option from age 65 to 100.

Participants were then asked to make another choice between two options:

A) Match-Inflation Income, as described in the previous question

B) High-Growth Income: “Your first year of monthly payments will sum to $19,900. Your monthly payments will grow by 4% every year. The increase in these payments will be larger than the increase in prices (inflation).”

Between the description of the options and where participants were to indicate their choice, we showed a graph depicting the yearly nominal amount received under each option from age 65 to 100, and we provided hyperlinks to the graphs showing mortality probabilities and inflation in case participants wished to review them.

**Bonus payments**

Participants were asked two questions about the addition of bonus payments to their income options. The first question asked participants to choose between the following two
options:

A) Match-Inflation Income: “In the first year, you will receive $2,000 every month. This monthly payment will grow by 2% every year for the rest of your life, matching the increase in prices.”

B) Match-Inflation Income with Bonuses: “In the first year, you will receive $1,900 in every month except for one, when you will get $1,900 plus an extra $1,200. You can choose in which month the $1,200 bonus is paid. This month might be a time when you often want to spend extra. For example, you might like to travel somewhere warm or spend extra money during the December holiday season. The regular monthly payments and the bonus will each grow by 2% every year for the rest of your life.”

Participants were told, “The total cost to the company of providing these lifetime payments to you is expected to be the same under either option.” Participants who chose Match-Inflation Income with Bonuses were then asked to choose in which month they would like the bonus to be paid.

Participants were then asked to choose between the Match-Inflation Income plan and a bonus that declined at the end of each decade of life. Again, both payment paths had the same expected present value. This question was intended to test whether a declining intertemporal payout slope would be more appealing if the decline were justified as a declining travel bonus. The description of the declining bonus was as follows:

B) Match-Inflation Income with Travel Bonuses: “You will receive $1,800 every month in the first year. These monthly payments will grow 2% each year for the rest of your life. From age 65 to 69, you will receive an extra $3,000 every June to use for traveling (or whatever else you want). During your 70s, you will receive an extra $2,000 every June. During your 80s, you will receive an extra $1,000 every June. Because you probably won’t be doing much traveling in your 90s, there is no travel bonus after age 89.”
We included three questions where participants were asked to choose what percent of their annuity benefit to cash out as a lump sum. The first question asked participants about the “Match-Inflation” stream, offering them three cash-out options: A) “0% Cash Out,” where participants would receive monthly payments that start at $24,200 per year and increase 2% annually, but no lump sum payout, B) “50% Cash Out,” where participants would receive $165,000 immediately plus monthly payments that start at $12,100 per year and increase 2% annually, or C) “100% Cash Out,” where participants would receive $330,000 immediately and no other payment for the rest of their lives. Participants were told the three options have the same expected costs to the company. Participants were then shown a graph of the nominal monthly payments they would receive per year (excluding any lump-sum payment) under each option, from ages 65 to 100.

The second and third questions asked about cash-out rates for the “Steady Income” and “High-Growth Income” options, respectively, again letting subjects choose in each case among A) “0% Cash Out,” B) “50% Cash Out,” and C) “100% Cash Out” after showing them a graph depicting the nominal yearly amounts exclusive of any lump sum they would receive from ages 65 to 100 under each option.

Exit questions

Participants were asked to rate on a six-point Likert scale (0 for not important, 5 for very important) the importance of eleven potential reasons for their lump sum vs. annuity choices. Participants were also asked about their life expectancy relative to the average person and a set of demographic questions. We finished the survey with a couple of questions on the clarity of the survey. The first asked whether they thought the questions were clear or confusing, with a scale of 0 (completely clear) to 5 (completely confusing). The second question had an open-response box for them to explain what, if anything, they found to be unclear or confusing. The vast majority of Survey 1 participants thought the questions were understandable and clear. Ninety percent reported that the survey was “clear” or “mostly clear,” whereas less than 1% reported the survey to be “mostly confusing” or “completely confusing” (see Table 1).

B. Survey 2

In Survey 2, similar to Survey 1, participants were presented with a hypothetical retirement scenario and then asked to make annuitization choices based on that scenario. The
scenario was described in the first page of the survey:

“Suppose that you are 65 years old. You are about to retire and have accumulated $500,000 in the pension plan at your current employer. Your employer wants to know whether you prefer to receive this balance as a lump sum payment right now (in other words, a single $500,000 payment) or as a stream of fixed payments over your lifetime, which your employer calls the guaranteed lifetime income option. This stream of fixed payments is based on current market interest rates. The fixed payments won’t change in the future even if market interest rates do change.”

This wording describes the pension benefit as a dollar accumulation rather than an accrued income stream. Thus, Survey 2 puts the respondent in a setting more like that of a cash balance or defined contribution (DC) pension plan, rather than the traditional DB setting in Survey 1. As in Survey 1, nowhere in Survey 2 is the word “annuity” or “annuitization” used. An annuity was described throughout the survey as a “guaranteed lifetime income option.”

We based our annuity payouts on actual price quotes from Western National Life Insurance as of March 1, 2012 for $500,000 annuities. For participants who were single, we averaged the monthly payout for the male single life annuity ($2,790.74) and the female single life annuity ($2,627.87) and multiplied the average by 110%. For participants who were married, we started with the joint and 100% survivor annuity monthly payout of $2,378.20 and multiplied it by 110%. We multiplied the monthly payouts by 110% to account for the likely reduction in fees when purchasing an annuity through an employer and to ensure that the annuity we were offering would be more generous than anything available on the open market—a feature necessary for the Good Deal treatment described below. The final monthly payout offered for somebody annuitizing 100% of his or her balances was $2,981 per month for single survey participants and $2,616 for married participants.

Participants were randomly assigned to one of eight different treatment arms:

- **Minimal Framing baseline:** Participants could choose 0%, 25%, 50%, 75%, or 100% of the $500,000 balance to be taken as a lump sum. They indicated their annuitization choice by clicking one of five buttons that were ordered from 0% cash-out on the far left
to 100% cash-out on the far right. A horizontal axis with an arrow on each end appeared above the buttons. The left of the axis was labeled “Lower lump sum/More guaranteed income” and the right of the axis was labeled “Higher lump sum/Less guaranteed income.” The remaining treatments were identical to the Minimal Framing baseline except in the ways described below.

- **All or Nothing treatment:** Participants were only allowed to choose to annuitize all $500,000 of their balances or receive a $500,000 lump-sum payment. This treatment showed no horizontal axis.

- **Good Deal treatment:** This treatment was designed to overcome any reluctance to annuitize due to the fear of foregoing a better deal elsewhere. The following text was added to the description of the annuity: “The guaranteed lifetime income option gives you higher payments than you would get by buying an identical product from an insurance company because your employer will not charge you fees.”

- **Total Payments treatment:** The motivation for this treatment was the hypothesis that the reluctance to annuitize may partly be due to the contrast between the large size of the lump sum and the small size of the monthly annuity payment. If this is the case, highlighting the undiscounted expected total payments from complete annuitization, which are larger than the $500,000 lump sum amount, may increase annuitization. We added the text, “The average individual who chooses 100% guaranteed income will receive total lifetime payments of $x.” The number $x$ was the expected undiscounted total lifetime payments of a 100% annuitization choice, which was $695,765 for single participants and $775,382 for married participants.5

- **Investment Framing treatment:** Brown et al. (2008) find that an investment frame discourages annuitization relative to a consumption frame. In this treatment, we included

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4 The buttons were labeled, “$x$% lump sum, (100 – $x$)% guaranteed income ($y$ up front, $z$ monthly payment),” with various values of $x$ and their corresponding $y$ and $z$ values.

5 We used the average of male and female mortality rates to calculate this expectation.
a discussion of how the rate of return would vary with longevity: “Under the guaranteed income option, you get a higher return on your $500,000 investment if you die old and a lower return if you die young. Under the lump sum, you get the same return whether you die young or old.” We relabeled the axis to show “Higher return if you die old/Lower return if you die young” on the left side, and “Same return whether you die young or old,” on the right side.

• **Flexibility and Control treatment**: Annuities may be unattractive because they require giving up control of one’s investments and the timing of one’s spending. We added the following language about flexibility and control: “Choosing a bigger lump sum gives you more control over your investments and more flexibility over the timing of your spending.” We also relabeled the axis to “You have less control and less flexibility” on the left side and “You have more control and more flexibility” on the right side.

• **Longevity Insurance treatment**: The Investment Framing treatment framed annuities as a risky choice. The Longevity Insurance treatment framed annuities as a risk-reducing choice. We added the following text: “Choosing more guaranteed income gives you more assurance that you will not outlive your savings, since the monthly payments will continue as long as you live.” We also relabeled the axis to show “Less risk of outliving your savings” on the left side and “Greater risk of outliving your savings” on the right side.

• **Mortality Credits treatment**: Reluctance to annuitize may be driven by a failure to realize that annuities have the attractive property of transferring money from low marginal utility states to high marginal utility states. We added the following language to explain this: “The monthly payment from the guaranteed lifetime income option is much higher than the interest you would receive from investing the lump sum. The guaranteed income option stops payments when you are no longer alive. In return, the guaranteed income option delivers very high pay-outs as long as you live. You are giving up payments when you are no longer alive (and don’t need the money) and receiving extra-large payments as long as you are alive (and need the money).”
After making an annuitization choice, participants were shown a graph of the likelihood that a person aged 65 today would live to at least age 70, 75, 80, 85, 90, 95, and 100. They were asked to again choose how they would receive their pension payment, with the qualification that it was fine to give the same answer as the previous question. The purpose of this second elicitation was to see whether unrealistic longevity expectations were affecting the annuitization choice.

Participants in every treatment arm were then asked about a cost-of-living-adjustment provision. We presented the following scenario: “Now suppose that your employer only offers a guaranteed lifetime income option. But you can choose whether you want a cost-of-living adjustment (COLA) to your payments.” Each participant was randomly assigned (independent of their assignment to the previous framing treatments) to be asked one of three versions of the COLA question:

- **Minimal Inflation Information baseline**: Unmarried participants were told, “If you don’t choose a cost-of-living adjustment, then your monthly pension payment will be $2,981 a month for the rest of your life. If you do choose a cost-of-living adjustment, then your first monthly pension payment will be $2,033 a month, but this amount will increase over time at a rate equal to the inflation rate (as measured by the Consumer Price Index).” Married participants had the two dollar figures replaced with $2,616 and $1,784. Participants were then asked whether they preferred a COLA over no COLA.

- **Inflation Compounding treatment**: Some people may not fully understand what inflation is. In addition, many people underestimate how quickly exponential series grow (Eisenstein and Hoch, 2005). Therefore, they may be unaware of how much low levels of annual inflation will erode the purchasing power of a dollar over long horizons. In this treatment, we added to the Minimal Inflation Information baseline text a slightly fuller explanation of inflation and a calculation illustrating the long-run power of inflation. The following text was appended to the description of the no-COLA option for unmarried participants: “This means that as the cost of living increases, $2,981 per month will buy fewer goods and services. For example, if the cost of living increases by 2% per year for the rest of your life and you don’t have a cost-of-living adjustment, your monthly pension
payment will buy 33% fewer goods and services at age 85 than it does at age 65.” The text for married participants was analogous. The COLA option had the following additional sentence: “So your monthly payment will buy about the same amount of goods and services at every age in the future as it does at age 65.”

- **Inflation Compounding With Graph treatment**: This treatment was identical to the Inflation Compounding treatment, except we also included a graph of what nominal payments would be from age 65 to 95 for the annuity with and without the COLA.

We set the initial monthly payment amount for the annuity with a COLA in the above questions to be 68.2% of the non-COLA annuity’s monthly payment. We computed this ratio using June 6, 2012 quotes from the Principal Life Insurance Company for $500,000 joint and 100% survivor annuities with and without an inflation adjustment based on changes in the Consumer Price Index for All-Urban Consumers (CPI-U).6

Participants were then asked to rate the importance on a six-point Likert scale (0 for not important, 5 for very important) of ten reasons for their lump sum vs. annuity choices. Participants were also asked questions about their life expectancy and demographics. Survey 2 concluded with questions on the clarity of the survey. As with Survey 1, the vast majority of Survey 2 participants reported that the questions were understandable and clear. Ninety-three percent of Survey 2 participants said the survey was “clear” or “mostly clear,” and less than 1% found the survey to be “mostly confusing” or “completely confusing” (Table 1).

**III. Summary statistics**

Table 2 presents summary statistics on the demographic and life expectancy question responses in Surveys 1 and 2. The two survey populations were similar. The mean age was 59.5 years for Survey 1 and 59.6 years for Survey 2. In both surveys, 50% of participants were male, 55% were married, and the average number of children was 2. Somewhat more Survey 2

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6 The annuity monthly payout was $2,232.42 per month with no COLA and $1,524.44 per month with a COLA, giving a ratio of 68.2%. The CPI-U rider had no cap on the increase, and the monthly payment would be adjusted annually on the contract anniversary date. If the CPI-U were negative, the periodic benefit would not decrease. Future years’ monthly payments would not increase until CPI-U exceeded its previous high.
respondents were retired than Survey 1 respondents: 40% versus 36%. Thirty-eight to 39% of participants had 401(k) or IRA assets. The median net worth for participants was $165,000 in Survey 1 and $150,000 in Survey 2. College graduates made up 38 to 40% of the sample, and 12 to 13% of the sample had a post-graduate degree.

We asked respondents how much longer they expected to live relative to others their age. In Survey 1, 36% of participants said they expected to live longer than the average person their age, 53% said they expected to live about the same amount of time as the average person their age, and 9% said they expected to die sooner than the average person their age. Responses to Survey 2 were similar: 34% of participants anticipated a relatively long life, 54% anticipated a life about as long as that of an average person of the same age, and 12% anticipated a relatively short life. Consistent with the importance of adverse selection in annuity markets, the average percent of balances annuitized was significantly lower for respondents with lower self-reported life expectancy. Averaging the five lump sum vs. annuity decisions in the two surveys, those who expected to die sooner annuitized 47% of their balances, those who expected to live about the average length annuitized 56%, and those who expected to live longer than average annuitized 58% (not shown in tables). The difference between the lowest life expectancy group and the others is significant at the 1% level.

IV. Results

We present five sets of findings: 1) obstacles to and motivations for annuitization, 2) the effect of offering partial annuitization, 3) the desired slope of retirement income and the demand for COLAs, 4) framing effects, and 5) the demand for “bonuses” (uneven intra-year payments).

A. Obstacles to and motivations for annuitization

In Figure 1, we present the average importance individuals reported placing on various factors when making their lump sum versus annuitization choices. Ratings were similar across the two surveys on factors whose importance rating was elicited on both surveys. The factor with

7 The surveys had participants give interval responses for the components of net worth. To calculate total net worth, we map each interval to its midpoint, except in the case of intervals without an upper bound, which are mapped to their lower bound. Out of the 1000 participants in Survey 1 and 4130 participants in Survey 2, there were 752 and 3196, respectively, who responded to all of the questions necessary for calculating net worth. Only these participants are included in the sample for producing net worth summary statistics.
the highest average importance was the desire to “make sure I have enough income later in life,” with an average rating of 3.9 to 4.0 out of 5. The next highest category was “flexibility in the timing of my spending,” with an average rating of 3.5 in both surveys, closely followed by “worried about company not being able to pay me,” with an average rating of 3.4 in both surveys. The desire for flexibility manifests itself in the 3.2 rating placed on “I might have a big spending need sometime during retirement” (asked only on Survey 2). The low rating of 1.7 on “I have a big spending need right after retirement” (asked only on Survey 1) suggests that respondents do not have a specific spending need in mind.

Worries about inflation (average rating of 3.0 to 3.3), the desire to invest the money on one’s own (average rating of 3.0 to 3.1), and the desire to prevent overspending (average rating of 2.7 to 2.9) are intermediate-level concerns. In contrast, two other motives that are commonly discussed in the annuities literature are reported to have little absolute importance by participants. The desire to give money to children or others garners an average rating of 2.0 to 2.4, and worries about dying early receive an average rating of 2.3. The factor rated least important was the desire to keep money away from children or others, which has an average rating of 1.4. In Survey 1, the annuity offered did not have a survivor benefit, a factor that had a 2.7 importance rating in Survey 2.

How do these factor ratings correlate with annuitization choices? Table A1 in the appendix shows results from regressing the subjects’ annuitization rates (the percent of balance annuitized in the five annuity-versus-lump-sum choices) on the subjects’ factor ratings. We report this regression in the appendix, since it only tells us how cross-sectional variation in these factor ratings correlates with cross-sectional variation in annuitization. From the perspective of the planner (conceived as an annuity designer/seller/regulator), what matters most is the overall importance of these factors (the sample levels reported in Figure 1), as opposed to the predictive power of inter-individual variation in these factors (Table A1).

B. Partial annuitization

Mark Iwry, senior adviser to the Secretary of the Treasury and deputy assistant secretary for retirement and health policy, has reported that the U.S. Treasury Department would like to see DB plans move away from offering an “all-or-nothing” choice between an annuity and a lump sum to a variety of choices combining annuity and lump-sum payouts (Steverman, 2012). To examine the effect of such a move, we compare the first annuitization choice in Survey 2
Figure 2 shows the distribution of annuitization percentages under each condition. First, we find that a majority of individuals (59%) choose partial annuitization when given the opportunity to do so. Second, allowing partial annuitization increases the fraction of people choosing a positive amount of annuitization from 50% to 80%. Finally, allowing partial annuitization raises the average percent of pension wealth annuitized from 50% to 57%. These last two differences are significant at the 1% level and do not qualitatively change if we additionally control for age, gender, having a college degree, marital status, retirement status, number of children, and home ownership (regression results not shown in tables). Our findings suggest that expanding the use of partial annuitization in DB settings where total cash-outs are already allowed might lead to higher annuitization rates.

C. Slopes of annuity payments and COLAs

We can use our survey results to measure subject’s preferences over the slope of the annuity payout stream. We infer whether Survey 1 respondents preferred real annuity payments that decline 2% per year, stay flat, or increase 2% per year by using their responses to the two binary choices between annuity payment paths. We do not infer the most-preferred payment path for the 11% of the sample that preferred real payments that decline 2% per year over flat real payments, but also preferred real payments that increase 2% per year over flat real payments. Using only the respondents with single-peaked preferences over payout streams, 19% preferred the declining real annuity, 32% preferred the flat real annuity, and 50% chose the rising real annuity. In other words, our respondents overwhelmingly preferred flat or rising real retirement payment paths rather than downward sloping real paths (holding the present value of the payments fixed).

By contrast, Hurd and Rohwedder (2011) find that, holding household composition fixed, real consumption declines by about 2% per year during retirement. Why do respondents prefer rising consumption profiles in our survey when they implement falling profiles in the field? Several complementary explanations are plausible.

First, ownership of an annuity should increase the slope of the consumption profile throughout retirement. Annuities enable agents to shift resources from death states to survival states. This has the implicit effect of lowering the implied rate of return in death states (when the
value of the annuity is lost) and raising the implied rate of return in survival states (when the
annuitant’s claim becomes more available, since the expected duration of payouts increases).
Because of this state-dependent rate of return, an agent with an annuity should choose a higher
rate of consumption growth relative to an agent without an annuity. The Appendix contains a
formal (Euler Equation) derivation of this result.

Second, households may have biased expectations. For example, households may
underestimate the frequency of transitory spending needs, such as home repairs, out-of-pocket
healthcare expenses, etc. This will cause them to spend more than the annuity value of their
wealth, which results in a realized consumption path that declines over time due to the budget
constraint. Households may also be overoptimistic about their asset returns, which would also
cause their realized consumption path to decline faster than they anticipated.

Third, households may have money illusion and set their early retirement spending at a
level that allows them to sustain a flat nominal spending trajectory, not fully appreciating that a
flat nominal path is a real path that falls at the rate of inflation. We leave a fuller discussion of
money illusion in the annuity market to future work, but we describe below the demand for cost
of living adjustments (COLAs).

In Survey 2, we asked respondents whether they wanted to add a COLA to their annuity.
When this question was asked in the Minimal Inflation Information condition, 44% of
participants chose the COLA. Adding a short description of inflation and explaining how much
2% annual inflation erodes purchasing power over two decades in the Inflation Compounding
treatment significantly (at the 1% level) raised the demand for a COLA to 67%, even though this
entailed taking an initial annuity monthly payment that was 32% lower than the no-COLA
monthly payment. Interestingly, in the Inflation Compounding With Graph treatment, 62% of
participants chose the COLA, a fraction that is significantly higher (at the 1% level) than the
COLA take-up rate in the Minimal Inflation Information condition but significantly lower (at the
1% level) than the COLA take-up rate in the Inflation Compounding treatment, which omits the
graph showing nominal annuity payments by age. It is possible that the nominal payments graph
provided a visual distraction that made participants less attentive to the text explaining inflation,
but there are several alternative potential interpretations. Overall, the results suggest that demand
for COLAs is depressed by an insufficient awareness of inflation’s effects, and that a short
description of inflation’s impact when a consumer is making a decision about a COLA could
substantially raise this demand.
D. Framing

How do alternative frames influence annuitization choices? In Table 3, we present framing regression results from Survey 2. The dependent variable is the percent of balances annuitized prior to seeing the mortality graph, and the explanatory variables are six framing treatment dummies (the Minimal Framing dummy is excluded) and a set of demographic variables. Participants in the All or Nothing treatment are dropped from the regression sample. The only demographic variable that is significantly associated with annuitization rates is marital status; married participants chose to annuitize 4.1 percentage points more of their balances than those who were single (significant at the 1% level).

Two of the framing treatments had statistically significant effects. The “Flexibility and Control” treatment, which told participants, “Choosing a bigger lump sum gives you more control over your investments and more flexibility over the timing of your spending,” decreased annuitization by 8.7 percentage points, a drop significant at the 1% level. The “Investment Framing” treatment, which told participants that their return on an annuity would be high if they died old but low if they died young, whereas the lump sum would give them the same return regardless of longevity, reduced annuitization rates by 6.0 percentage points, which is significant at the 1% level. Brown et al. (2008) find that an investment frame discourages annuitization relative to a consumption frame, but Brown, Kapteyn, and Mitchell (2012) did not find an investment framing effect in the context of Social Security claiming age. Our results fall in the middle, finding a significant negative effect of investment framing that is smaller in magnitude than the results of Brown et al. (2008).

The remaining four framing treatments have coefficients that are closer to zero and not statistically significant. These null effects cast some doubt on the hypotheses that motivated these treatments: that annuity demand is depressed by the fear of foregoing a better deal elsewhere, by the large contrast between the magnitude of the lump sum and the magnitude of the monthly annuity payment, by the failure to recognize the longevity insurance embedded in an annuity, or by the failure to recognize the attractive state-contingent payment properties of an annuity.

As a final framing experiment, we asked Survey 2 participants to make their annuitization choice again after seeing a graph of the probabilities of surviving to different ages, conditional
on living to age 65. Figure 3 shows the average annuitization rates for participants before and after seeing the mortality chart. The average annuitization rate in every experimental condition is lower after seeing the mortality graph; the percent of balances annuitized drops from 55.4% to 52.2%, a difference that is significant at the 1% level. The systematic drop could indicate that our respondents were on average over-optimistic about their expected longevity, and the mortality chart mitigated some of this bias, reducing annuity demand. Recall that 34% of participants said they expected to live longer than the average person their age, while only 12% said they expected to die sooner than the average person their age, indicating some optimistic bias in relative longevity expectations.

E. Annuities with “bonuses”

Survey participants cited the desire for “flexibility in the timing of my spending” as one of the most important factors in their annuitization decision. This consideration motivated our exploring the demand for an annuity that offered a higher “bonus” payment in one month of each year, funded by lower payments in the remaining months. We find that 60% of Survey 1 respondents preferred a Match-Inflation Income with Bonuses annuity over a Match-Inflation Income annuity without a bonus. Among those choosing the bonus, 58% wanted the bonus to be paid during the winter holiday season—November, December, and January (see Figure 4). However, our explanation of the bonus used December as an example of when a bonus might be received, so some of the concentration in these months could be due to the explanation itself. Another caveat to keep in mind is that we did not measure the willingness to pay for this bonus feature, so we do not know the strength of the preference for bonuses.

The Match-Inflation Income with Travel Bonuses annuity proved to be less popular, although it still appealed to a significant fraction of the population. Forty-five percent of respondents preferred the Match-Inflation Income with Travel Bonuses annuity over the Match-Inflation annuity without bonuses. The lesser appeal of the travel bonuses may be due to the fact that they are paid in June, the fact that their size declines with each decade of life, and the fact that their declining size implies an overall declining real path for yearly annuity payments. Our previously discussed results showed that people usually prefer their bonuses to be paid in November, December, or January and that people dislike downward-sloping real payment paths.

V. Implications for product design and choice architecture
This paper’s results have several implications for annuity product design and choice architecture. To increase annuity demand, annuity providers could design products that give beneficiaries more flexibility and control. Our bonus annuity is an example of personalization that increases flexibility and control without compromising longevity insurance. Another example is an annuity with multiple annual bonuses. Such bonuses could either be pre-selected at the time the annuity was purchased or selected at the beginning of each calendar year. In fact, the payout stream for a given year could be made completely flexible without creating a substantial adverse selection problem. Problematic adverse selection would only arise if inter-year reallocations were allowed, so that a beneficiary could drain his entire annuity following a significant adverse health event.

Other forms of personalization and flexibility could also be adopted, such as limited penalty-free early withdrawals and even asset allocation flexibility (adopting some features of the variable annuity market). Of course, there is a tradeoff between greater flexibility/control and greater complexity. Too much flexibility may drive some consumers away from annuities (cf. Iyengar and Kamenica 2010). Finding the sweet spot in the product design space is a significant challenge, but one that is worth taking on because of the scope for large potential welfare benefits.

Framing changes may also increase the appeal of annuities, especially frames that highlight the availability of partial annuitization. Our results imply that most consumers prefer partial annuitization of their retirement nest egg over either 0% or 100% annuitization. We find that the availability of partial annuitization also raises the average fraction of wealth that ends up annuitized. In addition, frames that downplay investment risk may increase annuitization rates. Regarding choices about COLAs, discussing the implications of inflation for purchasing power over longer horizons may increase demand for rising nominal payment paths.

Finally, participants report that fears of counterparty risk play a large role in their annuitization choice. Policy makers could increase annuity demand if they adopted regulations that reduced this fear.
References


Table 1. Survey clarity assessment by survey participants

<table>
<thead>
<tr>
<th>Assessment of clarity</th>
<th>Survey 1</th>
<th>Survey 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td>55.9%</td>
<td>64.3%</td>
</tr>
<tr>
<td>Mostly clear</td>
<td>33.8%</td>
<td>28.2%</td>
</tr>
<tr>
<td>Sometimes clear</td>
<td>3.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Sometimes confusing</td>
<td>5.8%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Mostly confusing</td>
<td>0.3%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Completely confusing</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Decline to answer</td>
<td>0.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2. Participant characteristics

<table>
<thead>
<tr>
<th></th>
<th>Survey 1</th>
<th>Survey 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean)</td>
<td>59.5</td>
<td>59.6</td>
</tr>
<tr>
<td>Male</td>
<td>50.2%</td>
<td>49.7%</td>
</tr>
<tr>
<td>Married</td>
<td>55.4%</td>
<td>54.5%</td>
</tr>
<tr>
<td>Number of children (mean)</td>
<td>2.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Retired</td>
<td>35.6%</td>
<td>40.3%</td>
</tr>
<tr>
<td>Have 401(k) and IRA assets</td>
<td>39.3%</td>
<td>37.6%</td>
</tr>
<tr>
<td>Own home</td>
<td>70.4%</td>
<td>69.5%</td>
</tr>
<tr>
<td>Net worth (among respondents)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>$165,000</td>
<td>$150,000</td>
</tr>
<tr>
<td>Mean</td>
<td>$257,619</td>
<td>$248,598</td>
</tr>
<tr>
<td>Highest education attained</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No high school diploma</td>
<td>1.9%</td>
<td>1.7%</td>
</tr>
<tr>
<td>High school diploma</td>
<td>22.9%</td>
<td>23.8%</td>
</tr>
<tr>
<td>Some college</td>
<td>35.0%</td>
<td>35.8%</td>
</tr>
<tr>
<td>College degree</td>
<td>27.1%</td>
<td>26.6%</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>12.8%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Decline to answer</td>
<td>0.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Life expectancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Longer than the average person my age</td>
<td>35.6%</td>
<td>33.9%</td>
</tr>
<tr>
<td>About the same as the average person my age</td>
<td>52.9%</td>
<td>54.3%</td>
</tr>
<tr>
<td>Shorter than the average person my age</td>
<td>9.3%</td>
<td>11.8%</td>
</tr>
</tbody>
</table>
Table 3. Effect of framing on percent of balances annuitized before seeing mortality graph in Survey 2

The dependent variable, percent of balances annuitized, takes values of 0, 0.25, 0.50, 0.75, or 1.0. The sample excludes participants in the All or Nothing treatment. Standard errors are in parentheses.

<table>
<thead>
<tr>
<th>Treatment Dummy</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Deal treatment dummy</td>
<td>-0.002</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Total Payments treatment dummy</td>
<td>0.020</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Investment Framing treatment dummy</td>
<td>-0.060**</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Flexibility and Control treatment dummy</td>
<td>-0.087**</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Longevity Insurance treatment dummy</td>
<td>0.017</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Mortality Credits treatment dummy</td>
<td>0.014</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Age</td>
<td>0.000</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Male dummy</td>
<td>-0.019</td>
<td>(0.012)</td>
</tr>
<tr>
<td>Has college degree dummy</td>
<td>0.003</td>
<td>(0.012)</td>
</tr>
<tr>
<td>Married dummy</td>
<td>0.041**</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Retired dummy</td>
<td>0.025</td>
<td>(0.014)</td>
</tr>
<tr>
<td>Number of children</td>
<td>-0.003</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Homeowner dummy</td>
<td>0.010</td>
<td>(0.014)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.546**</td>
<td>(0.062)</td>
</tr>
</tbody>
</table>

N 3,547  
R² 0.017

* Significant at the 5% level. ** Significant at the 1% level.
Figure 1. Average reported importance of motives for lump sum vs. annuity choices

- **Want to make sure I have enough income later in life**
  - Survey 1: 4.0
  - Survey 2: 3.9

- **Want flexibility in the timing of my spending**
  - Survey 1: 3.5
  - Survey 2: 3.5

- **Worried about company not being able to pay me**
  - Survey 1: 3.4
  - Survey 2: 3.4

- **I might have a big spending need sometime during retirement**
  - Survey 1: 3.2
  - Survey 2: 3.2

- **Worried about inflation**
  - Survey 1: 3.1
  - Survey 2: 3.1

- **Want to invest the money on my own**
  - Survey 1: 2.9
  - Survey 2: 2.7

- **Want to prevent overspending**
  - Survey 1: 2.3
  - Survey 2: 2.3

- **Want to give money to children or others**
  - Survey 1: 1.4
  - Survey 2: 1.4

- **Worried about dying early**
  - Survey 1: 2.0
  - Survey 2: 2.4

- **Want to keep money away from children or others**
  - Survey 1: 1.7
  - Survey 2: 2.0

- **Lifetime payments would not provide for spouse after I die**
  - Survey 1: 1.4
  - Survey 2: 1.4

- **I have a big spending need right after retirement**
  - Survey 1: 2.7
  - Survey 2: 2.7
Figure 2. Distribution of annuitization under All or Nothing treatment and Minimal Framing baseline before seeing mortality chart

<table>
<thead>
<tr>
<th>Percent of Population</th>
<th>All or Nothing</th>
<th>Minimal Framing</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% (Full lump sum)</td>
<td>49.8%</td>
<td>20.0%</td>
</tr>
<tr>
<td>25%</td>
<td>20.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td>50%</td>
<td>20.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>75%</td>
<td>32.9%</td>
<td>32.9%</td>
</tr>
<tr>
<td>100% (Full annuitization)</td>
<td>50.2%</td>
<td>21.2%</td>
</tr>
</tbody>
</table>

Figure 3. Average percent of balances annuitized in Survey 2 before and after seeing mortality chart

<table>
<thead>
<tr>
<th>Percent annuitized</th>
<th>Before mortality chart</th>
<th>After mortality chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal framing</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>All or Nothing</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Good Deal</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Total Payments</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Investment Framing</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Flexibility and Control</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Longevity Insurance</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Mortality Credits</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Average</td>
<td>45%</td>
<td>45%</td>
</tr>
</tbody>
</table>
Figure 4. Month chosen for bonus payment