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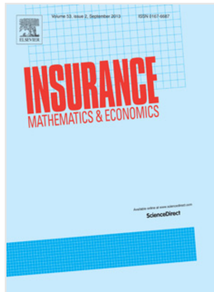

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The effect of objective formulation on retirement decision making

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Abstract

For a retiree who must maintain both investment and longevity risks, we consider the impact on decision making of focusing on an objective relating to the terminal wealth at retirement, instead of a more correct objective relating to a retirement income. Both a shortfall and a utility objective are considered; we argue that shortfall objectives may be inappropriate due to distortion in results with non-monotonically correlated economic factors. The modelling undertaken uses a dynamic programming approach in conjunction with Monte-Carlo simulations of future experience of an individual to make optimal choices. We find that the type of objective targetted can have a significant impact on the optimal choices made, with optimal equity allocations being up to 30% higher and contribution amounts also being significantly higher under a retirement income objective as compared to a terminal wealth objective. The result of these differences can have a significant impact on retirement outcomes.

JEL Codes: C150, C610, D140
Keywords: Bootstrap Method, Simulation, Dynamic Programming, Optimization, Retirement

1. Introduction

The trend away from defined benefits towards defined contributions as the dominant way of privately funding retirement income needs is part of a greater trend towards providing individuals with greater choice in the financing of their retirement. However, a side effect of this trend is the transference of significant amounts of risks to individuals in retirement. The traditional picture of an individual retiring with a significant pension provided by their employer (whom they likely worked for over the greater part of their career), perhaps supplemented by a government-provided, age-based pension, is becoming largely absent from the retirement plans of many individuals across the world. This has been replaced with an environment where individuals are responsible for their own decisions in financing any retirement income above that of the age-based pension. Many countries, such as Australia, Chile, Mexico, Norway and Switzerland require individuals (or employers on behalf of individuals) to make compulsory defined contributions to a retirement savings account, which provide individuals with a significant pot of money with which to generate an income in retirement. Other countries such as Canada, China, Japan, New Zealand, the United Kingdom and the United States, whilst not having compulsory occupational systems, have a significant number of employers sponsoring defined contribution arrangements. Finke and Wolf (2013) provide a brief summary of country-specific retirement income systems. However, in many countries, legislation and regulation provides little