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Model risk and basis risk

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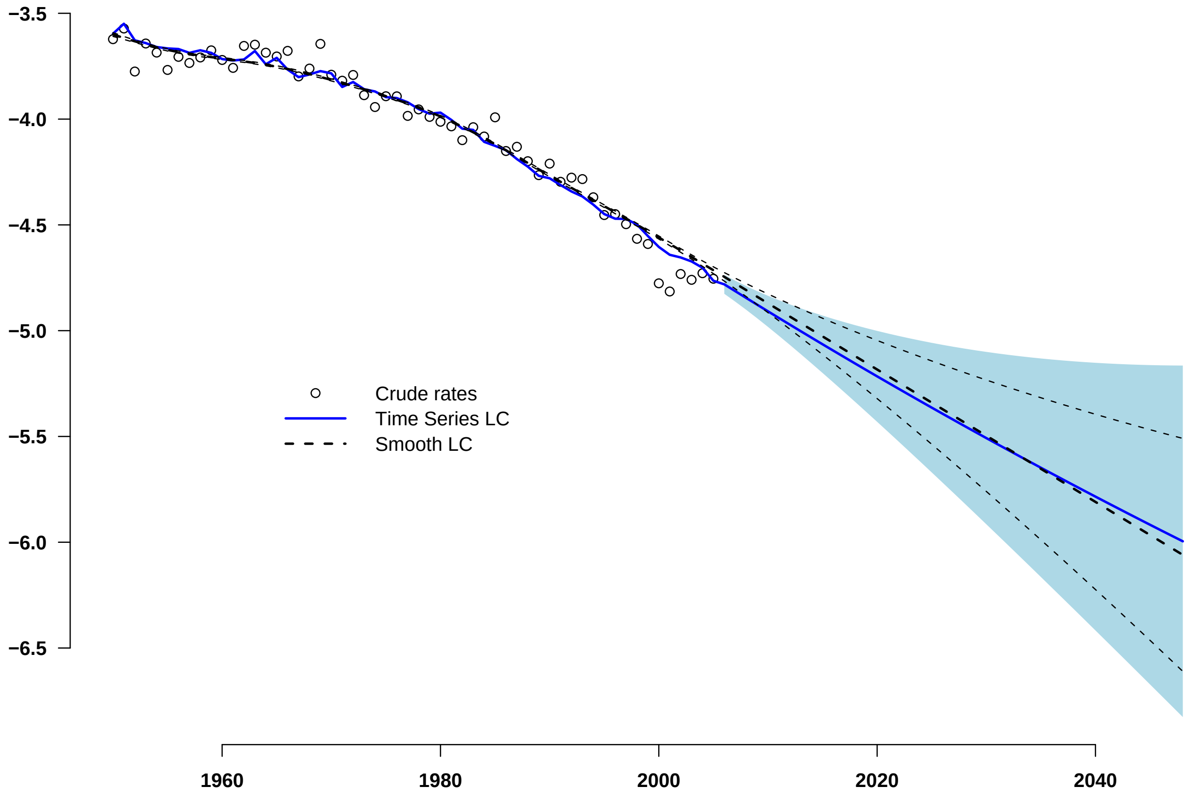
18th May 2010

Model risk

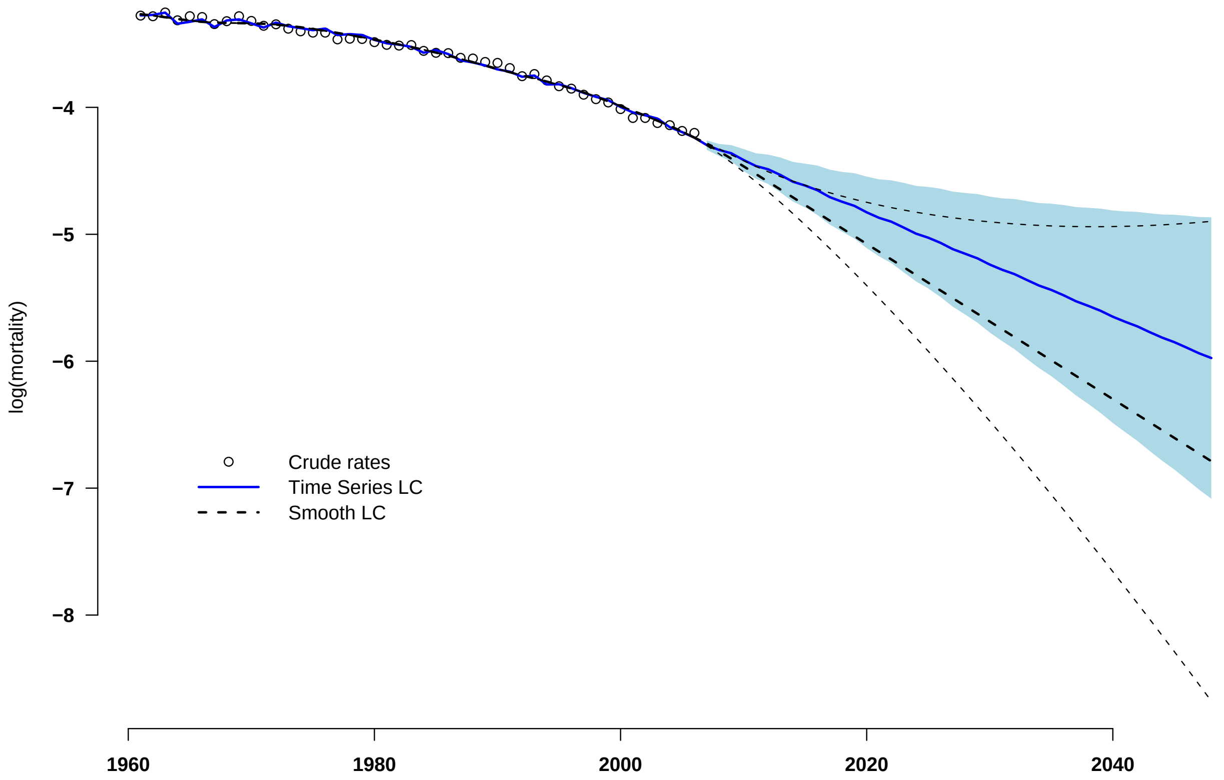
- Confidence intervals show uncertainty about central projection
- What about uncertainty over the model?

Similar projections, different uncertainty



Source: Richards and Currie (2009), Figure 6

Different projections and intervals



Source: Richards and Currie (2009), Figure 5

Model risk

- Confidence intervals depend on model and data
- Need multiple models to explore model risk

Which models to use?

- Academic literature contains many projection models...
- ...and criticisms of their weak points!
- Models in refereed journals are open and transparent
- Use of such models boosts confidence

Basis risk

- Data sets with long enough time series usually population data
- Portfolio of interest usually has different mortality characteristics

Conclusions and questions

- Model risk is inability to know if selected model is the right one
- Multiple models needed to explore model risk
- Use models from peer-reviewed journals
- Basis risk is mismatch between portfolio of interest and data available

PROJECTIONS TOOLKIT

References

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Richards, S. J. and Currie, I. D. **2009** *Assessing longevity risk and annuity pricing with the Lee-Carter model*, Faculty of Actuaries Sessional Meeting Paper, February 2009