

Annuity Puzzle and Loss Aversion of Older Consumers: Theoretical and Empirical Evaluations

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The “Annuity Puzzle” has been a well-known issue since Franco Modigliani, stated in his 1985 Nobel Prize acceptance speech in 1985 (Modigliani, 1986). Annuities could hedge the longevity risk with which retirees struggle. However, annuities are still unpopular, and the annuity market is still insignificant. Prospect theory is another explanation of this puzzle (Hu & Scott, 2007; Gottlieb, 2012; Barberis, 2013). In this framework, the individual loss aversion enters this framework and becomes a key parameter to examine the low annuity ownership rate. Thus, we would investigate the role of loss aversion in determining the annuity ownership with sparse outcome data in this study.

For our theoretical analysis, we would use a simple annuity demand model (Schmidt, 2016). Our preliminary analysis argues that an annuity rejection threshold for π forms as follows:

$$\pi < \left[1 + \frac{1}{\lambda} \cdot Q \right]^{-1}$$

and this threshold would increase as the loss aversion coefficient (λ) increases. This analysis indicates that there would exist a negative relationship between the degree of loss aversion and the annuity ownership.

For our empirical analysis, we would estimate the effect of individual loss aversion coefficient on the probability of owning annuities. We would use the Health and Retirement Study (HRS) dataset. We would consider only the HRS 2012 core dataset because this included the experimental module for prospect theory. The dependent variable would be an indicator of the annuity ownership by asking if there had been any conversion of the respondent’s IRA or KEOGH account to an annuity within last two years. The key independent variables would be two types of loss aversion measures: investment-related and epidemic-related measures. Also, we would consider two positively framed question to the assessment of risk aversion: investment-related and epidemic-related risk aversion.

Our preliminary analysis argues that high loss aversion measured by investment-related questions would play a significant role in decreasing the annuity ownership while other factors would not significantly affect the ownership. Retirees who are high loss averse would overestimate the loss from their decision compared with the gain and be less willing to purchase annuities.

References

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