

Discussion on “Extending Life Cycle Models of Optimal Portfolio Choice Integrating Flexible Work, Endogenous Retirement, and Investment Decisions with Lifetime Payouts”

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Flexible Retirement

- 14% will retire early; the majority leaves at age 66.
- High fraction of savings in stocks.
- Low capital market participation rate at older ages.
- A gain in lifetime utility.

Flexible Working Hours

- Most will work up to the normal retirement age.
- Reduced hours at older ages.
- High fraction of savings in stocks.
- Low capital market participation rate at older ages.
- A further gain in lifetime utility.

Fixed/Variable Annuities

- Annuities have little impact on working hours.
- However, with annuities, people retire earlier.
- Equity holding and capital market participation rate at older ages are more realistic.
- A further gain in lifetime utility.

Setting $p^a(t, s)$

- Need $p^a(t, s)$, survival probability used to price annuities.
- Deterministic (not stochastic) mortality is assumed.
- The 'US Annuitant 2000 Mortality Table' is used.
- Other options:
 - 1 SoA Group Annuity Mortality Table (GAMT).
 - 2 SoA RP-2000 Table.
- Impact of improvement scales?

Setting $p^s(t, s)$

- The individual's subjective survival probability, $p^s(t, s)$, is mentioned.
- $p^s(t, s)$ and $p^a(t, s)$ can be different.
- How to estimate $p^s(t, s)$?
- With estimates of $p^s(t, s)$, the problem of adverse selection can be studied.

Investment Guarantees

- Investment guarantees are often included in variable annuity contracts.
- Examples:
 - 1 Guaranteed Minimum Death Benefit (GMDB)**

It guarantees the policyholder a specific monetary sum upon death during the term of the contract.
 - 2 Guaranteed Minimum Maturity Benefit (GMMB)**

It guarantees the policyholder a specific monetary sum at the maturity of the contract.

Investment Guarantees

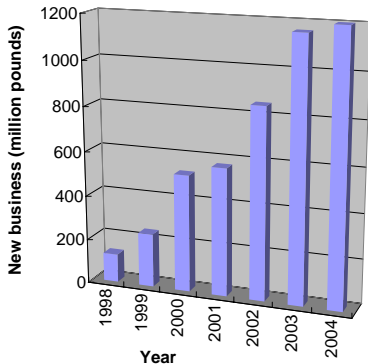
- The guarantees provide downside protection for the policyholder's fund.
- Stochastic investment modeling indicates the guarantees are quite valuable.
- How will the results of this study change if investment guarantees are taken into account?

Reverse Mortgages

- Reverse mortgages allow people to spend their housing wealth at older ages.
- The main target market is people with low incomes, often aged over 65, who have a medium to high value house.
- The market has been expanding.

The UK Equity Release Market

- At £1.2 billion new loans per annum, the market is now 5 times the size it was 5 years ago.



Parameter $h(t)$

- The model assumes labor earnings is reduced by a fraction of expenses related to housing, $h(t)$.
- For renters, $h(t)$ is the actual rent paid.
- For homeowners, $h(t)$ may be viewed as the imputed rent.
- Other than $h(t)$, the impact of housing wealth may be considered.