

The Management of De-cumulation Risks in a Defined Contribution Environment

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Abstract

The aim of the paper is to provide a flexible tool for finding optimal investment and consumption choices to be adopted by pensioners of a defined contribution pension scheme, when they take the income drawdown option after retirement. The investment/consumption plan is adopted until the time of compulsory annuitization (if ever) or death, whichever occurs first. The mathematical tools provided by dynamic programming techniques are applied in two cases: (a) when the amount withdrawn periodically is fixed and the pensioner can only decide about the portfolio allocation, and (b) when he/she can also choose the consumption. In both cases, the effect of the bequest motive is dealt with by considering the utility attached to the wealth at the time of death, in the event that the pensioner dies before annuitization. Numerical examples are also presented.

Keywords: income drawdown option, stochastic optimal control, bequest motive.

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