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23rd Annual Colloquium of Superannuation Researchers

6th – 7th July 2015

Program and Paper Abstracts

ARC CENTRE OF EXCELLENCE IN POPULATION AGEING RESEARCH

23rd Annual Colloquium of Superannuation Researchers
(Hosted by CEPAR and the School of Risk & Actuarial Studies, UNSW)
6-7th July 2015
Program

Monday 6th July

9.00-9.05	**Welcome**
Session 1 **9.05-10.35**	**Plenary – Roundtable on FSI recommendations for a comprehensive income product for retirement** (Chair – Hazel Bateman, UNSW Risk & Actuarial Studies)
	Roundtable participants: Jeremy Cooper (Challenger), Professor John Piggott (CEPAR), Professor Olivia Mitchell (Wharton), Richard Boyfield (Mercer)
10.35-11.00	**Morning Tea**
11.00-12.30	**Contributory Sessions**
Session 2A	**Longevity** (Chair – Kevin Liu, UNSW Risk & Actuarial Studies)
1.	Immunization and Hedging of Longevity Risk [**Estelle Liu** (Mine Wealth + Wellbeing) and Michael Sherris (Risk & Actuarial, UNSW)]
2.	The Application of Affine Processes in a Multi-Cohort Mortality Model [**Yajing Xu** (Risk & Actuarial, UNSW), Michael Sherris (Risk & Actuarial, UNSW) and Jonathan Ziveyi (Risk & Actuarial, UNSW)]
3.	Mortality forecasting using a modified CMI mortality projections model for China: cities, towns and counties [**Fei Huang** (ANU)]
Session 2B	**Choice and Decisions** (Chair – George Kudrna, CEPAR)
1.	Offsets to compulsory superannuation: do people consciously choose their level of retirement saving? [**Akshay Shanker** (ANU) and Sacha Vidler (Consultant)]
2.	How to Make Group Self-Annuitisation a Popular Retirement Product: Practical Challenges and Solutions for Super Funds [**Chao Qiao** (PwC) and Aaron Minney (Challenger)]
3.	Suspicious minds (can be a good thing when saving for retirement) [**Jeanette Deetlefs** (Marketing, UNSW), Hazel Bateman (Risk & Actuarial, UNSW), Isabella Dobrescu (Economics, UNSW), Ben Newell (Psychology, UNSW), Andreas Ortmann (Economics, UNSW) and Susan Thorp (University of Sydney)]
Session 2C	**Accumulation and Decumulation** (Chair – Scott Donald, UNSW Law)
1.	A survey of decumulation options in New Zealand [**Claire Dale** (University of Auckland)]
2.	Understanding withdrawal behaviour of retired QSuper members in the retirement phase [**Helen Johnson** (QSuper)]
3.	Target annuitisation strategies [**Mengyi Xu** (Risk & Actuarial, UNSW)]
12.30-2.00	**Lunch**
Session 3 **2.00-3.30**	**Plenary: Some big picture issues** (Chair – Susan Thorp, University of Sydney)
1.	The Behavioural Economic Case for Paternalistic Workplace Pensions [**Paul Secunda** (Marquette University Law School, USA)]
2.	Superannuation: Identifying and cutting costs (**Jim Minifie**, Grattan Institute)

3.	When I'm 64 – what do New Zealanders want from their retirement income policies? [Joey Au (NZ Treasury), **Andrew Coleman** (NZ Treasury) and Trudy Sullivan (University of Otago)]
4.	Graham Hand – Introduction to 'Cuffelinks'
3.30-4.00	**Afternoon Tea**
4.00-6.00	**Contributory Sessions**
Session 4A	**Aged Care** (Chair – Kevin Liu, UNSW Risk & Actuarial Studies)
1.	Optimal portfolio allocation with health contingent income products: The value of life care annuities [**Shang Wu** (Risk & Actuarial, UNSW), Hazel Bateman (Risk & Actuarial, UNSW), Ralph Stevens (CEPAR, UNSW)]
2.	Product Pricing and Solvency Capital Requirements for Long Term Care Insurance [**Adam W Shao** (CEPAR, UNSW), Michael Sherris (Risk & Actuarial and CEPAR, UNSW), Joelle Fong (CEPAR)]
3	Estimating the public cost of LTC in China: A means tested model [**Lu Bei** (CEPAR, UNSW)]
4	Health and Aged Care: Considerations for superannuation funds [**Benedict Davies** (UniSuper)]
Session 4B	**Policy Design** (Chair – George Kudrna, CEPAR)
1.	The Australian Retirement System: Seven Alternatives [**Jessica Loke** (ANU), Cagri Kumru (ANU) and John Piggott (CEPAR, UNSW)]
2.	Design and Equilibrium of a Notional DC Scheme [**Jennifer Alonso Garcia** (CEPAR, UNSW)]
3.	How well does the Australian Age Pension provide social insurance [**Emily Dobbs** (University of Queensland)]
4.	Future proofing New Zealand Superannuation for a changing world [**Susan St John** (University of Auckland)]
6.00-6.45	**Pre-Dinner Drinks**
6.45-9.00	**Conference Dinner**

Tuesday 7th July

Session 5 **9.00-10.30**	**Plenary: Member Behaviour** (Chair – John Piggott, CEPAR)
1.	Using a Life Cycle Model to Evaluate Financial Literacy Program Effectiveness [Annamaria Lusardi (The George Washington School of Business), Pierre-Carl Michaud (University of Quebec, Montreal) and **Olivia S Mitchell** (The Wharton School)]
2	Retirement savings trajectories: The experience of Australian superannuation fund members [**Paul Gerrans** (UWA), Jimmy Feng (Monash), Maria Strydom (Monash), Carly Moulang (Monash), Mauizio Fiaschetti (University of Oxford) and Gordon Clark (University of Oxford)]
3.	Ignorance is bliss? Constructing default investments for retirement savings accounts [Adam Butt (ANU), Scott Donald (Law, UNSW), Doug Foster (UTS), **Susan Thorp** (University of Sydney) and Geoff Warren (CIFR)]
10.30-11.00	**Morning Tea**
11.00-12.30	**Contributory Sessions**
Session 6A	**Equity** (Chair – George Kudrna, CEPAR)
1.	A longitudinal analysis of superannuation outcomes: Gender differences [**Jimmy Feng** (Monash), Paul Gerrans (UWA), Noel Whiteside (University of Warwick), Maria Strydom (Monash), Carly Moulang (Monash), Gordon Clark (University of Oxford) and Maurizio Fiaschetti (University of Oxford)]
2.	Inequality among Older Australians: The Superannuation Effect [**Helen Hodgson** (Curtin Law School) and Alan Tapper (John Curtin Institute of Public Policy)]
3.	Achieving equity in the provision of retirement incomes [**Ross Clare** (ASFA)]
Session 6B	**Superannuation/pensions industry** (Chair – Scott Donald, UNSW Law)
1.	Independence and the governance of superannuation funds [**Scott Donald** (Law, UNSW) and Suzanne Le Mire (Adelaide Law School)]
2.	The determinants of pension fund director compensation [**Elizabeth Ooi** (UWA Business School)]
3.	The Landscape of the Composition of Superannuation Trustee Boards in Australia [**Rosalie Degabriele** (UTS)]
Session 6C	**Asset Allocation and Decisions** (Chair – Adam Shao, CEPAR)
1.	A lifetime model of labor supply and asset allocation of Australians: Estimation and policy implications [**Xiaodong Fan** (CEPAR, UNSW) and Alan Woodland (Economics and CEPAR, UNSW)]
2.	Design of MySuper Default Funds: Influences and Outcomes [Adam Butt (ANU), Scott Donald (UNSW), Doug Foster (UTS), Susan Thorp (University of Sydney), **Geoff Warren** (CIFR)]
3.	Formulating appropriate utility functions and personal financial plans [**Anthony Asher** (Risk & Actuarial, UNSW), Adam Butt (ANU), Ujwal Kayande (University of Melbourne) and Gaurav Khemka (Bond)]

12.30-2.00	**Lunch**
Session 7 **2.00-4.00**	**Plenary** (Chair – Hazel Bateman, UNSW Risk & Actuarial Studies)
	Adam Shao – Pensions and Superannuation Seminar Series @ UNSW (Risk and Actuarial and CEPAR)
1.	The abolition of the annuity obligation in the UK: What is means [**Bernard Casey** (University of Warwick)]
2.	The development of retirement savings adequacy in Australia over time [**John Burnett** (Towers Watson), Kevin Davis (University of Melboune), Carsten Murawski (University of Melbourne)
3.	Assessing Pension Tax Regimes: An Australian Perspective [Hazel Bateman (Risk & Actuarial, UNSW) and **George Kudrna** (CEPAR, UNSW)]
4.	Cognitive functioning meets financial literacy and judgement in older age: Advising those with self-managed retirement savings [**Joanne Earl** (Psychology, UNSW), Paul Gerrans (Finance, UWA), Anthony Asher (Risk & Actuarial, UNSW)]
4.00-4.05	**Conference close**

Paper Abstracts and Presenter Bio's

Day 1 (Monday 6th July 2015)

9.00-10.35 Session 1: Plenary Roundtable [Chemical Science M17]

FSI recommendations for a comprehensive income product for retirement

Chair: Hazel Bateman (Risk and Actuarial Studies, UNSW)

1. **Olivia S. Mitchell,** Pension research Council, Wharton School.

Dr. Olivia S. Mitchell is the International Foundation of Employee Benefit Plans Professor at the Wharton School, as well as Professor of Insurance/Risk Management and Business Economics/Policy; Executive Director of the Pension Research Council; and Director of the Boettner Center on Pensions and Retirement Research; all at the Wharton School of the University of Pennsylvania. Concurrently Dr. Mitchell serves as a Research Associate at the NBER; Independent Director on the Wells Fargo Advantage Fund Trusts Board; Co-Investigator for the Health and Retirement Study at the University of Michigan; and Executive Board Member of the Michigan Retirement Research Center. She is also a Senior Research Fellow at the SKBI Institute of the Singapore Management University. Dr. Mitchell's main interests are public and private pensions, insurance and risk management, financial literacy, and social insurance. She was awarded the Fidelity Pyramid Prize for research improving lifelong financial well-being; the Carolyn Shaw Bell Award of the Committee on the Status of Women in the Economics Profession; and the Roger F. Murray First Prize from the Institute for Quantitative Research in Finance. She was also honored with the Premio Internazionale Dell'Istituto Nazionale Delle Assicurazioni (INA) from the Accademia Nazionale dei Lincei in Rome. Her Social Security reform study won the Paul Samuelson Award for "Outstanding Writing on Lifelong Financial Security" from TIAA-CREF. She received the MA and PhD degrees in Economics from the University of Wisconsin-Madison, and the BA in Economics from Harvard University. She has published 27 books and almost 200 articles, and she speaks Spanish and Portuguese, having lived and worked in Latin America, Europe, and Australasia.

2. **Jeremy Cooper**, Chairman, Retirement Income, Challenger Limited

Jeremy Cooper is Chairman, Retirement Income at Challenger Limited, a full time executive role focusing on research, public policy issues and thought leadership. Prior to joining Challenger, Jeremy chaired the 'Cooper Review' into the superannuation system, the recommendations of which have been substantially adopted. Before his review role, Jeremy was deputy chairman of the Australian Securities and Investments Commission (ASIC) for five years from mid-2004. Prior to his term at ASIC, Jeremy was a partner of an Australian law firm, now part of Ashurst.

3. **John Piggott**, Director, CEPAR

John Piggott is Director of the ARC Centre of Excellence in Population Ageing Research (CEPAR), at the University of New South Wales, Australia, where he is Scientia Professor of Economics and also holds an ARC Australian Professorial Fellowship. He is concurrently Adjunct Professor at the Crawford School of Public Policy, ANU. Dr Piggott has a long standing interest in retirement and pension economics and finance. His publications include more than 100 academic journal articles and chapters in books. He has also co-authored two books, both published by Cambridge University Press. He was a member of the Henry Tax Review Panel and served for several years on the Ministerial Superannuation Advisory Committee. Internationally, he has been a consultant to several foreign governments on pension issues, including Russia and Indonesia. In 2007 he was appointed Visiting Professor, Zhejiang University, China, and from 2008-2010 was Visiting Scholar with the Department of Insurance and Risk Management, Wharton School of Business, University of Pennsylvania.

4. **Richard Boyfield**, Mercer

Richard Boyfield is a Partner in Mercer's Retirement Business. Richard is the Leader of Mercer's Public Sector retirement business in Australia and heads the actuarial team in Sydney. Richard is the actuary to SAS Trustee Corporation, the Commonwealth's civilian schemes CSS and PSS and several other large public sector schemes. In addition he also works with NSW Treasury and the Commonwealth Department of Finance and has other non-public sector clients such as Auscoal.

He is based in Sydney after transferring in 2013 from the UK. Prior to returning to Mercer in January 2013, Richard gained five years of experience at Towers Watson. Richard specialises in pension risk strategy helping clients determine the most appropriate solutions to deliver their members benefits. He is also heavily involved in developing retirement solutions. Richard is a member of the Retirement Income Working Group for the Institute of Actuaries of Australia. Richard holds a Bachelor of Arts (Honours) in Economics from Durham University. He is a Fellow of the Institute of Actuaries of Australia and a Fellow of the Institute and Faculty of Actuaries (UK).

10.35-11.00 **Morning tea** [Foyer, Chemical Sciences]

11.00-12.30 Contributed papers

Session 2A: Longevity [Chemical Science M17]

Chair: Kevin Liu, UNSW Risk & Actuarial Studies

1. **Immunization and Hedging of Longevity Risk.** Changyu (Estelle) Liu (Mine Wealth + Wellbeing) and Michael Sherris (Risk & Actuarial, UNSW)

Pension funds and life insurers offering annuities hold long term liabilities linked to longevity. Risk management of life annuity portfolios aims to immunize or hedge both interest rate and mortality risks. Standard fixed interest, duration-convexity hedging must be adapted to allow for both interest rate and longevity risk. We develop an immunization approach along with a delta-gamma based approach allowing for both risks incorporating models for morality and interest rate risk. The immunization and hedge effectiveness of fixed-income coupon bonds, annuity bonds, as well as longevity bods, is compared and assessed using simulations of portfolio surplus outcomes for an annuity portfolio. Fixed-income annuity bonds can more effectively match cash flows and provide additional hedge effectiveness over coupon bonds. Longevity bonds, including deferred longevity bonds, reduce risk significantly compared to coupon and annuity bonds, reflecting the long duration of the typical life annuity and the exposure to longevity risk. Longevity bonds are shown to be effective in immunizing surplus over short and long horizons. Delta gamma hedging is shown to only be effective over short horizons.

Changyu (Estelle) Liu is a quantitative analyst at Mine Wealth + Wellbeing where she is focused on Mine Wealth +Wellbeing's retirement outcome modelling. She completed her Bachelor of Commerce degree at UNSW Australia with a first class Honours in Actuarial Studies. During her Honours year, she received three scholarships and completed a thesis focusing on immunization and hedging of longevity risk under the supervision of Professor Michael Sherris. She worked as an academic tutor and research assistant at the School of Risk and Actuarial Studies at UNSW Australia while completing her undergraduate studies.

2. **The Application of Affine Processes in a Multi-Cohort Mortality Model.** Yajing Xu (Risk & Actuarial, UNSW), Michael Sherris (Risk & Actuarial, UNSW) and Jonathan Ziveyi (Risk & Actuarial, UNSW).

Cohort effects have been identified in many countries. However, some mortality models only consider the modelling and projection of age-period effects. Others, though incorporate cohort effects, do not consider cohort specific survival curves that are important for pricing and hedging purposes. In this paper, we consider modelling mortality development on a cohort basis and develop a multi-cohort mortality model in affine framework. We model the mortality intensity with common factors that affect all the cohorts as well as cohort specific factors that only affect specific cohorts, so that the correlations among cohorts are not perfect. In particular, we consider a three-factor case. The three-factor multi-cohort model is implemented on Danish males mortality data. The two common factors are extracted using Kalman Filter algorithm and cohort specific factors are estimated by minimizing the calibration error. The calibration results show clear signs of cohort effects. The out-of-sample forecast performance of the proposed model, the RH model (age-period-cohort model developed by Renshaw and Haberman (2006)) and the CBD model (age-period model developed by Cairns et al. (2006)) are analysed and compared to the true mortality data. The result shows that the proposed model produces the most satisfactory cohort survival curve.

Yajing Xu completed her BEc and MA at CUFE in China, and she is now a CEPAR PhD student in the school of Risk & Actuarial Studies at UNSW. Yajing's main areas of research are the pricing and hedging of longevity risk. Her current research investigates cohort mortality model and market risk premium of longevity risk under the supervision of Professor Michael Sherris and Dr Jonathan Ziveyi.

3. **Mortality forecasting using a modified CMI mortality projections model for China: cities, towns and counties.** Fei Huang (ANU).

In this paper, we conduct the study of long-term age-sex-specific mortality forecasting for subpopulations in different areas of China: cities, towns and counties. We use a modified CMI Mortality Projections Model, which has been discussed in Huang & Browne (2014), for modelling purposes. From the historical experience, we find that people in cities have lower mortality rates and higher mortality improvement rates than people in towns and counties for most ages. If this trend continues, the mortality of different areas will diverge further in the future. From the projection results, we find that there will be significant mortality and life expectancy differences between cities, towns and counties for both males and females. Sensitivity analysis for long-term rates of mortality improvement and the speed of convergence from 'initial' to 'long-term' rates of mortality improvement are considered. Uncertainties are attached to the central estimates to overcome the limitation of the original CMI approach from which only deterministic results can be obtained.

Fei Huang is a lecturer in Actuarial Studies at Australian National University. Her research interests lie in investment, longevity and pension areas. Fei submitted her PhD thesis in Actuarial Studies at Australian National University in December 2014. Before coming to ANU, Fei received an MPhil in Statistics and Actuarial Science from the University of Hong Kong (2011) and a BSc in Computational Mathematics with a minor in Economics from Xiamen University (2009).

Session 2B: Choice and Decisions [Chemical Science M10]

Chair: George Kudrna, CEPAR

1. **Offsets to compulsory superannuation: do people consciously choose their level of retirement saving?** Akshay Shanker (ANU) and Sacha Vidler (Consultant).

Australian employers are obliged by law to make a minimum compulsory contribution as a proportion of salaries into employees' superannuation (pension) funds. Individuals can also make voluntary contributions on top of the compulsory amount. We examine voluntary contributions amongst two groups of employees on different compulsory rates within the same fund. We ask whether individuals make voluntary superannuation contirbutions according to independent preferences representing how much people belive their overall savings should be. If individuals did have independent preferences, then we should expect less people to make coluntary contributions on the higher compulsory rate, and also expect reduced average voluntary contributions (across those who do and do not make voluntary contributions). We do not find evidence of either. An increase in the compulsory rate seems to be carried over totally into an increase in total contribution; either because individuals make voluntary contributions without any consideration of how much their overall savings ought to be, or because the compulsory rate influences the subjective evaluations of savings preferences (effectively anchoring bias).

Ashkay Shanker is a PhD candidate at the ANU Centre for Applied Macroeconomic Analysis. Akshay's research interests include on growth, economic dynamics and economic theory

2. **How to Make Group Self-Annuitisation a Popular Retirement Product: Practical Challenges and Solutions for Super Funds.** Chao Qiao (PwC) and Aaron Minney (Challenger)

There has been a lot of discussion and debate among superannuation and wealth management practitioners around retirement drawdown. Traditionally, these discussions have centred around longevity risk and lifetime annuities. Recently, consumer choice and practical feasibility have also been given thought. The Financial Systems Inquiry interim report suggested that irrespective of the retirement income system in the future, there needs to be a suitable range of products for retirees to choose from. Specifically, deferred annuities and group self-annuitisation (GSA) products were raised as possible alternatives.

While the mathematical construct, mechanical operation and benefits of GSAs have been well developed in the academic literature, the superannuation and wealth management industry continues to hold reservations around the practical feasibility and implementation of such schemes. These concerns are legitimate, and there has been limited discussion around the practical challenges of GSAs. This paper/presentation gives an in depth discussion of these issues. The issues this paper aims to discuss include: communication of scheme rules to retirees, design simplicity, withdrawal rules, surrender values, adverse selection, critical mass of pool participants, and integration with account-based pensions, investment management, and linking the mathematical operation to the practical operation of such schemes.

Chao Qiao is an actuarial consultant currently at PwC. Chao advises clients mainly in the financial services industry. Over the years, Chao has maintained a keen interest in retirement product development in Australia. Chao is a Fellow of the Actuaries Institute and a Chartered Enterprise Risk Actuary. Chao graduated from the University of New South Wales with first class honours in Actuarial Studies. His honours thesis Managing Systematic Mortality Risk with Group Self-Pooling and Annuitisation Schemes was recently published in The Journal of Risk and Insurance. Chao is a member of the Actuaries Institute Council.

3. **Suspicious minds (can be a good thing when saving for retirement).** Jeanette Deetlefs (Marketing, UNSW), Hazel Bateman (Risk & Actuarial, UNSW), Isabella Dobrescu (Economics, UNSW), Ben Newell (Psychology, UNSW), Andreas Ortmann (Economics, UNSW) and Susan Thorp (University of Sydney).

Governments are shifting the financial responsibility for retirement to their citizens. Employers, too, are shifting this responsibility to employees, through defined-contribution retirement plans. Yet it is widely acknowledged that many consumers do not engage with retirement savings in ways that seem commensurate with what is at stake. Getting people engaged in their retirement savings remains of high importance. In this presentation we apply a market segmentation approach based on two psychological motivators of engagement: trust and interest.

Our research sheds new light on why and how engagement occurs. Engagement is not limited to those interested in retirement saving and does not only grow with the size of the stake. And disengagement is not limited to blind acceptance of defaults. Importantly, mistrust in the provider serves as an impetus to monitor retirement investments and to make non-default choices. Implicit trust, by contrast, seems to promote disengagement. Indeed we show that promoting trust serves the provider rather than the member. Our research further suggests that it is time for a personalised approach by pension plan providers to address members' diverse needs and means.

Jeanette Deetlefs is a PhD candidate in the School of Marketing (University of New South Wales, Australia) with a specialisation in judgement and decision making. She is interested in the growing influence of behavioural economics in this area. More specifically her work examines default decision making in retirement saving with a special focus on growing customer engagement.

Jeanette holds an Honours Bachelor of Commerce (Business Economics) from the University of South Africa (1988) and a Bachelor of Commerce (Marketing) from the University of Pretoria (1986). Before becoming a PhD candidate, Jeanette worked in commercial marketing research for 26 years concentrating on the Automotive, Telecommunications and Financial sectors.

Session 2C: Accumulation and Decumulation [Chemical Science M11]

Chair: Scott Donald, UNSW Law

1. **A survey of decumulation options in New Zealand.** Claire Dale (University of Auckland).

This paper draws on industry expert presentations at the November 2014 Forum, Decumulating retirement savings: making the options work, co-hosted by the Retirement Policy and Research Centre and the (then) Commission for Financial Literacy and Retirement Incomes. Products supporting realistic annuitisation of accumulated wealth all but disappeared following tax and other changes in New Zealand in the 1980s. There has been little progress since then on decumulation products that are designed for middle-income retirees who face under-appreciated risks, including outliving their capital. The poor are protected by the universal age pension, but many in the middle-income group, confronted for the first time with management of large lump-sums from KiwiSaver or other retirement savings, or from the sale of an over-large family home, are ill-prepared for the task. At the same time, they may be unable or unwilling to acquire the skills and knowledge necessary for safe financial management of their asset, and unwilling to seek expert assistance. Although there are some encouraging signs of change, the paper argues that New Zealand has fallen behind Australia in meeting this need of our ageing population.

Claire Dale is Research Fellow with the Retirement Policy and Research Centre. Her research interests include economic and public policy around tax and welfare, decumulation, and an ageing population. She recently completed a 5-year term as a Commissioner on the Insurance and Savings Ombudsmans Commission. She is on the executive of Child Poverty Action Group, and is founder of microfinance organisation, Nga Tangata Microfinance Trust.

2. **Understanding withdrawal behaviour of retired QSuper members in the retirement phase.** Helen Johnson (QSuper).

Using membership data on QSuper members from the year 2000 onwards, we seek to understand the pattern and trends of withdrawal behaviour and drawdown summaries for those members in both the accumulation phase (that is, no longer contributing but not having commuted to a pension) and those within a pension product. This is presented alongside data obtained from QInvest, the financial planning arm of QSuper, where desires and needs in retirement, as well as assets outside of superannuation (of a smaller subset of self-selected members who visit QInvest), are also observed. This work serves as a preliminary step to understanding the behavioural aspect of QSuper members in order to better design post retirement products.

Helen Johnson studied Mathematics at the University of Manchester, UK, and then moved to Canberra to do a PhD in Statistics. Whilst there, she was offered a job teaching statistics and quantitative methods in the then Faculty of Economics and Commerce and once completed her PhD, moved to Brisbane to work at QUT as both a Lecturer in Statistics and then for a year as a Statistical Consultant at the Institute of Health and Biomedical Innovation. When an opportunity came up at QSuper in 2009, she applied for a job in the newly created investments team, where she hoped to put her training to some real practical use and now works as a Data Scientist in the Investments Liabilities team, analysing membership data as it pertains to understanding the investment liabilities of QSuper members.

3. **Target annuitisation strategies.** Mengyi Xu (Risk & Actuarial, UNSW).

Target annuitisation strategies focus on dynamic strategies that aim to provide minimum values at retirement based on a specified inflation and longevity linked annuity income stream from a specified retirement age. A series of longevity income indices were developed for Australia, Japan, UK and US to quantify the volatility and trends in the cost of providing a unit of inflation and longevity protected retirement income at differing retirement ages. Longevity protection is based on an individual self-insuring this risk, reflecting the lack of a well-developed life annuity market in most countries. This is in contrast to the BlackRock CoRI Retirement Indexes which are based on annuity values with full insurance of longevity risk. We consider both option-based portfolio insurance (OBPI) and constant-proportion portfolio insurance (CPPI) using the annuity based retirement index as a minimum guarantee target. We simulate returns on equity and bonds based on realistic parameters. We also assess the sensitivity of the analysis to different assumptions, particularly for the time to retirement and the equity market volatility. The results show that these minimum target annuitisation strategies have increasing equity proportions on average over time but with a high degree of variability because of the volatility of these markets. Option-based strategies incur a cost through the implied guarantee premium but meet the retirement income target with more certainty. CPPI strategies have increased equity exposures for higher strategy multiples and for higher equity market outcomes. They perform better in exceeding the retirement income target for higher equity returns than OBPI strategies. The CPPI strategies do not perform as effectively in higher volatility equity markets with increased chances of falling short of the target annuitisation values.

Mengyi Xu is a PhD student at CEPAR and UNSW Business School. Her PhD thesis looks at pre-retirement investment strategies and post-retirement income solutions in the presence of housing. Before completing a PhD degree, she was an honours student under the supervision of Professor Michael Sherris and Dr Ramona Meyricke. Her honours thesis provides an original analysis of systematic improvements and heterogeneity.

12.30 – 2.00 **Lunch** [Business Lounge, Level 6, Business School Building]

2:00 -3.30 **Session 3: Plenary session** [Chemical Science M17]

Some Big Picture Issues

Chair: Susan Thorp, University of Sydney

1. **The Behavioural Economic Case for Paternalistic Workplace Pensions.** Paul Secunda (Marquette University Law School, USA).

Dependence on 401(k) retirement accounts continues to cause a massive retirement crisis in the United States by leaving most workers unprepared for retirement. The voluntary, inaccessible, employer-centered, expensive, and consumer-driven nature of these plans have combined to make retirement a type of corporate-inspired elder abuse in America.

Behavioral economics considers the utility of permitting individual choice in decision-making settings. Many have been misled to believe that more choice is always better. Yet, this consumer-driven paradigm has been responsible for an estimated average American retirement shortfall of more than $19,000 per individual in married household in 2015. Behavioral economic workplace research instead strongly suggests that a better approach would be to use "choice architecture" to nudge workers into well-diversified default pension accounts run by independent private pension funds.

Such a successful paternalistic workplace pension model already exists. The Australian Superannuation System is mandatory, universal, not employer-centered, inexpensive, and aligns the interests of pension fund managers with fund participants. Most Australian employees do not make any choice with regard to their retirement contributions. Employer contributions default into a MySuper pension account operated by the best money managers, who invest worker pension money while charging very low investment fees.

As part of my Stewart Lecture remarks, I outline, based on behavioral economic insights, a vision for the transformation of the American 401(k) retirement system into an efficient and sustainable superannuation model.

Paul Secunda joined Marquette University Law School in the summer of 2008, after six years on the faculty of the University of Mississippi School of Law. He teaches Employee Benefits (social security) and Pension Law, Labor Law, Employment Law, Employment Discrimination Law, Education Law, and Civil Procedure. In 2013, U.S. Secretary of Labor Solis appointed Professor Secunda to a three-year term to the Department of Labor's ERISA Advisory Council, where he advises the Department on employee benefit law issues involving retirement and welfare benefit plans. In 2014, he was named Vice-Chair of the ERISA Advisory Council, and in 2015, he serves as its Chair. Professor Secunda's legal scholarship centers on comparative analyses of employee rights to employee benefits, as well as on the civil liberties and civil rights of employees, with a focus on public employees' constitutional speech, privacy, and associational rights. He is the author of nearly five dozen books, treatises, articles, and shorter writings. Professor Secunda is in Australia this year as both a Senior Fulbright Scholar focusing on a comparative analysis of the Australian Superannuation Guarantee and as a Senior Fellow at Melbourne Law School, teaching a class in Comparative Superannuation Law. Professor Secunda is an elected member of both the American Law Institute and the National Academy of Social Insurance.

2. **Superannuation: Identifying and cutting costs.** Jim Minifie (Grattan Institute).

Grattan Institute's 2014 report, Super Sting, found that Australians are paying far too much for superannuation. We pay about $21 billion a year in fees. That report proposed that government reduce fees by running a tender to select funds to operate the default accounts used by most working Australians. The Murray Financial System Inquiry came to similar conclusions to those in Super Sting. Its 2014 report finds there is not strong competition based on fees in the superannuation sector. It recommends a “competitive mechanism”, or tender, to select default products, unless a review held by 2020 shows the sector has become much more efficient. New research by the Grattan Institute analyses superannuation fees and costs in depth. It shows that there are excess costs in both administration and investment management. It evaluates recent policy initiatives to lower fees and recommends further reforms. The new analysis confirms the conclusions of the previous report. In both default and choice funds, administration fees are too high, and take a toll on net returns. There is little evidence that funds that charge higher fees provide better member services. There are too many accounts, too many funds, and too many of them incur high administrative costs. We pay $4 billion a year above what would be charged by lean funds. Investment fees are also too high. Many funds do not deliver returns that justify their fees. Cutting fees to what high-performing, lean funds charge could save more than $2 billion a year. In sum, superannuation could be run for much less than the $16 billion currently charged by large funds (self-managed super costs another $5 billion). The superannuation industry argues that its $21 billion costs are not excessive, and will fall over time. It opposes a tender for default accounts based on fees, claiming that it would reduce investment quality and net returns. But current initiatives to reduce costs are not enough. The Stronger Super reforms to reduce administration costs and make default products transparent will cut total default fees by about $1 billion. The Future of Financial Advice reforms could yield benefits for choice account holders. But even if regulators pursue these initiatives with zeal, they will leave billions on the table. If remaining excess costs are not removed, they will drain well over 5 per cent – or $40,000 – out of the average default account holder’s fund by retirement. Excess costs in choice superannuation are even larger. Government must act to close accounts, merge funds and run a tender to select default products. The tender would save account holders a further $1 billion a year, and create a benchmark to force other funds to lift their game. A high performing superannuation system will take the pressure off taxpayers and give Australians greater confidence in their retirement.

Jim Minifie directs the Grattan Institute's Productivity Growth Program, which is focused on policy reforms to drive Australian living standards. His team is currently focused on structural change in the Australian economy. Prior to joining Grattan in June 2012, Jim spent 13 years at the Boston Consulting Group, including seven years as Chief Economist for Australia and New Zealand. There he was responsible for leading the firm's thinking on economic challenges – including the global financial crisis, the resources boom and climate change – and their implications for Australian policymakers and corporate leaders. His clients included governments in Australia, Asia and the Middle East and firms in media, online marketplaces, financial services, agriculture, industrial goods, logistics, retail, and resources and commodities. Jim has a PhD in applied economics from Stanford University and honours and masters degrees in economics from the University of Melbourne. His research focused on contracts, incentives, and taxation.

3. **When I’m 64 – what do New Zealanders want from their retirement income policies?** Joey Au (NZ Treasury), <u>Andrew Coleman</u> (NZ Treasury) and Trudy Sullivan (University of Otago).

This paper investigates the practicality of using a sophisticated multi-criteria analysis technique to estimate the preferences of a representative sample of the public to inform policy advice. Our application concerns retirement income policy and we use a multi-criteria decision-making survey to (i) investigate the relative importance of seven aspects of retirement income policies to a sample of 1,066 New Zealanders, (ii) document the diversity of policy preferences in a statistically rigorous manner, and (iii) evaluate the way people rank three different retirement income policies from an individual well-being perspective. The results of the paper suggest that multi-criteria surveys as a tool have considerable potential to help policymakers develop and identify policies that are aligned with the way people want to live. In terms of retirement income policies, we find that (i) there is widespread opposition to means-testing, (ii) a majority of respondents would choose an increase in current taxes if this could prevent even larger tax increases on future generations, and (iii) there are strongly divergent preferences over the appropriate eligibility age for New Zealand Superannuation. Overall, a policy combination that raises the age of eligibility for New Zealand Superannuation and reduces future tax increases is opposed by many and preferred by few. However, a policy that more aggressively prefunds New Zealand Superannuation by immediately raising taxes is supported by a majority of people of all ages and income groups.

Andrew Coleman has joint positions at the New Zealand Treasury and the Department of Economics at the University of Otago. He works on intertemporal economic issues related to retirement income, housing, and transport. He previously worked as a Research Fellow at Motu Economics, Wellington, and the University of Michigan, Ann Arbor.

3.30-4.00 **Afternoon tea** [Foyer Chemical Sciences]

4.00-6.00 Session 4A: Aged Care [Chemical Science M10]

Chair: Kevin Liu, UNSW Risk & Actuarial Studies

1. **Optimal portfolio allocation with health contingent income products: The value of life care annuities.** Shang Wu (Risk & Actuarial, UNSW), Hazel Bateman (Risk & Actuarial, UNSW), Ralph Stevens (CEPAR, UNSW).

Later life health expenditures are uncertain and have a substantial impact on the annuitization, consumption and savings behavior of retirees. We study the implications for optimal portfolio allocation and individual welfare of including health contingent income products in the retirement product menu. We develop a life-cycle model of annuitization, consumption and investment decisions for a single retired individual who face stochastic capital market returns and uncertain out-of-pocket health costs. The model allows either life annuities or life care annuities---a typical health contingent income product---to be purchased at retirement.

Using the calibrated model with health costs and transitions estimated from the Health and Retirement Study, we find individuals who are eligible to purchase life care annuities increase their level of annuitization by around 12%. The increment in annuitization level attributes to both the insurance feature and the pricing benefit of life care annuities. Results show that life care annuities allow individuals to consume more in later life and to hold a more risky portfolio. The welfare gain for access to a life care annuity market is quite substantial --- around 10% of wealth at retirement. Individuals are willing to pay 16% to 21% of profit loadings for life care annuities, depending on their health at retirement. Our results have practical implications for public pension policies and the design of private pension and insurance products.

Shang Wu is a CEPAR affiliated PhD student under the supervision of Hazel Bateman, Ralph Stevens and Susan Thorp. His PhD project focuses on demand side issues for a life care annuity market. Life care annuity is a hybrid product recently proposed in the actuarial literature which combines a life annuity and long-term care (LTC) insurance.

This project aims to provide both empirical evidence and theoretical justification for the potential demand of life care annuities. The empirical study uses data from an experimental survey to examine the demand for life care annuities. The theoretical study calibrates a life-cycle model to explore the influence of having life care annuities on the investment menu on the optimal decisions for consumption, savings and annuitization. The study also analyses the welfare implication for individual retirees.

2. **Product Pricing and Solvency Capital Requirements for Long Term Care Insurance.** Adam W Shao (CEPAR, UNSW), Michael Sherris (Risk & Actuarial and CEPAR, UNSW), Joelle Fong (CEPAR).

This paper presents a comprehensive assessment of premiums, reserves and solvency capital requirements for long-term care (LTC) insurance policies using Activities of Daily Living (ADLs) and U.S. data. We compare stand-along policies, rider benefit policies (LTC insurance combined with whole life insurance), life care annuities (LTC insurance combined with annuities), and share LTC insurance in terms of premium cost and solvency capital requirements. Premiums and best-estimate reserves for generic LTC insurance policies are determined using Thiele's differential equation. Product features such as the elimination period and the maximum benefit period are compared using a simulation-based model. Solvency capital requirements for longevity risk and disability risk are based on the Solvency II standard formula. We quantiy the extent to which rider benefit policies and life care annuities provide lower solvency capital requirements that stand-along LTC insurance policies. We show how a maximum benefit period can reduce costs and risks for LTC insurance products.

Adam Shao is a Research Fellow at ARC Centre of Excellence in Population Ageing Research (CEPAR) UNSW node. He holds a PhD degree from the school of Risk and Actuarial Studies, UNSW. Adam's research interests include idiosyncratic house price modelling, longevity risk, solvency capital requirements, and pricing and risk analysis of post retirement financing products such as equity release products and long-term care insurance. More recently, Adam has been investigating the dynamics of population health and their impact on the demand for post-retirement financing products under a life-cycle model framework.

3. **Estimating the public cost of LTC in China: A means tested model.** Lu Bei (CEPAR, UNSW).

Long term care (LTC) policy is at an experimental stage in China, characterised by various regional pilot programs. The public cost of LTC is difficult to estimate due to a lack of clarity about policy detail from the central government. This paper tries to estimate a safety net public transfer to LTC services in China both for today and into the future, using CHARLS data (China Health and Retirement Longitudinal Survey, 2011 wave). The key contribution is to summarize the basic cost components a generic LTC system and how it may be applied to design a sustainable, means-tested LTC policy in China.

Lu Bei is a CEPAR Research Fellow located at the UNSW Business School and a Research Fellow with Zhejiang University, China. After Graduating from Tsinghua University in Beijing, Lu Bei worked as an international trader in the metal industry for 12 years. She returned to academia in 2002 to undertake a PhD in Economics at UNSW. Her thesis and subsequent research focuses on pensions and related social welfare and economic issues.

4. **Health and Aged Care: Considerations for superannuation funds.** Benedict Davies (UniSuper).

Professor Kevin Davis recently said, "We need to be aware the issues [with retirement] are not just around super, but include accommodation, health and age care, which stretch beyond the scope of the FSI. It is much broader and complex. Any attempt to design products needs to have in the back of the mind these other determinants." This paper will explore the issue of paying for health and aged care in later life. While some of the costs of ageing are met by taxpayers, many of the costs - including accommodation and discretionary health costs - are typically paid by retirees from their own resources. These costs are particularly hard for individuals to predict and plan for. This gives rise to a number of important considerations for superannuation funds, particularly designing retirement products and developing their advice services.

Benedict Davies is Manager, Government & Industry Policy at UniSuper. He has broad experience in technical, product and policy roles, having worked for a diverse group of employers. His day-to-day role involves analysing government policy and legislation and formulating a strategic response. Benedict is the Secretary of the Economic Society (Vic Branch) and he also sits on the AIST's Policy & Research Committee, as well as ASFA's Tax Standing Advisory Panel. Benedict has degrees in economics, philosophy and taxation law, as well as qualifications in applied finance.

Session 4B: Consumer Behaviour [Chemical Science M11]

Chair: George Kudrna, CEPAR

1. **The Australian Retirement System: Seven Alternatives.** Jessica Loke (ANU), Cagri Kumru (ANU) and John Piggott (CEPAR, UNSW).

For many countries, age pension expenditure will increase dramatically over the next few decades due to a shift in demographics. In the literature, research and solutions have predominately concerned individual funding systems, such as pay-as-you-go, means-testing and superannuation. A broad comparison between the systems has received limited attention. This paper examines the cost and economic welfare of these programs using a stochastic overlapping generations model calibrated to the Australian economy. Including the benchmark, eight different models are evaluated. In addition reducing fiscal burden, analysis indicates that models with an enforced savings component result in increased social welfare as agents accumulate large asset stockpiles allowing them, in aggregate terms, to consume more with a lower labour supply.

Jessica Loke graduated in 2014 from the Australian National University with a Bachelor of Economics (Honours). She is interested in the fiscal and economic impacts of an aging population, particularly with respect to retirement income streams. More specifically, her work examines economic outcomes under various pension and superannuation policies.

2. **Design and Equilibrium of a Notional DC Scheme.** Jennifer Alonso Garcia (CEPAR, UNSW).

The notional defined contribution model combines pay-as-you-go financing with a defined contribution pension formula. As in classical second or third pillar pension plans there are different parameters which can be chosen in order to attain different pension's goal. We know that the canonical parameter choices, based on a steady state population, are not suitable in a dynamic, more realistic, environment. This paper aims to show which parameters cause the system to not be in equilibrium and we suggest an indexation and notional rate which will provide liquidity and solvency both in the short and long run. The liquidity ratio compares the income from contributions with the expenditure on pensions (cash-flow point of view), whereas the solvency ratio compares the current liabilities of the system with the Contribution Asset.

Jennifer Alonso Garcia has been a Senior Research Associate at ARC Centre of Excellence in Population Ageing Research since July 2015. Before joining CEPAR, she was a Researcher Fellow in Actuarial Sciences at Institute of Statistics, Biostatistics and Actuarial mathematics (ISBA) at Université Catholique de Louvain in Belgium. Before starting her PhD she obtained a Bachelor and a Master in Mathematics from the University of Oviedo in Spain and a Master in Actuarial Sciences at Université Catholique de Louvain in Belgium. She has also worked in the industry as a Risk advisor. Her main research interests are notional accounts, retirement income, portfolio theory, first pillar pension system sustainability and mathematical finance.

3. **How well does the Australian Age Pension provide social insurance.** Emily Dobbs (University of Queensland).

Social security plays an essential role in an economy, but if designed incorrectly can distort the labour supply and savings behaviour of individuals. We examine the Australian means-tested pension system, exploring if different taper rates on income create welfare gains. This work has been explored by other researchers both in Australia and in other pension providing economies. However, most research ignores the fact that welfare gains can be overstated when the new taper rate results in a lower cost program. To exclude these trivial welfare gains, this paper fixes the cost of the system. We find that if the cost of the pension programme is allowed to vary, a taper rate of 1 is optimal. However, once we fix this cost, a universal benefit scheme provides the best welfare outcome.

Emily Dabbs has previously worked as an analyst for the Department of Immigration and Border Protection, providing economic and fiscal analysis in setting the annual Migration Programme. She received her bachelor's degree in economics (honours) from the University of Queensland and a master's degree in applied statistics from the Australian National University.

4. **Future proofing New Zealand Superannuation for a changing world**. Susan St John (University of Aucklan).

Under New Zealand's existing policy settings, the costs of retirement income, health, and welfare for the rapidly growing older population lift markedly over the next decades both in absolute terms and relative to other state spending. The 'affordability' of New Zealand Superannuation (NZS) may be improved by using one or more of three main levers: the qualifying age, the level of the payment, and the degree of targeting. Lifting the age of eligibility for NZS has been the most discussed lever and is widely seen as necessary for fiscal sustainability. Yet this is not the only policy lever available to improve affordability, nor is it necessarily the most equitable. The qualifying age could be raised gradually to reflect improved longevity but the long lead-in times likely to be needed preclude immediate savings. Reducing the level of NZS for everyone is the least favoured option, carrying the likelihood of increasing poverty among the aged population.

While there may be debates about whether the increasing costs are manageable, they may entail the opportunity cost of other more desirable spending, at least at the margin. New thinking is required to better fit the realities of the 21st century including widening inequality and the proliferation of casual work. The paper suggests that New Zealand has a unique opportunity to make New Zealand Superannuation a classic universal basic income and to use the tax system to provide worthwhile savings compared to the existing system. By doing so, the pressure on the working age population can be reduced, and perceptions of intergenerational equity enhanced.

Susan St John is an Associate Professor and the Director of the Retirement Policy and Research Centre, Auckland Business School, University of Auckland. She has written extensively on policy design of New Zealand Superannuation and contributed to international discussions on auto-enrolment and KiwiSaver. Her web page is found at http://homes.eco.auckland.ac.nz/sstj003/

6.00-6.45	Pre-Dinner Drinks
	Business Lounge, Level 6, Business School Building
6.45-9.00	Conference Dinner
	Business Lounge, Level 6, Business School Building

Day 2 (Tuesday 7th July 2015)

9.00-10.30 **Session 5: Plenary session** [Chemical Science M17]

<u>Member Behaviour</u>

Chair: John Piggott, CEPAR

1. **Using a Life Cycle Model to Evaluate Financial Literacy Program Effectiveness.** Annamaria Lusardi (The George Washington School of Business), Pierre-Carl Michaud (University of Quebec, Montreal) and <u>Olivia S. Mitchell</u> (The Wharton School).

Prior studies disagree regarding the effectiveness of financial literacy programs, especially those offered in the workplace. To explain such measurement differences in evaluation and outcomes, we employ a stochastic life cycle model with endogenous financial knowledge accumulation to investigate how financial education programs optimally shape key economic outcomes. This approach permits us to measure how such programs shape wealth accumulation, financial knowledge, and participation in sophisticated assets (e.g. stocks) across heterogeneous consumers. We then apply conventional program evaluation econometric techniques to simulated data, distinguishing selection and treatment effects. We show that the more effective programs provide follow-up in order to sustain the knowledge acquired by employees via the program; in such an instance, financial education delivered to employees around the age of 40 can raise savings at retirement by close to 10%. By contrast, one-time education programs do produce short-term but few long-term effects. We also measure how accounting for selection affects estimates of program effectiveness on those who participate. Comparisons of participants and non-participants can be misleading, even using a difference-in-difference strategy. Random program assignment is needed to evaluate program effects on those who participate.

2. **Retirement savings trajectories: The experience of Australian superannuation fund members.** <u>Paul Gerrans</u> (UWA), Jimmy Feng (Monash), Maria Strydom (Monash), Carly Moulang (Monash), Mauizio Fiaschetti (University of Oxford) and Gordon Clark (University of Oxford).

An individual's retirement savings trajectory is most often a reflection of choices they don't make. The majority prefer to leave a nominated proportion of wages, as mandated by government, invested with a retirement savings fund, as selected by their employer, in a prescribed investment strategy, selected in concert by their employer and fund. We are interested in what distinguishes those who run contrary to this picture and select their own trajectory in regards the third aspect, that is, the investment strategy. We are interested in the two dimensions of investment choices. First, are individuals equally concerned with the investment strategy applicable to future savings, accumulated savings or both? Second, what are the relative roles of individual (demographics), social (employment and location), and external (market) in the decision to alter retirement savings investment trajectory?

Paul Gerrans joined the UWA Business School in 2010 having previously been at Edith Cowan University as well also enjoying visiting positions at Susquehanna University, Pennsylvania. Over the past 15 years Paul has progressed from having a curiosity with consumer investment decision making to such choices being the major focus of his research. Superannuation, and retirement savings more broadly, is a research area of particular interest. We have been given a great deal of responsibility in the financial decisions that we can, and are, asked to make. Paul teaches personal finance and financial planning and undertakes related research into financial literacy and financial advice seeking. A final area of interest brings the strands of research together by examining financial decision making as we age and the role of cognitive decline and advice seeking.

3. **Ignorance is bliss? Constructing default investments for retirement savings accounts**. Adam Butt (ANU), Scott Donald (Law, UNSW), Doug Foster (UTS), **Susan Thorp** (University of Sydney) and Geoff Warren (CIFR)

We combine survey data from retirement plan members with information from interviews with retirement plan executives to get both perspectives on the choice of default investment options. We use a natural experiment in default construction where a new regulatory framework required providers to have stipulated default settings in place by early 2014. We find that not all retirement savings plan members who default at the plan stage default at the investment choice stage and vice versa. Only around one third of the sample say they defaulted twice. Some plan executives describe defaulting members as uninterested whereas our results highlight a subjective lack of skill combined with trust in the managing agents, rather than low interest in their retirement savings. Plan executives set a high risk exposure in default investment strategies to ensure high wealth growth, but defaulting respondents show a lower appetite for risk than choosers. The heterogeneity and low skill of members make a case for smart defaults.

Susan Thorp is Professor of Finance at the University of Sydney. Her research focuses on household finance, especially consumer financial decision making, and includes studies of risk communication, retirement savings portfolio management, annuitisation and retirement income streams. Professor Thorp has published over thirty articles in leading finance and economics journals. She is a founding Director of the Superannuation Consumers' Centre, a non-profit research and advocacy body aiming to improve retirement outcomes for Australian consumers, and a member of the Steering Committee of the Melbourne Mercer Global Pensions Index, an annually compiled internationally recognised index of pension system quality. She is also a regular contributor to pension policy discussions and is a member of the OECD/INFE Research Committee. Professor Thorp gained her BEc (Hons) from the University of Sydney, and her PhD from the University of New South Wales.

10.30-11.00 **Morning tea** [Foyer, Chemical Sciences]

11.00-12.30 Contributed papers

<u>Session 6A: Equity</u> [Chemical Science M17]

Chair: Chair – George Kudrna, CEPAR

1. **A longitudinal analysis of superannuation outcomes: Gender differences.** <u>Jimmy Feng</u> (Monash), Paul Gerrans (UWA), Noel Whiteside (University of Warwick), Maria Strydom (Monash), Carly Moulang (University of Oxford), Gordon Clark (University of Oxford) and Maurizio Fiaschetti (University of Oxford).

Adequacy in retirement income is an increasingly pressing concern worldwide given the reduction in government pension benefit and a transition from defined benefit to defined contribution scheme. Women are particularly disadvantaged for their interrupted career due to child rearing duties, and lower wage and salary in general, as well as longer longevity. Recent data show that women needed an extra 15 years of work to achieve similar retirement saving level as men. We look at a sample of member accounts provided by a major Australian superannuation fund to investigate the extent to which women's superannuation savings fall behind those of men and attempt to disentangle the main reasons why this happens. As superannuation system is yet mature, we also assess whether established gender-derived savings gaps are likely to diminish in the future exploring the longitudinal nature of the data. The results show that gender bias is structurally embedded in the Australian superannuation system, and consistent over time although greater gender equality among younger cohorts was observed prior to GFC. The highest degree of volatility in member balances is visible among younger cohorts and more evident among women than among men. The GFC had a detrimental impact on balance accumulation among the youngest cohorts. The gap between male and female superannuation balance is observable from the earliest ages, likely due to lower rate of contributions, lower frequency in contributions and longer gaps between contributions. Men dominate the upper earnings quartiles at all ages. This domination grows with age and there is little sign that patterns of female labour market participation are changing. This leads us to conclude that, if gender equality is desired, more action needs to be taken to supplement contributions from those undertaking care in lieu of work (who are mostly mothers).

Jimmy Feng is a research fellow at the Department of Banking and Finance, Monash Business School, Monash University. He is a member of the CSIRO-Monash Superannuation Research Cluster. He holds PhD in Economics and MPhil in Actuarial Studies from UNSW. His research focuses on retirement finances, physical and mental wellbeing of ageing. He specialises in research on behaviour and decision making process among superannuation members, health related research on post-retirement population. He also works on topics such as labour market and pension in China, housing market, and funds management.

2. **Inequality among Older Australians: The Superannuation Effect.** <u>Helen Hodgson</u> (Curtin Law School) and Alan Tapper (John Curtin Institute of Public Policy).

It is generally understood that income and wealth are each related to age. Income generally peaks in mid-life and falls in later life. Wealth rises with age and levels off or falls in later life. The two trajectories are importantly different. A typical life-cycle moves from an asset poor but income rich phase in early life to an income poor but asset rich phase in later life, with an income rich and asset rich phase in mid-life. The joint effect can be thought of as age-related economic well-being.

Following the changes to the taxation of superannuation in 2007 there are strong incentives for Australians to accumulate savings in superannuation over other investment vehicles. Investment in superannuation gives rise to tax planning opportunities that are generally more accessible to high income earners who have the capacity to make higher voluntary contributions during the accumulation phase, leading to a higher tax exempt income in the retirement phase.

The aim of this project is to identify whether there is an increase in inequality among older Australians as a result of the superannuation system; using both income and wealth as the basis for analysis.

The first stage of our enquiries focused on ABS data from the Survey of Income and Housing (SIH). Preliminary analysis showed that the wealth of older Australians increased significantly between 2002 and 2010, and that wealth became more evenly distributed. However housing was a more significant factor than superannuation in the data available at that stage.

The second stage of the project is to analyse the data available from HILDA from 2002 to 2013. Income data will be analysed to distinguish between private income (wages and salaries, investment income, private pensions, and other private income) and public transfers (government pensions, and other public transfers). Wealth data will distinguish between assets (home, investment property, superannuation, other financial assets, and other assets) and debts (mortgages, and other debts). These sets will then be analysed for distributional and mean comparisons between and within age cohorts at any one point in time, while trends across time can also be tracked using comparisons between sets. This will address a number of limitations in the available ABS data, including the ability to track the changes in income and wealth of particular individuals over the pre-retirement stage into early retirement.

This paper will present the initial findings from the HILDA analysis, comparing it to the initial findings from the ABS data and identifying issues that need to be further examined.

Helen Hodgson joined Curtin Law School in 2014. She has lectured in Taxation at UNSW (2004-2013), Edith Cowan University (2001 – 2004) and Curtin University (1989 – 1997). She was also a Member of the Legislative Council in Western Australia between 1997 and 2001.

Helen has a particular interest in Tax Policy, and was a participant at the 2010 Tax Forum. Her PhD was awarded in 2013 for analysis of the tax-transfer system, and she also researches in superannuation. In 2010 Helen was a co-author of the Women's Voices Report commissioned by the Equality Rights Alliance to examine factors influencing women's work-force participation, including superannuation, tax and transfer issues.

Helen holds qualifications in accounting, business law and taxation, is a Registered Tax Agent, a Fellow of the Australian Society of CPA's, a Chartered Tax Advisor and a member of the SMSF Professionals Association.

3. **Achieving equity in the provision of retirement incomes.** Ross Clare (ASFA).

Like beauty, equity is generally in the eye of the beholder. However, while the personal views and circumstances of an observer can influence perceptions in regard to equity, so too can quantitative and qualitative information. The purpose of this paper is to provide such information in regard to a variety of dimensions of equity that have and can be applied to superannuation and Age Pension policy settings. These include:

- Horizontal equity (dealing with like persons in a like manner)
- Vertical equity (providing tax assistance and Age Pension entitlement relative to need and circumstances)
- Inter-generational equity (not unduly advantaging or disadvantaging one generation relative to another)
- Treating individuals with accrued rights (or perceived accrued rights) equitably given their expectations and actions they had undertaken
- Not unreasonably discriminating between individuals.

The paper argues that it is the interaction of each of these components that is important rather than strict equity in all of its dimensions being achieved within each component. Specifically, both superannuation entitlements and Age Pension entitlements need to be taken into account, with this being over their lifetimes rather than just at a specific point of time. As well, retirement income arrangements will necessarily be affected by inequalities in income and wealth in society more generally. The overall conclusion drawn is that superannuation tax concessions and the provision of the Age Pension are broadly equitable and are sustainable. Some improvements are both possible and desirable but wholesale changes to current policy settings are not warranted.

Ross Clare is the Director of Research, Association of Superannuation Funds of Australia (ASFA). Ross Clare joined ASFA in 1996 and has been Director of Research since 2006. In this role he has been responsible for preparation of research papers across a range of superannuation and retirement income issues, including adequacy of retirement income and the structure of the Australian retirement income system. He was responsible, amongst other things, for the development of the ASFA Retirement Standard, which is now very commonly used in the superannuation sector and in superannuation research. He has contributed papers at nearly all of the Colloquiums of Superannuation Researchers that have been held. Prior to joining the staff of ASFA he held senior positions with the Australian Treasury and an Australian Government research agency, the Economic Planning and Advisory Commission. Ross Clare has degrees in Economics and Law from the Australian National University.

Session 6B: Superannuation/Pension Industry [Chemical Science M10]

Chair: Scott Donald, UNSW Law

1. **Independence and the governance of superannuation funds.** Scott Donald (Law, UNSW) and Suzanne Le Mire (Adelaide Law School).

The spotlight is now on the independence of members of superannuation fund boards. Following the Financial Services Inquiry recommendation that proposes to 'mandate a majority of independent directors on the board of corporate trustees of public offer superannuation funds, including an independent chair' and the government's stated policy of increasing independence and improving governance on superannuation boards, it appears likely that there will be an ongoing focus on the nature and benefits of independence in the superannuation context. This paper explores the nature and extent of the existing regulation of independence of superannuation fund boards and compares it with that regulating independence on listed company boards. It considers the extent to which these regulatory regimes are likely to realise the benefits of independence.

Scott Donald is the Director of the Centre for Law, Markets and Regulation and a Senior Lecturer at UNSW Law. Prior to joining UNSW, Scott worked in a variety of senior roles for Russell Investment Group (1994-2005, 2006-2009), including Director of Research, Director of Product Development (EMEA) and, most recently, Director of Fiduciary Research. Before that he was an investment analyst with Ipac Securities (1986-1994). In that time Scott has advised a wide range of public and private sector organisations in Australia and overseas on issues associated with the regulation, governance and investment of superannuation and investment funds. He was a consultant to the Super System Review (the 'Cooper Review') that reported in June 2010 and a member of the Stronger Super Governance Consultative Working Group in 2011. Scott has published widely in the academic, professional and industry press on issues related to regulation, law, governance and investment strategy. His current research work on systemic risk in superannuation is funded by a grant from the Centre for International Financial Regulation.

Suzanne Le Mire practised at Piper Alderman before moving to academia, where she is senior lecturer and Associate Dean (Learning and Teaching) at the Adelaide Law School, University of Adelaide. Suzanne's work on corporate law and legal ethics has been published in a number of highly regarded national and international journals. Her research interests include the role and regulation of independent directors, judges and in-house counsel. She is regularly invited to speak at a variety of public and professional events. This has included presentations to the Law Society of South Australia, the Australian Corporate Lawyers Association, the Governance Institute, the Hong Kong Law Society, the Hong Kong Institute of Directors, the Hong Kong Securities and Futures Commission and others. She has been a distinguished overseas visitor at the Chinese University of Hong Kong and visiting scholar at University College London. Suzanne is a member of the SA Judicial Development Committee, an editor of the international journal, Legal Ethics, secretary of the Australian Corporate Law Teachers Association, and a member of the International Association of Legal Ethicists. In 2012 Suzanne was awarded a fellowship by the National Institute for the Teaching of Ethics and Professionalism based at Georgia State University in recognition of her teaching activities.

2. **The determinants of pension fund director compensation.** Elizabeth Ooi (UWA Business School)

This study investigates the determinants of director compensation in pension funds which have distinct compensation practices and agency problems. Quantile regressions are estimated on a sample of 142 Australian pension funds from 2004 to 2011. Findings reveal that board monitoring quality (in funds that pay less director compensation), fund complexity (except in funds that pay high director compensation) and fund performance (particularly when performance is measured with fund expenses) are determinants of pension fund director compensation. These findings highlight the sensitivity of compensation theories in explaining remuneration under non-traditional conditions.

Elizabeth Ooi joined the University of Western Australia Business School in February 2015 as a Lecturer of Finance. Prior to this, she completed her PhD and was a teaching associate at Monash University. Her thesis focused on the governance of pension funds. Elizabeth also previously worked in the financial planning industry.

3. **The Landscape of the Composition of Superannuation Trustee Boards in Australia.** Rosalie Degabriele (UTS).

This is an exploratory paper which examines the structure of superannuation trustee boards in Australia. The Australian government has initiated considerable discussion in the last two years over the structure and composition of superannuation trustee boards. Much of the current discussion develops the earlier recommendations of the Cooper Review 2010.

In this paper I compile a recent landscape of the current composition of the Trustee superannuation boards of APRA regulated funds using publicly available data. The study highlights the type of appointment director's hold that is executive, non-executive and member representatives, the tenure, qualification, gender, and the background of the Chair..

Rosalie Degabriele hails from an investment banking and FCPA background. Her current research interests are a number of pension fund key areas including superannuation governance, the role and behaviour of institutional shareholders, and pension fund structures. Rosalie is an active participant of the financial services industry policy debates and is currently a member of the NSW CPA Divisional Council, previously a member of the FINSIA Superannuation Policy Group and a member of UniSuper Consultative Committee since 2003 and a member of the UTS Corporate Governance Research Centre. Prior to returning to the university Rosalie was employed in a number of investment banking roles domestically and overseas including management accounting, structured finance, institutional lending and capital markets.

Session 6C: Asset Allocation and Decisions [Chemical Science M11]

Chair: Adam Shao, CEPAR

1. **A lifetime model of labour supply and asset allocation of Australians: Estimation and policy implications.** Xiaodong Fan (CEPAR, UNSW) and Alan Woodland (Economics and CEPAR, UNSW).

We propose a life-cycle model where each household makes decisions on labour supply, retirement, consumption, housing demand, and asset allocation between liquid asset (money in the bank) and illiquid asset (housing). We then estimate the model under the Australian policy environment using the Australian data. We show that exemption of residential home in the assets test of age pension is able to generate a large proportion of the asset rich but income poor elderlies in Australia. Effects of various policy changes are then simulated and discussed in the paper.

Xiaodong Fan is a CEPAR Research Fellow located at the University of New South Wales. He joined the Centre in September 2012 after graduating with a PhD in Economics from the University of Wisconsin–Madison. His research interests include labour economics, applied microeconomics, and macroeconomics. His current research projects include the determinants of labour supply, savings and retirement in the life-cycle context, age pension policy evaluations, maternal employment, labour market mobility, and the labour market recovery after recession.

2. **Design of MySuper Default Funds: Influences and Outcomes.** Adam Butt (ANU), Scott Donald (UNSW), Doug Foster (UTS), Susan Thorp (University of Sydney), Geoff Warren (CIFR).

This presentation will provide an account of how fund providers went about designing their MySuper products, based on interviews with fund executives. It will describe how funds characterise their default members and perceive their needs; and will identify the key influences on MySuper design. The research provides insight into how providers are balancing their fiduciary obligations against their role as product providers in a competitive market. A number of interesting findings emerge, including: the manner in which member needs are portrayed as central, and business considerations as secondary or constraints; an emergent focus on delivering retirement outcomes; the widespread use of language that aligns with life cycle theory; the degree of heterogeneity existing across funds; and an underlying desire for greater tailoring. The research also highlights the significance of requiring providers to specifically address the needs of their default members through only one MySuper fund.

Geoff Warren is Research Director at the Centre for International Finance and Regulation (CIFR), where he is responsible for furthering CIFR's internal and targeted research program. Geoff's own research is focused on investment-related areas including superannuation, fund management, portfolio construction, asset pricing and valuation. Geoff is currently on leave from ANU, where he held a position from 2009 to 2013 as a Senior Lecturer in the School of Finance, Actuarial Studies and Applied Statistics. Prior to pursuing an academic career, Geoff spent over 20 years in investment markets. This included around 3 years as the Director of Capital Markets Research at Russell Investments in Australia; over 14 years within the research department of investment bank Ord Minnett and then JP Morgan, in various roles including company analyst, strategist and head of research; and about 3 years as an equity portfolio manager with AMP Investments. Geoff has a doctorate in finance from the Australian Graduate School of Management, and a Bachelor of Commerce (Honours) with the University Medal from the University of NSW.

3. **Formulating appropriate utility functions and personal financial plans.** Anthony Asher (Risk & Actuarial, UNSW), Adam Butt (ANU), Ujwal Kayande (University of Melbourne) and Gaurav Khemka (Bond).

The consequences of great longevity and the move from DB to DC pensions is that more people need to make the relatively complex decisions necessary to provide for when they are not going to be able to work, and when state-provided benefits appear inadequate, or are less than their desired standard of living. Many people are financially illiterate and take no interest in obtaining financial advice or of addressing the question of retirement savings. Even when they seek advice, the advice provided can be inconsistent, biased and counter-productive

Little however is written about what constitutes helpful advice, and even less on the role and design of decision support systems (in financial calculators particularly) to assist in the making of appropriate decisions. In particular, we raise the question as to whether an appropriately structured web-based calculator (i.e., a decision support system) could be used to improve decisions about savings and investment, both before and after retirement.

This paper forms part of a broader project aimed at designing such a calculator. The objective of the present paper is to consider the extent to which the standard utility functions in the literature can be better related to individual's preferences. It draws on the financial and economic literature on the financial lifecycle, such as Blake et al (2011), with broader work on happiness and discounting, as summarised by Clark et al (2008) and Frederick et al (2002), as well as the psychology theories of Stanovich and West (2000) and Kahneman (2011). From the actuarial literature, it extends Thomson's (2003a; 2003b) work on the elicitation of risk aversion in the choice of investments for retirement.

We illustrate the issues using a model that optimises the utility of consumption over the lifetime under uncertain investment returns and longevity. It reconciles a backward looking smoothing function with a forward looking value function that incorporates a measure to limit the losses imposed by the smoothing function. These losses occurs to the extent smoothing delays a reduction in consumption when returns are low.

Future research will develop a prototype calculator with alternative formulation of utility functions that will be tested on users, who are Australian superannuation fund members and financial advisors. The utility functions need to be plausible and presentable in ways that are accessible to users so that they can choose investment and consumption strategies that match their risk aversion. It is expected that the utility functions need to be as simple as possible to limit the number of questions users need to answer.

Anthony Asher is Associate Professor in the School of Risk and Actuarial Studies at UNSW, where he lectures part II and III courses. His current research interests include retirement products and advice, and the application of virtue theory to education and regulation. Work experience includes a variety of roles in regulation, superannuation, investments and life insurance. He serves on the Actuaries Institute's Research Committee, the Australian Journal of Actuarial Practice editorial board, and is Convenor of the Retirement Incomes Working Group.

12.30-2.00 **Lunch** [Business Lounge, Level 6, Business School Building]

2.00-4.00 **Session 7: Plenary session** [Chemical Science M17]

Chair: Hazel Bateman, UNSW Risk & Actuarial Studies

Special presentation:

Adam Shao – Pensions and Superannuation Seminar Series @ UNSW (Risk and Actuarial and CEPAR)

1. **The abolition of the annuity obligation in the UK: What is means.** Bernard Casey (University of Warwick).

The 2014 UK budget contained a profound and unexpected change in UK pension policy. Participants in funded, supplementary pension plans would no longer be required to annuitise their retirement savings. They could cash them out, place them into drawdown, bequest them or otherwise use them as they wished and would no longer be subject to "penalty" taxation if they did so. In this respect, and although the Australian example of no mandatory annuitisation was pointed to, the UK government moved in completely the opposite direction to which many – including the FSI – thought Australia should be going.

One year on, people have begun to exercise their new "Pension Freedom". This paper will review why the changes were made, what precisely was done, what the response of the industry to them has been, and what the take up of new opportunities has been. It will pay particular attention to the offer of "free advice" to those eligible to liquidate their savings meant, and how the offer was implemented. It is to be noted, there are parallels to Australia, where the FSI, in its final report, stressed how High-quality advice may be useful to some individuals to help them manage their financial affairs in retirement". The paper will look at the procedures established in the UK, at who would pay for such assistance, and at who uses it. It will also examine the extent to which the reform did, indeed, lead to the development of new and innovative retirement products. It will conclude with an assessment of how "successful" the UK reform has been, who have been winners and who have been losers. It will also suggest some lessons for Australia.

Bernard H Casey is a principal research fellow at the Institute for Employment Research at the University of Warwick and at the Personal Social Services Research Unit at the London School of Economics, where he is also a visiting senior research fellow at the Hellenic Observatory. He studied at the University of Oxford and the LSE and describes himself as a social economist. He was on the staff of the Wissenschaftszentrum Berlin (Science Centre Berlin) in the 1980s and been a senior economist at the OECD. His research into the economic implications of societal ageing has been concerned with age and work, transitions to retirement, employment related social security and long-term care of the frail elderly. He has undertaken studies for the European Commission and acted as a consultant to member state governments, including Austria for its 1998 presidency and, more recently, Cyprus. In the last couple of years, he has been involved in a major study of the Australian superannuation system with colleagues from Australian and from Warwick.

2. **The development of retirement savings adequacy in Australia over time.** John Burnett (Towers Watson), Kevin Davis (University of Melboune), Carsten Murawski (University of Melbourne).

The inadequacy of retirement savings is a major economic, social and political challenge for Australia. While there is wide agreement that retirement savings in the Australian population are insufficient, there is little research quantifying the extent of inadequacy of savings. In Burnett et al. (2014), we proposed four comprehensive measures to quantify adequacy of retirement savings at the level of individual households. We subsequently estimated these measures for a large, representative sample of the Australian population aged 40 and above. We found that in 2010, 79.4% of singles and 49.8% of couples had inadequate retirement savings. In addition, we found that 95.8% of singles 88.8% of couples are expected to receive the Age Pension during retirement, and that the Age Pension was expected to contribute about half of those people's retirement income on average. Building on Burnett et al. (2014), the present study estimates retirement savings adequacy for the period 2002 to 2010, to investigate the development of retirement savings adequacy over time. We estimate retirement income level and adequacy of retirement savings for a large, representative sample of the Australian population who were aged between 25 and 64 in 2002. The estimation procedure is described in Burnett et al. (2014). The estimations are based on data from the Household Income and Labour Dynamics in Australia (HILDA) survey for the years 2002 to 2010. Detailed data on household assets and liabilities are available for the years 2002, 2006 and 2010, while income and socio-demographic data are available for each year during the period 2002 and 2010. Our sample comprises 17,961,20,277 and 22,689 persons in the years 2002, 2006 and 2010, respectively. Projections of retirement income and retirement savings adequacy were computed for each of those individuals for the years 2002, 2006 and 2010. Summary statistics were population-weighted to make them representative of the Australian population. The proportion of singles in the Australian population with inadequate retirement savings decreased from 79.0% in 2002 to 77.3% in 2006 and 76.7% in 2010. The proportion of couples with inadequate savings decreased from 51.9% in 2002 to 47.7% in 2006 but increased to 48.5% in 2010, with the biggest changes occurring in the age groups 37-40 and 61-64. The mean projected contribution of the Age Pension to total retirement income of singles decreased from 56.1% in 2002 to 52.75% in 2006 but increased to 56.1% in 2010. For couples, it decreased from 38.4% in 2002 to 34.7% in 2006 but increased to 35.6% in 2010, with the biggest changes occurring in the age groups 25-28 and 61-64. In the paper we provide a more detailed analysis of the changes in retirement income and retirement savings adequacy over time and the factors that affected those changes. In the early 1990s, Australia introduced superannuation to increase overall levels of retirement income and retirement savings adequacy, and to decrease the dependency of retirees on the Age Pension. Our analysis shows that estimated levels of retirement income, retirement savings adequacy and dependency on the age pension have fluctuated significantly during the period 2002-2010, indicating a strong influence of changes in policy settings, market factors and individual factors on those variables. While we observed a slight increase in retirement savings adequacy for both singles and couples, we also observed that dependency on the Age Pension only decreased for couples but nor singles. As in our previous study, we found a large degree of heterogeneity in expected retirement income levels and retirement savings adequacy both in the cross-section and over time. Overall, our study contributes to a better understanding of the adequacy of retirement savings and its development. By identifying factors that influence expected retirement income and retirement savings adequacy, our study is of relevance to academic researchers as well as to policy makers.

John Burnett is an actuary with over 35 years of experience in the superannuation industry. He has specialised in corporate superannuation, working mainly in Sydney with stays of several years in both Perth and Melbourne. John joined Towers Watson in 2000 and provides consulting and actuarial services to clients.

John has managed many projects for clients including fund amalgamations, tenders, outsourcing reviews, defined benefit to accumulation transfers and website launches. He has also advised on the superannuation aspects of mergers and acquisitions. John has a particular interest in both benefit projections and online calculators and their role in member decision making.

John has a Bachelor of Arts majoring in Actuarial Science from Macquarie University and is a Fellow of the Institute of Actuaries of Australia. He is a member of the Professional Standards Committee of the Institute of Actuaries of Australia.

3. **Assessing Pension Tax Regimes: An Australian Perspective.** Hazel Bateman (Risk & Actuarial, UNSW) and George Kudrna (CEPAR, UNSW).

Retirement savings (or private pensions) can be taxed at one or more of three points – contributions (T), fund earnings (T) and/or benefits (T). Most countries tax private pensions under an expenditure tax – or EET – regime where contributions to and earnings of the pension fund are exempt from any taxation, but benefits are treated as ordinary income and taxed progressively. Some countries tax pensions under a comprehensive income tax – or TTE – regime, which sees contributions to the pension fund and fund earnings taxed but then no further taxes apply. An alternative is a hybrid approach – TTT – where pensions are taxed at all three points.

Over the past 30 years, superannuation (Australia's term for private pensions) has been taxed under all three regimes – starting with EET until 1988, then TTT between 1988 and 2007 and TTE since 2007, albeit at concessional rates for most people. The current taxation of superannuation in Australia features a flat rate of tax on contributions and fund earnings, with benefits being generally tax free. This approach has been widely criticised because of vertical equity concerns, with superannuation tax concessions providing a lager tax break to high income earners (Australia's Future Tax System [AFTS], 2010).

The purpose of this project is threefold. Firstly, we trace the evolution of the taxation of superannuation over the past three to four decades and compare the Australian approach with international experience. In doing so, we highlight key deficiencies with the current superannuation tax approach. Secondly, we discuss the pros and cons of the most recent blueprint for reform of superannuation tax policy as recommended in AFTS (2010) – that is a switch from the current comprehensive income tax (TTE) approach to a pre-paid expenditure tax (TEE) approach with a flat rate of contribution rebate. Lastly, we undertake a quantitative analysis of the AFTS proposed reform, using a lifecycle model stylised to the Australian economy, to numerically evaluate the impacts on equity and efficiency as well as to draw out main macroeconomic implications.

Our model-based simulation results indicate that the proposed reform would improve vertical equity and reduce income inequality upon impact, as well as in the long term, as shown by larger welfare gains and income improvements experienced by lower income households and a reduced Gini coefficient. We also find positive effects on total assets and reduced government expenditures on the age pension. However, the reform yields a small aggregate efficiency loss.

George Kudrna is a research fellow at CEPAR, located at UNSW Australia. He joined CEPAR in 2011 after working as a postdoctoral fellow for the UNSW School of Economics. He completed his undergraduate studies in economics and insurance management in the Czech Republic, and received a PhD in economics from the University of Sydney in 2009. His research interests include pension economics, economic modelling, computational economics and population ageing. He has written articles published in the Journal of Macroeconomics and Economic Record. George is currently involved in research projects on taxation of private pensions, means testing of public pensions and economic implications of population ageing and pension reforms in Australia

4. **Cognitive functioning meets financial literacy and judgement in older age: Advising those with self-managed retirement savings.** Joanne Earl (Psychology, UNSW), Paul Gerrans (Finance, UWA), Anthony Asher (Risk & Actuarial, UNSW).

We investigate the relationships between measures of financial literacy, applied financial literacy, financial judgement and measures of fluid and crystallised cognitive ability. Given an ageing population and the responsibility for managing savings in retirement, this relationship is of increasing importance. We find differences between those people who self-manage large retirement savings portfolios and those with money in institutional retirement savings funds, with the former displaying greater financial literacy and judgement than is generally observed in members of institutional funds. We determine that different cognitive processes underlie financial literacy and financial judgement, and that these are susceptible to decline at different rates. Findings have important implications for the monitoring of cognitive ability, financial literacy and financial judgement over time.

Joanne Earl is a Registered Psychologist, and a member of the Australian Psychological Society. She is passionate about making retirement a positive experience for all Australians. Her program of research focuses on promoting retirement planning for workers at both the individual and organizational level along with identifying predictors of retirement adjustment for retirees. Recent research projects include investigating the relationship between financial literacy and cognitive decline, the application of time perspective theory to explain differences in retirement planning behaviour and the development of online training interventions to promote better planning. With her PhD and Masters students she has developed a range of new retirement planning measures published in top tier journals. You can find her work published in the Journal of Vocational Behaviour, Psychology and Aging, The Australian Journal of Management, Ageing and Society and Leisure Sciences. She regularly appears in the press and on radio talking about her research. You will find her LinkedIn profile here: https://www.linkedin.com/pub/joanne-earl/3b/523/b34 and hear her talking about the application of psychological research findings to retirement planning on YouTube here https://www.youtube.com/watch?v=cSdy0MzwM7o.

4.00-4.05 Conference close

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