Ambiguous Survival Probabilities and the Demand for Annuities:
An Experimental Test through Charitable Giving

Hippolyte d'ALBIS
Paris School of Economics (University of Paris 1)

Giuseppe ATTANASI
University of Strasbourg (BETA)

Emmanuel THIBAULT
Toulouse School of Economics (University of Perpignan, CDED and IDEI)

Abstract

In this paper, ambiguity aversion to uncertain survival probabilities is introduced in a life-cycle model with a bequest motive to study the optimal demand for annuities. Provided that annuities return is sufficiently large, and notably when it is fair, positive annuitization is optimal in the ambiguity neutrality limit case. Conversely, the optimal strategy is to sell annuities in case of infinite ambiguity aversion. Then, in a model with smooth ambiguity preferences, there exists a finite degree of ambiguity aversion above which the demand for annuities is non-positive. To conclude, ambiguity aversion appears as a relevant candidate for explaining the annuity puzzle.
We tested our theoretical results through a laboratory experiment. First, a subject's coherent-ambiguity attitude has been elicited in a simple experimental setting able to make the smooth ambiguity model operational. Then, in a bond-annuity two-period decision problem, the subject's bequest in the second period has been presented as a contingent donation – contingent to surviving after the first period – to a previously chosen charity. We found that coherent-ambiguity-averse subjects invest less in annuities than coherent-ambiguity-neutral ones, and that the donation to the chosen charity is increasing in the investment in annuities. These findings confirm our theoretical predictions.