
CODY HYNDMAN, Concordia University

Optimal annuitization with labor income under age-dependent force of mortality

We consider the problem of optimal annuitization with labour income, where an agent aims to maximize utility from consumption and labor income under age-dependent force of mortality. Using a dynamic programming approach, we derive closed-form solutions for the value function and the optimal consumption, portfolio, and labor supply strategies. Our results show that before retirement, investment behavior increases with wealth until a threshold set by labor supply. After retirement, agents tend to consume a larger portion of their wealth. Two main factors influence optimal annuitization decisions as people get older. First, the agent's perspective (demand side); the agent's personal discount rate rises with age, reducing their desire to annuitize. Second, the insurer's perspective (supply side); insurers offer higher payout rates (mortality credits). Our model demonstrates that beyond a certain age, sharply declining survival probabilities make annuitization substantially optimal, as the powerful incentive of mortality credits outweighs the agent's high personal discount rate. Finally, post-retirement labor income serves as a direct substitute for annuitization by providing an alternative stable income source. It enhances the financial security of retirees. (Joint work with Criscent Birungi)