

# Bridget Browne

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## EMPLOYMENT HISTORY

**ERNST & YOUNG** - **CANBERRA, AUSTRALIA** **2/2015 - date**

### *Partner, Consulting*

Consulting to Government in Australia and New Zealand on risk management and human services modelling issues including the investment approach and social impact investment.

**AUSTRALIAN NATIONAL UNIVERSITY – CANBERRA, AUSTRALIA** **1/2011 - date**

### *Senior Lecturer, Actuarial Studies*

This is a role divided between teaching and research. Teaching covers the core actuarial subjects: I have been involved in teaching Introduction to Actuarial Studies, Financial Mathematics, Actuarial Techniques, Advanced Life Insurance, Special Topics in Actuarial Studies and the Actuarial Control Cycle and will be introducing Enterprise Risk Management courses in 2015.

My research focus has been Long Term Care insurance and mortality modelling.

Doctoral topic (withdrawn): Aged Care in Australia: what place for Long Term Care insurance?

**PARTNER RE** - **PARIS, FRANCE** **7/2002 – 12/2010**

- *Head of Life Pricing Solutions and Chief Pricing Actuary, Global (8/04 – 12/10)*
- *Head of Life Pricing & Solutions, Paris (2/03 – 8/04)*
- *Member of Life Pricing & Solutions, Paris (7/02 – 2/03)*

**HAZELL CARR PLC** - **OXFORD, UK** **3/2001 – 7/2002**

- *Pensions Review Caseworker*

**ZURICH AUSTRALIA GROUP LTD** - **SYDNEY, AUSTRALIA** **8/1994- 3/1999**

**ZURICH LIFE CANADA** - **TORONTO, CANADA** **8/1993 - 6/1994**

**ZURICH AUSTRALIAN LIFE INSURANCE LTD - SYDNEY, AUSTRALIA** **1/1986 – 6/1993**

- *A wide variety of actuarial and broader roles*

## **ACADEMIC and PROFESSIONAL QUALIFICATIONS**

Chartered Enterprise Risk Actuary, Institute of Actuaries of Australia, 2014

Graduate Certificate in Higher Education, Australian National University, 2013

Affiliate of the Institut des Actuaire, France, 2006

Fellow of the Institute of Actuaries, UK, 2002

Fellow of the Institute of Actuaries of Australia, 1992

BEC, Macquarie University, 1988

Certificates of Proficiency in French and Russian, McGill University, Montreal, Canada, 2000

## **SUPERVISION**

- 2018 Supervisor of Bokyoung KIM, RSFAS Internship student, AIHW internship regarding International Comparison of Health Expenditure report
- 2014 Joint Supervisor of William LIM, RSFAS Honours student, "Disability-Free and Disabled Life Annuities: Pricing from Sullivan's Method"
- 2013 Advisor to Fei HUANG, RSFAS PhD student on forecasting mortality
- Joint supervisor of Chen TANG, RSFAS Honours student, "Projecting Australian Mortality: the CMI Projections Model approach"
- 2012 Joint supervisor of Xu SHI, RSFAS Honours student, "Identifying Lapse Drivers: Australian individual disability income insurance"
- 2011 Joint supervisor of Alex HUYNH, RSFAS Honours student, "Catastrophic Mortality Bonds: investigating basis risk and hedge effectiveness"

## **PUBLICATIONS**

### **2019**

McWilliam et al (2019), 'Longevity Risk 2<sup>nd</sup> Edition', Risk Books. Joint author of Chapter "Projecting Future Mortality"

Lim, W, Khemka, G, Pitt, D & Browne B, 2019, 'A method for calculating the implied no-recovery three-state transition matrix using observable population mortality incidence and disability prevalence rates', *Journal of Population Research*, vol. 36, iss. 3, pp 245-282.

### **2017**

Huang, F & Browne, B, 2017, 'Mortality forecasting using a modified Continuous Mortality Investigation Mortality Projections Model for China I: methodology and country-level results', *Annals of Actuarial Science*, vol. 11, no. 1, pp. 20-45.

Bruhn, A, Whiting, B, Browne, B et al, 2017, 'Introducing Enterprise Risk Management into the University Classroom: A Case Study', *Risk Management and Insurance Review*, vol. 20, no. 1, pp. 99-131pp.

Bruhn, A, Whiting, B, Browne, B et al, eds, 2017, Can Universities hit the mark with specialist actuarial education? An initial ERM Case Study. *Actuarial Research Clearing House*, ARCH 2017.2, Society of Actuaries.

## 2016

Shi X and Browne B, 2016, 'A "simple" stochastic model for longevity risk revisited through bootstrap', *Australian Journal of Actuarial Practice*, No 4, Institute of Actuaries of Australia

## 2015

Tang C, Bruhn A, Browne B, 2015, 'Valuing annuities based on alternative mortality projections', *Australian Journal of Actuarial Practice*, No 3, Institute of Actuaries of Australia

Browne B, 2015, 'Recent Australian insured lives mortality: a review of the Actuaries Institute/FSC 2004-08 Lump Sum Graduation', *Australian Journal of Actuarial Practice*, No 3, Institute of Actuaries of Australia

## 2014

Browne B, 2014, 'Research highlights from the International Congress of Actuaries 2014', *Australian Journal of Actuarial Practice*, No 2 pp 63-4, Institute of Actuaries of Australia

Browne B, 2014, 'Relative compression or expansion of morbidity: further evidence from the Global Burden of Disease Study 2010', *Actuarial Research Clearing House*, 2014.2, Society of Actuaries

Huynh A, Browne B, Bruhn A, 2014, 'Catastrophic Mortality Bonds: Analysing Basis Risk and Hedge Effectiveness', *Australian Journal of Actuarial Practice*, No 1 pp 45-62, Institute of Actuaries of Australia

## 2013

Browne B, 2013, 'Long Term Care Insurance: A survey of insurer attitudes', Proceedings of the 12th National Conference of Emerging Researchers in Ageing (peer-reviewed), November 2013

Browne B, Bruhn A, Huynh A, 2013, 'Potential Consequences of Pandemic Risks', *Health and Ageing Newsletter*, No 28 April 2013, The Geneva Association

Browne, B., 2013, 'Long Term Care Insurance: A survey of providers' attitudes', National Seniors Productive Ageing Centre, May 2013

Browne, B, Bruhn, A & Huynh, A 2013, 'The Geneva Association: Extract of Potential Consequences of Pandemic Risks', *Asia Insurance Review*, July 2013.

Huynh, A., A. Bruhn, and B. Browne, "A Review of Catastrophic Risks for Life Insurers", *Risk Management and Insurance Review*, **16**(2) 2013: p. 233-266. DOI: 10.1111/rmir.12011

## 2012

B A Browne, "Reincarnation of PS100", *Actuary Australia*, No 167 pp14-17, March 2012 (2012)

B A Browne, "International Mortality – launch of Mortality Working Group 'Information Base'", *Actuary Australia*, No 167 pp24-25, November 2012 (2012)

## 2011

B A Browne, "Long Term Care Insurance in Australia: A long time coming?", Actuary Australia, No 162 pp5-7, August 2011 (2011)

McWilliam et al (2011), 'Longevity Risk', Risk Books. Author of Chapter 4 "Projecting Future Mortality"

B A Browne, "Healthy Longevity", August 2011, IAA Website and SSRN  
[http://www.actuaries.org/index.cfm?lang=EN&DSP=CTTEES\\_TFM&ACT=IB\\_healthy\\_longevity](http://www.actuaries.org/index.cfm?lang=EN&DSP=CTTEES_TFM&ACT=IB_healthy_longevity) and [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2110628](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2110628)

P G Telford, B A Browne, E J Collinge, P Fulcher, B E Johnson, W Little, J L C Lu, J M Nurse, D W Smith and F Zhang, "Developments in the Management of Annuity Business" (2011) *British Actuarial Journal*, Volume 16, pp 471-551

## 2009

Browne BA, Duchassaing J, Suter F, (2009) Longevity: A "Simple" Stochastic Modelling of Mortality, *British Actuarial Journal*, Volume 15, pp 249-265

## PROFESSIONAL ACTIVITY

- External Reviewer representing the Institute of Actuaries of Australia on the Global CERA Review Panel, March 2014 – ongoing
- Chair of the Faculty of the Commercial Actuarial Practice course, May 2011 – May 2018
- Course Writer for Enterprise Risk Management stream of the Commercial Actuarial Practice course, May 2016 – May 2018
- Associate Editor of the Australian Actuarial Journal and Australian Journal of Actuarial Practice, March 2012 – Sept 2016
- Member of the Mortality Working Group of the International Actuarial Association, April 2011 – May 2016
- Chief Examiner of Part III subject 2A Life Insurance, from S2 2013 to S2 2014 inclusive
- Assistant Examiner of Part III subject 2A Life Insurance, S1 2013 and S1 2015
- Reviewer for academic journals including: Annals of Actuarial Science, Geneva Papers on Risk and Insurance
- marking Life Insurance Course 2A (S1 and S2 2007, S1 2009, S2 2012)
- member of Life Insurance Course Review Committee and secretary of Council Financial Services Committee, 1/1996 – 11/1998

## GRANTS and AWARDS

### 2015

Research Council Committee, Institute of Actuaries of Australia (AUD 13 000) grant for research into Aged Care

ANU RSFAS grant (AUD 22 000) grant for research into Aged Care

### 2014

H M Jackson Prize, Institute of Actuaries of Australia (AUD 5 000) for best paper presented at a non Institute event for *“Catastrophic Mortality Bonds: an effective hedge?”*, awarded Oct 2014, shared with Alex Huynh and Aaron Bruhn

Travel grant from Institute and Faculty of Actuaries UK (GBP 1 500) for the International Mortality and Longevity Symposium, Birmingham, Sept 2014

## **2013**

SCOR Actuarial Award in Asia (SGD 10 000) for best paper at the East Asian Actuarial Conference, Singapore for *“Catastrophic Mortality Bonds: an effective hedge?”*, awarded Oct 2013, shared with Alex Huynh and Aaron Bruhn

## **2012**

National Seniors Australia Productive Ageing Centre Research Grant (AUD 7 000) for project “Long Term Care Insurance: a survey of insurer attitudes”, awarded Sept 2012

## **PRESENTATIONS**

### **2018**

3<sup>rd</sup> International conference on Wellbeing and Public Policy, Wellington, Sept 5 - 7

*“The lifetime wellbeing model for New Zealand children”*

### **2017**

Risk Management Institute of Australia National Conference, Canberra, Nov 15 - 17

*“How can evidence-based wellbeing models support Government priorities?”*

### **2015**

Actuaries Summit, Melbourne, May 17 - 19

*“A ‘Simple’ Stochastic Model for Longevity Risk Revisited through Bootstrap”*

### **2014**

International Actuarial Association Mortality Working Group meeting, Washington DC, Mar 28-29

*“Relative compression or expansion of morbidity: Further evidence from the Global Burden of Disease Study 2010”*

International Congress of Actuaries, Washington DC, Mar 31 – Apr 4

*“A cross-country comparison of historical changes in period life expectancies and mortality improvement”*

*“Long Term Care Insurance in Australia: a survey of insurer attitudes”*

Financial Services Forum of the Institute of Actuaries of Australia, Sydney, May 5-6

*“Projecting Australian mortality using the CMI Mortality Projections Model”*

3<sup>rd</sup> International conference on Evidence-based Policy in Long-term Care, London UK, Aug 31–Sep 3

*“Long Term Care Insurance in Australia: a survey of insurer attitudes”*

Chair of session “Long term care funding”

International Mortality and Longevity Symposium, Birmingham UK, Sep 15-17

*“Adding stochastics to a deterministic forecasting method (such as the CMI method) – calibrated and exemplified with Australian data”*

Ran interactive session demonstrating *“A cross-country comparison of historical changes in period life expectancies and mortality improvement”*

UNSW External School Seminar Series, Oct 24

*“Transitions in aged care; analysis from the first Pathways in Aged Care Study”*

Decumulating Retirement Savings: making the options work, one day Forum held at Retirement Policy and Research Centre, University of Auckland, Nov 21

Invited workshop leader

## **2013**

Commercial Actuarial Practice Residential Course, Sydney, March 25-28 (one day only)

*Enterprise Risk Management stream leader*

Actuaries Summit, Sydney, May 20-21

*“Long Term Care Insurance: a survey of insurer attitudes”*

International Actuarial Association Colloquium, Lyon France, June 24-26

*“Catastrophic Mortality Bonds: an effective hedge?”*

Australian Association of Gerontology (ACT branch) AGM, Canberra, Sept 24

*“Long Term Care in Australia: what place for insurance?”*

International Actuarial Association Mortality Working Group meeting, Singapore, Oct 11-12

*“A cross-country comparison of historical changes in period life expectancies and mortality improvement”*

East Asian Actuarial Conference, Singapore, Oct 15-18

*“Catastrophic Mortality Bonds: an effective hedge?”*

Received SCOR Actuarial Award in Asia 2013

Statistical Society of Australia (Canberra Branch), Canberra, Oct 29

*“A cross-country comparison of historical changes in period life expectancies and mortality improvement”*

Workshop on innovations in Australian mortality research: analysis, models and methods – co-organiser and presenter, Canberra, Nov 11

*“Recent Australian insured lives mortality: a review of the Actuaries Institute/FSC 2004-2008 Lump Sum Investigation”*

Australia Mortality Data Interest Group, Canberra, Nov 12-13

*“A cross-country comparison of historical changes in period life expectancies and mortality improvement”*  
CEPAR Emerging Researchers in Ageing Conference, Sydney, Nov 25  
*“Long Term Care Insurance: a survey of insurer attitudes”*  
UNFPA Indonesian Population & Development Workshop, Canberra, Dec 19  
*“A cross-country comparison of historical changes in period life expectancies and mortality improvement”*

## **2012**

RSFAS Actuarial/Statistics Summer School, Murrumbidgee, Feb 2012  
*“Longevity – the risk and the market”*  
Financial Services Forum of the Institute of Actuaries of Australia, Melbourne, April 2012  
*“Catastrophic Mortality Bonds – an effective hedge?”*  
Life and Annuity Symposium, Society of Actuaries, Los Angeles, May 2012  
*“International Perspectives on Professionalism” panel member*  
A World of Mortality Issues and Insights seminar, Society of Actuaries, Los Angeles, May 2012  
*“Healthy Longevity”*  
Spending the Savings: Decumulation and Middle-Income Retirement Symposium, Retirement Policy and Research Centre, University of Auckland, Nov 2012  
*“Long-term care insurance: is there hope for private provision?”*  
Invited presentation and Closing Panel member  
Actuarial Education and Research Symposium, Monash University, Dec 2012  
*“A survey of actuarial students’ attitudes to online education”*

## **2011 and prior**

*Presentation made to the Australian Actuarial Education and Research Symposium, Canberra, December 2011 entitled “**Business or Pleasure? A Practitioner comes to Academia**”*

*Presentation made to the Biennial Convention of the Actuaries Institute, Sydney, April 2011, entitled “**Long Term Care? What can we learn from the International Experience?**” (with R Bridet)*

*Presentation made to the UK Health and Care Conference, Newport, May 2010 entitled “**What is the real impact of smoking bans?**” (jointly with K O’Regan)*

*Presentation made to the UK Life Convention, Edinburgh November 2009 entitled “**Seven Questions to ask your Reinsurer on Enterprise Risk Management**” (jointly with A Iglauer)*

*Paper presented to the interdisciplinary conference Joining Forces on Mortality and Longevity, Edinburgh October 2009 entitled “**Longevity: A “Simple” Stochastic Modelling of Mortality**” (jointly with F Suter)*

*Presentation made to conference Risk Management in Insurance, Paris, June 2009 entitled “**Quelles nouvelles formes de transferts de risques ?** » (New Forms of Risk Transfer ? jointly with Romain Durand of Actuaris)*

*Presentation made to the UK Health & Care Conference, Glasgow, May 2009 entitled “Long Term Care in France – Lessons from an Established Market” (jointly with J O’Neill)*

## **Detail of Employment History at Partner Re**

**PARTNER RE**

**- PARIS, FRANCE**

**7/2002 – 12/2010**

### ***Head of Life Pricing Solutions and Chief Pricing Actuary, Global***

***(4/08 – 12/10)***

Global oversight of the actuarial pricing activity for all the Life business of Partner Re Group

Responsible for a group of 10 actuaries based in Paris and Zurich providing actuarial advice and expertise to support Pricing Actuaries in Market Units, via

- establishment and/or peer review of Market Benchmarks and Product Developments
- peer review of Pricing Exercises (pricing itself in certain circumstances)
- central support for Pricing Methodology (guidelines for capital allocation, pricing expense assumptions etc),
- Tool Development (pricing and associated tools)
- Experience Analyses
- Research and Development, including external presentation/publication
- Training and knowledge sharing.

Organised into 3 Centres of Excellence: Mortality, Longevity and Solvency II.

CoE Mortality supported 4 Market Units (covering Europe, Asia, Latin America and Canada; largest markets are UK, Ireland and France) across all traditional life insurance risks: mortality, critical illness, disability (short and long duration), personal accident, long term care etc; in both Proportional and Non Proportional forms including Per Risk and Per Event Excess of Loss; and a specific portfolio of Guaranteed Minimum Death Benefit business

CoE Longevity covered both Standard Longevity (in the form of Longevity Swaps in either traditional reinsurance or financial instrument format) and Non Standard Longevity, that is Enhanced and Impaired Life Annuities principally in the UK market

Responsible for developing the Internal Capital Model for the Life business. This was a full model office which modeled mortality, morbidity and market risk stochastically.

***(8/04 – 4/08)***

During this period I led two teams of life reinsurance pricing actuaries (one in Paris, the other in Zurich), which grew over this period from 12 to 18 staff, responsible for all markets where Partner Re Life BU is active (adding for example UK, Ireland, Latin America). Covered a wide variety of lines of business – short and long term, Proportional and Non Proportional, mortality, morbidity, longevity, special risks (GMDB, unemployment, ...)

A major achievement in this period was the development and implementation of a Management Reporting database which reports quarterly treaty by treaty on past performance and future projected cash flows. Software used: Excel, SICS/nt, Business Objects, MoSes

### ***Head of Life Pricing & Solutions, Paris (2/03 – 8/04)***

#### ***Member of Life Pricing & Solutions, Paris (7/02 – 2/03)***

Member of a team of 6 life reinsurance pricing actuaries, responsible for France, Italy, Spain, Asia, Benelux, Scandinavia. Software used: Excel, SICS/nt, Business Objects