

Integrating Long-term Care Insurance Purchase Decision with Saving and Investment for Retirement

Aparna Gupta and Lepeng Li
Decision Sciences and Engineering Systems,
Rensselaer Polytechnic Institute,
110 Eighth Street, Troy, NY 12180,
(Work) 518-276-2757,
(Fax) 518-276-8227.

Abstract

Risk related with long-term care (LTC) is high for the elderly. Planning for LTC is now regarded as the 'third leg' of retirement planning. In this paper, planning for LTC is integrated with saving and investment decisions for an integrated approach to retirement planning. Optimal LTC insurance purchase decisions are obtained by developing a trade-off between post-retirement LTC costs and LTC insurance premiums paid and coverage received. Integrating insurance purchase with wealth evolution, consisting of saving and investment decisions, allows addressing affordability issues.

Two-way branching models are used for the stochastic health events and asset returns. The problem, formulated as a nonlinearly constrained mixed-integer optimization problem, is solved using a heuristic. Sensitivity analyses are performed for initial health and wealth status. Some important aspects of an individual's behavioral preferences are also addressed in this framework to provide more robust decision support.

Keywords: Strategy/planning, mathematical programming/optimization, investment-consumption, long-term care insurance, mixed-integer program, heuristic