



THE IMPACT OF HEALTH STATUS AND OUT-OF-POCKET MEDICAL EXPENDITURES ON ANNUITY VALUATION

CASSIO M. TURRA AND OLIVIA S. MITCHELL

DIFFERENCES IN HEALTH STATUS AT RETIREMENT CAN INFLUENCE THE DECISION TO PURCHASE A LIFE ANNUITY. ANNUITIES MAY BE LESS DESIRABLE FOR RETIREES FACING UNCERTAIN MEDICAL EXPENSES. THESE RESULTS ARE IMPORTANT IN THE CONTEXT OF SOCIAL SECURITY REFORMS PROPOSING PERSONAL RETIREMENT ACCOUNTS WITH MANDATORY ANNUITIZATION. MANDATORY ANNUITIZATION SHOULD INTEGRATE RISK CLASSIFICATION PROVIDING ACTUARILY FAIR ANNUITIES TO PEOPLE IN DIFFERENT HEALTH STATES.

This brief describes how differences in health status at retirement can influence the decision to purchase a life annuity. We extend previous research on annuitization decisions by incorporating the effect of health differentials via differences in survival throughout the latter portion of life. Next, we consider how precautionary savings motivated by uncertain out-of-pocket medical expenses influence annuitization decisions. Our results show that annuities become less attractive to people facing uncertain medical expenses. While full annuitization would still be optimal if annuity markets were truly complete and both life- and health-contingent, lacking this, annuity equivalent wealth values are much lower for those in poor health, as compared to persons in good health.

Why Health May Be Important

The primary purpose of annuities is to protect people against the risk of

outliving their own financial resources in old age. Prior research has shown that annuities should be of substantial value to risk-averse people who face an uncertain date of death, yet relatively few people seem to purchase annuities at the point of retirement. A growing body of research has focused on the factors that may explain this puzzle, factors that include a desire to leave bequests, the existence of adverse selection in the annuity market, the over-annuitization of retirement wealth, and the need for liquidity.

Further, researchers have found that people use private information about their survival chances to make the decision of purchasing an annuity, and those who anticipate living longer are more likely to buy an annuity. Yet currently we have a poor understanding of how private information on health status is related to the demand for annuities. The objective of this study

is to address this gap in knowledge by describing how differences in health status at retirement can influence the decision to purchase a life annuity.

We propose two models which incorporate the effect of health differentials on annuitization valuation. One approach incorporates the effect of health via differences in survival throughout the life-cycle. However this approach does not consider precautionary savings motivated by uncertain out-of-pocket medical expenses, so in an extension, retirees in different health states are posited to consider both the effects of uncertain out-of-pocket medical expenses and uncertain survival, when making choices about annuitization. We compare the optimal level of annuitization and the insurance value of a life annuity for people in different health states at the point of annuity purchase.

Policy Relevance

Understanding how health status affects annuity markets is also important for policy analysts, in particular those who propose personal Social Security retirement accounts. Recent research has suggested that mandating annuitization for all participants in a personal accounts scheme would imply transfers from high-mortality risk groups to low-mortality risk groups. Health and mortality are also strongly associated, particularly among the elderly. Consequently, understanding how health influences the insurance value of annuities may help insurers fashion annuity offerings under Social Security reform plans, so as to make a larger proportion of the participants better off.

Findings

We examine how differences in health status can influence the decision to purchase a life annuity. Our first step is to estimate out-of-pocket medical expenses, which requires calculating 1) the distribution of health status at each age, 2) the value of medical expenses (as a proportion of Social Security income), and 3) the probabilities of incurring medical expenses by age and health. As expected, the distribution of health states are very different at earlier ages but become more similar with age, as health deteriorates for all. We show that those in poor health have larger out-of-pocket medical expenditures, and optimal annuitization among men with health problems at age 65 is 19 percent. For women in the same health status, the figure is 27 percent. Our main contribution is to show that the insurance value of a life annuity may be smaller than that reported in prior studies. Our findings suggest that differences in health and anticipated health care expenses can help explain why many persons do not fully annuitize at retirement.

While prior research suggested that an average person would forgo about 40 percent of his wealth to purchase a

life annuity, these models indicate that this may not hold for the majority of the population, for two reasons. First, for someone with health problems, a life annuity priced using annuitant mortality rates implies expected payouts well below the actuarially fair value for that retiree. We provide evidence that adverse selection in annuities reduces the annuity equivalent wealth from values greater than 1.5, to values close to 1.17 for people in poor health, and 1.28 for people in good health.

Previous studies have also ignored precautionary savings motivated by uncertain out-of-pocket medical expenses. Our stylized life cycle model with uncertain out-of-pocket medical expenses shows that annuities become less attractive to people facing such medical expenses. Caution is necessary when analyzing our results, since we compare optimal consumption paths for average consumers, and there may still be unexplained heterogeneity between people in different health states. Also, future research should incorporate correlation between medical expenses and future mortality as well as bequest motives. Finally, it may be useful to put our findings in context.

Thus, regardless of health status and medical shocks, full annuitization would still be optimal, if annuity markets were truly complete and were both life and health contingent. Nevertheless, when both adverse selection and uncertain medical expenses are accounted for and annuity markets are incomplete, we show that annuity equivalent wealth values are fairly low for people in poor health, and about 25% higher for people in good health.

Conclusion

Prior investigations have used the annuity equivalent wealth measures as explanatory variables in models predicting the probability of planning to annuitize. Although such models control for health status, our study indicates that they should account

directly for health differentials. Second, our findings also suggest that offering higher payouts for consumers in case of a medical shock can make annuities more attractive for many, and perhaps most, of the elderly.

Future research should examine how insurers can fashion annuity contracts that better fit the needs of the older, perhaps unhealthy, population. Finally, this model predicts that most retirees would be made worse off by requiring full annuitization, if uniform pricing were involved. These results are important in the context of Social Security reforms proposing personal retirement accounts with mandatory annuitization. Indeed, mandatory annuitization should integrate risk classification providing actuarially fair annuities to people in different health states.

About the Researchers

Cassio M. Turra is a PhD student in the Demography Program at the University of Pennsylvania.

Olivia S. Mitchell is the International Foundation of Employee Benefit Plans Professor of Insurance and Risk Management, and the Executive Director of the Pension Research Council, at the Wharton School of the University of Pennsylvania.

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Center Information

The University of Michigan
Retirement Research Center
P.O. Box 1248
Ann Arbor, MI 48104
ph: 734 615-0422
fax: 734 615-2180
mrrc@isr.umich.edu
www.mrrc.isr.umich.edu

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