RETIREMENT INCOME INSTITUTE
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Who Should Read This Insight:
Annuity manufacturers, employer sponsors of defined benefit pension plans and their third-party administrators, retirement savers, retirees, financial professionals

Institute Research Agenda Topic:
New takes on the annuity puzzle

Insight: THE DECISION TO ANNUITIZE: RECONCILING ECONOMIC THEORY AND CONSUMER BEHAVIOR USING BEHAVIORAL ECONOMICS

Definitions of **bold key terms** are at the end of this article.

JASON J. FICHTNER,
PhD, is a Senior Lecturer in the Department of Economics and Finance and Associate Director of the Master of International Economics and Finance program at the Johns Hopkins University School of Advanced International Studies. He is also a Research Fellow with the Alliance for Lifetime Income and the Retirement Income Institute.

Kaitlyn O'Neill is working toward a Master of Arts degree in international economics and finance at Johns Hopkins School of Advanced International Studies. She holds a Bachelor of Commerce degree in economics and management science.

Authors, Titles and Publication Dates of the Articles Addressed in the Insight

Brown, Jeffrey R. 2007. "Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning." Working Paper 13537, National Bureau of Economic Research, Cambridge, MA. Also published as Jeffrey R. Brown. 2009. "Understanding the Role of Annuities in Retirement Planning." In Overcoming the Savings Slump: How to Increase the Effectiveness of Financial Education and Saving Programs," edited by Annamaria Lusardi, 178–206. Chicago, IL: University of Chicago Press.

Brown, Jeffrey R., Arie Kapteyn, Erzo F. P. Luttmer, Olivia S. Mitchell, and Anya Samek. 2017. "Behavioral Impediments to Valuing Annuities: Evidence on the Effects of Complexity and Choice Bracketing." Working Paper 24101, National Bureau of Economic Research, Cambridge, MA.

IDEAS IN THIS INSIGHT YOU CAN PUT INTO ACTION

How annuity decisions are framed has a major impact on an **annuitization** decision. Based on our review of the authors' research findings, we suggest pursuing the following ideas: (1) Reduce the complexity that individuals face as they decide between receiving their retirement benefit in the form of an annuity versus receiving it in the form of a lump-sum payment, by presenting the information in a clearer manner. (2) Explain the trade-offs of drawing down non-**annuitized** financial resources more slowly or more rapidly during retirement, before asking individuals whether they would rather receive their retirement benefit in the form of an **annuity** or a lump-sum payment. And (3) improve financial literacy among American adults as a way to improve their ability to accurately assess the value of an annuity.

PRINCIPAL INSIGHTS

These three articles attempt to find explanations for the **annuity puzzle,** or the divergence between economic theory, which suggests that consumers should choose annuities because they are welfare optimizing, and actual consumer behavior, which shows that consumers opt to receive their retirement benefit in the form of a lump-sum payment rather than in an annuity. The first article, "Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning," offers numerous hypotheses, rooted in behavioral economics, that could potentially explain the annuity puzzle. The latter two articles, "Cognitive Constraints on Valuing Annuities," and "Behavioral Impediments to Valuing Annuities: Evidence on the Effects of Complexity and Choice Bracketing," address the annuity puzzle using experiments involving internet survey respondents who were subjected to hypothetical questions surrounding the annuitization decision. The common theme among the three articles is that they offer a deeper analysis of the annuity decision outside of the traditional classical economic framework by examining the role of behavioral factors, which move away from assumptions of complete rationality, along with psychological factors in explaining the annuity puzzle, and focus on how an understanding of these factors could improve the way the annuitization decision is framed in order to increase annuitization.

Life annuities are a retirement benefit in the form of a series of payments made at fixed intervals that continue as long as the benefit holder is alive. Life annuities reduce the risk of outliving one's assets. Furthermore, economic theory suggests that, relative to receiving a retirement benefit in the form of a lump sum—that is, a single, full payment—life annuities

increase the welfare of individuals by reducing the financial risks associated with outliving one's assets. Empirical evidence suggests that the value consumers place on annuities is not consistent with economic theory, however. At the time of the research, the articles note that the private market for annuities was small, and the group market (employer-sponsored plans) has been declining, leaving the Social Security system as the most significant source of annuities in the United States. In "Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning," Jeffrey Brown attempts to explain the divergence between theory and actual consumer choice by offering several hypotheses rooted in behavioral economics. These hypotheses are purely speculative, however, because at the time Brown's research was published there had been limited economic literature on the application of behavioral economics to the annuitization decision.

The behavioral insights Brown offers are fundamental to today's research and policy suggestions to help encourage annuitization, however. Some of the key behavioral hypotheses that the author suggests include the following:

First, the average consumer may simply lack the financial knowledge needed to make an informed annuitization decision. In fact, the author describes previous research finding that, conditioned on education, those who were able to answer a simple question about compound interest were more likely to choose the Social Security annuity option rather than the lump-sum payout option.

Second, individuals might frame the annuitization decision narrowly by asking themselves whether they will live long enough to make their initial investment back. If consumers frame the annuitization decision in this manner, then they may view an annuity as a risky gamble. For example, suppose a consumer is deciding between a lump-sum payout of $100,000 or a **life annuity.** If they choose the lump-sum payout option, they will receive $100,000 with 100% certainty. If they choose the annuity option, however, then they may might receive only a few thousand dollars of income, should they die shortly after the commencement of the annuity payments. The consumer here focuses on the loss of getting less than the original $100,000 payment. On the other side, however, is the potential for gain that the consumers will receive much more than $100,000 worth of annuity payments, should they live well past their life expectancy. Therefore, it is possible that consumers view annuities as unattractive due to perceiving the potential loss from the annuity as being relatively larger than the potential gain from the annuity.

Third, consumers might bypass purchasing annuities out of a desire to avoid buyer's remorse. This is different from the previous example where an individual focuses on the potential loss over the potential gain when making a decision to annuitize. In this example regarding regret, suppose an individual chooses to receive the entirety of their retirement benefit in the form of an annuity, and then shortly after learns that they only have one more year to live. Should this occur, the individual may face a significant amount of regret over their decision to receive their retirement benefit as an annuity. Although the probability of this specific event occurring may be small, it is possible that individuals could assign an inflated probability to the possible occurrence of this event at the time a decision of whether or not to annuitize needs to be made. This might be the case, since the author notes that research in psychology has shown that events that can be imagined with greater ease (such as the above example) are sometimes given greater weight in the decision-making process.

Fourth, individuals might believe that they have more control over their future finances if they opt to receive their retirement benefit in the form of a lump-sum payout, rather than in an annuity. A study found that loss of control is the most-cited disadvantage of annuities.

Several other behavioral hypotheses are also mentioned, including models of ambiguity aversion (i.e., people do not fully understand their probability of living a long life); models that suggest individuals do not like to think about unpleasant events such as either dying or outliving their assets; and, finally, models that focus on how individuals discount the future. Although these different behavioral hypotheses are speculative, and further research is needed to fully understand the impact of psychology on the decision to annuitize, these hypotheses can be used to assist in the understanding of potential reasons for the divergence between economic theory and actual consumer behavior, when it comes to the decision to annuitize.

While this article offers numerous explanations drawing from behavioral and psychological insights to potentially explain the annuity puzzle, the next two articles draw from the insights of the first article to address the annuity puzzle using experiments involving internet survey respondents who were asked hypothetical questions about the annuitization decision.

In "Cognitive Constraints on Valuing Annuities," the authors describe an experiment they conducted to understand consumers' ability to value annuities. They presented respondents of an online survey with two hypothetical scenarios: (1) the opportunity to receive a lump-sum payment in exchange for an annuity (the authors refer to this decision as the decision to sell an annuity, since the individual in the scenario essentially sells their annuity for a single lump-sum payment), and (2) the opportunity to receive annuity payments in exchange for a lump-sum payment (the authors refer to this decision as the decision to buy an annuity, since the individual in the scenario buys an annuity for a single lump-sum payment). The main hypothesis is that the ability of consumers to assign the same value to the two equivalent annuity transactions described above is correlated with their cognitive ability, or general mental capacity to reason, as measured by their education, financial literacy, and numeracy skills.

In theory, an individual's valuation of an annuity should be the same whether they are selling or buying an annuity. The distribution of respondents' annuity valuations in dollars for buying an annuity are much lower than the distribution of respondents' annuity valuations for selling an annuity, however. The authors believe that this distinction reflects respondents' inability to value annuities; they speculate that consumers attempt to protect themselves by agreeing to buy an annuity only if it is priced low and to sell an annuity only if it is priced high. If these differences in buying price and selling price are due to difficulty valuing annuities, then the size of the differential should be correlated with measures of cognitive ability. Indeed, the authors find that the size of the differences in buy price and sell price are highly negatively correlated with cognitive ability, as measured by education, financial literacy, and numeracy, and thus find support for their central hypothesis. In other words, the greater an individual's reasoning ability, the narrower the difference between their buy valuation of an annuity and their sell valuation of an annuity.

In "Behavioral Impediments to Valuing Annuities: Evidence on the Effects of Complexity and Choice Bracketing," the authors describe an experiment conducted to investigate the impact of behavioral factors on the decision to annuitize. They compare the results of simply asking how much an individual should buy or sell an income stream for, and then they bracket that hypothetical choice by adding information designed to prompt the respondent to think through some risks associated with that choice. First, the authors presented respondents with a hypothetical scenario in which an individual is faced with the decision of whether to receive a $100 per month increase in Social Security benefits or a single lump-sum payment. The authors asked the respondents which option the individual in the scenario should select, and then repeated the question numerous times while changing the value of the lump-sum payment each time, in order to find the precise lump-sum value that individuals equate to a $100 per month increase in Social Security benefits. Similar to the article discussed above,

"Cognitive Constraints on Valuing Annuities," the authors call this lump-sum value the "sell value," because respondents essentially advise the hypothetical individual what price to take if selling a $100-per-month increase in benefits in exchange for this lump-sum payment. Next, the authors presented respondents with a scenario in which an individual is faced with a similar bracketed choice of whether to receive a $100 per month decrease in Social Security benefits or to make a single lump-sum payment. Once again, the authors repeated the question numerous times, while changing the value of the lump-sum payment each time, in order to find the lump-sum value that individuals equate to a $100 per month decrease in Social Security benefits. The authors call this lump-sum value the "buy value," because respondents essentially advise the individual facing the decision to pay this amount in order to avoid forgoing a $100-per-month decrease in their annuity.

The authors of the article introduced two further randomized interventions into the experiment, to study two different types of behavioral impediments that could influence how individuals value annuities. These involved bracketing the choices outlined above with additional information in order to test whether that information leads respondents to alter their responses to the choices. First, the authors varied the degree of simplicity involved in valuing the annuity by introducing uncertainty about the individual's longevity (e.g., a doctor informs the individual in the scenario about their life expectancy), as well as by adding irrelevant information to the description of the annuity that will require greater effort from the respondent to process information. The authors find that the introduction of greater complexity results in greater difference in the buy price and the sell price, indicating that the more complex the annuity valuation, the less able respondents are to accurately assess the value of the annuity. Second, the authors randomly gave certain respondents information about the benefits and downfalls of drawing down non-annuitized financial resources more rapidly or more slowly during retirement before asking the respondent to advise the individual in the scenario. The authors find that the respondents who received this message had smaller differences in the buy price and the sell price, implying that individuals are better able to value an annuity when they are prompted to think about the consumption consequences of receiving their retirement benefit in the form of an annuity rather than in the form of a lump-sum payment.

Conclusion

Each of these articles attempts to explain the annuity puzzle. The first article, "Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning," offers several hypotheses rooted in behavioral economics that could potentially explain the puzzle. The next two articles validate the hypothesis laid out in the first article. The second article, "Cognitive Constraints on Valuing Annuities," finds that one reason for the puzzle may be that consumers lack the cognitive or general reasoning ability required to value annuities, as measured by their education, financial literacy, and numeracy. The final article, "Behavioral Impediments to Valuing Annuities: Evidence on the Effects of Complexity and Choice Bracketing," finds that the puzzle can be explained by the high degree of complexity inherent in the annuitization decision, as well as the degree of clarity with which the information on the annuity itself is presented. This article also finds that consumers are better able to value an annuity when the consequences of receiving a retirement benefit in the form of an annuity versus in the form of a lump-sum payment are explained to the individual, before they are prompted to make the decision. Hence, the more difficult it is for an individual to value an annuity, the more reluctant an individual will be to purchase an annuity.

Policies and procedures that reduce the complexity that individuals face as they decide between receiving their retirement benefit in the form of an annuity rather than in the form of a lump-sum payment could help increase annuitization. Furthermore, presenting information in a clearer manner, and explaining the trade-offs of drawing down non-annuitized financial

resources more slowly or more rapidly during retirement, before asking individuals whether they would rather receive their retirement benefit in the form of an annuity or a lump-sum payment, can improve the ability of individuals to accurately assess the value of an annuity and then to increase annuitization.

To learn more, visit the Retirement Income Institute at
www.allianceforlifetimeincome.org/retirement-income-institute

KEY TERMS ARE SOURCED FROM THE ALLIANCE FOR LIFETIME INCOME'S ANNUITIES LANGUAGE GLOSSARY AND INVESTOPEDIA

Annuitization: *The process of converting an investment into a series of periodic income payments by buying an annuity or beginning an income flow from an annuity.*

Annuitize: *When you turn your current account balance into a series of periodic income payments, either for a specific period of time or for your whole life.*

Annuity: *A financial product that can offer protected lifetime income and even potentially grow your money.*

Annuity puzzle: *The annuity puzzle refers to the fact that few people choose to annuitize even a portion of their accumulated savings even though they have many good and rational reasons to do so.*

Life annuity: *A life annuity features a predetermined periodic payout amount until the death of the annuitant. An annuitant typically pays into the annuity on a periodic basis when he or she is still working, but may also buy the annuity product in one lump-sum purchase, usually at retirement.*

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