

Reserve Variability Fundamentals

Target Audience:

Actuaries that are new to statistical / probabilistic reserving or that want a ground up refresher course.

Learning Objectives:

- 1) Review of Statistical Concepts
- 2) Understanding of Ranges vs. Distributions
- 3) Knowledge of Statistical Modeling Techniques
- 4) Hands on Use of Models, with Emphasis on Simulation Models
- 5) Understanding of Diagnostic Testing
- 6) Understanding of Model Strengths & Weaknesses
- 7) A Better Understanding of Quantifying and Communicating Uncertainty

I Introduction

- Why are we here?

II Theory

- Review of distributions and their properties (including Excel functions)
- Reserving as a statistical/probabilistic process
- Process variance
- Parameter variance
- Model uncertainty
- Model parameterization
- Correlation
- Range of reasonable estimates vs. distributions of possible outcomes
- Diagnostic tests – the search for a model vs. the search for a pattern

III Models

- Mack model
- Regression based models
- Bootstrapping model
- Incremental models
- Simulation models
- Diagnostic tests – Model selection

IV Examples (as part of Models section)

- Hands on examples in Excel
 - Details of model calculations
 - Simulating random variables in Excel
 - Possible Uses of add-ins like @Risk

V Presenting the results

- Output distributions
- Output graphs
- Diagnostic Tests – Do the graphs make sense?