30TH COLLOQUIUM ON PENSIONS AND RETIREMENT RESEARCH

Co-hosted by the ARC Centre of Excellence in Population Ageing Research (CEPAR) and the School of Risk and Actuarial Studies, UNSW Business School

29-30 November 2022: Colombo Lecture Theatres, UNSW Sydney

1 December 2022: Online Session, sponsored by IPRA

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The **Colloquium on Pensions and Retirement Research** is co-hosted by the ARC Centre of Excellence in Population Ageing Research (CEPAR) and the School of Risk & Actuarial Studies, UNSW Business School.

The Colloquium is a unique annual event, bringing together academia, government and industry to discuss the latest research on pensions, superannuation and retirement.

SCIENTIFIC COLLOQUIUM COMMITTEE

- Hazel Bateman, CEPAR Deputy Director, School of Risk & Actuarial Studies, UNSW Business School
- David Bell, CEPAR, The Conexus Institute
- Inka Eberhardt, CEPAR, UNSW Business School
- Katja Hanewald, CEPAR, School of Risk & Actuarial Studies, UNSW Business School
- George Kudrna, CEPAR, UNSW Business School
- Kevin Liu, School of Risk & Actuarial Studies, UNSW Business School

PROGRAM

View the program online at **cepar.edu.au/colloquium-2022**.

The 30th Colloquium takes place at the Colombo Lecture Theatres at UNSW Sydney on 29-30 November 2022.

The Colloquium also hosts an online session on 1 December 2022, sponsored by the International Pension Research Association (IPRA).

Use the hashtag #ceparcolloquium to post content relating to the Colloquium on social media. Please tag us:

- Twitter: @CEPAR_research
- LinkedIn: linkedin.com/company/cepar-research

Dietary Requirements: During lunch, dinner and tea breaks, please check for labels to match dietary requirements or ask a catering staff member.

Visitor Safety Information - The health and safety of our patrons is our top priority, and this event will abide by the Public Health Order prevailing at the time. Please follow our conditions of entry.

Feeling unwell? Do not attend the event if you feel unwell, have recently experienced any cold or flu-like symptoms or are awaiting the results of a COVID-19 test.
If subsequent to attending the event you are required to be tested for COVID-19, please alert us at cepar@unsw.edu.au or s.weiss@unsw.edu.au so we can complete the online notification form at https://www.covid-19.unsw.edu.au/covid-19-case-notification. This will help us monitor and manage the number of cases on UNSW campus and advise those you may have had contact with.

Health and safety protocol:

- While wearing **masks** is not mandatory *(as of 23 November 2022)*, we strongly encourage you to wear a mask indoors and on public transport at this time, especially if you cannot physically distance. Please bring a mask with you.
- Maintain physical distancing and density limits of not more than 1 person per 2sqm indoors
- Wash or sanitise your hands regularly
- Keep a safe distance from others and avoid physical contact

Public Transport - The UNSW Kensington Campus is easily accessible via public transport. Call the Transport Infoline on 131 500 or visit transportnsw.info.

To travel on trains, buses and ferry services in NSW, you will need an Opal card or contactless enabled credit or debit card. For further information visit opal.com.au.

Paid casual and visitor parking is offered via the CellOPark App and 'pay by plate meters' at various locations. Parking is free after 7.30 pm weekdays and on weekends and public holidays. Further information is available at www.estate.unsw.edu.au/getting-here/parking-campus.

There are two major carparks on UNSW Kensington Campus:

- Barker Street Carpark – Entry via Gate 14, Barker Street.
- Botany Street Carpark – Enter via Gate 11, Botany Street.

UNSW can be accessed by **taxis or ride-sharing apps**, with High Street and Anzac Parade attracting the greatest number of passing taxis. If you'd like to book ahead, try your ride-sharing apps or taxicombined.com.au 13 33 00.

Internet access: Visitors can access Wi-Fi across all UNSW campuses by connecting to the UNSW Guest Network.
Please note, Guest Wi-Fi is not intended for existing staff or students and will not allow access to UNSW internal systems. If you are an existing UNSW staff or student, please use the Wi-Fi for Staff and Students service.
In order to connect to the guest wi-fi network please follow the steps below:
Step 1 - Navigate to Wi-Fi settings and connect to the '**UNSW Guest**' Network.
Step 2 - You will be redirected to a registration screen and be asked to provide your name and e-mail details. You will also need to accept the T&Cs and Privacy Statement before proceeding.
For further information, please visit www.myit.unsw.edu.au/services/guests/wi-fi-guests or contact the IT Service Centre at (02)9385 1333 or ITServiceCentre@unsw.edu.au.

Information regarding the Dinner if you have purchased a dinner ticket:
The Dinner will be held at The Lounge, UNSW Sydney.
Address: Level 11, Library Building F21, UNSW Kensington Campus
Entry is from rear of the building. Please take the lift up to level 11.

INSTRUCTIONS FOR ORAL PRESENTATIONS
Please check the program well in advance for your session details, date and time of your presentation.
Presenters are asked to:

- Arrive at their session venue at least 15 minutes before the start of the session
- Check or upload their PowerPoint/PDF slides onto the lecture computer in the session room and make sure that their file runs appropriately.
- Contact person for presentation slides: Dr Kevin Liu, kevin.liu@unsw.edu.au

Media may attend sessions and are asked to identify themselves and their organisation when asking questions/making comments.

ASSISTANCE
Please do not leave your bags and suitcases unattended.
If you require on-site assistance at the conference, please see a member of the Colloquium Committee.

PROGRAM SCHEDULE

View the online program of the Colloquium at

cepar.edu.au/colloquium-2022

29 November 2022 (Day 1) - *(subject to minor changes)*

Venue: Colombo House Theatres, UNSW Sydney

Time in Sydney (AEDT time zone)	Day 1 Program Schedule: **29 November 2022**	Venue
8.30-9.00am	Arrival and registration	Foyer
9.00-9.10am	Welcome and Opening Remarks	Colombo A
9.10-10.40am	Session 1: Plenary	Colombo A
10.40-11.10am	Morning Tea	Foyer
11.10am-12.40pm	Sessions 2A, 2B, 2C: Concurrent Papers	Colombo A,B,C
12.40-2.00pm	Lunch	Foyer
2.00-3.30pm	Session 3: Plenary	Main Room
3.30-4.00pm	Afternoon Tea	Foyer
4.00-5.30pm	Sessions 4A, 4B, 4C: Concurrent Papers	Colombo A,B,C
5.30pm	Closing Remarks Day 1	Colombo A,B,C
6.00-8.30pm	Reception and Dinner (The Lounge, UNSW Sydney)	The Lounge, UNSW Sydney

30 November 2022 (Day 2) - *(subject to minor changes)*

Venue: Colombo House Theatres, UNSW Sydney

Time in Sydney (AEDT time zone)	Day 2 Program Schedule: 30 November 2022	Venue
8.30-9.00am	Arrival and registration	Foyer
9.00-9.10am	Welcome and introductory remarks	Colombo A
9.10-10.40am	Session 5: Industry/Policy Panel	Colombo A
10.40-11.10am	Morning Tea	Foyer
11.10am-12.40pm	Sessions 6A, 6B, 6C: Concurrent Papers	Colombo A,B,C
12.40-2.00pm	Lunch	Foyer
2.00-4.00pm	Session 7: Plenary	Colombo A
4.00pm	Closing Remarks	Main Room

1 December 2022 (Day 3) - *(subject to minor changes)*

ONLINE, sponsored by the International Pension Research Association (IPRA)

Time in Sydney (AEDT time zone)	Day 3 Program Schedule: 1 December 2022, ONLINE
6.50-7.00pm	Welcome and opening remarks
7.00-8.20pm	Session 1: Pension Decisions
8.20-8.30pm	Break
8.30-9.50pm	Session 2: Retirement and Adequacy
9.50-10.00pm	Break
10.00-11.00pm	Session 3: Pension Finance and Choice Architecture
11.00-11.10pm	Break
11.10pm-12.10am	Session 4: Old Age Security
12.10am	Closing remarks

PROGRAM *(subject to minor changes)*			
Day 1: 29 November 2022 (AEDT) **Colombo House Theatres, UNSW Sydney**			
Time (AEDT Time zone)	**Session details**	**Presenter**	**Venue**
8.30-9.00am	***Arrival and Registration***		***Foyer***
9.00-9.10am	**WELCOME AND OPENING REMARKS** Hazel Bateman, CEPAR, School of Risk and Actuarial Studies, UNSW Sydney		**Colombo A**
9.10am-10.40am	**SESSION 1: PLENARY** Chair: John Piggott (CEPAR, UNSW Sydney)		**Colombo A**
9.10-9.55am	Asset Decumulation and Risk Management in Retirement	Pierre-Carl Michaud (HEC Montreal)	
9.55-10.40am	How Much Can I Spend? The Role of Projections and Anchor-Values in Guiding Spending in Retirement	Ben Newell (School of Psychology, UNSW)	
10.40am-11.10am	*Morning Tea*		*Foyer*
11.10am-12.40pm	**CONCURRENT SESSION 2: CONTRIBUTED PAPERS**		
	Session 2A: Lifecycle Financial Decisions Chair: Katja Hanewald (CEPAR, School of Risk & Actuarial Studies, UNSW)		
11.10-11.40am	Family Portfolio Choice over the Lifecycle	Joachim Inkmann (University of Melbourne)	**Colombo A**
11.40am-12.10pm	The Effect of Pension Tax Treatment on Optimal Consumption and Investment Decisions Over the Life-cycle	Jun-Hee An (Tilburg University, The Netherlands)	**Colombo A**
12.10-12.40pm	Eggs and Baskets: Lifecycle Portfolio Dynamics	Akshay Shanker (University of Sydney Business School)	**Colombo A**

	Session 2B: Superannuation/Pension Fund Issues Chair: Andrés Villegas (CEPAR, School of Risk & Actuarial Studies, UNSW)		
11.10-11.40am	Collected Research on the Your Future, Your Super Performance Test	David Bell (The Conexus Institute)	**Colombo B**
11.40am-12.10pm	Moving Beyond Wishy-Washy Net Zero Commitments: How can Superannuation Funds Trustees Earn our Trust?	Vien Siu (UNSW Sydney)	**Colombo B**
12.10-12.40pm	Choice in Super	M Scott Donald (School of Private and Commercial Law, UNSW Sydney)	**Colombo B**
	Session 2C: Retirement Income Adequacy Chair: Sophie Yan (CEPAR, UNSW)		
11.10-11.40am	Superannuation Fund Member Switching Activity: Impact of COVID-19	Gaurav Khemka (Australian National University)	**Colombo C**
11.40am-12.10pm	The COVID Related Early Release of Superannuation – A Retrospective Look	Ross Clare (ASFA)	**Colombo C**
12.10-12.40pm	Superannuation Retirement Balances: The Effect of Taxation and Superannuation Guarantee Policies	Richard Webster (Australian National University)	**Colombo C**
12.40pm-2.00pm	***Lunch***		*Foyer*
2.00-3.30pm	**SESSION 3: PLENARY** Chair: Hazel Bateman (CEPAR, School of Risk & Actuarial Studies, UNSW)		**Colombo A**
2.00-2.30pm	Assessing Retirement Income Strategies… When Outcomes are but a Promise	Geoff Warren (Australian National University) and David Bell (The Conexus Institute)	
2.30-3.00pm	The Difference Between Insured and Uninsured Retirement Products	David Orford (Optimum Pensions)	
3.00-3.30pm	Modelling Investment-Linked Annuities in Australia	Adam Butt (Australian National University)	

3.30-4.00pm	***Afternoon Tea***		*Foyer*
4.00-5.30pm	**CONCURRENT SESSION 4: CONTRIBUTED PAPERS**		
	Session 4A: Retirement Products Chair: Jonathan Ziveyi (CEPAR, School of Risk & Actuarial Studies, UNSW)		
4.00-4.30pm	A Unified Markov Chain Monte Carlo Framework for Valuation and Assessment of Retirement Income Products	Yawei Wang (School of Risk & Actuarial Studies, UNSW Sydney)	**Colombo A**
4.30-5.00pm	Mean-Variance Longevity Risk-Sharing for Annuity Contracts	Hamza Hanbali (Monash University)	**Colombo A**
5.00-5.30pm	Valuing Equity-Linked Insurance	Kelvin Tang (School of Risk & Actuarial Studies, UNSW Sydney)	**Colombo A**
	Session 4B: Housing and Retirement Chair: Katja Hanewald (CEPAR, School of Risk & Actuarial Studies, UNSW)		
4.00-4.30pm	Retirement Financing with Private Pension and Housing Assets	George Kudrna (CEPAR, UNSW Sydney)	**Colombo B**
4.30-5.00pm	The Bequest Motive is Dead: Long Live the Bank of Mum and Dad.	Josh Funder (Household Capital)	**Colombo B**
5.00-5.30pm	Optimal Home Equity Release Strategies in a Two-Generation Model	Scott Shao (School of Risk & Actuarial Studies, UNSW Sydney)	**Colombo B**
	Session 4C: Individual Behaviour Chair: Susan Thorp (CEPAR, University of Sydney Business School)		
4.00-4.30pm	Financial Literacy Education for the Elderly: A Case Study on Providing Basic Financial Literacy Education to the Elderly via Religious Communities	Samuel Joo (International Finance Corporation)	**Colombo C**
4.30-5.00pm	Diverse Effects of a Recurrent Communications Nudge and Communications Boost on Retirement Savings in the Long-Run	Nguyen Bang Chau (Victoria) Hoang (University of Sydney Business School)	**Colombo C**
5.00-5.30pm	Present Bias, Asset Allocation, and Bond Behaviour	Jorgo Goossens (Radboud University, The Netherlands)	**Colombo C**

5.30pm	**CLOSING REMARKS FOR DAY 1**	Session chairs	**Colombo A, B, C**
6.00-8.30pm	***Reception and Dinner*** ***Dinner at The Lounge*** *Level 11, Library Building F21, Kensington Campus* *Phone: 02 9385 9982* *For directions, please click here.* • Entry from rear of building • *Take the lift to level 11*		***The Lounge, UNSW***

DRAFT PROGRAM (subject to minor changes)			
Day 2: 30 November 2022 (AEDT) **Colombo House Theatres, UNSW Sydney**			
Time (AEDT Time zone)	**Session details**	**Presenter**	**Venue**
8.30-9.00am	***Arrival and Registration***		***Foyer***
9.00-9.10am	**WELCOME AND INTRODUCTORY REMARKS**		**Colombo A**
9.10am-10.40am	**SESSION 5: INDUSTRY/POLICY PANEL** Chair: David Bell (Executive Director, Conexus Institute)		**Colombo A**
	The challenge of providing good retirement outcomes in the future *Panellists:* Fiona Reynolds, CEO, Conexus Financial Rosie Thomas, Deputy Director, Super Consumers Australia Jeremy Cooper, former Chairman, Retirement Income, Challenger		
10.40am-11.10am	*Morning Tea*		*Foyer*

11.10am-12.40pm	**CONCURRENT SESSION 6: CONTRIBUTED PAPERS**		
	Session 6A: Mortality Modelling Chair: Michelle Vhudzijena (CEPAR, School of Risk & Actuarial Studies, UNSW)		
11.10-11.40am	Affine Mortality Models with Jumps: Parameter Estimation and Forecasting	Len Patrick Dominic M Garces (CEPAR, UNSW Sydney)	**Colombo A**
11.40am-12.10pm	Age-Dependent Multi-Cohort Affine Mortality Model with Cohort Correlation	Yuxin Zhou (School of Risk & Actuarial Studies, UNSW Sydney)	**Colombo A**
12.10-12.40pm	Weighted Compositional Data Analysis for Modelling and Forecasting Life-Table Death Counts	Han Lin Shang (Macquarie University)	**Colombo A**
	Session 6B: Aged Care and Ageing Chair: Sophie Yan (CEPAR, UNSW)		
11.10-11.40am	Factors Involved in End-of-Life Financial Decisions: An Analysis of Aged Care Payments in Australia	Anam Bilgrami (Macquarie University)	**Colombo B**
11.40am-12.10pm	Costs of Care – The Financial Impacts of Providing Care on Savings and Superannuation	David Cullen and Lukas Hofstaetter (Carers NSW)	**Colombo B**
12.10-12.40pm	Life-Course Inequalities in Intrinsic Capacity and Healthy Ageing	Katja Hanewald (School of Risk & Actuarial Studies, UNSW Sydney)	**Colombo B**

	Session 6C: Pensions Issues Chair: Bei Lu (CEPAR, UNSW)		
11.10-11.40am	An Empirical Study of the Distribution of Superannuation Death Benefits	Tobias Barkley (La Trobe University)	**Colombo C**
11.40am-12.10pm	Standardized, Unitized, Accretive Longevity Insurance: Lessons from the Differing Demand for Annuities and Life Insurance	Andrew Stumpff (University of Michigan Law School)	**Colombo C**
12.10-12.40pm	Modelling Retirement Income Risks and Solutions: A Retirement Income Toolkit in R	Jonathan Ziveyi (School of Risk & Actuarial Studies, UNSW Sydney)	**Colombo C**
12.40pm-2.00pm	*Lunch*		*Foyer*
2.00-4.00pm	**SESSION 7: PLENARY** Chair: George Kudrna (CEPAR, UNSW)		**Colombo A**
2.00-2.30pm	Optimal Savings and Portfolio Choice with Risky Labour Income and Reference-Dependent Preferences	Roger Laeven (University of Amsterdam)	
2.30-3.00pm	Firm Productivity with an Ageing Labour Force	Erik Hernaes (Ragnar Frisch Centre for Economic Research, Oslo)	
3.00-3.30pm	Aware Super's Retirement Confidence Score: A new way to measure risks in retirement income	Shang Wu and Estelle Liu (Aware Super)	
3.30-4.00pm	Using Holistic Advice to Improve Retirement Planning	Joanne Earl (Macquarie University)	
4.00pm	**CLOSING REMARKS** George Kudrna, Hazel Bateman		**Colombo A**

ONLINE SESSION PROGRAM (subject to minor changes)			
DAY 3: 1 December 2022 (AEDT) **Online via Zoom**			
Time (AEDT Time zone)	**Session details**	**Presenter**	**Presenter's Time Zone**
6.50-7.00pm	***WELCOME AND OPENING REMARKS*** Hazel Bateman, IPRA President, CEPAR, UNSW Sydney		
7.00-8.20pm	***SESSION 1: PENSION DECISIONS*** *Chair: John Piggott, CEPAR, UNSW Sydney*		
7.00-7.20pm	Households' Heterogeneous Welfare Effects of Using Home Equity for Life Cycle Consumption	Jim Been (Leiden University, Netspar, The Netherlands)	CET (UTC+1): 10 hours behind Sydney
7.20-7.40pm	Private Information and Risk Preferences in the Annuity Market: Evidence from Sweden	Abigail Hurwitz (The Hebrew University of Jerusalem, Israel)	IST (UTC+2): 9 hours behind Sydney
7.40-8.00pm	Financial Advice and Retirement Savings	Markus Schmid (University of St. Gallen, Switzerland)	CET (UTC+1): 10 hours behind Sydney
8.00-8.20pm	Understanding Fund Members' Behavioural Responses to Market Volatility	Inka Eberhardt (CEPAR, UNSW Sydney, Australia)	CET (UTC+1): 10 hours behind Sydney
8.20-8.30pm	*Break*		
8.30-9.50pm	***SESSION 2: RETIREMENT AND ADEQUACY*** *Chair: Bas Werker, Netspar*		
8.30-8.50pm	Health and Labour Market Effects of an Abrupt and Unanticipated Rise in Women Retirement Age. Evidence from the 2012 Italian Pension Reform.	Chiara Ardito (Torino University & Epidemiology Unit, Italy)	CET (UTC+1): 10 hours behind Sydney
8.50-9.10pm	Labour Supply and Well-Being Among Older Adults: The Separate Effects of Pension Access and Statutory Retirement Age	Joanne Tan and Xuan Zhang (Singapore Management University, Singapore)	SGT (UTC+8): 3 hours behind Sydney

9.10-9.30pm	Ageing, Inadequacy and Fiscal Constraint: The Case of Thailand	Phitawat Poonpolkul (Puey Ungphakorn Institute for Economic Research - PIER, Thailand)	ICT (UTC+7): 4 hours behind Sydney
9.30-9.50pm	The Limits of Parametric Reforms in Sustaining the Algerian Retirement System in front of Population Ageing	Farid Flici (Research Center in Applied Economics for Development - CREAD, Algeria)	CET (UTC+1): 10 hours behind Sydney
9.50-10.00pm	*Break*		
10.00-11.00pm	***SESSION 3: PENSION FINANCE AND CHOICE ARCHITECTURE*** *Chair: Katja Hanewald, CEPAR, UNSW Sydney*		
10.00-10.20pm	Intergenerational Sharing of Unhedgeable Inflation Risk	Damiaan Chen (University of Amsterdam, Netherlands)	CET (UTC+1): 10 hours behind Sydney
10.20-10.40pm	Do Pension Funds Reach for Yield? Evidence from a New Database	Maximilian Konradt (Geneva Graduate Institute, Switzerland)	CET (UTC+1): 10 hours behind Sydney
10.40-11.00pm	Choice Architecture Improves Pension Selection	Paulina Granados (Superintendencia de Pensiones, Chile) and Denise Laroze (Universidad de Santiago de Chile)	CLST (UTC-3): 14 hours behind Sydney
11.00-11.10pm	*Break*		
11.10pm-12.10am	***SESSION 4: OLD AGE SECURITY*** *Chair: Hazel Bateman, CEPAR, UNSW Sydney*		
11.10-11.30pm	The Age Gap in Mortgage Access	Natee Amornsiripanitch (Federal Reserve Bank of Philadelphia, USA)	EST (UTC-5): 16 hours behind Sydney
11.30-11.50pm	Do People Successfully Manage Their Nest Eggs Through Retirement? Evidence from the Evolution of US Household Balance Sheets	Jason Seligman (Investment Company Institute, USA)	EST (UTC-5): 16 hours behind Sydney
11.50pm-12.10am	Experiments on Targeted Wealth Management Strategies for Prospect Theory Investors	Jordan Moore (Rowan University, USA)	EST (UTC-5): 16 hours behind Sydney
12.10am	***CLOSING REMARKS***		

ABSTRACTS AND SPEAKER BIOS

Session 1: Plenary

Asset Decumulation and Risk Management in Retirement

Pierre-Carl Michaud (HEC Montreal)

Abstract: Asset decumulation in retirement is a complex problem which involves managing a number of risks. We combine a stated-preference experiment on preferences for decumulation products with a stochastic life-cycle model to estimate preferences for such products and understand where demand might be suboptimal for a number of reasons which we explore. Our result point to relatively low optimal demand for such products but some potential for bundling of risk solutions to increase demand.

Pierre-Carl Michaud is a Professor in the Applied economics department of HEC Montréal. He holds the Research Chair in Intergenerational Economics, and is the scientific director of the Retirement and Savings Institute at HEC Montréal. His research aims to understand life-cycle behaviour along a number of dimensions including savings, insurance and pensions. He has received numerous awards for his research and is a member of the College of the Royal Society of Canada.

How Much Can I Spend? The Role of Projections and Anchor-Values in Guiding Spending in Retirement

Ben Newell (School of Psychology, UNSW)

Abstract: People tend to save too little while working and spend too little while retired. Together, these apparently paradoxical tendencies can lead to a meagre and anxious older age. In previous work we have shown how projections of retirement income and wealth increase savings intentions and savings behaviour in both lab and field settings. Here we extend this approach to the decumulation phase of retirement and examine the drivers of spending. In two online-studies (N=1200) we show that annual income stream projections and dollar anchor-values which recommend adequate retirement standards increase participants' willingness to spend their retirement savings.

Ben Newell is Professor of Cognitive Psychology and Deputy Head of the School of Psychology at UNSW Sydney. His research focuses on the cognitive processes underlying judgment, choice and decision-making and the application of this knowledge to environmental, medical, financial and forensic contexts. He has published over 150 articles and book chapters and is the lead author of the book *Straight Choices: The Psychology of Decision Making.* Ben has worked with industry and government partners on projects including climate change communication, child protection, aged-care provision and retirement wealth-planning. A key theme of much of this work is over-coming the myopic thinking that tends to cloud our judgment when we are making decisions about an uncertain future. Ben is a member of the Academic Advisory Panel of the Behavioural Economics Team of the Australian Government.

Session 2A: Lifecycle Financial Decisions

Family Portfolio Choice over the Lifecycle

Joachim Inkmann (University of Melbourne)

Abstract: Intra-household heterogeneity can quantitatively affect the predictions of life-cycle portfolio choice models. Empirically, double-income households, single-income households and singles have different exposures to background risks and differ in covariates affecting financial decisions, reacting differently to varying correlates of stock market participation and life-cycle asset allocation. Counterfactuals using a quantitative model emphasize the aggregation bias arising from treating double-income households as one unit. Mild intra-household heterogeneity in preference parameters like risk aversion can quantitatively change portfolio choices and the presence (absence) of a second wage can alter substantially optimal stock market exposure with important implications for understanding couples' financial decisions.

Joachim Inkmann is Senior Lecturer in the Department of Finance at the University of Melbourne. His research focuses on household finance and pensions. His work has been published in leading academic journals including the Review of Financial Studies and the Journal of Econometrics. Joachim is a Fellow of the Network for Studies on Pensions, Aging and Retirement (Netspar). He has previously held academic positions at Tilburg University and the London School of Economics. After graduating with a doctoral degree in economics from the University of Konstanz, he worked as an investment consultant for defined benefit pension plans before returning to academia.

The Effect of Pension Tax Treatment on Optimal Consumption and Investment Decisions Over the Life-cycle

Jun-Hee An (Tilburg University, The Netherlands)

Abstract: This paper investigates how different pension tax treatments affect optimal accumulation and decumulation decisions over the life-cycle. We consider a CRRA investor who faces an uncertain lifetime with borrowing and liquidity constraints, subject to taxes on labour income, pension contribution, capital gains, pension income, and lump-sum withdrawal. Under the tax regimes that are dominant in the United States, Australia, Netherlands, and Korea, we determine the optimal consumption and investment decisions for four strategies: accumulating pension wealth in a taxable free wealth account or a tax-favoured pension account, combined with decumulating accrued wealth at retirement date either with an optimal variable annuity or without longevity insurance. Our results show substantial differences in optimal consumption and investment decisions as well as welfare effects in the presence/absence of taxation over the life-cycle, suggesting that ignoring taxes significantly distorts welfare implications.

I am a PhD candidate at the Department of Econometrics & Operations Research at Tilburg University. I expect to graduate in the first half of 2024. I am mainly interested in the field of pension finance and actuarial science, in which I search for an optimal way to enhance income stability of retirees and hedge against longevity risk in the post-retirement period. I hold a BSc in Finance (Hanyang University, Korea), MSc in Pension Finance (Kyung Hee University, Korea), and Research Master in Finance (Tilburg University).

Eggs and Baskets: Lifecycle Portfolio Dynamics

Akshay Shanker (University of Sydney Business School)

Abstract: How do people save across their portfolio of assets in a lifetime? Using a dynamic lifecycle model of saving and portfolio choice featuring risky labour income, housing, and safe and risky financial assets inside and outside pension plans with comprehensive choice architecture, we examine the behaviour of members of an industry-wide retirement fund to assess how standard saving motives, pension defaults, investment returns, preferences and frictions interact to drive lifetime savings across major asset classes. Our results show considerable heterogeneity in what motivates people how to save. First, we find that financial and housing assets are largely driven by consumption smoothing motives. While these motives also affect plan choices, their role in pension accumulation is more limited due to default switching costs. Removing such costs, on the other hand, encourages pension savings at the expense of financial wealth but not of housing. In fact, we find higher pension assets to drive up housing wealth throughout the lifecycle, as people - anticipating a wealthier retirement and to avoid potentially larger adjustment costs later in life - lock in higher housing investments early on. Second, being luxury goods, bequest motives lead to higher DC take-up and riskier portfolios, but only to a modest mid-life financial savings boost. Third, precautionary savings that insure against wage risks have similar plan effects to bequests, although they do not translate in any wealth dynamic. Finally, removing costless redraws on mortgages leads to higher financial savings, again displacing pension balances considerably more than housing wealth.

Akshay Shanker is a Senior Research Associate at the School of Finance at the University of Sydney and CEPAR, UNSW. Akshay's research focuses on theoretical and computational economics. In particular, Akshay works on developing and applying new mathematical methods and high-performance computing technologies to build richer models across a variety of areas such economic growth, portfolio optimisation, pensions and household finance, experimental economics and energy economics.

Session 2B: Superannuation/Pension Fund Issues

Collected Research on the Your Future, Your Super Performance Test

David Bell (The Conexus Institute)

Abstract: The Your Future, Your Super (YFYS) reforms contained a range of measures intended to improve consumer outcomes. One controversial reform was a performance test which assesses performance against a collection of benchmarks tailored to the SAA (strategic asset allocation) of the super fund.
The incoming government announced a review of the YFYS reforms to be undertaken by Treasury. This has re-opened debate about how to design and implement consumer protections against the long-term impacts of underperforming funds.
Three different research pieces are summarised in this session. The intention of these research pieces were to assist Treasury with their review.
The first research piece is based on ten confidential interviews of super fund CIOs who have performed well against the YFYS performance test. Among a range of insights this research revealed both support for a performance test, but concerns about the YFYS design.
The second research piece explores the concept of sustainable performance test tracking error. Here we focus on the risk of failure and the rational desire to have a sustainable investment strategy, which we define as one which doesn't require constant sizable change. We find the sustainable level of tracking error is lower than where most funds are operating, that banked performance is irrelevant over the long term, and that there is a sizable opportunity cost to reducing tracking error.

The third research piece explores whether different approaches to accounting for ESG, sustainability and climate transition are constrained by the YFYS performance test. We consider an exclusion based approach consistent with popular SRI (socially responsible investment) portfolios, climate transition portfolios, and dedicated allocations to unlisted "green" investments. We find that it is difficult to invest in these ways in the presence of the YFYS performance test.

Collected research on the Your Future, Your Super performance test Two separate papers:

- Assessing the impact of YFYS through interviews with CIOs of funds with performance "buffer": *https://theconexusinstitute.org.au/wp-content/uploads/2022/07/Final-survey-paper-20220726-Conexus-IM-Final.pdf*
- Your Future, Your Super performance test: constraints and sustainable tracking error: *https://theconexusinstitute.org.au/wp-content/uploads/2022/10/YFYS-Sustainable-tracking-error-re-visited-20221012-final.pdf*
- Your Future, Your Super performance test: constraint on ESG, sustainability and carbon transition activities: *https://theconexusinstitute.org.au/wp-content/uploads/2022/11/YFYS-Performance-Test-Constraint-on-ESG-Sustainability-and-Carbon-Transition-Activities-20221109-Final.pdf*

David Bell is the executive director of The Conexus Institute, an independent research institute focused on improving Australia's retirement system. David is an active researcher in the areas of retirement, superannuation, investment management, and governance. David strives to link industry, academia, and policy. David's industry career experiences include working at Mine Super (as CIO), St Davids Rd Advisory (consulting and governance), and CFS GAM (now First Sentier, primarily fund-of-hedge funds). Academically, David completed his PhD at UNSW and taught for 12 years at Macquarie University.

Moving Beyond Wishy-Washy Net Zero Commitments: How can Superannuation Funds Trustees Earn our Trust?

Vien Siu (UNSW Sydney)

Abstract: Confronted with the growing pressure to address climate-related financial risks, the trustees of many superannuation funds have responded by voluntarily adopting environmental commitments. However, this has created the potential for superannuation fund trustees to be accused of 'greenwashing' and the recently coined phenomenon of 'greenwishing'.
This paper considers the potential liability risks involved in one of the most prominent examples of climate-related communications made by public offer superannuation fund trustees in Australia – voluntary statements of intent made over the past two years to reach net zero emissions. So far, in the superannuation context, there are no reported cases involving greenwashing or greenwishing, and neither ASIC nor APRA have taken public action. However, principles from analogous contexts have direct application.

Vien is a Research Associate at the Australian Law Reform Commission and is currently assisting with the Financial Services Legislation Inquiry. Previously, Vien has worked as a paralegal at Ashurst and as a research assistant at UNSW. Vien holds a Bachelor of Laws (First Class Honours) and a Bachelor of Commerce (Distinction) from UNSW.

Choice in Super

M Scott Donald (School of Private and Commercial Law, UNSW Sydney)

Abstract: Individual participants enjoy the opportunity to make a variety of different types of choices in relation to their superannuation contributions. They can, for instance, typically choose the fund into which their contributions are invested, the investment strategy applied to

those contributions and the level and types of insurance cover purchased on their behalf by the trustee of the fund.
The provision of these opportunities is intended to promote two overarching regulatory goals: the efficiency of the superannuation system and its legitimacy in the eyes of participants. Recent government initiatives intended to enhance the operation of the system affect the way in which crucial decision nodes in the system operate. Ironically, however, the initiatives distort the dynamics of the system in ways that potentially threaten the achievement of both the efficiency and legitimacy goals.
This paper considers those distortions, having regard to the accumulating empirical evidence about how and why individuals make the decisions they do in the sector. It also notes also how the YourFutureYourSuper reforms are just the latest in a succession of financial sector reforms inspired by a consumer protection sensibility. This sensibility introduces a third factor into the familiar tension in the superannuation context between the paternalism inherent in trust law and the personal autonomy so precious to libertarians. In so doing, it further complicates the normative foundations of the regulatory scheme that shapes the sector.

Dr Scott Donald is an Associate Professor in the School of Private and Commercial Law. Scott joined the Faculty of Law and Justice in 2010 after a successful career in the funds management industry advising governments, superannuation funds, insurance companies and fund managers on investment strategy, governance, and regulation. Scott teaches corporations, trusts and superannuation law at both undergraduate and post-graduate level. He regularly presents at academic, professional and industry conferences in Australia and overseas and publishes in both the academic and professional press on research related to financial services regulation, governance, and superannuation policy.

Session 2C: Retirement Income Adequacy

Superannuation Fund Member Switching Activity: Impact of COVID-19

Gaurav Khemka (Australian National University)

Abstract: The COVID-19 induced market crash in March 2020 saw a significant increase in superannuation fund members making investment switches. This research uses member data from Aware Super, one of the largest Australian superannuation fund, and is undertaken by researchers from ANU and Aware. It examines switching activity in the period before, during and after the March 2020 market crash with the aim of bettering understand the characteristics of members who switch; and evaluates the impact of this switching activity on member retirement fund balances.
We find that switching activity is markedly higher during the March 2020 market crash, with a large number of defensive switches occurring. We find members who have higher balance and are more engaged with their super (through both investment choices and non-investment activities) are more likely to make investment switches. In addition, members' aged 55 to 70 are significantly more likely to have switched defensively in the COVID period, and that growth asset exposure did not have any influence in the switching decision during this period. We also find that over 55% of those who made a defensive switch have not 'switched back' by 30 June 2021. We also find overwhelming evidence that this switching activity tends to reduce member balances.
Further analysis of a unique dataset of members who take financial advice indicates that the switching rate amongst advised members is significantly lower compared to unadvised members, particularly during the March 2020 market crash. We compare how the relationship between member characteristics and switching propensity differs for advised and unadvised members.
By identifying the characteristics of members who are more likely to switch during times of market stress, our findings can assist superannuation funds in taking actions to improve members' retirement outcomes by averting unwarranted switching activity. It also highlights the value of financial advice.

Gaurav Khemka is an Associate Professor of Actuarial Studies. His research uses numerical stochastic dynamic programming to analyse the life-cycle decision-making process. With a particular focus on superannuation and retirement income modelling and policy, Gaurav is interested in the ways in which retirement outcomes for Australians can be improved through better product development and government policy.

The COVID Related Early Release of Superannuation – A Retrospective Look

Ross Clare (ASFA)

Abstract: The special early release of superannuation for those whose employment has been affected by COVID-19 has highlighted both the importance of superannuation to the financial savings of Australians and also the substantial challenges flowing from changes to the rules applying to superannuation made with very little notice.
The early release arrangements were unprecedented in scope and size, with the magnitude of impacts allowing a number of conclusions to be drawn:
• Superannuation funds have strong liquidity arrangements in place. They were able to cope successfully with a large number of unexpected benefit payments at a time when financial markets were under stress.
• Funds were able to process applications for payments in a very short time frame even though many fund and administrator staff were affected by COVID-19 lockdowns.
• Early release applicants paid a relatively high price for the monies released, both in terms of the impact on eventual retirement savings and in taking a benefit when investment markets were temporarily well down.
• Rates of third party fraud were very low despite the rapidity of payments, indicating that fund processes are robust.
• There are indications that a number of Australians applied for early release even though they were not entitled to do so.
• A proportion of early release payments went to lifestyle items and savings outside of superannuation rather than being spent on essential items.

View paper here:
https://www.superannuation.asn.au/ArticleDocuments/359/220725_Early_Release_Paper_v10.pdf.aspx?Embed=Y

Ross Clare is Director of Research at the Association of Superannuation Funds of Australia (ASFA). 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.
Prior to joining the staff of ASFA he held senior positions with the Australian Treasury and an Australian Government research agency, the Economic Planning Advisory Commission.
Ross has degrees in Economics and Law from the Australian National University.

Superannuation Retirement Balances: The Effect of Taxation and Superannuation Guarantee Policies

Richard Webster (Australian National University)

Abstract: In this paper we investigate the impact on retirement balances from various relevant policy changes, such as the effects of changes to the Superannuation Guarantee.
To investigate the impact of these policy changes we use a dynamic version of the ANU PolicyMod microsimulation model and consider the distribution of expected retirement balances for various age groups for both males and females.

PolicyMod is a microsimulation model of the Australian Tax and Transfer system developed by ANU's Centre for Social Research and Methods. The model is capable of modelling most aspects of the Australia personal income taxation and welfare system including the current and alternative policy settings. The model is based on ABS survey data and uses a range of other data from the Australian Bureau of Statistics and other government departments to improve the accuracy and timeliness of the model. The model is a static model in that the model considers the impact of policy on the 'day after' meaning that the model does not attempt to model behaviour changes that may result from policy changes.
To better study the Australian superannuation system, we incorporate information from a matched sample of the Australian Census of Population and Housing to dynamically simulate lifecycle changes to income level, labour force status, marital status and home ownership status from a baseline state based on various demographic characteristics.

Richard Webster is an economic and data analyst with extensive experience in database management with over twenty years of SAS system expertise. He provides ANU Centre for Social Research and Methods (CSRM) with support in microsimulation model development - in particular, on the statistical outputs and functionality of CSRM's main model, PolicyMod.

Session 3: Plenary

Assessing Retirement Income Strategies… When Outcomes are but a Promise

Geoff Warren (Australian National University) and David Bell (The Conexus Institute)

Abstract: We discuss how retirement income strategies (RIS) offered by superannuation funds might be assessed. We outline the challenges of assessing RIS when fund trustees are required to deliver income streams spanning a lengthy period of time, while assisting members to identify a suitable retirement solution. Two complementary approaches are proposed. The first is a qualitative checklist that examines how effectively trustees are designing and delivering RIS to their members, and assess whether they are meeting their obligations under the Retirement Income Covenant. The second entails quantitative modelling where potential outcomes are simulated and evaluated against objectives. Both approaches are necessarily ex ante in nature, and aim to gauge the effectiveness by which superannuation fund trustees are assisting their retired members to achieve their retirement goals looking forward. We envisage these approaches being used not only for assessment purposes, but also as a tool to help identify areas for improvement.

View the paper here: *https://theconexusinstitute.org.au/wp-content/uploads/2022/11/Assessing-retirement-strategies-Final-20221104-Updated.pdf*

Dr Geoff Warren is an Associate Professor at the Australian National University, where he is Fund Convenor of the ANU Student Managed Fund. He is a member of various investment and research advisory boards, including for Atlas Infrastructure, ASIC Consultative Panel, Brandes Center, Conexus Institute, FMAA, Salvation Army and Super Consumers Australia. Geoff is an active researcher who focuses on investment-related areas with an applied emphasis, including: superannuation, retirement, fund management, portfolio construction, long-term investing, and evaluation and taxation of investments. Prior to pursuing an academic career, he spent over 20 years in investment markets, including as the Director of Capital Markets Research at Russell Investments; as an analyst, Chief Strategist and Head of Research with investment bank Ord Minnett / JP Morgan Australia; and as an equity portfolio manager at AMP Capital. Geoff has a PhD from the AGSM, and a BComm (Hons) with the University Medal from UNSW.

David Bell is the executive director of The Conexus Institute, an independent research institute focused on improving Australia's retirement system. David is an active researcher in the areas of retirement, superannuation, investment management, and governance. David strives to link industry, academia, and policy. David's industry career experiences include working at Mine Super (as

CIO), St Davids Rd Advisory (consulting and governance), and CFS GAM (now First Sentier, primarily fund-of-hedge funds). Academically, David completed his PhD at UNSW and taught for 12 years at Macquarie University.

The Difference Between Insured and Uninsured Retirement Products

David Orford (Optimum Pensions)

Abstract: Under the Retirement Income Covenant, Superannuation Trustees are required to develop strategies to assist members to achieve and balance the three core objectives of maximising retirement income, managing risks and providing access to capital.
The government expects trustees to consider new types of retirement products that can balance these objectives more effectively1. Only offering an account-based product (ABP) is unlikely to be sufficient as, in aggregate, ABPs pay around 30% of total assets as death benefits in old age instead of using those assets to deliver higher retirement incomes.
One class of product that superannuation product managers are considering is commonly referred to as a Group Self-Annuitisation scheme (GSA). This article raises issues to educate the reader about the potential deficiencies and risks of using a self-insured pool. In particular, there is a significant likelihood that the actual lifespans of members of the pool are different to the actuary's assumptions – which results in a 'hidden' variability for each person's future income.
This is not to undermine confidence in lifetime products or Account Based Pensions generally but highlights the need to put in place life insurance-type arrangements that absorb this uncertainty in order to meet the Retirement Income Covenant.
When designing products, it is important that superannuation trustees and their advisers be aware of the inherent uncertainty when predicting future mortality rates for any group of people. Products that do not insure this risk may add significant instability to the longer-term customer outcomes.

David Orford believes that retirees have yet to understand how to adequately provide income for the rest of their and their partner's lives that broadly increases with inflation. This would better provide peace of mind and lifestyle in retirement - a period that is increasing.
He has worked with governments for over a decade to make the changes to allow these products to be provided on an efficient and effective basis - which has now been achieved.
Now the task is for superannuation funds and life insurance companies to offer these products and to educate our financial planners and fellow countrymen about the protection provided, so they can have higher income in retirement, a far better lifestyle and greater peace of mind.
David established Financial Synergy in 1978 and sold it to IRESS effective 31 October 2016.
He has used some of the proceeds to finance a study through the Actuaries Institute of Australia into annuitant mortality rates and a far more extensive study with the Melbourne Business School about why people don't buy real lifetime pensions and annuities and what do we have to do to help them do that.
David has a breadth of experience in the superannuation and life insurance industries spanning across areas as diverse as financial planning, marketing, product design, information technology, administration, investment management, actuarial services, compliance and trusteeship.
David’s personal mission is the financial well-being of our country and the financial and emotional well-being of our fellow Australians.

Modelling Investment-Linked Annuities in Australia

Adam Butt (Australian National University)

Abstract: The global trend of shifting from defined benefit pension plans to defined contribution pension plans means that retirees must make their own investment decisions upon retirement. Life annuities with longevity protection can potentially increase retirees’

welfare, but the annuitisation puzzle suggests that the traditional annuities lock in a low interest rate and investors are reluctant to purchase annuities despite any benefits from annuitisation. Therefore, we investigate a relatively new product called investment-linked annuities (ILAs), which separates the longevity protection and allows investors to choose investment strategies.
We examine the impact of introducing investment-linked annuities into the Australian retirement system by using a standard lifecycle model and optimising the annuitisation and investment decisions of a female at age 67. Results show that ILAs can substantially enhance Australian retirees' welfare. The government-sponsored means-tested Age Pension encourages retirees to partially annuitise their wealth upon retirement, choosing a low but expected to increase initial annuity income, and retaining the remaining wealth in an account-based pension (ABP). For a retiree with loss-averse preference, the ABP acts as a buffer to help retirees meet their consumption targets. For a risk-averse retiree, partial annuitisation is mainly for maximising Age Pension receipts and therefore improving consumption.

Associate Professor Adam Butt is the Head of Actuarial Studies at the Australian National University (ANU). His research interests relate to outcomes and product design in retirement. His work has been published in top journals such as "Insurance: Mathematics and Economics", "Annals of Actuarial Science", "Journal of Economic Behaviour & Organisation", "The Economic Record", "Pacific-Basin Finance Journal".

Session 4A: Retirement Products

A Unified Markov Chain Monte Carlo Framework for Valuation and Assessment of Retirement Income Products

Yawei Wang (School of Risk & Actuarial Studies, UNSW Sydney)

Abstract: This paper devises a flexible assessment framework of a catalogue of existing retirement income products which include, account-based pension, life annuities, variable annuities, and group self-annuities. It utilises Hamiltonian Monte Carlo approach; a proven computational technique for simulating conditional distributions without prior knowledge of the normalising constant and quickly converges to the target distribution in high dimensions. A metric for assessing the risk-return trade-offs for each product is presented which can readily be adapted by advisors, and all stakeholders as a tool for enhancing the decision-making process for retirees. This research addresses key recommendations from Australia's retirement income covenant which mandates trustees of superannuation funds in developing strategies aimed at i) maximising expected retirement income, ii) managing longevity, investment, and inflation risks, and iii) enhancing flexibility in accessing member funds over the retirement period.

Yawei Wang is a first year PhD student at UNSW, supervised by Yang Shen, Jonathan Ziveyi and Michael Sherris. He is also a research assistant at the ARC Centre of Excellence in Population Ageing Research (CEPAR). His current research interest is retirement income products innovation.

Mean-Variance Longevity Risk-Sharing for Annuity Contracts

Hamza Hanbali (Monash University)

Abstract: This paper investigates longevity risk-sharing as a solution to the sustainability and affordability problems in the annuity market, and in particular how much longevity risk could be transferred back to policyholders under a mean-variance utility framework. First, it provides risk-sharing rules for annuity products priced under a dynamic equivalence principle. Second, it studies the contract properties from the perspectives of both the provider and individual policyholders. Third, in policyholders' decision, it highlights and accounts for two levels of

uncertainty and two levels of correlation induced by systematic longevity risk. Fourth, it provides necessary and sufficient conditions on the premium loading and the share of transferred risk, such that both parties prefer the dynamically updated annuity over its traditional counterpart. The results of the paper offer a deeper understanding on the preferences of each party regarding longevity risk-sharing, as well as on the complex effect of systematic and diversifiable risks on those preferences. The analytical results are supplemented with a numerical study showing that the area defining the viable risk-sharing (i.e. the combination of the loading and the share of transferred risk) is larger when the policy includes payments at higher ages. This indicates that the products presented in this paper are suitable retirement solutions.

Hamza Hanbali is a Lecturer in Actuarial Science at the Department of Econometrics and Business Statistics at Monash University. He received a Ph.D. degree from KU Leuven, Belgium, in 2019. His research revolves around aspects of risk management, risk measurement, and pricing. He is interested in developing tools to advance the practice of risk assessment, as well as in addressing issues related to the affordability and the accessibility of insurance.

Valuing Equity-Linked Insurance

Kelvin Tang (School of Risk & Actuarial Studies, UNSW Sydney)

Abstract: In the pricing of joint life contracts, it is often convenient to assume that the lifetimes of different persons are independent. However, some results in the literature have demonstrated that the lifetimes of a couple typically exhibit positive dependence. This effect is most prevalent at older ages, so failure to take such dependence into account leads to improper pricing of benefits and may result in underinsurance or inappropriate coverage for couples entering retirement.
In this presentation, we explore the valuation for some equity-linked products for a couple under the assumption that the lifetimes can be dependent. While traditional equity-linked products are usually only defined for a single life, we propose some products designed specifically for a couple where the benefit can depend on the death times of both lives. These include, for example, a product that provides the surviving spouse (upon the death of the income-earning spouse) with an annuity until his/her death, where the annuity payment can depend on the underlying equity index which helps to guarantee the standard of living for the surviving spouse. Benefits in our approach includes having an explicit formula for the value of the product and that the results can be generalised to include multiple dependent lives or events.

Kelvin Tang is a first-year PhD student in Risk and Actuarial Science at the University of New South Wales. Previously, he has obtained a Bachelor of Actuarial Studies/Science (2020) and has experience as a Research Analyst in superannuation research and consultancy. His research interests lie in theoretical modelling and involves using mathematical properties to make generalisations to existing models. His PhD thesis focuses on incorporating dependence into pricing models where it has been previously overlooked and simultaneously combines various ideas within the actuarial literature.

Session 4B: Housing and Retirement

Retirement Financing with Private Pension and Housing Assets

George Kudrna (CEPAR, UNSW Sydney)

Abstract: This project is motivated by the following observations applicable to developed world: a) private pension and housing assets are major components of household wealth; b) while the importance of private pensions (e.g., in terms of pension assets) has increased significantly over the last two decades, homeownership rates and the importance of public

pensions (e.g., in terms of coverage) have been declining; and c) significant relationships between homeownership and public pensions (and income taxation), recently documented by Fehr, Hofmann and Kudrna (2021). The main focus of the current project is on interactions between private pensions and housing. The key objective is to quantify the effects of a mandated private pension pillar on retirement incomes, homeownership and the economy, drawing on Australia's superannuation (private pension) scheme that mandates contributions to private superannuation accounts.
To that end, we develop a stochastic, overlapping generations (OLG) model with tenure choice that accounts for three sources of household wealth - housing, liquid financial and illiquid superannuation assets. The benchmark model is calibrated to the Australian economy (pre-COVID19), closely matching Australian demographic, household survey, macroeconomic data. Superannuation assets are assumed to be due to compulsory contributions deducted from gross wages of the workforce, which are subject to concessional tax arrangements and assumed to be drawn down gradually in retirement. The model is then applied to study the economy-wide effects of alternative mandatory contribution rates, taking into how this mandatory private superannuation system interacts with housing and homeownership, public pensions and progressive income taxation.
Based on the model simulations, we show that higher contribution rates (of the mandatory private pension pillar) are preferable, in terms of average long run welfare of rational households, to lower rates (e.g., comparing 0% rate vs. 12% rate, with both sets of results relative to 7% benchmark rate that targets the current superannuation assets to GDP ratio), despite generating lower homeownership in the long run.

George Kudrna is a CEPAR Senior Research Fellow, located in the UNSW Business School. He completed his undergraduate studies in economics and insurance studies in the Czech Republic, and received a PhD in Economics from the University of Sydney in 2009. His research encompasses the areas of public economics, macroeconomics, population ageing and computational economics. He develops and applies rigorous macroeconomic models to investigate the economic impacts of demographic change and retirement income policy reforms – with the ultimate aim of informing and influencing major policy decisions in this area. His research on pension and ageing related topics has been published in both national and international economics journals, with recent publications, for example, in the *European Economic Review, Macroeconomic Dynamics* and *Economic Record*. He has also co-authored several government reports on pension and tax related issues, including commissioned reports for the Australian Treasury, for the Michigan Retirement Research Center (MRRC) and U.S. Social Security Administration, and for the Norwegian Fafo Research Foundation and Frisch Centre. George currently leads an ARC linkage grant "Policy Modelling for Ageing in Emerging Economies: The Case of Indonesia", which involves the World Bank and Indonesian Ministry of National Development Planning (Bappenas) as partner organisations. He is also affiliated with the Global Labour Organization (GLO), the Centre for Applied Macroeconomic Analysis (CAMA) at ANU and UNSW Ageing Asia Research Hub

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The Bequest Motive is Dead: Long Live the Bank of Mum and Dad.

Josh Funder (Household Capital)

Abstract: The bequest motive is dead. Long live the bank of mum and dad.
Despite rising longevity and home ownership over the past century, reverse mortgages have functioned as a last resort niche source of bank credit. More recently, home equity has been positioned as the Third Pillar of retirement funding, alongside the pension and superannuation, providing an opportunity to revisit the theoretical underpinnings of the sector.
First, the lifecycle theory of household wealth may now be routinely realised where families have ready access to home equity, the major store of personal wealth. Second, with increased longevity deferring bequests, access to home equity as the "bank of mum and dad" may transform the bequest motive and help us understand the real the trade-off between egotistic consumption of home equity relative to the deliberate altruistic bequest motive. Third, lack of awareness of access to home equity and stigmas associated with reverse mortgages may have been overcome by improved regulation, non-recourse lending, no-negative equity

guarantees, conservative loan-to-value ratios and lower interest rates. We use a variety of quantitative and qualitative approaches including mental accounting, stochastic modelling and household case studies. This research has policy implications for housing and funding an aging population, aged care, in-home care, inheritance taxation, assets test thresholds, gifting and intergenerational transfers.

Dr Josh Funder is CEO and Managing Director of Household Capital, an innovative Australian home equity retirement funding provider which has raised over $25m in equity and $300m in wholesale debt. Household Capital's mission is to help retired Australians Live Well At Home, drawing on over $1trillion in home equity already saved by retirees to improve retirement outcomes and meet the challenges of an aging population. Household Capital founded and hosts the Three Pillars Forum, an annual meeting of experts from the pension, superannuation and home equity sectors. Prior to founding the company in 2016, he was a director of Celladon Inc (NASDAQ: CLDN) and spent over a decade as a partner at GBS, Australia's largest venture funds management firm. He previously worked at Infinity Inc (NASDAQ: INFI) in Boston, and at the Boston Consulting Group in San Francisco. Working with the Clinton Foundation HIV/AIDS Initiative, Josh helped successfully negotiate reduced prices for anti-retrovirals and initiate pharmaceutical supplies across eastern and southern Africa. Josh is a co-founder, director and former chairman of Per Capita, whose research on longevity and positive ageing formed part of the inspiration for Household Capital. He is also the author of the novel, Watson's Pier (MUP 2015). Joshua earned B.Sc. and LL.B. degrees at Melbourne University, an LL.M. degree at the London School of Economics and a DPhil in intellectual property for biotechnology from Oxford University, where he studied as a Rhodes Scholar.

Optimal Home Equity Release Strategies in a Two-Generation Model

Scott Shao (School of Risk & Actuarial Studies, UNSW Sydney)

Abstract: This paper examines how different strategies for using a reverse mortgage can potentially benefit the financial planning of Australian families. A reverse mortgage is a contract allowing retirees to borrow against their housing wealth. Notably, a reverse mortgage allows borrowers to age in place as they do not have to make repayments until they move out of the house or pass away. Previous studies focused on how a reverse mortgage benefits a retiree or a retiree couple by establishing a lifecycle model. This paper is the first few studies that extend the model into a two-generation context. We establish a multi-period simulation model that is more comprehensive than existing models as it accounts for the welfare gains of parents and children. It considers two approaches of intergenerational transfer: leaving bequest and gifting via home equity release. Importantly, we consider the interaction between two generations by including factors such as altruism, the child's guilt and the parent's disutility when the child does not act as a care provider. We perform scenario analysis that considers different approaches of using the current reverse mortgage. We also run product design and policy experiments that consider future improvements of reverse mortgage design to increase Australian families' welfare gain. We show that a reverse mortgage benefits the family more if the parent decides to share the payments with the child, that is, to cover the home deposit for the child. We find that receiving income streams while gifting the child is the most welfare-enhancing approach of using the current reverse mortgage. However, we find that there is no strong evidence to show that gifting family members is the primary use of a reverse mortgage. We therefore uncover an untapped opportunity for providers to increase the reitrees' awareness of a reverse mortgage's 'gifting function', to potentially solve the reverse mortgage demand puzzle.

A recent graduate from UNSW undertaking a Bachelor of Actuarial Studies (Honours). A motivated and initiative-taking individual with experience in the retirement funding industry. Equipped with the right actuarial mindset and gifted with immaculate critical thinking and communication skills. Experienced in stochastic modelling and effective communication of the results.

Session 4C: Individual Behaviour

Financial Literacy Education for the Elderly: A Case Study on Providing Basic Financial Literacy Education to the Elderly via Religious Communities

Samuel Joo (International Finance Corporation)

Abstract: South Korea is one of the most rapidly aging nations in the world. One unfortunate by-product of rapidly aging populations is the increasing poverty rate among the elderly. Currently, nearly 40% of people aged 65 and over in South Korea are living in poverty. Religious communities in South Korea are undergoing a more pronounced demographic shift, with the religious engagement from the youth population (people in their 20s – 40s) decreasing rapidly. Such trends also contribute to the underutilization of existing religious infrastructures (e.g., churches). To assist the elderly population to better protect and further grow their assets through sound financial decisions, a pilot education program on basic financial literacy was launched at Cho-Dong Church. Running this program at a church has kept fixed costs at a minimum and increased accessibility to the target audience.
The program had approximately 35 total participants, and it was completed over a two-week period, in two separate sessions (on May 28 and June 4, 2022). Each session was two hours and 15-minutes long.
Target outputs and outcomes of the program were as follows:
(1) Two two-hour educational sessions
(2) 20+ participants (Target) with the majority in the 60+ age group
(3) Participants demonstrate a better understanding of basic financial concepts
(4) Participants are motivated and able to review their financial situation more clearly
The program was able to partially achieve its targets, with the largest shortfall arising from the program's limited ability to measure participants' improvements in their understanding of basic financial concepts.

Samuel Joo is an impact investor and an independent researcher. He is an investment analyst at the International Finance Corporation (IFC, part of the World Bank Group), where he supports sustainable economic growth in emerging markets through private sector investments.
Prior to joining IFC, Sam worked as a private equity investment associate at AMP Capital (New York office), focusing on infrastructure equity investments in North America. Sam began his career as an analyst at PFM Financial Advisors, where he advised Public-Private Partnership solutions to governmental and non-profit organizations in the United States.
Sam is also the founder of the *Financial Literacy for a Better Future* initiative, a basic financial literacy education program for the elderly in Seoul, South Korea.
Sam previously served as a fellow at the University of Pennsylvania's Fox Leadership International Program and travelled across China and the United States to conduct research on the burgeoning global aging population crisis.
Sam holds a B.A. in Philosophy, Politics, and Economics (PPE) from the University of Pennsylvania.

Diverse Effects of a Recurrent Communications Nudge and Communications Boost on Retirement Savings in the Long-Run

Nguyen Bang Chau (Victoria) Hoang (University of Sydney Business School)

Abstract: The demand for adequate self-provision in retirement has exponentially grown in recent decades. As global retirement income systems gradually transform to defined contribution schemes, individuals tend to take most responsibility for their savings and planning choices when funding for retirement. Long-term planning has never been a straightforward task and not everyone can self-regulate to overcome cognitive roadblocks against sound and pronounced financial plans. Many get perplexed by the under-saving and under-spending paradox. People might fail to save sufficiently when working and consume too little when retired due to inertia or ill-informed decisions. Communication boost and nudge

which superannuation funds provide their members with can help urge attention and alleviate confusion when people deal with retirement planning problems that require reflective decisions. This paper estimates the perennial impacts of interventions in information exchange between private-saving plan providers and their members. In particular, we aim to investigate how retirement income estimates (a form of communication boost) and goal-setting messages (a form of communication nudge), can inform, and enlighten individuals. We test if treatment recipients will revise and re-examine their current retirement savings options, as well as consider retirement savings alternatives that might suit them better. We will conduct a panel data analysis of Cbus communication campaigns in an eight-year period to study the effects of retirement income projections on their members' savings behaviours in the long run. Also, we will utilize the rich administrative data of this field work and augmenting choice experimental work to investigate how a goal-setting nudging intervention, with varying calls to action, will induce favourable savings decisions for retirement, in conjunction with retirement income projections.

Nguyen Bang Chau (Victoria) Hoang is a second-year PhD candidate in Consumer Finance at The University of Sydney Business School. Her research interests are in the fields of retirement, superannuation, personal and consumer finance, behavioural economics, intertemporal decision-making and economics of ageing. As part of an ARC Linkage project, her current work focuses on exploring behavioural changes in retirement savings as a result of periodical communication boost and communication nudges. She is investigating the diverse impacts of persistently providing retirement income projections and different goal-setting messages for a superannuation fund's members on their voluntary superannuation contributions in the long run. Before coming to Sydney, she completed an Honours Degree in Econometrics at The University of Queensland.

Present Bias, Asset Allocation, and Bond Behaviour

Jorgo T.G. Goossens (Radboud University, The Netherlands) and Bas J.M. Werker (Tilburg University)

Abstract: This paper presents a present-biased general equilibrium model that explains multiple features of bond behaviour. Present-biased investors increase short-term hedge demands to satisfy short-term needs, compared to standard time-consistent preferences. Hence, a present-biased investor drives down short-term yields and requires a premium on long-term bonds, leading to an upward sloping yield curve. Observed bond behaviour is best explained using a short-term orientation of at most 1 year, providing an estimate for the investor's "duration of the present".

Jorgo Goossens is Assistant Professor in Finance at Radboud University, Institute for Management Research. He is also a Researcher at APG Asset Management and a fellow of Netspar. Parts of his research are funded by grants from the NWO, Institute GAK, Netspar, and GRI.
His research areas cover (behavioural) asset pricing, macro finance, experimental finance, and household finance. Most of his work focusses on non-standard preferences, asset pricing, and household finance.
Jorgo holds BSc. and MSc. degrees in Econometrics from Tilburg University. Additionally, he holds a MSc. degree in (teaching) mathematics from Eindhoven University. Finally, he holds a MPhil. Degree in Finance from Tilburg University and he formally receives his Ph.D. degree in Finance & Econometrics from Tilburg University in February 2023.

Session 6A: Mortality Modelling

Affine Mortality Models with Jumps: Parameter Estimation and Forecasting

Len Patrick Dominic M Garces (CEPAR, UNSW Sydney)

Abstract: We investigate the dynamics of age-cohort survival curves under the assumption that the instantaneous mortality intensity is driven by an affine jump-diffusion (AJD) process. Advantages of an AJD specification of mortality dynamics include the availability of closed-form expressions for survival probabilities afforded by an affine mortality specification and the ease with which we can incorporate sudden positive and negative shocks in mortality dynamics, reflecting events such as wars, pandemics, and medical advancements. As we are interested in a term structure model of mortality rates, we propose a state-space approach to calibrate the parameters of the affine mortality process. The measurement equation is given by the affine representation of the age-cohort average force of mortality and the state-transition equation is given by a discretization of the continuous-time mortality intensity dynamics. Such approach results to consistent survival curves in the sense that forecasts of survival probabilities have the same parametric form as the fitted survival curves. The presence of jumps in the mortality intensity process implies that the state-transition equation is non-Gaussian. To this end, we propose a particle filter-based Markov chain Monte Carlo approach to estimate the model parameters. We illustrate our methodology by fitting one-factor Cox-Ingersoll-Ross and Blackburn-Sherris mortality models with asymmetric double exponential jumps to historical age-cohort mortality data from USA.

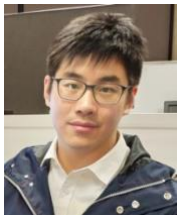
View the Working Paper here: *cepar.edu.au/publications/working-papers/affine-mortality-models-jumps-parameter-estimation-and-forecasting*

Len Patrick Garces is a Senior Research Associate at the ARC Centre of Excellence in Population Ageing Research (CEPAR), UNSW Business School. His current research work is on continuous-time stochastic mortality models the design and valuation of retirement income products. More broadly, his research interests lie within the field of financial and actuarial mathematics, primarily on the applications of probability theory and stochastic analysis to tackle financial and actuarial problems and the development of numerical and statistical methods to solve these problems. Len obtained his PhD from the University of South Australia and his BSc (Mathematical Finance), BA (Economics), MApplMath (Mathematical Finance) from Ateneo de Manila University in the Philippines.

Age-Dependent Multi-Cohort Affine Mortality Model with Cohort Correlation

Yuxin Zhou (School of Risk & Actuarial Studies, UNSW Sydney)

Abstract: We extend the continuous-time affine mortality models by allowing the dynamic of the force of mortality to be age-dependent. We allow the factor or the factor coefficient to be age-dependent to improve the goodness of fit of the mortality models, especially at old ages. Allowing age-dependent force of mortality also makes the dynamic specific to a certain cohort because both the age and the calendar time are specified, and thus the year of birth. One major advantage of specifying the cohort is that the correlation between the dynamics of two cohorts at a certain calendar time can be easily modelled. Moreover, we also extend by using incomplete cohort data to incorporate more available data in the model calibration process, which allows the model to capture the more recent dynamics in the population.



Yuxin Zhou is a PhD student at the School of Risk and Actuarial Studies at UNSW Sydney and the ARC Centre of Excellence in Population Ageing Research (CEPAR). He obtained Bachelor of Actuarial Studies (Honours Class 1) from UNSW in 2019. Yuxin has published in Scandinavian Actuarial Journal. His current research interests are in the areas of mortality modelling, mortality risk, retirement product design, and multi-state health modelling.

Weighted Compositional Data Analysis for Modelling and Forecasting Life-Table Death Counts

Han Lin Shang (Macquarie University)

Abstract: Age-specific life-table death counts observed over time are examples of densities. Non-negativity and summability are constraints that prevent the direct implementation of standard linear statistical methods. Compositional data analysis presents a one-to-one mapping from constrained to unconstrained space to rectify the constraints. We introduce a weighted compositional data analysis for modelling and forecasting life-table death counts. Our extension assigns higher weights to more recent data and provides a modelling scheme easily adapted to allow for constraints. We illustrate our method using age-specific Swedish life-table death counts from 1751 to 2020. We show that the weighted compositional data analytic method improves short-term point and interval forecast accuracies compared to their unweighted counterparts.

Hanlin Shang is a Professor at the Department of Actuarial Studies and Business Analytics at Macquarie University. His research interest is functional time series analysis. His latest hobbies include home renovation and gardening.

Session 6B: Aged Care and Ageing

Factors Involved in End-of-Life Financial Decisions: An Analysis of Aged Care Payments in Australia

Anam Bilgrami (Macquarie University)

Abstract: Choosing a payment type when entering residential aged care in Australia is a complex end-of-life financial decision, subject to potentially competing interests from service providers and informal carers. The payment type chosen can impact an aged care resident's consumption and wealth, and the bequest left to family. It can also impact a provider's financial sustainability, and its ability to fund care services and capital expenditure. To explore what factors are involved in these decisions, we analyse associations between payment type chosen and resident, informal carer and provider characteristics using survey data on decisions made over 2016 to 2020. We find payment type chosen is associated with a resident's financial situation and care circumstances, and with informal carers' emotive perceptions of the decision. Provider preferences are strongly associated with the payment decision, which may suggest a potential principal-agent problem. We discuss policy approaches to improve payment decisions in the face of potentially competing interests and decision complexity.

Anam is a Research Fellow at the Macquarie University Centre for the Health Economy and a recipient of a Macquarie University Covid Recovery Fellowship to undertake aged care policy research. She is a Health Economist with experience in economics consulting work (previously as a Senior Economist and Manager at Deloitte Access Economics), policy and program evaluation, and academic research. She is passionate about producing high-quality research to improve decision making and health care policy design in Australia and specialises in causal inference and policy evaluation. She completed her PhD in Health Economics with the Macquarie University Centre for the Health Economy and her research interests lie in the areas of aged care, mental health and private health insurance. She was recently awarded the 2020 Macquarie Business School Award for Research Excellence in Economics, MQBS Impact Prize 2022 and was a Highly Commended Finalist for Excellence in Higher Degree Research 2021 ('The Rising Stars').

Costs of Care – The Financial Impacts of Providing Care on Savings and Superannuation

Lukas Hofstaetter (Carers NSW) and David Cullen (EVALUATE Consulting)

Abstract: The unpaid care provided by family members and friends is an important resource in an ageing society. The value of informal care provided in Australia is estimated at 77.9 billion AU$, yet research indicates that carers face significant financial pressure as a result of their caring role, due to a combination of increased living expenses and reduced income. The Carers NSW 2020 National Carer Survey found that more than 1 in 2 respondents had experienced financial stress, compared to only 1 in 5 Australian households. This was correlated with significantly diminished wellbeing and heightened psychological distress. Supporting payments (Carer Allowance, Carer Payment) did not provide sufficient financial support. These payments were originally devised to substitute for care otherwise provided professionally, however this relationship has been decoupled over time.
On behalf of Carers Australia, Evaluate constructed a microsimulation model to estimate the impact of informal care on the lifetime income and retirement savings of carers. The model simulates the distribution of carer impacts in Australia, including observed distributions of demographic and financial variables. At the mean, Australian carers will lose $392,500 in lifetime earnings and $175,000 in superannuation at age 67, with the most affected 10% losing at least $940,000 in lifetime income, and $444,500 in retirement savings.
The financial pressures put on carers not only generate financial hardship and higher reliance on government payments in retirement, they also disincentivise the provision of informal care. The consequence is an increase in demand for more expensive formal care, including residential care. This means that reducing the share of funding for informal care is a false saving. We present two alternate policy measures, a Superannuation Guarantee Contribution for the Carer Payment and an increase to the Carer Allowance to remedy this situation.

Lukas Hofstaetter is the Research and Development Officer at Carers NSW, the peak body representing family and friend carers in New South Wales. He holds a PhD in Sociology from Goethe-University Frankfurt and Macquarie University Sydney (cotutelle). Previously he worked as a university lecturer and researcher in Sydney (Australia), Frankfurt am Main (Germany), and Vienna (Austria). His current research interests include the sociology and political economy of caring and empirical methods in research and evaluation.

Life-Course Inequalities in Intrinsic Capacity and Healthy Ageing

Katja Hanewald (School of Risk & Actuarial Studies, UNSW Sydney)

Abstract:
Objectives: Maintaining and optimising intrinsic capacity (IC) across a person's life course is a core component of the World Health Organization's model of healthy ageing. However, the contribution of cumulative health and socioeconomic inequalities over time to subtle changes in IC in late life is not well understood.
Methods: We included 21,783 participants aged 45+ from the China Health and Retirement Longitudinal Study (CHARLS) who also participated in the 2014 CHARLS Life History Survey and calculated a previously validated value of IC. We considered eleven early-life factors and investigated their direct influence on IC over thirty years later as well as their indirect influence through four current socioeconomic factors. We used multivariable linear regression and the decomposition of the concentration index to investigate the contribution of each determinant to IC inequalities. Mediation analysis identified the direct and cumulative contribution of early-life factors.
Results: Participants with an advantaged environment in early life (i.e., parental education, childhood health and neighbourhood environment) consistently had a significantly higher IC score in later life. This inequality was greatest for cognitive, sensory and psychological capacities than locomotor functioning and vitality. Overall, early-life factors directly explained

13.92% (95% CI: 12.07% to 15.77%) of IC inequalities and a further 28.57% (95% CI: 28.19% to 28.95%) of IC inequalities through their influence on current socioeconomic inequalities. **Discussion:** Unfavourable early-life factors appear to directly decrease late-life health status in China, particularly cognitive, sensory and psychological capacities, and these effects are exacerbated by cumulative socioeconomic inequalities over a person's life course.

Katja Hanewald is an Associate Professor (from Jan 2023) in the School of Risk and Actuarial Studies and the Coordinator of the Actuarial Co-op Program at UNSW Sydney. She is also the Director of Research at the Ageing Asia Research Hub, which is hosted by the ARC Centre of Excellence in Population Ageing Research (CEPAR). Her research models ageing trends and develops risk management and insurance responses to population ageing. Katja has published over 25 articles in major insurance, actuarial, economics, and medical journals

Session 6C: Pensions Issues

An Empirical Study of the Distribution of Superannuation Death Benefits

Tobias Barkley (La Trobe University)

Abstract: Under the Australian compulsory superannuation system, if a member dies before retiring their accumulated benefits do not pass to their estate. Instead, the trustee of the superannuation fund must exercise a discretion to distribute the benefits. Members may intervene in this discretion by nominating how they wish their benefits distributed. Superannuation legislation prioritises 'dependants' and legal personal representatives over non-dependants but does not otherwise provide guidance on how superannuation trustees decide which potential beneficiaries should receive a distribution. One widespread understanding, derived from general trust law, is that trustees should exercise a broad discretion that tailors outcomes to individual circumstances and complexities. This article undertakes an empirical analysis of AFCA death benefit distributions in order to understand how AFCA expects these discretions to be exercised. Analysis of AFCA decisions reveals that a broad exercise of discretion is not apparent in most cases. In most cases the outcome can be explained by one dominant factor: financial dependence. Financial dependence is understood as having received regular financial support prior to the deceased member's death with an expectation that support would have continued. In contrast, the deceased's wishes expressed in a non-binding nomination have no statistically significant relationship with death benefit distribution outcomes. This finding is significant as it reveals a likely disconnect between the expectations of members who express their wishes and likely outcomes.

Tobias's research is focused on discretionary trusts. His current research proposes that the development of discretionary trusts has produced a new institution founded on a legal relationship that is distinct from traditional fixed trusts. Fixed trusts are characterised by distributive entitlements analogous to property, whereas discretionary trusts are characterised by procedural entitlements governing the trustees' exercise of discretion. This argument has important ramifications for how different trusts ought to be controlled and regulated by the courts. It also explains why discretionary trusts have a unique impact on areas of legal doctrine that operate on conceptions of ownership, such as tax, family and bankruptcy law. Assets held in discretionary trusts are not beneficially owned, in the sense that no individuals are entitled to benefit from those assets as of right. Tobias is contributing to the development of our understanding of trust law by applying the insights of this distinction to both well-traversed and overlooked topics in trust law including Quistclose trusts, mere and trust powers, and the regulation of decision-making. A further interest of Tobias's is investigating how trusts are understood and utilised by lay and professional people.

Standardized, Unitized, Accretive Longevity Insurance: Lessons from the Differing Demand for Annuities and Life Insurance

Andrew Stumpff (University of Michigan Law School)

Abstract: The historic U.S. shift from defined-benefit to defined-contribution employer-sponsored retirement plans has produced, among other things, a reduction in sharing of the risk of outliving one's retirement savings. Commercial annuity contracts are available to insure this risk, but despite efforts to encourage their acquisition, few people own them. Close comparison with another life-cycle risk – that addressed by life insurance, which is more widely purchased by consumers – highlights as a probable reason for this low uptake the nature of the annuity-purchase decision: the decision's magnitude and timing, as now typically presented to American employees. The paper argues that the annuity choice both could and should be presented – expressly as an insurance rather than an "investment" decision – to employees incrementally throughout their careers, instead of as a single, large lump-sum purchase near or after retirement. Such a shift at the necessary scale would appear to require changes in both annuity markets and retirement-plan design. To facilitate these, the paper proposes and defends a standard, generic, identifiable-in-advance definition of realization of "longevity risk" (the lack of such a standard currently representing a notable difference with life insurance):
Longevity risk begins to be realized upon living past one's expected age at death, determined as of (and assuming survival until) one's expected retirement age.
Agreement upon a standard definition (requiring absolute reference only to an agreed demographic/actuarial data-source) could help with formation of a more robust annuity-marketing industry environment – another prominent current contrast with life insurance. It could also enable changes to retirement plans, potentially encouraged by legislative measures, that would permit in-plan accumulation of longevity insurance incrementally, over time, in coherently additive units.

Andrew Stumpff is a Lecturer at the University of Michigan Law School, where he teaches Employee Benefits and Executive Compensation, and a shareholder of the law firm Butzel Long, practicing in the firm's Ann Arbor office. He also teaches Employee Benefits and Executive Compensation in the LLM in Taxation program at the University of Alabama Law School. He received his B.A. degree in Mathematics in 1983 from Washington University in St. Louis, and J.D. from the University of Michigan in 1983. Stumpff previously was a partner at the New York law firm of Davis Polk & Wardwell. Earlier in his career, Stumpff served as an assistant branch chief in the Office of Chief Counsel of the Internal Revenue Service, in Washington, D.C. He is a former co-chair of the Employee Benefits Committee of the New York State Bar Association Tax Section, and is a fellow of the American College of Employee Benefits Counsel. He is the author of two law school casebooks: Employee Benefits and Executive Compensation (Foundation Press, 2011) and Executive Compensation (Foundation Press, 2017), and co-author of Pension and Employee Benefit Law (Foundation Press, 2015, sixth edition). He has also published a range of papers addressing various issues under U.S. employee benefits law, among other topics. Before law school, Stumpff worked briefly as an actuary at a Missouri-based life insurance company, successfully completing the first four of the (at that time) ten examinations in the American Society of Actuaries' FSA sequence.

Modelling Retirement Income Risks and Solutions: A Retirement Income Toolkit in R

Jonathan Ziveyi (School of Risk & Actuarial Studies, UNSW Sydney)

Abstract: Financing and modelling of retirement risks has been the focus of actuarial research over recent years. Much of this research has involved the development and application of models implemented with various software. A Retirement Income Toolkit has been developed in R that implements many of these models for development and application by researchers in modelling retirement income risks and product solutions. The Toolkit includes modules that implement models of systematic mortality, functional disability and health status, economic

scenario generators and retirement product cash flow simulation and pricing. This paper/presentation outlines the main features of the Retirement Income Toolkit including the models and the output from the modules and a discussion of the applications and extensions of the Toolkit in research and practical applications.

Jonathan is an Associate Investigator at the ARC Centre of Excellence in Population Ageing Research based at the UNSW Business School where he is an Associate Professor and Associate Head in the School of Risk and Actuarial Studies. He received his PhD in Quantitative Finance from the University of Technology Sydney where his thesis was on the evaluation of early exercise exotic options. His current research interests include longevity risk management, valuation of guarantees embedded in variable annuities and option pricing under stochastic volatility. His research output has been widely published in esteemed quantitative finance and actuarial journals such as Insurance: Mathematics and Economics, Quantitative Finance among others and has been presented at various international conferences.

Session 7: Plenary

Optimal Savings and Portfolio Choice with Risky Labour Income and Reference-Dependent Preferences

Roger Laeven (University of Amsterdam)

Abstract: The question of how to optimally save and invest total wealth over the life-cycle has been extensively studied in different contexts since the seminal works of Merton (1969) and Samuelson (1969). Human wealth constitutes the largest part of total wealth. For example, Lustig, van Nieuwerburgh, and Verdelhan (2013) estimate that for the average US household, human wealth is 90% of total wealth; see also Mayers (1972) and Jorgenson and Fraumeni (1989). Furthermore, labour income is not risk-less, as has been vividly demonstrated by the recent COVID-19 crisis. Hence, it is of great importance to understand how risky human wealth affects optimal savings and portfolio decisions. This paper extends the literature by analysing this question for an individual with reference-dependent preferences.
More specifically, this paper explores the joint impact of reference-dependent preferences and non-tradable risky labour income on optimal savings and portfolio decisions. We develop a non-trivial solution procedure to determine the optimal policies. Our results reveal that the impact of permanent labour income shocks on both the optimal savings rate and the optimal portfolio share is more pronounced under reference-dependent preferences than under CRRA preferences. In particular, we find that in a wide range of scenarios, individuals withdraw pension wealth already before retirement. Furthermore, we show that the optimal response of the savings rate and the portfolio share to a fall in labour income exhibits large heterogeneity across the ratio of consumption to the reference level. Finally, we find that the optimal policies are more conservative compared to the case with risk-less labour income and CRRA preferences.

Prof. Roger J. A. Laeven has been a Full Professor, Chair of Mathematics and Economics of Risk, at the Department of Quantitative Economics of the University of Amsterdam since 2011. Furthermore, he has been a visiting Research Professor at Princeton University, Bendheim Center for Finance, since 2007. His research interests span the fields of Actuarial Science and Mathematical Finance, Probability Theory and Mathematical Statistics, Financial Econometrics, Operations Research and Microeconomic Theory and his work has appeared in the leading journals in all these fields. He serves as Editor of Insurance: Mathematics and Economics and is the Director and Co-Founder of the Amsterdam Center of Excellence in Risk and Macro Finance.

Firm Productivity with an Ageing Labour Force

Erik Hernaes (The Ragnar Frisch Centre for Economic Research, Oslo)

Abstract: We exploit a policy-induced shift in the labour supply of elderly (age 63-67) workers in Norway to explore how ageing of the workforce within existing firms is likely to affect labour productivity and the demand for younger workers. Our findings indicate that a higher share of age 63-67 workers has a small positive effect on labour productivity in the short run, as measured by value added per hour worked. Total employment in directly affected firms appears to be unchanged, suggesting that postponed retirement of existing elderly workers typically leads to lower demand for younger workers.

Erik Hernaes is Senior Research Fellow at the Ragnar Frisch Centre for Economic Research at the University of Oslo. Erik's primary research interests are topics related to pensions. He has been leading a project on evaluation of labour market effects of the Norwegian pension reform, in 2011, and a project on the social sustainability of the Norwegian pension system after the reform. Presently, he is participating in a project on pension and working life for the Ministry of Labour and Social Inclusion. After working in Statistics Norway, he became the director of the Frisch Centre from its start and up to 2011. He was one of the early researchers to link administrative register data and to use these for econometric analyses. This is now a major data source for research at the Frisch Centre. The research at the Frisch Centre is mostly been funded by the Research Council of Norway and Government Ministries. The research results are communicated to policy makers and has been important for policy making related to pensions, welfare and the labour market. Erik has published on productivity, education, unemployment and retirement, in the *Scandinavian Journal of Economics*, *Oxford Bulletin of Economic Research*, *Journal of Pension Economics and Finance, Journal of Health Economics, Journal of Public Economics, Journal of Labour Economics* and in volumes from the NBER, Kluwer, Edward Elgar, Routledge and the World Bank.

Aware Super's Retirement Confidence Score: A new way to measure risks in retirement income

Shang Wu and Estelle Liu (Aware Super)

Abstract: Superannuation fund members often find it hard to know how much they need to save for their retirement and how they are tracking against that target. Today, the typical measure that the industry uses is the funding ratio between the projected income which is derived based on deterministic projections and the income targets, which suffer from many drawbacks due to its deterministic nature. While upside and downside scenarios can be added around the central estimate, it is at the cost of simplicity and communication ease. This reflects the big challenge that the industry is facing in how to communicate risks to members.
This presentation is to introduce a new innovation that aims to tackle this challenge. Aware Super developed a new measure to track members' progress against their retirement targets -- the Retirement Confidence Score. This method is implemented in the new Aware Super retirement calculator.[1] The Retirement Confidence Score incorporates investment risk into the measure while keeping it as a single index for the ease of member communication. Differing from the typical deterministic funding ratio, the Retirement Confidence Score can reward or penalise risk taking based on the members' circumstances relative to their retirement income target. This will improve members' retirement outcomes by providing appropriate nudges to members. It also allows future innovations to provide guidance and advice to members in a scalable way (through digitisation) in regarding to key financial decisions in super, such as choice of investment options and how much to drawdown in retirement.

Shang Wu is an Associate Portfolio Manager in the Investment Strategy team at Aware Super. Shang's role focuses on investment and retirement

[1] *Forthcoming in November 2022.*

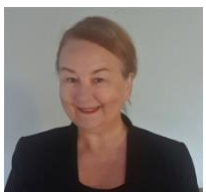
strategy research including the development of retirement solution for the fund and members' investment choices. Shang obtained his PhD in Actuarial Studies at UNSW Australia. His academic research focuses on financial decision making in retirement. Shang is a qualified actuary and a member of the Actuaries Institute's Superannuation and Investments Practice Committee and the Retirement Income Work Group.

Estelle Liu is a Manager, Actuarial Practice, at Aware Super. Her area of focuses include data-driven member insights, actuarial advice, members benefit projections, retirement offerings, and fund-wide segmentations. Prior to that, Estelle was a consultant at Rice Warner and focused on retirement solutions and investment strategies and prior to that at Mine Super. Estelle is a Fellow of the Institute of Actuaries of Australia (FIAA) and a Chartered Enterprise Risk Actuary (CERA).

Using Holistic Advice to Improve Retirement Planning

Joanne Earl (Macquarie University)

Abstract: This paper reports the findings of a Nationwide study sponsored by an ARC Linkage Grant (LP190100574) and supported by Allianz Retire+. Up until recently the focus for retirement planning has been mainly on finances. As psychological research on retirement adjustment emerges, a wider range of variables are being considered to influence the retirement experience. In this study we explore the viability of combining careers advice, health assessments and general financial advice to increase engagement and outcomes related to retirement planning. The study answered three important questions: Could online training modules be used to improve retirement planning? Does career advice, health assessments and financial advice supplement the use of the online modules? Would the holistic advice model produce better results than financial advice alone? To answer these questions, a pre-post design was adopted consisting of three experimental groups and a control group. The experimental groups were: (1) three online training modules focusing on careers, health and finance, (2) online modules combined with careers advice, health assessments and general financial advice, (3) and online finance module and general financial advice. Multiple measures of outcomes were collected over 3 time points: confidence in retirement age; whether or not further advice would be sought from advisers; having a say about timing and choice to retire; financial self-efficacy; retirement planning behaviours; ease of retirement decision; retirement preparation; financial literacy; planned retirement income and spending; anticipated satisfaction with life in retirement; modules knowledge and subjective retirement knowledge. Compared to the control group, all three experimental groups showed significant improvements at post-intervention. Between and within comparisons are reported in the study. There are significant implications arising from the study on how advice is delivered with the potential for low cost assistance to improve education prior to seeking advice.



Professor Joanne (Jo) Earl, UNSW, M.Psych; PhD (Psychology) is Psychologist and researcher at Macquarie University. Jo is a Registered Psychologist, an endorsed Organisational Psychologist and a member of the Australian Psychological Society. She is a member of the NSW Minister's Advisory Council on Aging and was previously on the ASIC financial capability research steering committee. There are three main streams to her research program: identification of variables predicting retirement outcomes, design of new measures to monitor retirement planning and building of online training programs to promote retirement planning engagement. Jo's research program is applied, involves community samples and is multidisciplinary. Jo is the recipient of two ARC grants. These include a ARC Discovery grant with Hazel Bateman exploring how a person's focus on the past, present and future influences their Retirement Planning and an ARC linkage grant sponsored by Allianz Retire+ with Paul Gerrans and Chanaka Wijeratne assessing whether models of advice combining career and health counselling with financial advice are better than financial advice alone. You can find Jo's work published in the *Journal of Vocational Behavior, Medical Journal of Australia, American Journal of Geriatric Psychiatry*, *Women and Aging,* and more.

ONLINE SESSION – 1 DECEMBER 2022

Session 1: Pension Decisions

Households' Heterogeneous Welfare Effects of Using Home Equity for Life Cycle Consumption

Jim Been (Leiden University, Netspar, The Netherlands)

Abstract: Using a life-cycle model and a representative sample of households, we analyse the extent to which using home equity leads to (heterogeneity in) welfare gains over the life cycle. The most policy-feasible option to borrow against 50% of home equity over the life cycle leads to median (average) welfare gains of 7% (11%). However, we find substantial heterogeneity with half of the households facing a welfare gain between 3% and 13%. Much of this heterogeneity is explained by heterogeneity in households' income and (housing) wealth and less so by heterogeneity in their demographics or preferences for consumption smoothing and time.

Jim Been is an Assistant Professor in Economics at the Department of Economics at Leiden University and a Netspar Research Fellow. His research interests include consumption and savings decisions of households. In particular, he studies how consumption responds to economic shocks and the extent to which households can insure against such shocks. This research has been published in journals such as The Review of Economics and Statistics, The Journal of Human Resources, and the Journal of Pension Economics and Finance.

Private Information and Risk Preferences in the Annuity Market: Evidence from Sweden

Abigail Hurwitz (The Hebrew University of Jerusalem, Israel)

Abstract: We study how risk type and risk preferences simultaneously shape demand for life annuities, using a comprehensive data-set of retirees' payout choices from a major Swedish occupational pension company, combined with administrative data. We construct proxies for risk type and risk preferences, from financial and health-related domains. Using a quasi-experimental design that exploits individuals' responses when they receive a malignant cancer diagnosis around retirement, we identify a significant causal effect of a change in risk type on the decision to annuitize. This effect is generated by the financially risk averse and health-related risk tolerant individuals. We further demonstrate that our results persist when proxying for risk type using parental longevity information.

Dr. Abigail Hurwitz is an Assistant Professor at the Hebrew University of Jerusalem. Her research is dedicated to long term saving, consumption and annuity choices. She seeks to better understand financial behaviour in order to influence policy as well as to develop and promote savings products and to increase the demand for annuities. Hurwitz has recently worked on projects focused on mandatory annuitization in Israel. Her research also focuses on life and health subjective perceptions and how to influence them in order to enhance saving behaviour. Hurwitz holds a Ph.D. in Finance as well as an M.A. and B.A. in Business and Economics from the Hebrew University of Jerusalem. She was previously a Postdoctoral visiting scholar at the Wharton school of the University of Pennsylvania.

Financial Advice and Retirement Savings

Markus Schmid (University of St. Gallen, Switzerland)

Abstract: We use a unique dataset from a large retail bank to examine the impact of financial advice on personal retirement savings. We document that retirement-related financial advice is associated with an increase in tax-exempt retirement accounts and equity investments, both at

the extensive as well as the intensive margin. Our analysis suggests a causal link. We find no evidence that advisors particularly help typically disadvantaged clients (female, poorer, less-educated). Additional investments into retirement accounts and equities primarily come from external sources and checking accounts. The bank also benefits from the provision of retirement-related financial advice.

Markus Schmid is a Professor of Corporate Finance at the University of St. Gallen and a Faculty Member of the Swiss Finance Institute (SFI). He studied economics and business administration with an emphasis on corporate finance, financial economics, and international economics at the University of Basel and holds a PhD in finance also from the University of Basel. He spent a year as a research scholar at Leonard N. Stern School of Business, New York University, and another year as a post-doc at the Department of Finance of the University of Basel, before becoming an Assistant Professor of Finance at the Swiss Institute of Banking and Finance at the University of St. Gallen. Before his current appointment, he was an Associate Professor of Finance at the University of Mannheim. His research interests are mainly in the areas empirical corporate finance, corporate governance, and household finance. His research has been published in the Review of Financial Studies, Journal of Financial Economics, Review of Finance, Management Science, and Journal of Financial Intermediation, among others. From 2010 to 2012 he was co-editor and as of 2012 he is the managing editor of the Financial Markets and Portfolio Management Journal.

Understanding Fund Members' Behavioural Responses to Market Volatility

Inka Eberhardt (CEPAR, UNSW Sydney, Australia)

Abstract: Preliminary analysis of accumulation member data from a large Australian superannuation fund shows that of the 3% of members who made a switch between February and April 2020, 8 in 10 switched to a more defensive portfolio. To date, the forgone investment earnings are up to A$30,000 for an average fund member. This study uses an online stated choice experiment to explore the switching behaviour of super fund members in default investment options when faced with volatility of investment returns and investigates the impact of alternative communication treatments designed to help members overcome their behavioural biases and thereby address inappropriate switching. We compare the behaviour of four groups: those who received a re-assuring message to not switch; those who received the same message but where share market returns were less salient in the experiment; those who received projections about their account balance and income at retirement; and those who saw a goal tracker that put the account balance and income projections in perspective of the participants' individual goal. We find that portfolio stabilizers are financial literacy, numeracy, and risk tolerance. Choice members who are only invested in one option are also less likely to switch investments in markets with high volatility, possibly due to confidence in their previous choice. Regarding facilitators of change, we find that participants who received the projections and goal tracker are more likely to change portfolios in periods with negative market shocks. Participants who looked for more information about their portfolio performance are also more likely to change investments. Our findings show that activating engaged and unengaged members can lead to change with positive and negative consequences. Communications have to be tested in order to lead to positive fund member outcomes.

Inka Eberhardt is a CEPAR Research Fellow, located in the UNSW Business School. She joined the Centre in October 2018. Inka is interested in the interface between individual behaviour and pension systems. She uses field experiments and online surveys to research the effectiveness of pension communication on savings and investment behaviour. The aim of her research is to improve communication and to enable consumers to make better choices.

Session 2: Retirement and Adequacy

Health and Labour Market Effects of an Abrupt and Unanticipated Rise in Women Retirement Age. Evidence from the 2012 Italian Pension Reform.

Chiara Ardito (Torino University & Epidemiology Unit, Italy)

Abstract: Population ageing is prompting governments around the world to increase the retirement age. However, not all workers may be equally able to extend their working lives as they may face adverse health consequences. In this article, we examine the health and labour market effects of an Italian pension reform that suddenly increased the normal retirement age for women by three to seven years. To do this, we use linked labour and healthcare administrative data, jointly with survey data and difference-in-difference methods. Our results show that the reform was effective in postponing retirement, as pension claiming dropped by 25 percentage points (pp) while the probability of working increased by around 11 pp during the ages 60 to 63. However, there were side effects as the reform also pushed a relevant fraction of women out of the labour market, into unemployment and disability pension, while increasing sick leaves among those who continued to work. The reform also increased hospitalization related to mental health and injuries among affected women. These side-effects were concentrated in the short-term and driven by those with previously low health status. Our results suggest that undifferentiated increases in pension age, independently of the health condition of the worker, might harm the health and the working capacity of more vulnerable workers.

Chiara Ardito is currently a post-doctoral researcher at the Department of Economics and Statistics of University of Torino and a research fellow at Netspar and LABORatorio Revelli. She earned a PhD in Economics from University of Torino and Collegio Carlo Alberto with a thesis on the economic and health consequences of pension reforms and unfavourable working conditions for aging workers. Her research interests include ageing workforces, labour and health economics, evaluation of programme interventions using non-experimental methods, and the relationship between work, socio-economic conditions, and health. She teaches Econometrics and Statistics in graduate and undergraduate courses, and she is currently the head of the University of Torino Research Unit within the Italian Ministry of Health project “The health equity impact of increasing age of retirement: the contribution of Italian longitudinal Studies”.

Labour Supply and Well-Being Among Older Adults: The Separate Effects of Pension Access and Statutory Retirement Age

Xuan Zhang and Joanne Tan (Singapore Management University, Singapore)

Abstract: By taking advantage of the separate statutory retirement age and pension access age in the Singapore context, we provide new evidence on how labour supply and well-being change upon reaching the statutory retirement age and pension access age among older individuals. At the aggregate level, the statutory retirement age greatly reduces labour supply and household income, while normal pension access has a limited impact on labour supply and household income. However, early pension access after turning age 55 enables an increase in self-employment and lowers the unemployment rate. Heterogeneity analyses demonstrate that the spike in retirement at the statutory retirement age is driven by individuals with medium and high pension wealth, while the switch from unemployment to self-employment at age 55 is mainly driven by individuals with low pension wealth.

Dr Xuan Zhang is Assistant Professor of Economics at Singapore Management University (SMU). She obtained her PhD in economics from Brown University. Her main research fields are health economics, labour economics, and public economics, with interests in health insurance programs, physician behaviour, prescription drugs, labour supply and well-being of the older adults. She has published papers with *American Economics Review (forthcoming)*, *Journal of Public Economics, Journal of Development Economics*, etc.

Ageing, Inadequacy and Fiscal Constraint: The Case of Thailand

Phitawat Poonpolkul (Puey Ungphakorn Institute for Economic Research - PIER, Thailand)

Abstract: Over the coming decades, many developing countries are set to face unprecedented challenges. While their population is aging extremely fast, the old-age income supports are inadequate and fiscal resources are limited. This study develops an overlapping generations model (OLG) with formal and informal sectors for a middle-income country. Besides aging population structure overtime, the model incorporates common features of developing countries -- a sizable informal sector, a connectedness between the formal and informal sectors, and inadequate pension provisions. The households are heterogeneous with respect to their education, formality status, and survival probabilities. The model is calibrated to Thailand's economy where the government budget structure is based on the country's fiscal historical data, and the basic universal pension scheme and Social Security scheme are realistically specified. We assess the costs of these two schemes under three long-run scenarios : (i) introducing indexation to the currently non-indexed schemes; (ii) triple increasing the basic pension scheme; and (iii) specifying the basic pension to proportionally decrease with the Social Security benefits. Using a consumption tax to quantify the costs, the consumption tax must be increased by three, eleven and nine percentage points from the current level, respectively. The Social Security scheme is projected to be unsustainable, with its fund depleted in 2045. Without any reform and benefit cuts, the scheme requires a drastic increase in the contribution rate. Welfare gains and losses across household types and redistributive impacts of the reforms are discussed.

Phitawat Poonpolkul is a principle researcher at Puey Ungphakorn Institute for Economic Research, the Bank of Thailand. He is interested in examining various economic impacts from demographic changes using a heterogenous-agent Overlapping Generations (OLG) model. He is also collaborating with the Centre of Excellence in Population Ageing Research (CEPAR) in developing an OLG model for emerging markets.

The Limits of Parametric Reforms in Sustaining the Algerian Retirement System in front of Population Ageing

Farid Flici (Research Center in Applied Economics for Development - CREAD, Algeria)

Abstract: The accelerated ageing of the Algerian population threatens seriously the financial sustainability of the retirement systems which is working following the Pay-As-You-Go principle. Thus, reforms are to be scheduled for the near future to correct the resulting financial balances. Many reform options exist at different costs which can consist of a simple parametric reform, a shift to a fully funded system, or an implementation of a complementary fully funded pillar. But before all, it is worthy to investigate if the less costly option (parametric reforms) can allow maintaining the sustainability of the system in a changing environment. In this paper, we carry out a multi scenarios analysis crossing the different scenarios about the possible parametric reform actions combined with the different possible socio-economic scenarios. The results show that within the most favourable scenarios about the evolution of the environment, parametric reforms (heavy ones) could be able to allow the Algerian retirement system to resist till 2040 only. Systemic reforms need to be scheduled for 2040 and beyond.

Farid is an Actuary with a PhD in Statistics. He is the managing director of the Social Economics Department at the Research Center in Applied Economics for Development (CREAD, Algeria), Expert at the Algerian National Committee for Population, and member of the National Council of Statistics. Farid is interested in studying longevity, health, and aging as well as their impact on retirement sustainability and social security expenditures. Personal page: https://farid-flici.github.io

Session 3: Pension Finance and Choice Architecture

Intergenerational Sharing of Unhedgeable Inflation Risk

Damiaan Chen (University of Amsterdam, Netherlands)

Abstract: We explore how members of a collective pension scheme can share inflation risks in the absence of suitable financial market instruments. Using intergenerational risk sharing arrangements, risks can be allocated better across the various participants of a collective pension scheme than would be the case in a strictly individual- or cohort-based pension scheme, as these can only lay off risks via existing financial market instruments. However, financial markets are incomplete and, therefore, unable to handle all the different types of risks confronting pension fund participants. Allowing for the intergenerational sharing of these risks enhances their welfare. In view of the sizes of their funded pension sectors, this would be particularly beneficial for the Netherlands and the U.K.

Damiaan Chen (34 years old) has more than 5 years of experience as a Senior Supervisor Specialist at the Dutch Central Bank and as a Postdoc Researcher at the University of Amsterdam. He specializes in combining his knowledge of quantitative modelling with supervisory practice and policy. Damiaan is enthusiastic and passionate about his work by finding solutions to problems that contribute to improving pension schemes. In his spare time Damiaan likes to play the piano and to do sports such as hockey and squash.

Do Pension Funds Reach for Yield? Evidence from a New Database

Maximilian Konradt (Geneva Graduate Institute, Switzerland)

Abstract: How do institutional investors adjust to low interest rates? This paper studies the financial risk-taking behaviour of pension funds over two decades. I assemble a comprehensive new database of pension funds' portfolio holdings, encompassing more than 100 individual funds from 14 advanced economies. One central stylized fact is that pension funds' balance sheets have become riskier over the recent period of low interest rates. Funds based in Europe tilt their portfolios towards public equities, while North American and Asian funds invest more in alternative asset classes. The empirical analysis suggests that lower domestic risk-free rates are an important driver of this trend. Pension funds actively increase their risky asset exposure in response to changing interest rates, measured through short-term rates and monetary policy surprises. I find that this reach for yield is most pronounced for funds that are well funded and hold fewer risky assets initially. Moreover, the effect is exacerbated during periods where risk-free rates are lower. As a result, I document that European pension funds reach for yield more aggressively, especially in the years following the 2008 financial crisis.

Maximilian Konradt is a 4th-year PhD student in International Economics at the Geneva Graduate Institute of International and Development Studies (IHEID). His research focuses on international finance and international macroeconomics, climate policy, as well as political economy.

Choice Architecture Improves Pension Selection

Paulina Granados (Superintendencia de Pensiones, Chile) and Denise Laroze (Universidad de Santiago de Chile)

Abstract: Consumers in Chile of private and semi-private pension systems are not selecting the pension providers that give them the largest Net Present Value. Regulators present retirees with a comparison report of pension plan offerings ranked by amount offered and the risk classification of the provider. A field experiment implemented in Chile explores alternative

presentations of provider performance. We treat respondents by modifying the status quo information “package” (that exactly replicates what is currently provided by the regulator). Two design choices clearly enhanced consumer welfare in this experiment: Reducing the amount of information improved choice – specifically eliminating the risk profiles of providers lead to better decisions by our respondents. Second, adopting a loss frame also resulted in respondents selecting providers that generated higher returns. These gains from modifying information presentation were considerably higher for those with lower levels of financial literacy. This study is conducted in association with the Superintendencia de Pensiones (SP) and the Comisión para el Mercado Financiero (CMF), two of the public offices that oversee the pensions market in Chile.

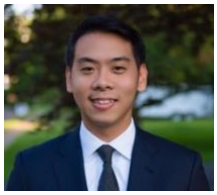
Paulina Granados is the Head of Research at the Pension Regulator Authority of Chile since 2017, acting also as Executive Secretary of the Asociación Internacional de Organismos de Supervisión de Fondos de Pensiones (AIOS). Before joining the Pension Regulator Authority of Chile, she worked at the Employment Labour and Social Affairs Directorate of the OECD (2011-2017), at the Central Bank of Chile (2002-2005) and as Executive Director of Amnesty International, Chilean Section (1999-2001). She holds a PhD in Economics from the European University Institute (Italy). She is Industrial Engineer and Master in Applied Economics from Universidad de Chile, Master in Economics from the University of Warwick (UK) and a Master of Research in Economics from the European University Institute (Italy).

Session 4: Old Age Security

The Age Gap in Mortgage Access

Natee Amornsiripanitch (Federal Reserve Bank of Philadelphia, USA)

Abstract: This paper uses data on more than 19 million mortgage applications to study the relation between applicant age and mortgage application outcomes. Conditional on a comprehensive set of applicant, property, and loan characteristics, mortgage applications submitted by older borrowers face monotonically higher rejection probabilities. The age effect appears even between individuals whose ages differ by only one year. Loan officers' attitude towards mortality-related default risk is a key contributor. The same empirical relations do not hold between applicant age and rejection by automated underwriting systems. The age effect on rejection by loan officers is larger for subgroups that face higher mortality risks (e.g., older individuals, men, and individuals who live in low-life-expectancy counties). Consistent with a risk-based explanation, similar empirical relations appear between applicant age and interest rate spread. Overall, this paper shows that older individuals systematically face higher barriers to credit access because mortality risk is priced in credit markets.



I am a research economist at the Federal Reserve Bank of Philadelphia. I hold a Ph.D. in Financial Economics from Yale School of Management. I completed my doctoral studies under the supervision of Gary Gorton, Andrew Metrick, and Paul Goldsmith-Pinkham. Prior to graduate school, I worked as a research associate for Paul Gompers at Harvard Business School and as an associate at Charles River Associates. Personal Webpage: https://sites.google.com/view/natee-amorn
GoogleScholar: https://scholar.google.com/citations?user=LGQEMgoAAAAJ&hl=en&oi=ao

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Do People Successfully Manage Their Nest Eggs Through Retirement? Evidence from the Evolution of US Household Balance Sheets

Jason Seligman (Investment Company Institute, USA)

Abstract: This paper investigates how resources accumulated in working years are managed over retirement using public Health and Retirement Study (HRS) data representing 15.2 million seniors in the United States. We build wealth estimates from specific balance sheet components: Social Security, DB and DC pension, IRA, annuity, net home equity, and other

assets. We construct higher fidelity estimates of DC wealth than are readily available to researchers for select years using detailed data on current balances from prior employment. We find: (1) Social Security plays a fundamentally important and complementary role in the US retirement system; (2) an important consideration for estimates of wealth derived from income streams (including Social Security) is that these mechanically decline as mortality draws nearer, biasing changes in absolute measures of wealth downward. Nevertheless, we find (3) people largely hold sufficient wealth to maintain their relative standards of living. However, (4) a range of experiences do exist in retirement, including hardship. Investigating deciles of the wealth distribution, which help to control for declines in income-based wealth measures over time, we find that (5) those experiencing hardship do not tend to fall from high- or middle-wealth deciles to lower ones as they age, but instead tend to be enduring longstanding hardship.

Jason S. Seligman is a Senior Economist with the Investment Company Institute (ICI). Prior to joining ICI, his career has included work in government for the U.S. Department of the Treasury, and White House Council of Economic Advisers. Seligman has held academic faculty positions at The Ohio State University and the University of Georgia. Seligman's research affiliations include service for the TIAA Institute, the Mercatus Center at George Mason University, the Center for Financial Security at the University of Wisconsin. He is broadly published, with scholarly contributions to the literature in social insurance, private pensions, individual savings, and financial literacy, along with articles focused on finance and sovereign debt. He is a member of the National Academy of Social Insurance, American Economics Association, International Institute of Public Finance, and the National Tax Association. Seligman earned his B.A. from the University of California at Santa Cruz and Ph.D. from the University of California, Berkeley, both in economics.

Experiments on Targeted Wealth Management Strategies for Prospect Theory Investors

Jordan Moore (Rowan University, USA)

Abstract: Suppose an investment manager has the discretion to allocate client account inflows and outflows over time. Inflows include client or employer contributions and outflows include management fees or client withdrawals. If her client has prospect theory preferences over gains and losses, and anchors these gains and losses to the previous account balance, then the manager's optimal timing of inflows and outflows can increase client satisfaction. The client increases his savings rate and expected retirement wealth and the manager earns higher management fees. The optimal strategies allocate outflows to offset portfolio gains and allocate inflows to offset portfolio losses. I administer a laboratory experiment on Amazon Mechanical Turk to test whether subjects prefer holding portfolios with management fees that are optimally structured to target prospect theory preferences. Subjects invest 13% more of their wealth in equities when the equity fund management fees are structured to target prospect theory preferences. This difference is not explained by demographic characteristics and psychological traits known to influence financial decision making. These findings are particularly relevant to the question of how to structure pension plans and how to provide financial advice to retirees on optimal decumulation strategies.

Jordan Moore earned his undergraduate degree from MIT and began his career as an equity options market maker on the American Stock Exchange in New York City. For twelve years, Jordan worked as a proprietary trader, including overseas assignments with Susquehanna International Group in Sydney and with Deutsche Bank in London. Jordan completed his Ph.D. in Finance from Simon Business School, University of Rochester. His primary research objective is to use insights from behavioral economics to improve financial outcomes for individual investors.