Abstract

In the tradition of Merton (1969, 1971) we seek to describe the optimal behaviour of an individual through his lifetime. Our model is based on Richard (1975), which includes optimal insurance and annuity demand. We extend that work by modelling labour income as a stochastic process, explicitly recognising the market incompleteness posed by salaries, as opposed to the deterministic income flows assumed in Richard. A closed-form solution is not available for this finite horizon problem. We adopt the Markov chain technique of Kushner & Dupuis (2001) to solve the model. Our solution provides support for hump shaped consumption, age-phased investment and optimal life insurance rules related to income levels.

Keywords: Asset-liability modelling, optimal portfolio selection, financial planning, life insurance, annuities, stochastic control.