Stat 344
Life Contingencies I

Chapter 1: Introduction

Background

- Premium: Amount paid by the policy holder to the insurer. Paid at the beginning of the period.
- Sum insured: Amount paid, contingent on the death of the insured life, to the policyholder or his/her estate.

Assessmentism

- Assessmentism: Setting the premiums each year to match the premiums to the claims.
- Sounds like a fair deal
- Unfortunately, the premium always increased (why?)
  - Increasing premiums discouraged policy renewals
  - When policyholders became ill, they would price themselves out of the insurance right as they needed it most.

Level Premium Contracts (Late 1700s)

- To overcome those disadvantages, level premium contracts were written. Pay the same amount weekly, quarterly, or annually.
- Modeling became more difficult
  - Had to project mortality many years in the future.
  - Time-value of money became important.

Insurable interest (1800s)

- Law requiring the policyholder to face a financial loss when the insured life perishes.
- Prevents moral hazard and gambling.

Modern Modeling

Insurance products today are much more complicated.

- Some combine savings and insurance.
- Policyholders are more sophisticated, requiring more options.
- Fierce competition.
- Sophisticated risk management.

Traditional Insurance Contracts

- Term insurance: pays sum insured given insured life dies in a specified term.
  - Level term insurance: Level premiums and sum insured
  - Decreasing term insurance: decreasing sum insured and (usually) decreasing premium
  - Renewable term: Allows the policyholder to renew the current contract, most common yearly (YRT).
  - Convertible: can be converted to whole life or endowment
- Whole life insurance: pays the sum insured upon the death of the insured life. Often premium is only payable up to age 80.
- Endowment insurance: pays either on the death of the insured life, or the end of a term whichever occurs first.

With-profit Insurance

- With-profit (also known as participating, or par, business) policies share in some of the profits on the insurance premiums. In North America, this often takes the form of cash dividends or reduced premiums.
- Policies without a share of the profits are know as without-profit (or non-par) business.

Modern Insurance Contracts

- Universal Life: Combines investment and life insurance.
    - Portion of the premium pays for the life insurance, portion invested
    - Premiums flexible (as long as the insurance is paid)
- Variable annuities: Premiums are invested and the benefit paid is the accumulated value of the premiums.
- Equity-indexed annuities: Policyholder guaranteed a minimum return on the premium, but can also receive some portion of an index if that value is greater.

Distribution Methods

- Brokers: connect potential policyholders to an insurance product.
    - Can be paid by commission, fixed fee, or on salary
    - Commissions are often front-loaded.
    - “Insurance is sold, not bought.”
- Direct to consumer, much more common today.

Underwriting

- Classifies potential policyholders into groups.
- Broadly:
  - Preferred lives
  - Normal lives
  - Rated lives
  - Uninsurable lives
- Prevents adverse selection.

Life Annuities

- Whole life annuity: Annuity paid until the death of the annuitant.
- Term life annuity: Annuity paid until the death of the annuitant, or the expiration of a term, whichever comes first.
- Single Premium Deferred Annuity (SPDA): Single payment provides a life-contingent annuity at some future date. May have death benefit before start of annuity.
- Single Premium Immediate Annuity (SPIA)

Life Annuities (cont.)

- Regular Premium Deferred Annuity (RPDA): Premium due throughout deferral period. (Why no RPIA?)
- Joint life annuity: Issued on two lives, ceases on the first death.
- Last survivor annuity: Issued on two lives, ceases on last death.
- Reversionary annuity: Issued on two lives (one the insured and the other the annuitant), pays throughout the annuitant's life after the insured is dead.

Other Insurance

- Income protection insurance: replace some of the income during periods of sickness. Usually cease around retirement age.
- Critical illness insurance: Pays (usually a lump sum) on the diagnosis of certain serious illnesses.
- Long-term care (LTC) insurance: Covers the cost of assisted living.

- Defined benefit: Provides retirement income based on years of service and salary.
- Defined contribution: Works more like a bank account with contributions from both the employee and the employer.

Types of Insurers

- Mutual insurance company: No shareholders. The company is owned by the with-profit policyholders.
- Proprietary insurance company: Shareholders own the company, but there are often with-profit policyholders who have a right to a portion of the profits.
- Captive insurer: wholly owned and controlled by its insureds.