Module 4 - Reserves

Section 1: Overview

Section 2: (Prospective) Loss-at-Time $t$ Present Value Random Variables and Expectations (Reserves)
Example 1: Continuous Single Premium $n$-year Term Insurance
Example 2: Short Duration Fully Discrete Non-Level Insurance

Section 3: $\ell L$ with Matching Special Statuses: $\sigma = x$ and $\sigma = x: \bar{n}$,
$\sigma = xy$ and $\sigma = xy: \bar{n}$, and $\sigma = \bar{x}y$ and $\sigma = \bar{x}y: \bar{n}$

Section 4: Net Premium Reserves (Reserves using Net Premiums)
Part 1: Net Premium Reserves For Matching Special Statuses
Part 2: Retrospective Formula for Net Premium Reserves
Part 3: Level Net Premium Reserves in Terms of Premiums $\left(\frac{P-P}{p}\right)$

Section 5: Incorporating Expenses
Part 1: Gross Premium, Net Premium, and Expense Reserves
Part 2: DAC and FPT Reserves
Part 3: Fully Discrete 20-year Endowment Insurance Example

Section 6: Reserve Recursion
Part 1: Formulas and Intuition
Part 2: Refunding (Level Net) Premiums with Interest
Part 3: Reserves with $m$-thly Premiums

Section 7: Thiele’s Differential Equations for Fully Continuous Insurance
Part 1: Formula and Intuition
Part 2: Approximating Continuous Type Reserves with Euler Method's
Part 3: Using Multi-State Notation