



An empirical test of competing hypotheses for the annuity puzzle



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ABSTRACT

This paper conducts the first empirical test of numerous rational and behavioral hypotheses for the low annuity demand observed in private markets. We designed a questionnaire based on findings from economics and psychology, enabling us to simultaneously investigate a broad range of motives that presumably constitute the reluctance to buy annuities. To address the interdependence of financial product choice and domain-specific investor sophistication, we construct and employ a novel, comprehensive measure of “annuity literacy”. The results from a representative survey among German consumers reveal that both established rational and so far untested behavioral motives are significant barriers to annuitize wealth. Furthermore, the overall level of annuity literacy is rather low, with most respondents lacking knowledge of an annuity’s core mechanics. These findings disclose promising directions for annuity suppliers, policy makers, and researchers towards resolving the annuity puzzle.

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1. Introduction

Since Yaari’s (1965) seminal work on lifecycle savings in presence of an annuity market, there is a wide agreement that people should in general annuitize large parts of their financial wealth. In reality, it is only seldom observed that individuals buy annuities in the private market. This discrepancy between theory and practice is known as the “annuity puzzle” (for an overview see Brown, 2001). So far, economists have tested possible rational explanations for this puzzle, mostly one at a time using microeconomic models (Inkmann, Lopes, & Michaelides, 2011; Mitchell, Poterba, Warshawsky, & Brown, 1999). More behavioristic research, influenced and motivated by findings from the field of psychology, has just recently started (Brown, 2009). This paper is, to our knowledge, the first to simultaneously test several competing hypotheses in an empirical setting.

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We collected data representative of the German population using a self-designed questionnaire which allows us to analyze both rational and behavioral explanations for low annuity demand by measuring consumers' motives for rejecting annuities. Since previous research on financial decision making in general strongly suggests that investors' decisions in a certain financial domain are interdependent with their domain-specific sophistication (Croy, Gerrans, & Speelman, 2010), we need to control for annuity-specific knowledge to elicit the motives' impact more accurately. To this end, we construct a novel measure of "annuity literacy" and show its distinct information content compared to a standard measure of financial literacy.

We find that our subjects act rationally in that they refuse to annuitize wealth when they feel that they will live shorter than average. Also, as predicted by theory (Davidoff, Brown, & Diamond, 2005), subjects with a strong bequest motive are more likely to reject annuities. In addition, our results point to the importance of two behavioral explanations for the annuity puzzle. First, people who see annuities as an investment rather than insurance are more likely to avoid annuities. This framing effect (Brown & Warshawsky, 2004) has the strongest impact of all motives on annuity possession. Second, people who feel more competent than banks or insurers when it comes to managing their retirement income show a higher propensity to refrain from buying annuities. This could be due to overconfidence issues or distrust towards banks and insurers. Drawing on evidence about respondents' use of information sources concerning retirement savings, we provide support for the latter view.

With respect to annuity literacy, consumers have rather low literacy levels, in particular when it comes to more advanced knowledge about annuities. The stronger deficits regarding advanced literacy can be partially explained by the apparently ineffective or insufficient information provision by annuity suppliers. While gathering information about retirement savings from banks and insurers more frequently has a beneficial impact on a subject's basic annuity literacy, it does not improve advanced annuity literacy. Overall, our results cast doubt on whether people are sufficiently equipped with information to make prudent decisions about their retirement savings and to appreciate the value of annuity insurance.

In the next section, we outline the potential explanations for the annuity puzzle addressed by our survey and tested in the analyses. Section 3 describes our survey design and the data set. In this section we also discuss our variables as well as the newly developed questions on annuity literacy, and we stress the importance of controlling for investor sophistication. Results are presented in the subsequent section: We illustrate how we constructed a measure of basic and advanced annuity literacy and present the two scores' distributions. Further, we use regression analyses to identify determinants of annuity literacy and to test the different motives' effects on the conscious decision to buy annuities. Section 5 concludes and discusses possible ways towards resolving the annuity puzzle.

2. Potential explanations for low annuity demand

2.1. Rational explanations

There have been numerous attempts to solve the annuity puzzle using rational explanations. As for any economic decision, one explanation for low demand can be that the price is too high. For annuities, this is likely the case if adverse selection by people with high life expectancy leads to high insurance premiums, rendering them less attractive for those with shorter life expectancy. Mitchell et al. (1999) even call this self-selection process the "standard explanation" for low annuity demand.

A further, economically appealing and intuitive reason against full annuitization has been discussed by Yaari (1965) – a bequest motive. It is apparent that full annuitization cannot be optimal if one wants to leave an inheritance. Partial annuitization, however, remains superior to alternative investment opportunities (Bernheim, Shleifer, & Summers, 1985; Davidoff et al., 2005). Research has recently shifted its focus away from bequest motives, one of the main arguments being that bequest motives are only relevant for relatively wealthy people (Hurd, 1987). Since leaving an inheritance is stated as important by many people in survey data (Dyner, Skinner, & Zeldes, 2004), we nevertheless include bequest motives as one possible driving factor of low annuitization rates in our analysis.

Having a family can also influence annuity possession by acting as an (implicit or explicit) risk-sharing platform (Kotlikoff & Spivak, 1981). It provides family members with the opportunity to pool their resources while alive and name one another as beneficiaries in their wills. This sort of agreement can be interpreted as an (incomplete) annuity, thus reducing the demand for publicly available private annuity contracts.

This "crowding-out" effect by other forms of insurance can be an important motive against additional annuitization in general. Dushi and Webb (2004) note that most households have a large proportion of their wealth pre-annuitized through Social Security, which should consequently lead to lower levels of privately annuitized wealth.

Finally, one of the key features of an annuity is the transformation of liquidity into a certain income stream for the future. The resulting lack of liquidity can significantly lower the utility of an annuity contract, especially if there is a high probability of unexpected expenses (Turra & Mitchell, 2008). Consumers who strongly value liquidity would thus be expected to keep a liquidity reserve and, at most, only partly annuitize their wealth.

Note that the explanations presented so far can explain why less than full annuitization can be rational, but they lack the power to explain the actual, low annuitization rates observed in annuity markets. Davidoff et al. (2005) have relaxed many of the restrictive assumptions of Yaari's (1965) original model and consider the empirically observed annuitization to be very small, asking for "behavioral modeling" to solve the puzzle.

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