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Operational Time Stochastic Reserving Method

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The Advert

This reserving method was published in 1992 but to date does not appear to be widely used in the UK. This workshop will briefly outline the theory behind the method and then explore the potential for wider use amongst practitioners. Particular emphasis will be placed on the advantages of this method in communicating the key assumptions made when reserving personal injury claims.

Your Favourite Triangles

Desert Island Triangles

Operational Time – The Theory

Bornhuetter-Ferguson – The Theory

Operational Time – The Theory

Operational Time – The Theory

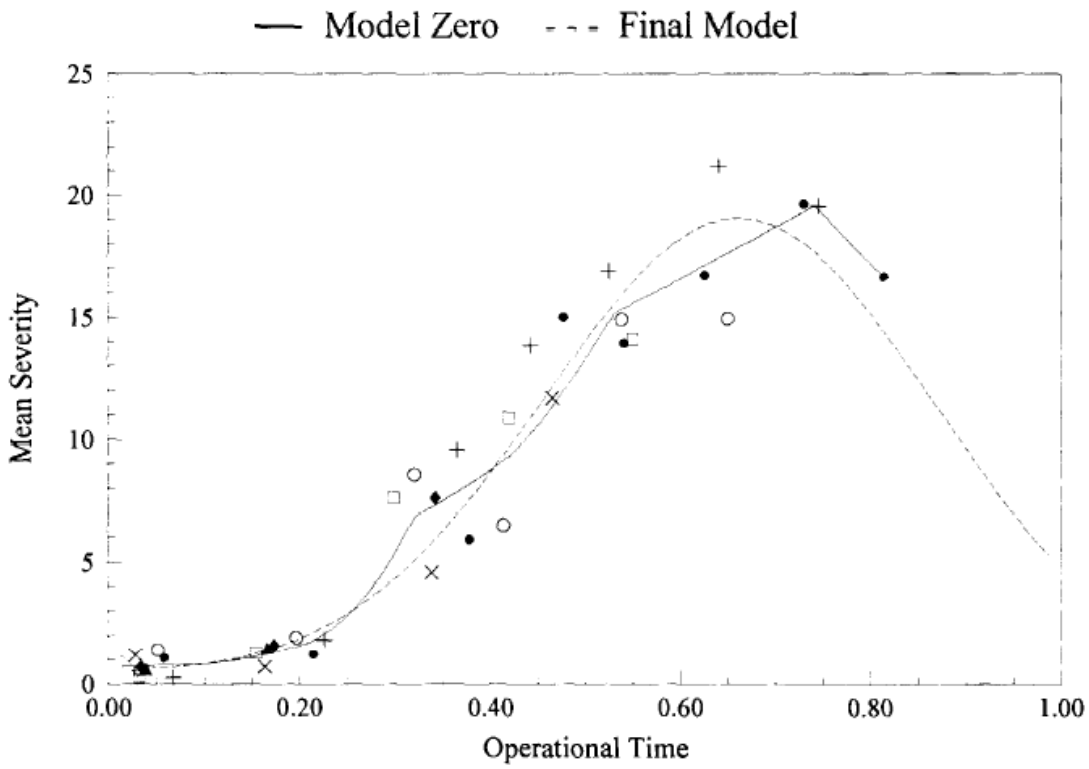
- Average cost of claims settlement is a function of **operational time**

1. $$m_\tau = \exp\left(\beta_0 + \beta_1 \cdot \tau + \beta_2 \cdot \ln(\tau)\right)$$

Operational Time – The Theory

FIGURE 4

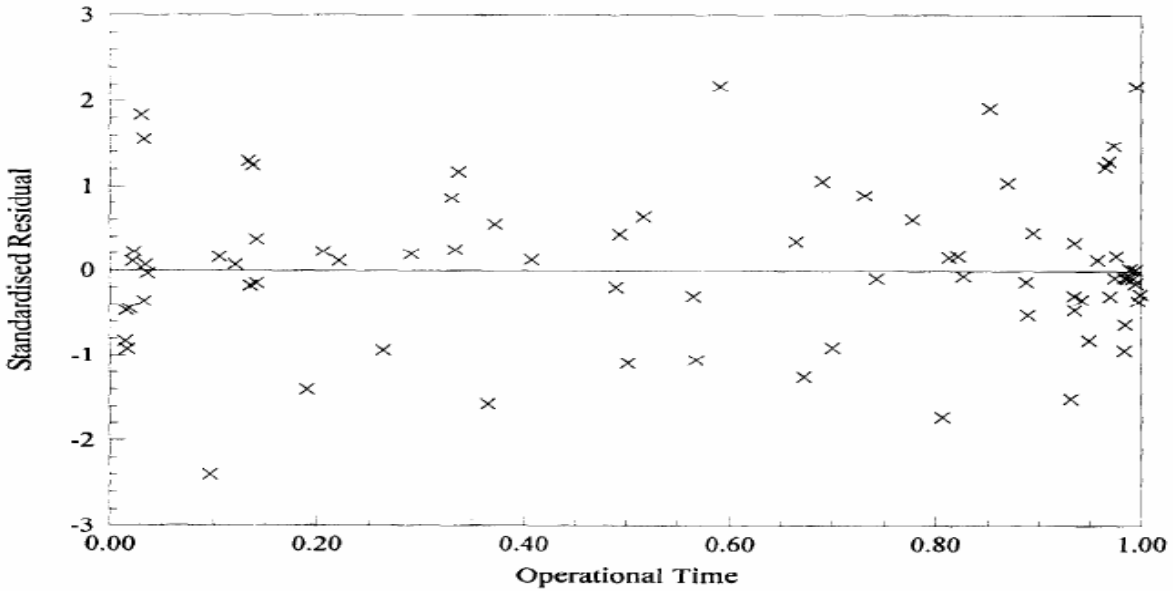
FITTED MEAN SEVERITIES FOR BERQUIST AND SHERMAN DATA



Operational Time – The Theory

FIGURE 6

RESIDUAL PLOT FOR MODEL ZERO WITH $\alpha = 2$



Why I like this method

- It models the real-world process
- I understand the mathematics
- It is easy to explain to Boards
- Claim managers can relate to it
- It doesn’t rely on case estimates
- The data should exist
- A vs E is easy to monitor
- There is an explicit assumption for claims inflation
- It has stood the test of time

Communication

- Mathematics

$$m_{n\cdot\tau} = \exp\left[(w + d/P)\cdot i\right]\cdot m_{\tau}$$

- English
  - How many claims will I settle?
  - How big will they be?
  - When will they settle?
  - What should I allow for Inflation?

Some practical suggestions

- Think carefully about which triangles to use
- Split claims by type \ size
- Find the best way to estimate ultimate claim numbers
- Always compare the answers with other methods
- Look at what is in the pipe-line

Some difficulties

- No claim counts
- When is a claim settled?
- Mapping from operation time to real time
- Cross subsidies between origin years
- Having the confidence that a paid method does work

References

- Stochastic claims reserving when past claim numbers are known – Tom Wright, PCAS 1992
- A Practical Implementation of Wright's Operational Time Model – Derek Bain 2003
- Why did we wait so long to use Wright's Model? – Message in a Bottle 2012

Desert Island Triangles

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