

Curriculum Vitae

NAME

Professor Jackie Li PhD, PhD, FIAA, FSA

CURRENT EMPLOYMENT AND POSITIONS

Professor of Statistics and Economics
School of Economics
Singapore Management University

Honorary Professor
Department of Actuarial Studies and Business Analytics
Faculty of Business and Economics
Macquarie University, Australia

DEGREES

Ph.D. (Demography), Macquarie University, 2014

Ph.D. (Actuarial Studies), University of Melbourne, 2007

Master of Applied Finance, Monash University, 2002

Bachelor of Commerce (Actuarial Studies), University of Melbourne, 1999

PAST EMPLOYMENT AND POSITIONS

Professor and Director of Actuarial Studies, Department of Econometrics and Business Statistics, Monash Business School, Monash University, September 2021 - December 2025

Associate Professor, Department of Actuarial Studies and Business Analytics, Faculty of Business and Economics, Macquarie University, July 2015 - September 2021

Associate Professor and Actuarial Science Program Director, Department of Mathematics and Statistics, School of Electrical Engineering, Computing, and Mathematical Sciences, Curtin University, August 2014 - July 2015

Associate Director, Insurance Risk and Finance Research Centre, Nanyang Business School, Nanyang Technological University, March 2011 - June 2013

Assistant Professor, Division of Banking and Finance, Nanyang Business School, Nanyang Technological University, November 2009 - July 2014

Teaching Fellow, Division of Banking and Finance, Nanyang Business School, Nanyang Technological University, November 2007 - October 2009

Lecturer and Tutor (part-time), Centre for Actuarial Studies, Department of Economics, Faculty of Business and Economics, University of Melbourne, July 1999 - October 2007

Actuary, American International Group (Melbourne), July 2003 - May 2007

Actuarial Analyst, Watson Wyatt (Melbourne), January 2002 - June 2003

RESEARCH INTERESTS

Stochastic mortality modelling, longevity risk pricing and hedging, retirement schemes and products, general insurance claims reserving, machine learning applications

MEMBERSHIP IN PROFESSIONAL ORGANISATIONS

Fellow of the Institute of Actuaries of Australia (FIAA), 2003 - present

Fellow of the Society of Actuaries (FSA), 2022 - present

HONORS AND AWARDS

2014 SCOR Actuarial Award in Asia. “Parametric mortality indexes: From index construction to hedging strategies”, by Tan C. I., **Li J.**, Li J. S. H., and Balasooriya U.

Nanyang Technological University:

(awarded at all of Division, School, and University levels)

Teaching Excellence Award, Division of Banking and Finance, 2014

Teaching Excellence Award, Division of Banking and Finance, 2012

Nanyang Award for Excellence in Teaching, Nanyang Technological University, 2011

Teacher of the Year, Nanyang Business School, 2011

Teaching Excellence Award, Division of Banking and Finance, 2010

2005 A H Pollard Scholarship Award by The Institute of Actuaries of Australia.

PUBLICATIONS

REFEREED JOURNAL ARTICLES

1. Tang S., **Li J.**, and Tickle L. 2025. Forecasting mortality rates using population composition data. *Journal of Population Research*, 42: 54.
2. **Li J.**, Wang M., Liu J., and Tickle L. 2025. Ensemble interval forecasts of mortality. *Scandinavian Actuarial Journal*, 2025(6): 598-616.
3. **Li J.**, Cheng F., Liu J., and Tanaka E. 2025. Analysis of international life expectancies with manifold learning and neural networks. *Genus*, 81: 8.
4. **Li J.**, Liu J., and Butt A. 2024. A systematic vector autoregressive framework for modelling and forecasting mortality. *Journal of Forecasting*, 43(6): 2279-2297.
5. **Li J.** 2024. Bayesian modelling of best-performance healthy life expectancy. *Journal of Population Research*, 41: 8.
6. **Li J.** 2024. Bayesian joint modelling of life expectancy and healthy life expectancy and valuation of retirement village contract. *Scandinavian Actuarial Journal*, 2024(2): 149-167.
7. **Li J.** and Liu J. 2023. Claims modelling with three-component composite models. *Risks*, 11(11): 196.
8. Tang S., **Li J.**, and Tickle L. 2023. A Hermite spline approach for modelling population mortality. *Annals of Actuarial Science*, 17(2): 243-284.
9. **Li J.** 2023. A model stacking approach for forecasting mortality. *North American Actuarial Journal*, 27(3): 530-545.

10. Kularatne T. D., **Li J.**, and Shi Y. 2022. Forecasting mortality rates with a two-step LASSO based vector autoregressive model. *Risks*, 10(11): 219.
11. Tang S., **Li J.**, and Tickle L. 2022. A new Fourier approach under the Lee-Carter model for incorporating time-varying age patterns of structural changes. *Risks* (Special Issue: Risks: Feature Papers 2022), 10(8): 147.
12. Liu J., **Li J.**, and Daly K. 2022. Bayesian vine copulas for modelling dependence in data breach losses. *Annals of Actuarial Science*, 16(2): 401-424.
13. **Li J.**, Pitt D., and Li H. 2022. Dispersion modelling of mortality for both sexes with Tweedie distributions. *Scandinavian Actuarial Journal*, 2022(4): 356-374.
14. Fong J. H. and **Li J.** 2022. Mandatory annuitization and money's worth: Evidence from Singapore. *Journal of Pension Economics and Finance*, 21(3): 405-424.
15. **Li J.** and Kogure A. 2021. Bayesian mixture modelling for mortality projection. *Risks* (Special Issue: Mortality Forecasting and Applications), 9(4): 76.
16. **Li J.**, Lee M., and Guthrie S. 2021. A double common factor model for mortality projection using best-performance mortality rates as reference. *ASTIN Bulletin*, 51(2): 349-374.
17. Li J. S. H., **Li J.**, Balasooriya U., and Zhou K. Q. 2021. Constructing out-of-the-money longevity hedges using parametric mortality indexes. *North American Actuarial Journal*, 25(S1): S341-S372.
18. Tang S. and **Li J.** 2021. Market pricing of longevity-linked securities. *Scandinavian Actuarial Journal*, 2021(5): 408-436.
19. Kularatne T. D., **Li J.**, and Pitt D. 2021. On the use of Archimedean copulas for insurance modelling. *Annals of Actuarial Science*, 15(1): 57-81.
20. **Li J.**, Balasooriya U., and Liu J. 2021. Using hierarchical Archimedean copulas for modelling mortality dependence and pricing mortality-linked securities. *Annals of Actuarial Science*, 15(3): 505-518.
21. **Li J.** and Liu J. 2020. A modified extreme value perspective on best-performance life expectancy. *Journal of Population Research*, 37(4): 345-375.
22. Balasooriya U., Li J. S. H., and **Li J.** 2020. The impact of model uncertainty on index-based longevity hedging and measurement of longevity basis risk. *Risks* (Special Issue: Mortality Forecasting and Applications), 8(3): 80.
23. Shi Y., Tang S., and **Li J.** 2020. A two-population extension of the exponential smoothing state space model with a smoothing penalisation scheme. *Risks* (Special Issue: Mortality Forecasting and Applications), 8(3): 67.
24. **Li J.** and Wong K. 2020. Incorporating structural changes in mortality improvements for mortality forecasting. *Scandinavian Actuarial Journal*, 2020(9): 776-791.
25. Wong K., **Li J.**, and Tang S. 2020. A modified common factor model for modelling mortality jointly for both sexes. *Journal of Population Research*, 37(2): 181-212.
26. **Li J.**, Tan C. I., Tang S., and Liu J. 2019. On the optimal hedge ratio in index-based longevity risk hedging. *European Actuarial Journal*, 9: 445-461.

27. Liu J. and **Li J.** 2019. Beyond the highest life expectancy – construction of proxy upper and lower life expectancy bounds. *Journal of Population Research*, 36(2): 159-181.
28. **Li J.**, Kogure A., and Liu J. 2019. Multivariate risk-neutral pricing of reverse mortgages under the Bayesian framework. *Risks*, 7(1): 11.
29. **Li J.** and Liu J. 2019. A logistic two-population mortality projection model for modelling mortality at advanced ages for both sexes. *Scandinavian Actuarial Journal*, 2019(2): 97-112.
30. **Li J.**, Li J. S. H., Tan C. I., and Tickle L. 2019. Assessing basis risk in index-based longevity swap transactions. *Annals of Actuarial Science*, 13(1): 166-197.
31. **Li J.** and Tan C. I. 2018. Assessing basis risk for longevity transactions – Phase 2. *British Actuarial Journal*, 23: e25.
32. Pitt D., **Li J.**, and Lim T. K. 2018. Smoothing Poisson common factor model for projecting mortality jointly for both sexes. *ASTIN Bulletin*, 48(2): 509-541.
33. **Li J.**, Aw G., and Teo K. L. 2017. Reverse mortgages – risks, pricing, and market development. *Australian Journal of Actuarial Practice*, 5: 55-66.
34. **Li J.**, Tickle L., and Parr N. 2016. A multi-population evaluation of the Poisson common factor model for projecting mortality jointly for both sexes. *Journal of Population Research*, 33(4): 333-360.
35. Tan C. I., **Li J.**, Li J. S. H., and Balasooriya U. 2016. Stochastic modelling of the hybrid survival curve. *Journal of Population Research*, 33(4): 307-331.
36. Parr N., **Li J.**, and Tickle L. 2016. A cost of living longer: Projections of the effects of prospective mortality improvement on economic support ratios for 14 advanced economies. *Population Studies*, 70(2): 181-200.
37. Yang B., **Li J.**, and Balasooriya U. 2016. Cohort extensions of the Poisson common factor model for modelling both genders jointly. *Scandinavian Actuarial Journal*, 2016(2): 93-112.
38. Yang B., **Li J.**, and Balasooriya U. 2015. Using bootstrapping to incorporate model error for risk-neutral pricing of longevity risk. *Insurance: Mathematics and Economics*, 62: 16-27.
39. **Li J.** and Haberman S. 2015. On the effectiveness of natural hedging for insurance companies and pension plans. *Insurance: Mathematics and Economics*, 61: 286-297.
40. Tan C. I., **Li J.**, Li J. S. H., and Balasooriya U. 2015. Optimal relativities and transition rules of a bonus-malus system. *Insurance: Mathematics and Economics*, 61: 255-263.
41. Tan C. I., **Li J.**, Li J. S. H., and Balasooriya U. 2014. Parametric mortality indexes: from index construction to hedging strategies. *Insurance: Mathematics and Economics*, 59: 285-299.
42. **Li J.** 2014. A quantitative comparison of simulation strategies for mortality projection. *Annals of Actuarial Science*, 8(2): 281-297.
43. Kogure A., **Li J.**, and Kamiya S. 2014. A Bayesian multivariate risk-neutral method for pricing reverse mortgages. *North American Actuarial Journal*, 18(1): 242-257.

44. Chan W. S., Li J. S. H., and **Li J.** 2014. The CBD mortality indexes: Modeling and applications. *North American Actuarial Journal*, 18(1): 38-58.
45. **Li J.** 2014. An application of MCMC simulation in mortality projection for populations with limited data. *Demographic Research*, 30: 1-48.
46. **Li J.** 2013. A Poisson common factor model for projecting mortality and life expectancy jointly for females and males. *Population Studies*, 67(1): 111-126.
47. Balasooriya U., **Li J.**, and Lee Y. S. 2012. On the use of limited-value averages in actuarial modelling. *Australian Actuarial Journal*, 18(2): 191-220.
48. Balasooriya U., **Li J.**, and Low C. K. 2012. On interpreting and extracting information from the cumulative distribution function curve: A new perspective with applications. *Australian Senior Mathematics Journal*, 26(1): 19-28.
49. **Li J.** 2010. Projections of New Zealand mortality using the Lee-Carter model and its augmented common factor extension. *New Zealand Population Review*, 36: 27-53.
50. **Li J.** 2010. Prediction error of the future claims component of premium liabilities under the loss ratio approach. *Variance*, 4(2): 155-169.
51. **Li J.** 2010. On modeling diversification benefits in insurance portfolios – an Australian perspective. *Asia-Pacific Journal of Risk and Insurance*, 4(2).
52. **Li J.** 2008. On the use of MCMC simulation for stochastic reserving. *Australian Actuarial Journal*, 14(2): 227-271.
53. **Li J.** 2007. Variance of the present value of a pension. *Australian Actuarial Journal*, 13(1): 701-718.
54. **Li J.** 2006. Comparison of stochastic reserving methods. *Australian Actuarial Journal*, 12(4): 489-569. (**Li J.** 2007. Errata. *Australian Actuarial Journal*, 13(1): 719-720.)

INDUSTRY REPORTS

55. Balasooriya U., **Li J.**, and Li J. S. H. 2018. Longevity Risk Modelling and Management via Securities Linked to Parametric Mortality Indices. Insurance Risk and Finance Research Centre, Nanyang Business School, Singapore.
56. **Li J.**, Tickle L., Tan C. I., and Li J. S. H. 2017. Assessing Basis Risk for Longevity Transactions – Phase 2. Macquarie University, Institute and Faculty of Actuaries, Life and Longevity Markets Association.
57. **Li J.**, Yeo K. L., Pakshong C., Chan W. S., Kogure A., and Li J. S. H. 2012. Mortality Experience in Asia-Pacific and Modeling and Management of Longevity Risk. Insurance Risk and Finance Research Centre, Nanyang Business School, Singapore.

PROFESSIONAL ARTICLES

58. **Li J.** and Tickle L. 2018. The long game. *The Actuary*, January / February 2018.

59. **Li J.** 2018. Research shows path to de-risking longevity. *Investment Magazine*, 29 January 2018.
60. **Li J.** and Tickle L. 2017. New developments in longevity risk transfer market. *Actuaries Digital*, 15 December 2017.
61. Parr N., **Li J.**, and Tickle L. 2017. International differences in life expectancy gains and in their cost. *N-IUSSP*, 23 January 2017.
62. **Li J.** and Li D. 2014. A note on global life expectancy trends. *Singapore Actuarial Society Newsletter*, 2014-2015 Issue 3.
63. **Li J.** 2014. Does natural hedging really exist – if it does, what is its size. *Singapore Actuarial Society Newsletter*, 2014-2015 Issue 2.
64. **Li J.** and Tickle L. 2014. Latest developments in mortality projection methods. *Actuaries*, June 2014.
65. **Li J.**, Aw G., and Teo K. L. 2013. Market-consistent valuation in illiquid markets. *Actuaries*, December 2013.
66. **Li J.** and Li J. S. H. 2013. Managing longevity risk: construction and applications of mortality indexes. *Asia Insurance Review*, July 2013.
67. **Li J.** 2012. Longevity risk – can we manage it? *Asia Insurance Review*, September 2012.
68. **Li J.** 2006. Fair value of general insurance liabilities. *Actuary Australia*, May 2006.

RESEARCH GRANTS

Badji S., Petrakis M., Petrie D., Chen G., Zhu D., **Li J.**, Walters C., Hassan T., and Leber D. 2024. Carer payments assessment process. Department of Social Services, Australian Government.

Shang H., **Li J.**, and Pitt D. 2021. Ensemble modelling for forecasting mortality and its implications for annuity pricing and risk management. *Research Accelerator Project Scheme*, Macquarie University, Australia.

Li J., Pitt D., and Li H. 2020. Bayesian vine copulas for modelling mortality dependence and pricing mortality-linked securities. *Research Accelerator Project Scheme*, Macquarie University, Australia.

Balasooriya U., **Li J.**, and Li J. S. H. 2017. Longevity risk modelling using causes of death and explanatory factors and longevity risk management via securities linked to parametric mortality indexes. *Insurance Risk and Finance Research Centre (IRFRC) Research Grant*, Singapore.

Li J., Li J. S. H., Tickle L., and Tan C. I. 2016. Project to develop a method of assessing basis risk for longevity transactions Phase 2. Institute and Faculty of Actuaries (IFoA) and Life and Longevity Markets Association (LLMA), UK.

Tickle L., Parr N., and **Li J.** 2013. The cost of living longer: projecting the effects of prospective mortality improvement on economic support ratios for OECD countries. *Australian Actuarial Research Grant*, Actuaries Institute, Australia.

Li J., Tickle L., and Parr N. 2012. An evaluation of the forecasting performance of the Poisson common factor model. *Australian Actuarial Research Grant*, Actuaries Institute, Australia.

Li J. 2011. Longevity risks: perspectives from the consumers and the producers. *Insurance Risk and Finance Research Centre (IRFRC) Research Grant*, Singapore.

Low C. K., Balasooriya U., and **Li J.** 2009. Value at Risk of equity portfolios based on common risk factors on stocks and bonds. *Academic Research Fund (AcRF) Tier 1 Grant*, Nanyang Technological University (NTU), Singapore.

Balasooriya U. and **Li J.** 2009. A study on modeling financial and insurance data. *Academic Research Fund (AcRF) Tier 1 Grant*, Nanyang Technological University (NTU), Singapore.

Li J. 2008. Prediction error of insurance liabilities for multiple lines of business. *RCC Grant*, Nanyang Business School (NBS), Singapore.

Li J. 2005. Stochastic reserving methods. *A H Pollard Scholarship Award*, The Institute of Actuaries of Australia.

Li J. 2005. *Professional Development Allowance*, Trinity College, Australia.

EDITORIAL SERVICES

Associate Editor, *Lifetime Data Analysis*, 2022 - present

<https://link.springer.com/journal/10985/editorial-board>

Editorial Board Member, *Journal of Industrial and Management Optimization*, 2021 - present

<https://www.aims.science.org/jimo/editorialboard>

Associate Editor, *Asia-Pacific Journal of Risk and Insurance*, 2019 - 2025

<https://www.degruyter.com/journal/key/apjri/html#editorial>

Guest Editor (Special Issue: Mortality Forecasting and Applications), *Risks*, 2020 - 2021

https://www.mdpi.com/journal/risks/special_issues/Mortality_Forecasting_Applications