

ANNUAL REPORT 2014



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Australian Government

Australian Research Council

ARC CENTRE OF
EXCELLENCE IN
**POPULATION
AGEING
RESEARCH**



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INTRODUCING THE CENTRE

ABOUT CEPAR

THE ARC CENTRE OF EXCELLENCE IN POPULATION AGEING RESEARCH (CEPAR) IS A COLLABORATION BETWEEN ACADEMIA, GOVERNMENT AND INDUSTRY.

The Centre is based at the University of New South Wales with nodes at the Australian National University and the University of Sydney. It aims to establish Australia as a world leader in the field of population ageing research through a unique combination of high level, cross-disciplinary expertise drawn from Economics, Psychology, Sociology, Epidemiology, Actuarial Science, and Demography.

CEPAR is actively engaged with a range of influential government and industry partners to cooperatively deliver outcomes to meet the challenges of population ageing. It is building a new generation of researchers to global standard with an appreciation of the multidisciplinary nature of population ageing.

VISION

Our vision is to be internationally recognised as a leading research authority on population ageing.

MISSION

CEPAR's mission is to produce research of the highest quality to transform thinking about population ageing, inform product and service development and provision and public policy, and improve people's wellbeing throughout their lives.

OBJECTIVES

THE OBJECTIVES OF THE CENTRE ARE TO:

- Produce original research, to be published in leading international academic journals, in each of the nominated fields, integrating them to advance knowledge globally
 - Establish outstanding research capability to generate the evidence base and policy analysis required to anticipate and respond constructively to the demographic transition
 - Undertake evidence-based research to allow development of products and markets relevant to an ageing population
 - Create new cohorts of researchers with an enriched appreciation of cross-disciplinary contributions by training PhD students and early career researchers (ECRs), thus building high quality research capacity for the generation for which population change is especially crucial
- Become a global intellectual hub for population ageing research, by combining in-house expertise with leading researchers globally in initiatives to target research issues and generate new outcome-oriented approaches to studying the population ageing process and its implications
 - Engage with external stakeholders as an integral part of the Centre's research activity, to develop research goals, to share in project execution, and to translate research output into forms accessible by the professional community, both national and global.

DIRECTOR'S REPORT & HIGHLIGHTS



PROFESSOR JOHN PIGGOTT

In the last 12 months, CEPAR has consolidated its position as one of the global leaders in population ageing research. CEPAR researchers presented their work in almost twenty countries around the world. In Australia CEPAR is gaining increasing recognition as a go-to institute on issues connected with population ageing. 2014 also marked the midpoint of our funding term, and the mid-term review focused CEPAR personnel on what we have achieved, where we should be going, and what we could be doing better. We are excited about the future of CEPAR and look forward to continuing to build global knowledge on this important issue and increase our impact both nationally and internationally.

CEPAR'S WELL-ARTICULATED STRATEGIC PLAN, DEVELOPED THROUGH 2013, HAS BECOME THE TOUCHSTONE FOR THE CENTRE AS WE MOVE FORWARD.

In the time since, we have refined our research strategy, and the updated plan embodies six 'areas of research focus' (ARFs). These received ARC approval in December 2014.

The six ARFs (Causes and consequences of demographic change; Cognition and decision making; Resources in retirement; Ageing well and productively; Health and aged care; and Ageing in Asia and its impact on Australia) are designed to better reflect our foci of research. The research projects documented in this report are arranged in these groupings for the first time.

Importantly, the ARFs also recognise the evolution of CEPAR's broad research program, and the insights of our research leaders in linking different strands of research. The research undertaken over the first half of CEPAR's funding term has generated many specific findings. But it has also crystallised ideas about multidisciplinary potential – exactly as a Centre of Excellence should. To take just one example, links between cognition, ageing, behaviour, and policy are now better understood, with contributions from Economics, Psychology, and Sociology forming the basis for a new multidisciplinary research program.

AS PART OF REACHING THE HALF-WAY POINT IN OUR FUNDING TERM, THE ARC CONDUCTED A MID-TERM REVIEW OF THE CENTRE.

This was a valuable exercise, involving considerable preparation of documentation for the review team. The period preceding the site visit provided us with an opportunity to reflect as a group on our progress and achievements to date as well as future strategy. In addition to many small group discussions, a strategic retreat brought together about 30 CEPAR researchers to more formally consider our progress and prospects. It was from this meeting that the six ARFs emerged.

The visit itself was a great opportunity to showcase our research, and interact with the Panel about our progress, and future directions. The Panel spent much time discussing industry and government engagement with the Chair of our Advisory Board, Marc de Cure, and had separate sessions not only with me, but also with the other Chief Investigators (CIs) as a group, and with groups of research fellows, PhD students, and the administrative team.

The ARC reported its findings to CEPAR in November. It was positive in its assessment of CEPAR's progress to date, concluding that the Centre has made notable advances in several areas since its establishment in 2011. Specifically, it noted that CEPAR had developed a strong multidisciplinary research program; become a well-respected source of independent analysis; initiated a well-respected Research Briefs series covering important issues in ageing research; and begun connecting the social, economic and health effects of an ageing population. The Panel considered that the Centre has also provided a supportive, collegiate and stimulating environment for its postgraduate students and postdoctoral researchers.

In our meetings with the Panel, we also explored areas for future development. These included the further development of CEPAR as a national leader for other ageing groups, building mechanisms to develop mid-career

researchers, improved resources for engagement, and encouraging more informal interaction between the CEPAR nodes.

Arising from these discussions, a number of new initiatives are planned for 2015. Among these are an 'Ageing Summit', to provide a national discussion forum for ageing research; and a mid-career mentoring program for ageing researchers. In addition, we have budgeted for a part time Stakeholder Relationships Manager to help with engagement.

CEPAR'S INCREASINGLY SECURE ROLE AT THE CORE OF POPULATION AGEING RESEARCH, BOTH NATIONALLY AND GLOBALLY, WAS EVIDENCED IN 2014 BY ITS CENTRAL ROLE IN A NUMBER OF RESEARCH AND ENGAGEMENT INITIATIVES:

- 1 **Connecting researchers nationally:** At the national level, CEPAR's bid to organise the 2014 Academy of Social Sciences in Australia Symposium, with the theme of population ageing and Australia's future, led by CI Hal Kendig, was successful, and took place in November. It was a great event, uniting researchers from around the country. As well, and also managed by Hal, CEPAR played a central role in the establishment of the International Longevity Centre – Australia. This will play a role in connecting ageing research centres across the country, and CEPAR is delighted that it has come into being. The annual CEPAR Superannuation Colloquium held in July provided a further opportunity for researchers from around the nation to connect with policymakers and industry practitioners.
- 2 **Engaging with government and industry:** National engagement and impact initiatives also included the publication of our two part research brief,

on 'Aged Care in Australia', which was launched by The Hon Susan Ryan AO, Age and Disability Discrimination Commissioner, in April. Partner Organisation ricewaterhouseCoopers hosted the event. As well, CEPAR became heavily involved in providing input to the Financial System Inquiry, chaired by David Murray. Three invited submissions, and several group meetings involving CEPAR personnel and the Inquiry secretariat, ensured our work had impact, and it is reflected in the Inquiry deliberations on Superannuation and Retirement Incomes.

- 3 **Expanding our global footprint:** CEPAR joined with Germany's CESifo, based at the University of Munich, to host a two part conference on Tax, Pensions and Globalisation, an important topic in a world where labour migration is becoming increasingly common. CEPAR hosted the first part of the conference in November; Part II will take place in Munich this coming September.

A selection of papers will be published, the first collection of research on the topic.

More regionally, UNSW took the initiative, as a member of the Association of Pacific Rim Universities (APRU), to launch an APRU Research Hub in Population Ageing, to be hosted by UNSW and CEPAR. Following consultations between University of Southern California (USC) personnel (the USC CEO is currently APRU President), UNSW's Pro-Vice Chancellor (International), Fiona Docherty, and myself at the USC campus last October, the hub was launched, with an initial conference to take place in 2015 at UNSW. This places CEPAR at the core of a large group of research intensive universities with a shared regional interest in population ageing.

Hal Kendig, CEPAR Partner Investigator (PI) James Nazroo, and Associate Investigator Kate O'Loughlin spearheaded the organisation of two prestigious invited symposia as part of the

XVIII ISA World Congress of Sociology in Yokohama in July 2014. The two events, one focused on life course influences on inequalities in later life and the other on population ageing, work and care-giving responsibilities, provided an opportunity for leading international experts to discuss comparative findings based on data from a number of different countries.

CI Peter McDonald and his team continued to focus on population ageing in Indonesia. Work continued on a large three-year Linkage Project conducted in cooperation with AusAID, UNFPA, Statistics Indonesia, and the Indonesian National Population and Family Planning Board, and planning for a joint research project in collaboration with the Centre for Ageing Studies at the University of Indonesia involving a survey on older people in Indonesian villages was progressed. In April 2014, Peter delivered the prestigious Sadli Lecture in Indonesia.

DIRECTOR'S REPORT & HIGHLIGHTS

IN GRANT FUNDING, TOO, WE HAVE BEEN SUCCESSFUL IN BUILDING GLOBAL LINKS.

Together with Netspar, Europe's leading research centre focused on pensions and ageing, we won almost half a million dollars of ARC Linkage Grant funding, along with \$300k in industry support, to work on a comparative study of Australian and Dutch pension schemes.

This is important because both operate pre-funded mandatory pension plans, an atypical arrangement globally. AMP was especially supportive of this initiative. The US Social Security Administration, through the University of Michigan, also awarded CEPAR research funding.

Again, regionally, we won \$2.2 million over three years in strategic funding from UNSW to promote our research on population ageing in China, and I have been invited as a Principal Investigator on a multi-million dollar research project involving five Chinese universities, focused on population

ageing and social security in China, and funded by the National Natural Science Foundation of China.

This activity, much of it invited, in the Asian region is very consistent with our emerging research strategy of a regionally based ARF.

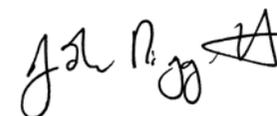
AN IMPORTANT PART OF CEPAR'S ACTIVITIES RELATES TO MENTORING EMERGING RESEARCHERS, AT BOTH DOCTORAL AND POSTDOCTORAL LEVELS, TO SECURE THE SUPPLY OF A NEW GENERATION OF WELL-TRAINED RESEARCHERS FOR THE FUTURE.

Several CEPAR programs have been developed to support this role, including the Emerging Researchers in Ageing (ERA) Program, initiated some time ago but now funded by CEPAR, and various postgraduate and postdoctoral workshops. In 2014, we were fortunate to have Cl Kaarin Anstey deliver the keynote at the annual ERA conference, and PI Carol Jagger come to Australia from the UK to deliver a postdoctoral workshop at ANU.

Our two Directors of Research Engagement, Hazel Bateman at the UNSW node and Hal Kendig at the ANU node, have responsibilities for CEPAR engagement with government and industry that includes support for mentoring engagement by early career researchers. The CEPAR-Department of Social Services (DSS) Roundtable was one opportunity to expose our young researchers to interaction with end-users, and many said how valuable they found the experience.

In collaboration with UNSW, CEPAR organised the 2014 Go8C9 PhD conference, focused on population ageing. This is an annual conference, bringing together outstanding PhD students from the Group of Eight universities in Australia, and the C9, a group of research intensive universities in China. The conference is multidisciplinary, built around a different theme each year. In 2014, UNSW won the right to host, with the theme as population ageing. I gave one keynote, joined by Wang Fu from Shanghai Jiao Tong. CEPAR researchers chaired the sessions.

'CEPAR II' is our in-house term for a new Centre. Although our existing funding runs for another three years, the ARC is calling for new Centre bids in 2015. Consultation with business and government will be crucial – this is a process that will be initiated early in 2015. In this we are fortunate in having a highly supportive and representative Advisory Board. Our existing strong links with Treasury and DSS as well as our partnerships with business and community groups will be an asset. The 2014 CEPAR-DSS Roundtable provides an example of how valuable the two-way engagement process can be, bringing together researchers with policymakers to discuss Australia's future challenges and policy directions. And continuing university support will be critical. We are exploring the addition of other universities to our current three existing collaborating institutions. This will be a major focus for 2015.



John Piggott

HIGHLIGHTS

56 PROJECTS

130 JOURNAL PUBLICATIONS

SYMPOSIUM ON POPULATION AGEING AND AUSTRALIA'S FUTURE CONVENED BY CEPAR IN COLLABORATION WITH THE ACADEMY OF SOCIAL SCIENCES IN AUSTRALIA

SUCCESSFUL ESTABLISHMENT OF AN ASSOCIATION OF PACIFIC RIM UNIVERSITIES (APRU) RESEARCH HUB FOCUSED ON POPULATION AGEING SPEARHEADED BY CEPAR

NOBEL LAUREATE PROFESOR JOSEPH E. STIGLITZ ADDRESSED A PACKED AUDITORIUM AT A CEPAR SPONSORED PUBLIC LECTURE IN JULY

CEPAR INVOLVED IN SUCCESSFUL CONSORTIUM TO ESTABLISH THE INTERNATIONAL LONGEVITY CENTRE AUSTRALIA

\$2.2 MILLION IN UNSW STRATEGIC FUNDS AWARDED TO SUPPORT THE DEVELOPMENT OF RESEARCH FOCUSED ON AGEING IN CHINA

NATIONAL TRANSFER ACCOUNTS FOR AUSTRALIA LAUNCHED BY PETER MCDONALD AT ANU IN JULY

CEPAR RESEARCHERS ORGANISED PRESTIGIOUS INVITED SYMPOSIUMS AS PART OF THE XVIII ISA WORLD CONGRESS OF SOCIOLOGY IN YOKOHAMA

G08C9 GRADUATE FORUM ON POPULATION AGEING LED BY CEPAR

22ND ANNUAL COLLOQUIUM OF SUPERANNUATION RESEARCHERS HOSTED BY CEPAR AND UNSW SCHOOL OF RISK AND ACTUARIAL STUDIES

JOINT CEPAR- CESIFO WORKSHOP: PENSION TAXATION, POPULATION AGEING AND GLOBALISATION

RESEARCH BRIEFS ON 'AGED CARE IN AUSTRALIA' LAUNCHED

THREE INVITED SUBMISSIONS TO FINANCIAL SYSTEM INQUIRY

KAARIN J. ANSTEY ELECTED FELLOW OF THE GERONTOLOGICAL SOCIETY OF AMERICA

ROBERT CUMMING DELIVERED KEYNOTE ADDRESS AT THE CONFERENCE OF THE ASIA PACIFIC ACADEMIC CONSORTIUM FOR PUBLIC HEALTH IN KUALA LUMPUR

HAL KENDIG ADDRESSED CEDA ON THE FINANCIAL IMPLICATIONS OF AGED CARE REFORM

PETER MCDONALD DELIVERED THE 2014 SADLI LECTURE IN JAKARTA AND YOGYAKARTA

JOHN PIGGOTT DELIVERED KEYNOTE ADDRESS AT THE ASIAN ECONOMIC POLICY REVIEW CONFERENCE ON SOCIAL SECURITY IN AGEING ASIA HELD IN TOKYO

CEPAR TEAM LED BY MICHAEL SHERRIS AWARDED ARC LINKAGE GRANT TO FUND A LARGE-SCALE RESEARCH PROGRAM FOCUSED ON MANDATORY PRE-FUNDED RETIREMENT INCOME SYSTEMS

CHAIRMAN'S MESSAGE



MARC DE CURE

In last year's Chairman's message I noted that CEPAR was reaching full capability at a time when issues relating to population ageing were coming to the fore in business and government, and that community awareness of the issue was becoming mainstream. During 2014 we saw the Federal Government make strong reference to the issue in relation to future budget surpluses necessitating changes to government policy in many areas, most notably in health care and the Age Pension. The Financial System Inquiry had post-retirement income stream issues high on their list of recommendations and China, a major trading partner of Australia,

is publicly recognising the importance of this issue as it rapidly approaches a significant ageing population challenge which will have flow on effects to Australia. It is pleasing therefore to note that in 2014 CEPAR positioned itself front and centre on many of these very important issues facing Australia and the region, providing informed, independent and fact-based input to the debate.

CEPAR has passed the halfway point of its grant during 2014 and the focus for the remainder of this grant period is to maximise its impact by concentrating its substantial capability on the right issues: Increasingly using, where appropriate, multidisciplinary teams. Centre Director, John Piggott, notes in his report the six key areas CEPAR will be focusing on: Cognition and decision making; Resources in retirement; Ageing well and productively; Health and aged care; and Ageing in Asia and its impact on Australia. These are the issues where CEPAR believes it can really make a difference in helping Australia to understand and respond to the challenges and the opportunities

population ageing presents. CEPAR has developed academic research capabilities and networks that can continue the momentum of research in these mission critical areas.

The Advisory Board plays a critical role in ensuring that the issues being addressed are those of greatest relevance. It also acts as a very effective conduit between the research output and the end users to ensure that the best possible decisions are made with available information. The level of engagement through 2014 was very high and we continue to build and bring in relevant capability to the Board. During the year we welcomed to the Advisory Board Leesa Croke from Treasury, Pip O'Keefe from the World Bank and Ian Yates from COTA (Council on the Ageing).

The engagement process will be further supported in 2015 by CEPAR's two Directors of Research Engagement and the employment of a Stakeholder Relationships Manager. This will enable us to broaden the base of our engagement and achieve greater leverage, with the ultimate objective of increasing CEPAR's impact.

The drive to maximise impact will ultimately set CEPAR apart and position it well to continue researching issues related to population ageing beyond the term of the current ARC Centre of Excellence grant.

Finally I would like to congratulate and thank everyone involved with CEPAR and the Advisory Board for helping to make 2014 a very successful year and, more importantly, positioning the research for significant future impact.

A handwritten signature in black ink, appearing to read 'M de Cure', written in a cursive style.

Marc de Cure

ACTIVITY PLAN FOR 2015

In 2015, CEPAR will continue to harness the capabilities of its high quality and well-focused research team to consolidate its position as a leading authority in multidisciplinary population ageing research. We will focus on our priority areas of research; produce high quality research on issues that matter and disseminate output to those that can use it to drive impact; contribute to key agendas, policy initiatives, and product development; expand global collaborative networks; and build research capacity and capability to ensure CEPAR's sustainability.

ENGAGEMENT AND OUTREACH

A number of events are planned in 2015 to stimulate discussion on the issue; engage with industry, government and the global research community; and raise the profile of the Centre. These include:

- an Ageing Summit;
- the annual Colloquium of Superannuation Researchers;
- the Summer Workshop on the Economics of Health and Ageing;
- CEPAR's monthly seminar series; and
- public talks featuring CEPAR personnel and distinguished visitors.

A Leaders' Forum to be held in the first part of 2015 will focus on population ageing issues of growing concern to industry and government with a view to mapping out a future research agenda.

CEPAR will also work closely with our stakeholders to identify particular areas of interest in 2015 and discuss suitable modes of engagement (e.g., roundtable discussion, boardroom briefing) as well as organise the participation of CEPAR personnel in these activities. CEPAR is actively considering initiatives to

provide new impetus to the research agendas of researchers focused on ageing in Australia, and to further connect CEPAR activities with stakeholders.

A Research Brief on Resources in Retirement is planned for release in 2015. The brief will integrate research findings from multiple disciplines to present a synthesis of evidence pertaining to this important topic.

Following the success of the CEPAR-sponsored 2014 ASSA Symposium on Population Ageing and Australia's Future, co-convenors Hal Kendig, Peter McDonald, and John Piggott will work closely with ASSA and the symposium speakers to produce an e-book based on the papers presented.

NATIONAL AND INTERNATIONAL NETWORKS

In the wake of the successful establishment of the Association of Pacific Rim Universities (APRU) Population Ageing hub, CEPAR will continue to provide leadership in shaping and building this initiative. The first Steering Committee meeting planned for the end of January 2015 will establish the terms of reference for the group and

set in place a strategic planning process. The flagship event for 2015 will be a major symposium to be held at UNSW focused on ageing in Asia.

CEPAR's membership of the successful consortium to establish the International Longevity Centre Australia (ILC-A), will also generate a range of opportunities to expand our national and global linkages.

A major linkage project involving Dutch partners, the Network for Studies on Pensions, Aging and Retirement (Netspar) and APG, a large pension provider, will provide the basis for enhancing our relationships with these two institutions.

Distinguished visitors expected in 2015 include Professors Olivia S. Mitchell (Wharton), Ayse Imhorogolu (Southern California), and Robert Holzmann (Malaya), A/Professor Ross Andel (South Florida) and Senior Research Fellow Eric Hernæs (Frisch Centre).

MENTORING

The suite of mentoring programs developed by CEPAR to engage Early Career Researchers (ECRs), Higher Degree Research and Honours students will continue to be offered in 2015. Ross Andel will convene the annual ECR workshop, this year focused on longitudinal data analysis; a Population Ageing Research stream of the National Honours Colloquium will be held in August; and we will continue to support the activities of the Emerging Researchers in Ageing initiative.

New CEPAR initiatives planned for 2015 include an ECR career development workshop on presenting research findings to policymakers and industry practitioners and a regular research seminar series targeted at ECRs and students.

ACTIVITY PLAN FOR 2015

RESEARCH

Research in 2015 will be advanced on a number of topics consistent with the six key areas of research focus identified in the CEPAR Strategic Plan:

1 Causes and Consequences of Demographic Change

Further develop National Transfer Accounts (NTA) for Australia. This includes extending age ranges and asset classes

Upload and publicly release a database on ageing and demographic change

Specify and implement alternative demographic models of the dynamics of population age structure changes for use in a dynamic economic model for simulating economic impacts

Use Australian census data to investigate the patterns and movement of older people across neighbourhoods and regions over time and their impacts on access to accommodation and services

Develop, estimate and apply a multiple cohort mortality model to better quantify longevity risk and its impact on the solvency of pension funds and life insurers

Develop a value based longevity index that can be used to develop indexed based financial contracts

Integrate multiple state health models with systematic longevity risk and use these to better assess longevity and morbidity risks

2 Cognition and Decision Making

Undertake a data synthesis of risk factors for cognitive decline and refine a conceptual and policy framework for understanding contexts of risk and promoting cognitive capital

Evaluate patterns of nutrition and diet quality and how these relate to cognitive function

Implement pilot studies on cognitive training to prepare for funding applications

Develop a life-cycle model of labour supply, consumption/savings, and health investment decisions, and apply it to study the relationship between human capital and health

3 Resources in Retirement

Undertake a comparative analysis of the Australian, US, Dutch, and UK retirement income structures and their deployment across retired cohorts and upcoming retirees

Examine economic impacts of alternative retirement support paradigms using the CEPAR-developed Australian stochastic OLG model

Taking into account housing, inflation and longevity risks, i) develop and analyse individual investment and savings decisions based on target retirement income indices and ii) propose and assess optimal post-retirement strategies

Commence preliminary modelling of housing ownership over the life-cycle

Develop models to analyse the impacts of the Age Pension rules on housing and assets choices, focusing on policy simulations, and articulate estimation

4 Ageing Well and Productively

Use longitudinal surveys such as HILDA, to analyse the determinants and trajectories of health, labour force participation and their impacts on independence and wellbeing in late life; and examine the determinants and impact of job exits at mature ages

Further analyse attitudes to ageing using 2010-2011 Australian Social Survey of Attitudes data and conduct the 2015-2016 survey to identify and analyse the effects of prevailing social attitudes to recent economic and policy changes

Use HILDA data to investigate perceived and observed age discrimination and its impact on job and life satisfaction

Use Australian, British, US and Chinese longitudinal survey data to conduct cross-country comparative analysis of the impact of early life conditions or life history on health, productivity and wellbeing in late life

Estimate a life-cycle model of labour supply, human capital accumulation and retirement using HILDA and assess the role of labour income and pension benefits taxation

Analyse the comparative causes of death in Australia, USA, Japan and France to explain the relative fall in expectation of life in the USA compared to the other three countries

Identify modifiable risk factors that promote healthy ageing

Quantify how impairment in vision and hearing impact on quality of life

Assess mortality risk in late life associated with a range of factors including relocation to a retirement village/aged care facility, neighbourhood quality and health comorbidities

Develop and pilot methods to increase older driver competencies so they can drive longer

5 Health and Aged Care

Undertake spatial (small area) analysis of ageing, care needs and health inequalities. This includes the development of a small-area index on 'healthy and productive ageing' and an analysis of the impact of living in areas with low, middle, high or mixed socioeconomic status on individual health, wellbeing and independence

Use 2006 and 2011 Australian census data to i) investigate factors associated with living in self-contained retirement villages and changes by state and over time and ii) evaluate supply of and demand for access to retirement village accommodation at the local government level

Examine the determinants of the need for care of older Australians using HILDA data from 2001-2012; estimate probabilities of long-term care needs, jointly accounting for health and family structure; and model individual choice between institutionalised and non-institutionalised long-term care

Use data from the Melbourne Longitudinal Studies on Healthy Ageing Program (MELSHA) to examine the determinants and impacts of ageing in place

Analyse the assessment for, take up of, and transition through aged care services using Australian Institute of Health and Welfare 'Pathways in Aged Care' data

Analyse predictors of hospital use using Australian Longitudinal Study on Women's Health data

Analyse health service use associated with cognitive impairment in the PATH Through Life Study

6 Ageing in Asia and its impact on Australia

Undertake a comparative analysis of social policies in Asia in the context of differential stages and rates of demographic change

Calculate and compare healthy life expectancies (HLE) across China, Japan, India and Australia and analyse how improvements in HLE impact on prospective retirement age and retirement behaviour in these countries

Commence work on the assessment of the cost of long-term care policies in China by collecting data and undertaking preliminary modelling

Use Chinese Health and Retirement Longitudinal Study (CHARLS) and China Health and Nutrition Survey (CHNS) data to analyse the determinants of health, productivity and wellbeing in China. This includes analysis of the impacts of socioeconomic status, education, health, healthy lifestyles, early life conditions, intergenerational transfers and living arrangements

Use HILDA and CHARLS data to conduct comparative analyses of health, intergenerational support and wellbeing in China and Australia

Prepare a coherent set of estimates of population by age and fertility, mortality, and migration rates by age for Indonesia as a whole and for its provinces from 1971 to 2010

Commence work on the examination of the needs and policy options for care and assistance among older persons in Indonesia as younger people move to the cities. This will involve a pilot survey of aged care needs and assistance in a village in the Kebumen Regency of Central Java as well as the preparation of an ARC Discovery grant application to extend this study in 2016 to a wider range of localities



SECTION

GOVERNANCE
& STRUCTURE

GOVERNANCE

Central to CEPAR's governance are the Centre Director and the Management Committee who have overall responsibility for Centre performance and for

ensuring that the Centre is conducted in accordance with the Funding Agreement between the University of New South Wales and the Australian Research Council. Three subcommittees -

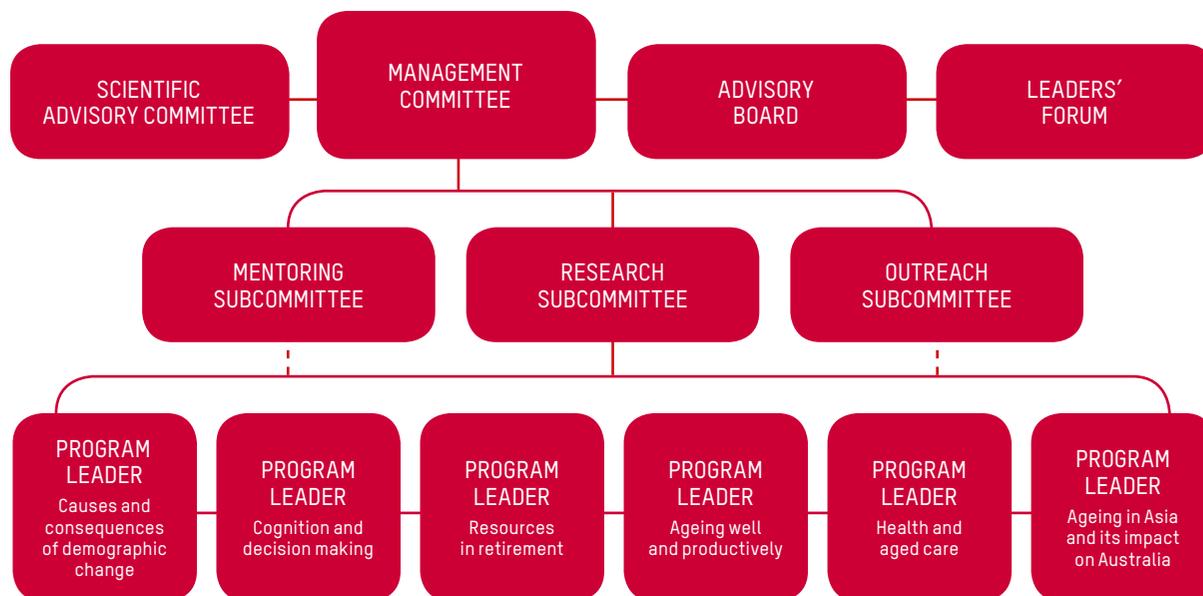
focused on research management, mentoring, and outreach - support the Management Committee.

Three external committees support strategic

development as well as engagement between researchers, industry and government. The Scientific Advisory Committee, Centre Advisory Board and the Leaders' Forum provide the

Management Committee with external perspectives on the formulation of research programs, their implementation, and the dissemination of research outcomes.

CEPAR ORGANISATIONAL CHART



SCIENTIFIC ADVISORY COMMITTEE

The Scientific Advisory Committee comprises a core group of international leaders in the area of population ageing, drawn from a range of fields reflecting the Centre's multidisciplinary nature. It

provides advice on the strategic direction of the Centre from a global perspective, with emphasis on research programs. Members of the Committee actively build the international profile of the Centre and identify potential international partners and linkage opportunities.

The Scientific Advisory Committee comprises:

Professor David E. Bloom,
Harvard School of Public Health

David E. Bloom is Clarence James Gamble Professor of Economics and Demography in the Department of Global Health and Population,

Harvard School of Public Health and Director of Harvard's NIA-funded Program on the Global Demography of Aging. He is also a Faculty Research Associate at the National Bureau of Economic Research, Research Fellow at IZA in Bonn, an elected Fellow of the American

Academy of Arts and Sciences, a member of the Boards of Directors of PSI and JSI, a member of the Board of Trustees of amfAR, Honorary Professor and Golden Jubilee Distinguished Visiting Professor at the University of Waikato New Zealand, and Dr V K R V Rao Chair Professor, Institute for

Social and Economic Change, Bangalore, India. In addition, Dr Bloom currently serves as Chair of the World Economic Forum's Industry Agenda Council on The Future of the Health Sector. Dr Bloom is an economist and demographer whose work focuses on health, demography, education, and labour. In recent years, he has written extensively on primary, secondary, and tertiary education in developing countries, the value of vaccination, and the links among health status, population dynamics, and economic growth. Dr Bloom has published nearly 400 articles, book chapters, and books.

Professor Gordon Clark, University of Oxford

Gordon L. Clark DSc FBA is Professor and Director of the Smith School of Enterprise and the Environment at the University of Oxford with cross-appointments in the Saïd Business School and the School of Geography and the Environment. He holds a Professorial Fellowship at St Edmund Hall, is the Sir Louis Matheson Distinguished Visiting Professor at Monash University's Faculty of Business and Economics, and is a Visiting Professor at Stanford University's Global Projects Center. Previous

academic appointments have been at Harvard's Kennedy School of Government, the University of Chicago, Carnegie Mellon's Heinz School and Monash University. His current research focuses upon investment decision making in the context of market volatility and long-term obligations. Related research concerns the design and management of investment institutions including insourcing, out-sourcing, and off-shoring, and the pricing and utilisation of financial services relevant to pension funds, endowments, and sovereign wealth funds. He is interested in the behaviour of investors as regards long-term sustainable investment which involves research on institutions' proxy-voting, strategies of corporate engagement, the sensitivity of firms to brand image and reputation, and the regulation of corporate disclosure on issues related to environmental liabilities and social responsibility.

Professor Yasuhiko Saito, Nihon University

Yasuhiko Saito is a Professor at the Advanced Research Institute for the Sciences and Humanities at Nihon University, Tokyo, Japan. His areas of specialisation are demography, ageing and health. His collaborative work extends throughout more than 20 countries. Over the past 15 years, he has conducted a six-wave national longitudinal survey on ageing and health in Japan. He also conducted a national survey on ageing and health in the Philippines and supported surveys in Singapore and India. He is currently participating in a five country comparative study of centenarians, including France, Denmark, Sweden, Switzerland, and Japan.

Professor Merrill Silverstein, Syracuse University

Merril Silverstein, PhD, is the inaugural holder of the Marjorie Cantor Chair in Aging Studies at Syracuse University with appointments in the Department of Sociology at the Maxwell School of Citizenship and Public Affairs, and in the School of Social Work. He received his doctorate in sociology from Columbia University. His research primarily focuses on ageing within the context of family life, including intergenerational relationships over the life course and international perspectives on ageing families. He has more than 150 publications on various topics in social gerontology, including the edited books *Intergenerational Relations across Time and Place*, *Handbook of Theories of Aging*, and *Kin and Cohort in an Aging Society*. He was, until 2012, Principal Investigator of the Longitudinal Study of Generations, a project that tracked multigenerational families over four decades, and has had projects in China, Sweden, the Netherlands, and Israel on topics of ageing and intergenerational relations.

He is a Fellow of the Gerontological Society of America, the Brookdale National Aging Fellowship Program, and the Fulbright International Senior Scholars Program, and between 2010 and 2014 he served as editor-in-chief of the *Journal of Gerontology: Social Sciences*.

ADVISORY BOARD

The chief role of the Advisory Board is to facilitate two-way engagement between stakeholders and researchers. Board members provide independent advice to the Management Committee with regard to strategy and external relations; facilitate the Centre's engagement with relevant stakeholders; identify new opportunities for engagement; and act as advocates and champions of CEPAR.

The Board comprises delegates of organisations providing financial support to CEPAR, along with a broader membership representing research, policy and community groups. Members are appointed by the Director in consultation with the Chair and Management Committee, for a term of three years. In 2014,

the Board was expanded to include Pip O'Keefe, a senior officer with the World Bank, and Ian Yates, CEO of COTA. Leesa Croke was appointed to the Board as the Treasury representative and Professors Hazel Bateman and Hal Kendig joined the Board *ex officio* in their newly created roles as Directors of Research Engagement.

Board members seek to both facilitate and enable the achievement of the Centre's mission and objectives by bringing their expertise and experience to bear. Members play an active role in strengthening links between academe, industry, government and the not-for-profit sector by participating in a range of activities which may include:

- Serving on a task force or working party to examine a specific issue
- Supporting executive development and corporate education programs
- Developing and hosting events such as symposia, fora, and conferences
- Participating in fundraising and sponsorship activities
- Mentoring staff and researchers

- Facilitating access to data, information or people to facilitate research projects
- Facilitating the transfer of knowledge from research into practical application in business, government, or the not-for-profit sector

In 2014, the Board met as a group on March 19 and August 20 to discuss CEPAR's research directions and opportunities for engagement. A key theme was the importance of researchers, industry and government working together in the medium-term timeframe to ensure information is available at the time new policy needs to be formulated. Roundtables and briefing sessions were seen as vital components of this exchange of ideas and information. The value of increasing public understanding of a range of issues such as community care policy reforms was also acknowledged.

The August meeting was held in Canberra, to emphasise the importance of our links with government. This enabled Treasury and DSS representatives to participate in person. The aim is to alternate future meetings between Sydney and Canberra.

In addition to the two formal meetings, the Director and Chair met bilaterally with individual members on a number of occasions to discuss particular issues.

LEADERS' FORUM

The Leaders' Forum provides engagement, leadership and support for CEPAR. It comprises the CEOs of some of Australia's largest corporations, professional and community organisations, and senior federal departmental Secretaries.

The Forum is a conduit for industry and government to help shape the research agenda on demographic change. Established in 2004 to support the Australian Institute for Population Ageing Research at UNSW, it provides high level strategic insight and facilitates engagement with end-users. The Leaders' Forum was vital in securing industry and government support for the bid as well as being instrumental in the formulation of the CEPAR research agenda. Together with the Advisory Board, it plays an ongoing role in the engagement process.

The calibre and breadth of representation of this group is strong testimony to the significance of population ageing as an issue and to the group's recognition of the need for transformational research.

MARC DE CURE, CHAIR OF THE LEADERS' FORUM

ADVISORY BOARD MEMBERS

MARC DE CURE	Chair
HELEN BARTLETT	Pro Vice-Chancellor, Monash University Malaysia and Convenor, Emerging Researchers in Ageing Initiative
HAZEL BATEMAN	CEPAR Director of Research Engagement
LEESA CROKE	General Manager, Social Policy Division, The Treasury
JONATHAN DEANE	Chief Innovation Officer, AMP
ANNE GORDON	CEPAR Director of Operations
HAL KENDIG	CEPAR Director of Research Engagement
CATHERINE NANCE	Partner, PricewaterhouseCoopers
PIP O'KEEFE	Lead Economist, Human Development, Asia Pacific, The World Bank
JOHN PIGGOTT	CEPAR Director
TIM ADAIR	Director, Productive Ageing Centre, National Seniors Australia
EDWARD WHITEHOUSE	CEPAR Associate Investigator (formerly Principal Administrator, Directorate for Employment Labour and Social Affairs, OECD)
SERENA WILSON	Deputy Secretary, Department of Social Services
IAN YATES	Chief Executive, Council on the Ageing

LEADERS' FORUM MEMBERS

MARC DE CURE	Chair
JENNIFER ALEXANDER	Royal Australasian College of Physician
CAMERON CLYNE	formerly National Australia Bank
CRAIG DUNN	AMP
LES FIELD	UNSW
JANE HALTON	Department of Health
JEFF HARMER	formerly Department of Families, Housing, Community Services and Indigenous Affairs
KEN HENRY AC	Australian National Institute of Public Policy
MARK JOHNSON	formerly PricewaterhouseCoopers Australia
JOHN LAKER	Australian Prudential Regulatory Authority
JOHN PIGGOTT	CEPAR Director
MATTHEW QUINN	formerly Stockland
HEATHER RIDOUT	AustralianSuper
GEORGE SAVVIDES	Medibank Private
GLENN STEVENS	Reserve Bank of Australia



MARC DE CURE
CHAIR, ADVISORY BOARD
AND LEADERS' FORUM

Marc de Cure has long recognised the social and economic significance of demographic change and the need to undertake and promulgate research to inform government policy, and social and commercial responses. He played a key role in the

establishment of the Leaders' Forum in 2004 and, as its Chair, was pivotal in securing industry and government support for the Centre of Excellence bid in 2010.

Marc is a non-executive company Director and business advisor and previously held senior executive roles in leading financial and professional services groups across

Australia and Asia. He was AIA Group CFO and AMP Group CFO, Executive General Manager Strategy & Development and Executive Director of its main operating subsidiaries.

In professional services Marc was a senior Partner with PwC including Chairman of the Australian Financial Services practices, and more recently he was a Principal Advisor with Bain & Company.

Marc serves on the Business Advisory Council and the Executive Committee of the UNSW Business School. He holds a Bachelor of Commerce (Honours) from UNSW, a Master of Wine Quality from UWS and is a Fellow of the Institute of Chartered Accountants in Australia.

MANAGEMENT COMMITTEE

The role of the Management Committee is to oversee all operational matters, including budget management, approval of specific major programs, selection of postdoctoral fellows and postgraduate students, approval of visitors and organisation of workshops and courses. In strategic planning, the Committee seeks high level advice from the Centre Advisory Board, Scientific Advisory Committee and Leaders' Forum.

In 2014, the Committee comprised

JOHN PIGGOTT	Centre Director (Chair)
PETER MCDONALD	Deputy Director and Chief Investigator
KAARIN ANSTEY	Chief Investigator and Australian National University Node Leader
ROBERT CUMMING	Chief Investigator and University of Sydney Node Leader
HAL KENDIG	Chief Investigator
ALAN WOODLAND	Chief Investigator and University of New South Wales Node Leader
ANNE GORDON	Director of Operations

The Committee meets formally at least four times a year. Consultation also takes place via email and teleconferencing. In 2014, the Committee met on 11 February, 10 April, 11 August and 27 November.

RESEARCH SUBCOMMITTEE

The research subcommittee is responsible for reviewing the progress of the research programs on a regular basis, identifying opportunities for cross-program collaboration, and recommending remedial action where required. Chaired by the Centre Director, its membership comprises all the Chief Investigators and the Director of Operations.

In 2014, the subcommittee met on 4 March, 23 July and 15 October.

MENTORING SUBCOMMITTEE

The Mentoring subcommittee oversees the Honours, Higher Degree Research and Early Career Researcher (ECR) programs and events, and provides advice on innovation in these arenas. It is focused on developing policies and programs to support students and ECRs affiliated with CEPAR as well as those around the country working on ageing issues.

The subcommittee is chaired by CEPAR Deputy Director, Peter McDonald, and in 2014 consisted of the Centre Director, the Director of Operations, plus Associate Investigator Kate O'Loughlin, ERA representative Matthew Carroll, PhD student Natasha Ginnivan and Early Career Researchers Craig Blackburn and Isabella Dobrescu. The subcommittee met on 25 February, 23 July and 13 November.

OUTREACH SUBCOMMITTEE

The Outreach subcommittee oversees events, the distinguished visitors program, and monitors the production of research briefs and other initiatives designed to communicate research findings to the wider community.

Three meetings, chaired by Chief Investigator Michael Sherris, were held on 18 February, 22 July and 10 September. Membership comprised the Centre Director, the Director of Operations, the two Directors of Research Engagement, CEPAR's Communications and Marketing Manager, plus Early Career Researchers Rafal Chomik, Ramona Meyricke and Cathy Gong.

STRUCTURE

CEPAR is based at the University of New South Wales (UNSW) with nodes at the University of Sydney and the Australian National University (ANU). It is strongly supported by a number of key government, industry and international university partners.

NODES

The UNSW node, led by Scientia Professor Alan Woodland, is hosted by the UNSW Business School.

The ANU node consists of teams based in the Centre for Research on Ageing, Health and Wellbeing and the Crawford School of Public Policy. Professor Kaarin Anstey currently serves as ANU Node Leader.

The University of Sydney node consists of teams in the School of Public Health and the Ageing, Work and Health Research Unit. Professor Robert Cumming leads the University of Sydney node.

All eight Chief Investigators and many of the Centre's Associate Investigators are based at one of the three nodes.

Within Australia, Associate Investigators are also based at Curtin University, Deakin University, Flinders University, Monash University, the University of Newcastle and the University of Technology, Sydney.

PROGRAMS

The research program is organised into six different, but intimately connected, areas of research focus:

Causes and Consequences of Demographic Change

Cognition and Decision Making

Resources in Retirement

Ageing Well and Productively

Health and Aged Care

Ageing in Asia and its Impact on Australia

INTERNATIONAL UNIVERSITY PARTNERS

Our partner investigators are drawn from five world-class research organisations:

The University of Manchester

The University of Newcastle, United Kingdom

The Institute for Fiscal Studies

The Wharton School

The University of Pennsylvania

Through our internationally based Associate Investigators and joint research initiatives we are connected to the following key research institutions:

CESifo

Chinese Academy of Social Sciences

Harvard University

Indian Statistical Institute

Indonesian National Population and Family Planning Board

Michigan Retirement Research Center

Network for Studies on Pensions, Aging and Retirement (Netspar)

Pennsylvania State University

The Ragnar Frisch Centre for Economic Research, Oslo

Research Institute for Policies on Pension and Aging (RIPPA)

St Gallen University

Southwestern University of Finance and Economics

Statistics Indonesia

Tsinghua University

United Nations Population Fund

University of Malaya

University of Naples Federico II

University of Oxford

University of Parma

University of Trieste

Zhejiang University

INDUSTRY AND GOVERNMENT PARTNERS

CEPAR is actively engaged with a range of influential government and industry partners to cooperatively deliver outcomes to meet the challenges and opportunities of population ageing. These include:

The Treasury

Department of Health

Department of Social Services

NSW Trade and Investment

AMP

Bain & Company

Medibank

NAB

PricewaterhouseCoopers

Stockland

CENTRE PERSONNEL

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School of Economics
UNSW AUSTRALIA

Professor Peter McDonald (Deputy Director)

Crawford School of Public Policy
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Professor Kaarin J. Anstey

Centre for Research on Ageing,
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AUSTRALIAN NATIONAL UNIVERSITY

Professor Robert Cumming

School of Public Health and
Centre for Education and
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UNIVERSITY OF SYDNEY

Professor Michael Keane

School of Economics
UNSW AUSTRALIA, AND
Nuffield College
UNIVERSITY OF OXFORD

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Scientia Professor Alan Woodland

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Professor Carol Jagger

Institute of Health and Society
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Wharton School
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School of Social Sciences
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HONORARY PROFESSOR

Professor Robert Holzmann

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Emerging Researchers in Ageing
(ERA) Initiative
MONASH UNIVERSITY

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Dr Chung Tran

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¹ Not all Associate Investigators were actively involved in the research program in 2014.

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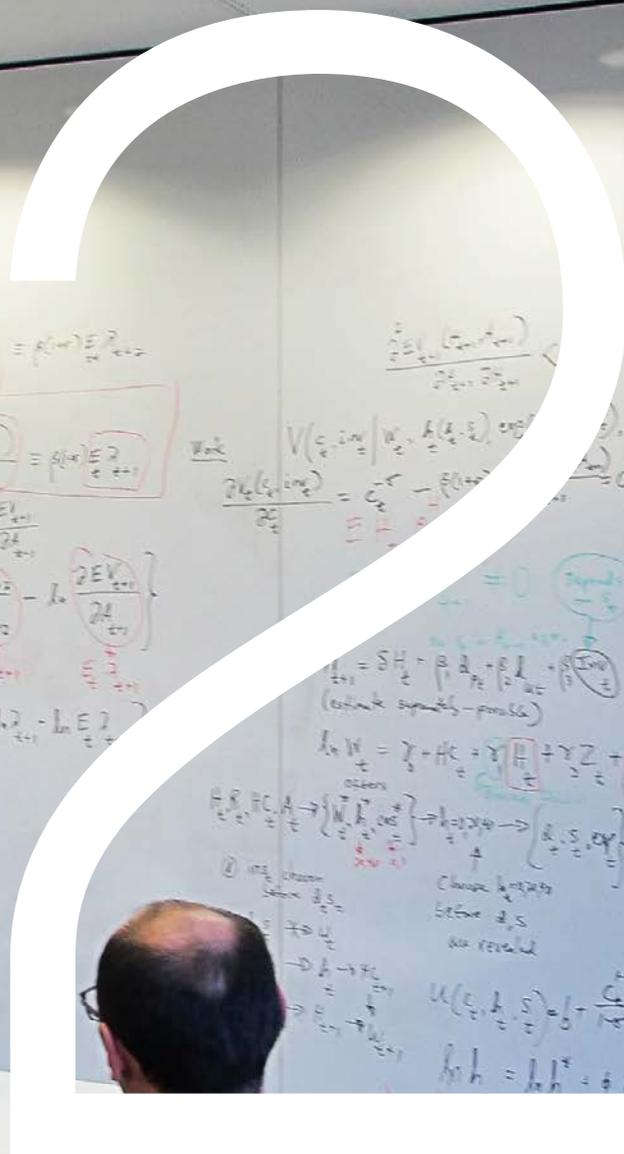
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SECTION



RESEARCH & RESEARCH TRAINING

CHIEF INVESTIGATOR MICHAEL KEANE WITH RESEARCH FELLOWS
ELENA CAPATINA AND FEDOR ISKHAKOV

AREA OF RESEARCH FOCUS

1

CAUSES AND CONSEQUENCES OF DEMOGRAPHIC CHANGE

Population ageing has national, regional and global economic, social and policy implications. Understanding the causes of fertility behaviour and longevity change, and improving the accuracy and texture of our projections and forecasts, is therefore critical for long-term planning and innovation by both government and business. Demographic change impacts families and individuals through changes in the economic and social environment within which they work.

These adjustments are mediated through markets, impacting wage rates, resource allocation, productivity and growth; through international and regional migration, through innovation and regulatory change in financial product markets; and through changing patterns of demand for social services and aged care, and social interactions. Government is impacted through increased expenditures required for age pensions, public health provision and the development of economic and social policy settings.

TO VIEW PUBLICATIONS
AND WORKING PAPERS RELATING
TO THIS RESEARCH VISIT CEPAR.EDU.AU

RESEARCH PROJECTS

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National Transfer Accounts for Australia	22
Small Area Profiles of Population Ageing and Socioeconomic Conditions of Older Australians	24
Mortality Trends in the United States vs Australia, France and Japan: A Study of Cross-Country Differences	25
Analysing the Effects of Population Ageing in a Demographic Overlapping Generations Model	26
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Fiscal Sustainability and Pension Reforms in the Presence of Demographic Uncertainty: The Case of Australia	28
Estimation Of Life-cycle Models of Australian Households with Retirement Policy	29
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This area of research focus has embraced several major research initiatives and outcomes through 2014. They include the CEPAR National Transfer Accounts (NTAs) project; research on stochastic demographic projections; regional international comparisons of fertility, family formation, labour force, and mortality trends; and macroeconomic modeling of the impacts of population ageing and policy, especially retirement policy.

2014 projects included:

- **NATIONAL TRANSFER ACCOUNTS**
This new system of national accounts, spawned by population ageing, provides a coherent accounting framework of economic flows from one age group or generation to another, typically for a national population in a given calendar year. These are still at the experimental stage, being nurtured in universities rather than government agencies, much as the now standard national accounts we are familiar with were developed nearly a century ago. A long-term CEPAR project led by Peter McDonald has focused on the construction of a set of NTAs for Australia. Released in late 2014, the accounts have already attracted much interest from policymakers, with suggestions that they should be developed on a state-by-state as well as a national basis. NTAs have now been estimated for a number of countries, and the CEPAR project is well connected to the international project.
- **DEMOGRAPHIC TRENDS**
The CEPAR group at the ANU's Crawford School keeps track of demographic trends (fertility, family, labour force and mortality) in Australia and internationally, as well as leading research into migration and its impacts. The databases constructed through this research have wide-ranging value to many researchers, as well as business and government. An important initiative in 2014 was the construction of a regional database based on the 2011 Australian Census, and building access facilities with the aim of general user access through the CEPAR website. This is expected to be available in 2015.
- **MACROECONOMIC ANALYSIS OF AUSTRALIA'S RETIREMENT INCOME POLICIES**
Research in this area, viewed through the lens of population ageing, received new impetus in 2014. CEPAR won a research contract with the Michigan Retirement Research Center to analyse means testing retirement income policies, and the Murray Inquiry into Australia's financial system focused heavily on retirement incomes. Research, led by Alan Woodland and John Piggott, focused on the aggregate impacts of Australia's retirement income system in a macroeconomic context.

STUDIES IN POPULATION DYNAMICS: FERTILITY, FAMILY AND LABOUR FORCE

RESEARCHERS

PETER McDONALD
MEIMANAT HOSSEINI-CHAVOSHI

External Collaborators

JEROMEY TEMPLE
(DEMOGRAPHIC INSIGHT P/L)

ALAIN BELANGER
(INSTITUT NATIONAL DE LA
RECHERCHE SCIENTIFIQUE)

The CEPAR group located in the Crawford School of Public Policy at ANU continually monitors trends in Australian fertility and family formation. A new long-term comparative study of fertility trends in Canada and Australia commenced in 2014 and will continue into 2015. McDonald has produced a large series of trend indicators of Australian fertility and Belanger is now in the process of producing the comparative Canadian

data. Excluding the province of Quebec, Canadian trends in the Total Fertility Rate have been very similar to the trends in Australia over almost 100 years.

The major activity in this area in 2014 has been the construction of a regional database based on the 2011 Census results for Australia. The Regional Database for Ageing Research (RADAR) is a user-friendly interactive tool to view projections and cross sectional estimates of a wide range of demographic and economic indices relevant to population and ageing research at various levels of geography. This resource is provided to assist users to understand the characteristics of their population, including future populations, and to compare their area to other areas or

regions in Australia. Users will be able to see the data in table and graph form, and export it into another application to work with the information in more detail. RADAR is an excel module written using Excel's built-in functions and with Visual Basic for Applications (VBA). The four RADAR modules are the Labour Force module, Health module, Living Arrangements module and Population Futures module. The Population Futures module enables users to view tables and graph projections of the underlying population at the national, state and capital city/ balance of state levels. The Labour Force, Health and Living Arrangements modules enable users to view tables and graphs of selected variables from the

ABS 2011 Census of Population and Housing. RADAR will be accessible to all through the CEPAR website.

In relation to ageing, labour force participation and migration, a report by CEPAR researchers was published by the Department of Immigration and Border Protection (DIBP) in 2014. The report shows that immigration has a meaningful impact upon future population ageing in relation to the outcome measure, GDP per capita and suggests that, from this perspective, the preferred level of net migration to Australia over the long-term is 160,000-220,000 per annum.

Project outputs:

McDonald, P. and Temple, J. (2014). *The Long Term Effects of Ageing and Immigration upon Labour Supply and Per Capita Gross Domestic Product: Australia 2012-2062*. Canberra: Department of Immigration and Border Control.

Reports involving Peter McDonald were also published by DIBP on the role of family migration in Australia's permanent migration program.



DR MEIMANAT HOSSEINI-CHAVOSHI
BS (Public Health) Isfahan
University of Medical Sciences, MA
(Population Studies) PhD
(Demography) ANU
RESEARCH FELLOW

Meimanat Hosseini-Chavoshi is a CEPAR Research Fellow in the Crawford School of Public Policy at the Australian National University. Prior to moving to the Crawford School, she worked for a number of years at the ANU's

Australian Demographic and Social Research Institute.

Before moving to Australia, she had a longstanding career with the Iran Ministry of Health and Medical Education as Head of the Population and Health Data Unit, and as a Senior Officer of Family Health. She was the focal point person for the design, implementation and data analysis for several national health surveys in the areas

of demographic and health issues, fertility transition, adolescents, and ageing in Iran. Meimanat's research collaboration on Iran's fertility decline with McDonald and Abbasi-Shavazi has led to numerous publications including a prize-winning book on The Fertility Transition in Iran. She has been involved in policymaking on health and population, and has recently reviewed Iran's draft population policy.

She has collaborated with various scholars on different projects funded by such agencies as the Wellcome Trust, World Health Organization, Global Development Network, and Gender, Economic, Research, and Policy Analysis (GERPA). Meimanat's involvement with CEPAR will expand the understanding of ageing issues in Australia from demographic, health and policy perspectives.

RESEARCHER

PETER McDONALD

External Collaborators

JAMES RICE (PHD STUDENT)

JEROMEY TEMPLE
(DEMOGRAPHIC INSIGHT P/L)

Similar to other OECD countries, the Australian population is projected to age significantly to 2050 and beyond. In this context, the role of mature age Australians as producers of goods and services and consumers of public resources in particular, has become a key issue in academic and policy discussions. Over the past 30 years, Australia's labour supply has grown considerably and its economy has been geared to rapid increases in labour supply. The key drivers of

this growth, the full entry of the baby boom generation into the labour force (today's mature age workers) and a large increase in female labour force participation rates, will lose their force as drivers of future labour supply growth. Even with very high levels of migration by historical standards, in the next 30 years, the rate of growth of the labour supply is projected to decline in Australia. This constraint comes at a time when both labour demand and the speed of population ageing is likely to increase significantly (McDonald and Temple 2013). The long-run of increases in real wages in Australia has slowed in recent years and this trend is also likely to continue in future years.

With these demographic and economic changes already upon us, an understanding of the production and consumption behaviour of all Australians, but mature age Australians in particular, is indispensable as is knowledge of the dimensions and directions of intergenerational transfers, both public and private. The Australian National Transfer Accounts (Rice, Temple and McDonald 2014) enhance our understanding of the economic life-cycle and intergenerational transfers. The formal definition of the NTA is:

'a system of macroeconomic accounts that measures current economic flows by age in a manner consistent with the United Nations System of National Accounts.

NTA measures age-specific labour income, asset income, consumption, transfers and saving, accounting for flows within households, between households, through the public sector and with the rest of the world' (UN, 2013).

NTAs have been estimated for over 40 countries and the CEPAR project is well connected to the international NTA project (www.ntaaccounts.org).

With multiple cross sections of the NTA complete, the NTA offers the ability to study the evolution of intergenerational transfer systems and the consequences of alternative approaches to age reallocations embodied in public policy with respect to pensions, health care,

education and social institutions. Moreover, the NTA provides the opportunity for cross-country insights into the macro- and micro-economic implications of population ageing.

The CEPAR group based at the Crawford School of Public Policy at the Australian National University has produced National Transfer Accounts for Australia for the years 2003-04 and 2009-10 (Rice, Temple and McDonald 2014). Some highlights from the report are the increases in real education and health expenditures and the relative reductions in income tax and GST across all ages between 2002-04 and 2009-10.



PROFESSOR PETER McDONALD

BCom UNSW, PhD ANU, FASSA, AM
DEPUTY DIRECTOR

Peter McDonald is Professor of Demography in the Crawford School of Public Policy at the Australian National University. He is a Member of the Council of Advisers of Population Europe and was President of the International Union for the Scientific Study of Population for the years, 2010-2013.

He is frequently consulted on the issue of population futures (causes, consequences and policies) by governments around the world, especially in Australia, Europe and East Asia. In 2008, he was appointed as a Member of the Order of Australia. He is an inaugural ANU Public Policy Fellow and in 2014 was a member of the Independent Review into Integrity in the Subclass 457 Programme.

He has worked previously at the Australian Institute of Family Studies, the World Fertility Survey and the University of Indonesia.

These negative outcomes were balanced to some extent by large increases in income-earning at older ages driven by increased labour force participation.

National Transfer Accounts also show how life-cycle deficits are funded. Younger Australians receive large public transfers in addition to private intra-household transfers, roughly in equal balance. Mature age Australians also receive large public transfers but also significant amounts from private asset income. For those in the prime working ages, there is a large surplus of private asset income, with an offsetting deficit of public transfers and private intra-household transfers (primarily to children) and private saving. Compared to other countries, wage incomes rise more rapidly at younger ages in Australia.

An ageing population places these reallocation mechanisms under stress.

As the proportion of older Australians in the population rises and the proportion of prime working age Australians falls, the life-cycle deficit in need of funding increases in relative terms just as the life-cycle surplus used to fund this deficit decreases in relative terms.

ENHANCING THE USEFULNESS OF THE NTA AS A TOOL FOR POLICY

It has been demonstrated by CEPAR that the calculation of NTAs for Australia is feasible. The next phase of development is to enhance the usefulness of NTAs in the policy process. This involves four main innovations in the short term:

- 1 Working with government to provide existing output in forms that are more easily accessible and more suitable for policy analysis in government.

- 2 Extending the availability of single year-of-age data from age 79 to age 99. This involves cooperation with the Australian Bureau of Statistics, the Australian Institute of Health and Welfare, and potentially other government agencies.
- 3 Overlaying wealth holdings by asset type using HILDA data.
- 4 Calculating NTAs for previous years based upon the years in which Household Expenditure Surveys were held. Backwards in time the years concerned are 1998-99, 1993-94, 1988-89, 1984 and 1975-76. This would enable better analysis of change across time and facilitate analysis by birth cohorts as they move across the surveys.

Project output:

Rice, J., Temple, J. and McDonald, P. (2014). National Transfer Accounts for Australia: 2003-04 and 2009-10 Detailed Results. ARC Centre of Excellence in Population Ageing Research and Crawford School of Public Policy, The Australian National University.

RESEARCHERS

CATHY GONG
PETER MCDONALD
HAL KENDIG

Geographical dimensions of ageing and population change have become an increasing focus of research and policy development in Australia in recent years. This study aims to provide further evidence to understand the patterns and changes of older people across neighbourhoods and regions and the influence on their health, participation, independence, wellbeing and service use. Both national and small area data from a Census and Spatial microsimulation model are used for analysis with support from an earlier ARC Discovery grant (DP664429) and CEPAR.

Continuing analyses and preliminary findings under CEPAR support were published in one journal article and presented at two conferences. Papers produced include 'Economic Advantage and Disadvantage among Older Australians: Producing National and Small Area Profiles', published by the *Australasian Journal of Regional Studies*; 'Geographical Dimensions of Ageing and Population Change and Policy Responses in Australia', presented in the session 'International Perspectives on Aging in Urban Spatial Change and Social Inequality among Older Adults' at the Annual Scientific Meeting of the Gerontological Society of America, Washington DC, 5-9 November 2014; and 'Small Area Health Inequalities and

Socioeconomic Status among Older Australians', presented at the Applied Statistics and Public Policy Analysis Conference, Wagga Wagga, NSW, 11-12 December, 2014. The two presentations will be further developed into two journal articles.

With further support from CEPAR, more research will be conducted in this area, including:

- 1 An exploration of the impact of living in areas with low, middle, high or mixed socioeconomic status on individual health, wellbeing and independence using confidential HILDA data linked with small area data. A multiple level analysis model will be used.

- 2 An investigation of the patterns and movement of older people across neighbourhoods and regions and their impacts on access to accommodation and services using Australian Census longitudinal data.

- 3 Simulation of small area health and health service data for old people and the development of a small-area index on 'healthy and productive ageing'. These simulated data will be used with 2006 and 2011 Census and other regional and small area data to further develop an age-specific measure of small area advantage and disadvantage beyond economic

wellbeing for older Australians, by including health and health services, productive participation, social activities and connections and neighbourhood environment etc.

This study aims to provide further evidence to understand the patterns and changes of older people across neighbourhoods and regions and the influence on their health, participation, independence, wellbeing and service use.



DR CATHY GONG
PhD Econ ANU
RESEARCH FELLOW

Cathy Gong is a CEPAR Research Fellow located in the Centre for Research on Ageing, Health and Wellbeing at the Australia National University. She joined CEPAR in August 2013. Prior to this she worked as a Research Fellow with the National Centre for Social and Economic Modelling (NATSEM) at the

University of Canberra; as an Assistant Director with the Child Care Data and Modelling Team at the Department of Education; and as a Statistician/Senior Statistician with the Urban Household Survey Division of the National Bureau of Statistics of China. She completed her PhD in Economics at ANU in 2009.

Her research interests include social determinants of healthy and productive

ageing, ageing in place, service use, international comparisons of ageing in Asia, age friendly communities, inequality and mobility in health, employment and economic wellbeing, and labour market and retirement choices in late life. She has published on intergenerational mobility, income inequality, spatial disparity and social exclusion in both international and domestic journals. Her skills

and experience in cross-sectional and longitudinal data analysis, indexation, microsimulation and other economic and statistical techniques enable her to contribute widely to multidisciplinary research on ageing. As an Early Career Researcher, Cathy was a CI on a 2011 ARC Linkage grant titled 'Understanding and preventing workforce vulnerabilities in midlife and beyond'.

MORTALITY TRENDS IN THE UNITED STATES VS AUSTRALIA, FRANCE AND JAPAN: A STUDY OF CROSS-COUNTRY DIFFERENCES

RESEARCHERS

YAN YU
PETER MCDONALD

In the early 1950s female life expectancy at birth was somewhat higher in the United States and Australia (72 years) than in France (70) and Japan (64). In 1975-1979, the ordering of the countries reversed, but the expectancy values were rather close, about 77 years in the former and 78 years in the latter two countries. In 2005-2009, female life expectancy was lowest in the United States (80.6 years), as compared with 83.8 years for Australia, 84.3 year for France and 85.9 years for Japan. In these comparisons, the position of the United States changes from having an advantage as large as eight years to a

deficit of five years. Comparing the male populations would show similar patterns, but that the Australian expectancy at birth was the highest of all four in most recent years.

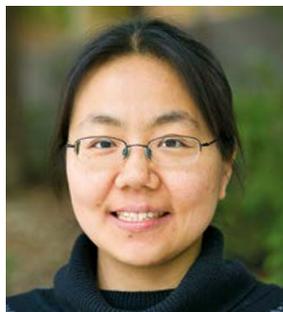
Why is the United States falling behind in mortality improvement? All these four countries are among the richest in the world. The United States, in particular, has the largest spending, and spending per capita, on health care; its health care spending share of GDP is also the largest, increasing from 5% in 1960 to over 17% in 2009. On the other hand, the United States has a large uninsured population, as compared with universal health care coverage schemes that were begun at different times in the other three countries. Across the

four countries, there are further similarities and differences in behaviours such as smoking, diet and physical activity. The other countries could be following in the steps of the United States, e.g., in the reduction of health care coverage amidst budgetary pressures, increasing fat consumption and increasing obesity. Ultimately, the combination of health systems and behaviours reflect the social conditions and cultural values of the respective countries, and may evolve over time.

We document the age-cause-specific mortality differences underlying the growing gap in survival between the United States and each of the selected three countries, using cause of death data from the

World Health Organization Mortality Database and all-cause mortality data from the Human Mortality Database for a 60-year period between 1950 and 2010. Understanding the changing US health disadvantage will contribute to gaining insights on the determinants of health in general. Data analysis will continue into 2015 with the expectation that the work will be written up in a peer-reviewed journal once completed.

Why is the United States falling behind in mortality improvement?



DR YAN YU
BS Shanghai JiaoTong, MA
Sociology Columbia, MS Statistics
PhD Sociology Wisconsin-Madison
RESEARCH FELLOW

Yan Yu is a Research Fellow at the Crawford School of Public Policy at the Australian National University. She joined CEPAR in 2011. Her doctoral thesis brought a

demographer's perspective to bear on the public health concern of obesity. She received the 2009 Dorothy S. Thomas Award from the Population Association of America for her thesis.

Her research interests include health and mortality, and the demography of ageing in both developed and developing

countries. Her current research projects include age, period and cohort patterns of body mass and mortality, and socioeconomic differences in risk behaviours.

ANALYSING THE EFFECTS OF POPULATION AGEING IN A DEMOGRAPHIC OVERLAPPING GENERATIONS MODEL

RESEARCHERS

GEORGE KUDRNA
CHUNG TRAN
ALAN WOODLAND

An ageing population has vast economy-wide implications and places increasing demands on government spending. Fiscal reform will inevitably form part of the overall policy response to demographic change, but formulating such policy response requires a solid understanding of the evolution of demographic structure and its interaction with economic activities.

This project develops a framework to study the effects of the dynamic evolution of the age structure for the Australian economy. More specifically, our model consists of a population model with demographic projections and an economic general equilibrium model. The population projection model is fitted with input data on fertility, mortality and net immigration rates taken from the Productivity Commission's demographic model. The economic model is a small open-economy model with overlapping

generations that embodies a rich fiscal structure with public expenditures on health care, education, aged care, family benefits and age pension. The benchmark economy is calibrated to match key macroeconomic and fiscal aggregates in Australia.

The first paper resulting from this project, 'The Dynamic Fiscal Effects of Demographic Shift: The Case of Australia', was presented at several conferences and seminars in 2014, including a seminar at the Federal Treasury in Canberra. The paper was submitted for publication in *Economic Modelling* in September 2014.

In 2014, we produced a follow-up paper, 'Facing Demographic Challenges: Pension Cuts or Tax Hikes'. Using an extended version of our economic model that disaggregates households not only by age but also by income type, we quantify the distributional welfare effects of (i) cuts to government spending by reducing pension benefits and (ii) increases in tax revenues through adjusting other consumption or income taxes.

While the two fiscal reform options are designed to achieve the same goal of reducing the fiscal burden of population ageing, our simulation results indicate that the macroeconomic and welfare outcomes differ significantly. We find that young and future generations prefer pension cuts, whereas currently old and middle-age generations prefer to finance the fiscal burden through tax increases. In addition, higher income households prefer pension cuts as the Age Pension is not an important source of retirement income for them, while lower income earners prefer tax increases in progressive income taxes. Interestingly, taxing consumption or income results in opposing effects on macroeconomic aggregates and welfare across households with different levels of income. We show that increases in the consumption tax rate

have positive effects on per capita labour supply, assets and output, but reduce the welfare of low income households most. Conversely, increases in progressive income or payroll taxes result in negative effects on output but reduce the welfare of poor households least.

This paper was accepted for presentation at the 11th International Conference Western Economic Association in Wellington, New Zealand, January 2015 and will be submitted for publication in the first half of 2015.

We show that increases in the consumption tax rate have positive effects on per capita labour supply, assets and output, but reduce the welfare of low income households most.

RESEARCHERS

XIAO CHEN
ALAN WOODLAND

This research project is primarily concerned with the potential roles of individual ageing and population ageing in determining rates of innovation and technological progress. Since economic growth depends largely on innovation, this project will investigate various aspects of whether and how economic growth is affected by individual ageing or population ageing.

Well established results from psychology and biology literature confirm that individual ageing has significant effects on cognitive skills. Moreover, the economic literature has emphasised the important

influence of cognitive skills upon technological progress and economic growth.

Technological progress of each country consists of technological innovation within each country itself, as well as technology adoption from other more advanced countries. With individual ageing, changes in cognitive skills at the individual level will be translated to the national level and individual ageing matters a great deal for technology innovation as well as adoption. The ageing of the population may also affect overall educational effort and human capital investment. Population ageing may also change the relative amount of various input factors in different research sectors. Therefore, besides the impact of population ageing upon

overall technological progress, whether different research sectors are affected to the same extent deserves some serious analysis.

The main theme of the project is to undertake a theoretical analysis of the effect of ageing, including both individual ageing and population ageing, upon endogenous economic growth. The project aims to analyse the impacts of ageing upon technological progress, whether technological progress has certain bias in different research sectors, and how population ageing could affect the skill premium, in an international trade model.

There are several aspects of the project. First, we model individual ageing in accordance with the

psychology literature, and analyse its impact on technological progress, in an international context with both technology innovation and adoption. Second, we amend the classical overlapping-generation model with survival uncertainty and human capital investment via costly education and analyse how population ageing affects educational effort and macroeconomic performance. Third, we plan to study the impacts of population ageing on educational efforts, technological progress and especially skill premium in an international trade model.

During 2014, much of the preliminary research was undertaken and several draft papers have been written. The project will

continue well into 2015, during which the research will be completed and research papers prepared for submission to academic journals for publication.

Overall, the project aims to contribute to knowledge about how population ageing affects technological innovation and, hence, how it impacts productivity, the rate of growth, and economic welfare.

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SCIENTIA PROFESSOR
ALAN WOODLAND
BA PhD UNE, FASSA, FES
CHIEF INVESTIGATOR
AND UNSW NODE LEADER

Alan Woodland is Scientia Professor of Economics in the School of Economics within the UNSW Business School.

Woodland's primary research interests and publications are in the areas of international

trade theory, applied econometrics and population ageing. He has published in leading journals including *Empirical Econometrica*, *Review of Economic Studies*, *Journal of Econometrics* and *Journal of International Economics*.

He is the recipient of the Distinguished Economist Award of the Economics Society of Australia. He is an Associate Editor of the *Review*

of *International Economics*, a past editor of the *Economic Record*, and is currently on the editorial boards of *Empirical Economics*, the *International Journal of Economic Theory* and the *Economic Record*. Woodland has been a Reserve Bank of Australia Fellow in Economic Policy and a Senior Fulbright Fellow. He is also on the scientific boards of the European Trade Study Group

(ETSJ), Asia Pacific Trade Seminars (APTS), Australasian Trade Workshop (ATW) and the Dynamics, Economic Growth, and International Trade (DEGIT) Research Centre.

FISCAL SUSTAINABILITY AND PENSION REFORMS IN THE PRESENCE OF DEMOGRAPHIC UNCERTAINTY: THE CASE OF AUSTRALIA

RESEARCHERS

GEORGE KUDRNA
CHUNG TRAN
ALAN WOODLAND

Economic analyses of population ageing in Australia have so far relied on deterministic population forecasts. However, both the scale and direction of future demographic developments are highly uncertain, making the variability in fiscal and broader economic outcomes much larger than anticipated from official population forecasts. Although the official forecasts provide low and high scenarios to account for future uncertainty, the volatility in fertility, mortality and immigration rates is often much larger than suggested by this so-called scenario-based approach.

The alternative approach to forecast demographic outcomes is to apply stochastic population models. Such probabilistic models also use historical data, which serve as the basis for future population projections. But future fertility, mortality and net immigration rates are considered as random variables that reflect the uncertainty of future population developments. The advantage of these forecasts compared to deterministic forecasts is that they provide a probability distribution of future population structures and that the uncertainty is dealt with in a coherent and interpretable manner.

This project incorporates stochastic population forecasts into the

computable general equilibrium model developed for Australia by Kudrna and Woodland (2011). The main objective of this research is to investigate the effects of uncertain demographic transitions on the government's budgetary situation, including the implications for age-related transfers to households and tax revenues from households and firms. Macroeconomic outcomes for the labour, capital and goods markets will be also reported and discussed. Another objective is to evaluate the effects of recently adopted or proposed pension reforms, including the increases in the eligibility age for the Age Pension and the preservation age for accessing superannuation.

In 2014, we used the program for error propagation (PEP) documented by Alho et al. (2005) and generated stochastic population forecasts with a probability distribution of population structures over the projection period of 2013–2100. The PEP was fitted with the actual age structure of Australia's population in 2012 and future fertility, mortality and immigration rates assumed in the Productivity Commission's demographic model. Their future fertility, mortality and immigration rates served as the median of the predictive distribution of these vital rates.

This project will continue into 2015, with the results expected to be written as a CEPAR working paper and submitted for publication in a peer-reviewed journal.

The main objective of this research is to investigate the effects of uncertain demographic transitions on the government's budgetary situation, including the implications for age-related transfers to households and tax revenues from households and firms.



DR CHUNG TRAN

BA Hanoi National Economics University, PhD Indiana University
ASSOCIATE INVESTIGATOR

Chung Tran is a Senior Lecturer in the Research School of Economics at the Australian National University. Prior to his appointment at ANU, he worked as a postdoctoral fellow at the University of New South Wales.

Chung's primary research interests lie in the areas of macroeconomics and public economics. Much of his current work explores the role and macroeconomic aspects of public policy. Specific research topics include: evaluating trade-offs in designing tax-transfer systems; analysing the dynamic effects of fiscal policy; and understanding the implications of debt financing

and fiscal austerity measures. His work appears in leading academic journals including the *European Economic Review*, the *Journal of Development Economics* and the *Journal of Economic Dynamics and Control*.

ESTIMATION OF LIFE-CYCLE MODELS OF AUSTRALIAN HOUSEHOLDS WITH RETIREMENT POLICY

RESEARCHERS

CHRIS STRICKLAND
ALAN WOODLAND

One of the important aspects of the study of population ageing concerns the behaviour of individuals and households over their life-cycle (life course) and how this behaviour is affected by market forces and by retirement and tax policy settings of governments. This project aims to use panel data on Australian individuals and households drawn from the Household, Income and Labour Dynamics in Australia (HILDA) Survey to estimate structural models of life-cycle behaviour and to use the estimates to simulate the impacts of policy upon life-cycle behaviour. The expected

outcome from the project is a better understanding of how individuals behave and how changes in policy arising from population ageing affect the household sector.

The household behaviour that is the focus of the project includes decisions about the hours of work, consumption and saving at each age, including the decision to retire, based upon current information and expectations about uncertain future wage rates and mortality. The policy instruments of main concern include the personal tax schedule, Age Pension rates and rules, and superannuation rules. Population ageing in Australia is likely to lead to changes in these policy settings to maintain

government budget constraints. In turn, consequent changes in the behaviour of households will affect the aggregate labour supply, aggregate consumption of goods and the level of national saving. Accordingly, it is important to understand how policy affects household behaviour using available household data. This research project does this by constructing a structural model of household behaviour over the life-cycle that is firmly based upon economic theory and is estimated using econometric techniques applied to panel data drawn from HILDA.

During 2014, work has continued on several fronts. Foremost has been the writing of software programs to estimate the model via

both maximum likelihood and Bayesian estimation methods. Since the computational requirements are onerous, attention has been brought to bear on the use of efficient programming methods and of multiple computer processing unit approaches. The research has also involved the extensive testing of the methods using simulated data and some initial testing with data drawn from the HILDA panel. The project has now almost reached the stage of detailed estimation of the economic model and analysis of results using the HILDA data. This task will be undertaken during 2015.

Overall, the project aims to contribute to the structural modelling of life-cycle behaviour, to knowledge about the

life-cycle decisions of Australian households and to the evaluation of retirement and tax policy impacts arising from population ageing.

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DR CHRIS STRICKLAND
BCom (Hons), PhD Monash
SENIOR RESEARCH FELLOW

Chris Strickland is a CEPAR Senior Research Fellow located in the UNSW Business School. Prior to joining CEPAR in 2013, he held Research Fellow and Senior Research Fellow positions in the School of Mathematics at the Queensland University of

Technology. He completed his PhD in Econometrics at Monash University in 2007.

His current interests include statistical methodology and applied statistical research. His main areas of interest are in time series, space-time analysis, mixed models and mixture models.

RESEARCHER

HEATHER BOOTH

External CollaboratorsROB HYNDMAN
(MONASH UNIVERSITY)LEONIE TICKLE
(MACQUARIE UNIVERSITY)HAN LIN SHANG
(AUSTRALIAN NATIONAL
UNIVERSITY)

This ongoing research addresses methods development and applications in stochastic demographic modelling and forecasting. The approach is based on functional principal components models with time series forecasting. The focus of methods development is mortality forecasting. Cohort forecasts of mortality have also been produced. The refined methods are also applied to fertility and migration, enabling

fully-stochastic population forecasting. The extensive evaluation of forecasts and forecasting methods is an important aspect of this research.

A current focus of this research is 'coherent' forecasting of the mortality of subpopulations. Coherent forecasts for subpopulations are constrained within broad structural relationships among subpopulations. For example, forecasts of male and female mortality are constrained such that male mortality exceeds female mortality, in line with past experience. The product-ratio method for coherent forecasting, developed by Hyndman, Booth and Yasmeen (2013), takes the relationship between subpopulations into account by incorporating

structural dependencies, so that mortality for each subpopulation is forecast while also taking into account the mortality experience of all other subpopulations.

Evaluations of the product-ratio method demonstrate that the coherent forecasts are at least as accurate in overall terms as comparable independent forecasts, and that forecast accuracy is generally homogenised across subpopulations. These are important advantages in longevity risk assessment. Further, the method incorporates short-term flexibility: the ranking of states by life expectancy at the beginning of the forecast period is not necessarily maintained, as structural dependencies relate to ratios of age-specific rates with changing

influences in life expectancy calculations. Coherent forecasts are clearly advantageous in population forecasting where subpopulations are involved.

New research compares the accuracy of coherent forecasts for a population subdivided along two dimensions, such as sex and state. Such comparisons can inform forecasting practice to improve forecast accuracy. Empirical work suggests that incorporating a standard pattern of mortality may offer further advantages; this idea is currently under investigation.

Applications of these methods include longevity estimates and survival probabilities at any age (such as age at retirement) contributing to

understanding of the longevity question. Population forecasting methods are currently being applied to France; and will now be applied to Australia following the release of updated data. Fully-probabilistic population forecasts have application in multiple areas, most notably structural population ageing. Understanding of the future of population ageing is enhanced by the provision of probability bands for the population of different age groups and for composite measures such as age-dependency ratios.

**ASSOCIATE PROFESSOR
HEATHER BOOTH**BSc Econ (Hons) London, MSc
Southampton, PhD London
ASSOCIATE INVESTIGATOR

Heather Booth is Associate Professor of Demography at the Australian Demographic and Social Research Institute (ADSRI) at the Australian National University. She is the ADSRI Research Director and leads the ADSRI Group on

**Longevity, Ageing and
Mortality.**

Heather's interests in ageing research concern the demand and supply of informal care of the elderly and how these are mediated in practice. She conducts research in three key areas: kinship microsimulation modelling with a focus on the availability of kin as the potential supply of elder care; disability

microsimulation modelling of the older population to determine the demand for care; and the relationship between family-based social support through social networks and the wellbeing of older Australians as the mediating mechanism.

Additionally, Heather works at the forefront of demographic forecasting. The future of mortality at very old ages

defines the extent of the demand for aged care, both informal and formal, and is of considerable international interest. This research provides the macro-environment for the micro-modelling of supply and demand.

Heather supervises seven doctoral students conducting research on ageing.

RESEARCHERS

KATE O'LOUGHLIN
HAL KENDIG
COLETTE BROWNING

This edited book commissioned by Springer will be submitted for publication in early 2015. It focuses on Australian research and case studies to provide a multidisciplinary overview of the social and individual dimensions of ageing, health and wellbeing and the transitions that occur in later life.

Written by Australia's leading researchers and policy analysts, the textbook-style publication will provide a strong evidence base for students in health sciences and related disciplines intending to take up practitioner roles in clinical

and community health settings or policymaking roles in health and aged care services. It will also inform action by service providers and policymakers, and provide an overview of Australian developments in ageing for international audiences.

Six of the key book chapters have been written by CEPAR-affiliated researchers:

POPULATION AGEING AND DEMOGRAPHIC CHANGE:

McDonald considers population ageing in the context of national and global trends and the challenges and opportunities these present in Australia. A particular focus will be the spatial patterns and geographic diversity of Australia's ageing population.

HEALTH AND AGEING:

Byles and Browning provide an overview of the health profile of older people in Australia including analysis and discussion of epidemiological evidence of changes in the pattern of health-related issues and the challenges and opportunities these present.

ATTITUDES TO AGEING:

O'Loughlin and Kendig examine age-based attitudes and stereotypes and available evidence on how these are manifested in the workplace, public institutions, health care system and policy discourses and strategies. Legislative and policy initiatives and older people's experiences will be drawn on.

AUSTRALIA'S RETIREMENT INCOME POLICY:

Bateman, Chomik and Piggott provide an overview of Australia's retirement income system – including pensions, superannuation, and taxation – and examine the available evidence on how this can provide equitable and sustainable standards of living for older people.

PRIMARY HEALTH CARE:

Browning provides an overview of the health services available to and utilised by older people in hospital and community settings and critically reviews the focus on primary health care initiatives in terms of access, affordability and efficacy.

SUPPORT AND CARE FOR OLDER PEOPLE:

Kendig considers what we mean by aged care (self-help, family, accommodation); overviews the (inter-) governmental development of the policy area from 'industry' and consumer perspectives leading to the Productivity Commission Report and subsequent reforms; assesses issues around new programs for community and residential care as well as implementation and practice issues such as dementia care, re-enablement and quality improvement.



ASSOCIATE PROFESSOR
KATE O'LOUGHLIN

BA (Hons) Macq., PhD Syd.
ASSOCIATE INVESTIGATOR

Kate O'Loughlin is an Associate Professor in Health Sociology, and a Principal Associate and leader of the Ageing and Health team in the Ageing, Work and Health Research Unit in the Faculty of Health Sciences at the University of Sydney.

Her research interests and expertise are in population ageing with a particular focus on the baby boom cohort and workforce participation, and social policy relating to ageing in Australia and globally. Her current research projects investigate the interplay between paid work and unpaid care-giving and its relationships with health and wellbeing; behaviours and exposures across the life

course and their effect on health outcomes in later life; and individual and community attitudes to ageing, with a specific focus on age discrimination in the workplace. She leads the CEPAR project on Work and Care-giving, an international collaboration with scholars from Canada, the UK and New Zealand.

She has published widely in the gerontology/ageing and sociology literature and has a record of successful supervision and mentoring of higher degree students; she is primary supervisor of two CEPAR-affiliated students from the Faculty of Health Sciences

RESEARCHERS

JOHN PIGGOTT
ALAN WOODLAND

In 2011, we secured a contract to produce a *Handbook in Population Ageing* to be published by Elsevier.

This is a major project, planned to be executed over several years. Final delivery is scheduled for 2016. From a CEPAR perspective it is exciting because it is an opportunity to explore the dimensions of the field of the Economics of Population Ageing. The economic impacts of population ageing fall into two categories – those that are driven by the fact of an ageing baby-boomer cohort; and those that derive from changing demographic

structures. Both forces are analysed in the volume.

Five of the papers in the volume are being written by CEPAR-affiliated researchers. These include chapters on taxation (Woodland); decision making (Keane); insurance markets (Fang); workplace pensions (Mitchell and Piggott); and longevity and morbidity (Sherris).

The 2013 contributor workshop at Harvard University was a critical milestone in the development of this initiative. With a high participation rate across contributors, the workshop provided an excellent opportunity for these internationally distinguished scholars to exchange ideas and together arrive at an

enriched understanding of what the Economics of Population Ageing might actually encompass. In 2014, work has focused on organising peer review of draft papers. While there is some distance still to go before we have a complete set of final papers, we are pleased with the progress we have made. One paper that has already been finalised is the paper by CEPAR PI Hanming Fang on Insurance Markets.

Fang's chapter begins by documenting and analysing the risks faced by the elderly – longevity and morbidity, health, and income. He then analyses the markets for each of these, pointing out why some work well, while others are inefficient, and why. The extensive literature on the annuities market,

and the much smaller literature on life insurance, are both distilled with the most important points clearly explained. In most cases, these markets are shared between the public and private sectors. Coordination and coexistence issues are analysed in the last part of the chapter, which focuses mainly on medical and long-term care insurance.

The Elsevier handbook series is the most prestigious in the Economics discipline: In the past these handbooks have helped define new fields of research. We see this as an opportunity to help establish the Economics of Population Ageing as a field of research in its own right.

The Elsevier handbook series is the most prestigious in the Economics discipline: In the past these handbooks have helped define new fields of research.



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Hanming Fang is Professor of Economics at the University of Pennsylvania and a Research Associate at the National Bureau of Economic Research (NBER) where he is also the Acting Director of its Chinese Economy Working Group.

Professor Fang is an applied microeconomist with broad theoretical and empirical interests focusing on public economics. His research covers topics ranging from discrimination, social economics, welfare reform, psychology and economics, to public good provision mechanisms, auctions and health insurance markets.

He is currently working on issues related to insurance markets, particularly the interaction between the labour market and the US health insurance reform. He also studies issues related to discrimination and affirmative action. He serves as a co-editor of the *International Economic Review*.

Professor Fang received his PhD in Economics from the University of Pennsylvania in 2000. Before joining the Penn faculty, he held positions at Yale University and Duke University.

AREA OF RESEARCH FOCUS

2

COGNITION AND DECISION MAKING

Individual ageing involves changes in competency that may affect relationships, communication and decision making, including the ability to drive, determine the best retirement plan or sensibly choose a health insurance policy. Population ageing has brought with it government policies designed to reduce public exposure to support for older cohorts, or the risks they face.

This inevitably means that ageing cohorts now and in the future will confront decisions that are important, and in which they or their families have little experience. Increasingly these choices will have to be made at advanced ages, when cognitive decline may impact decision making and choice. Our research combines the expertise of economists, sociologists and psychologists to investigate these issues.

TO VIEW PUBLICATIONS
AND WORKING PAPERS RELATING
TO THIS RESEARCH VISIT CEPAR.EDU.AU

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2014 contributions in this area of research focus fall into three groupings. Life-cycle analysis of how different households facing a range of circumstances might optimally behave over the life course; analysis of choices actually made, their complexity, and the effective communication about the salient features of the choice; and the examination of mental capacity among mature cohorts – what constitutes successful maintenance of mental capital, what its correlates are, and what behaviours promote it. Among the highlights are advances in understanding:

- **INVESTMENT IN HUMAN CAPITAL OVER THE LIFE COURSE**
Led by CIs Michael Keane and Alan Woodland, two different approaches to modelling have been taken. The first conceives of human capital accumulation as effectively years of training. Has investment in human capital increased as a result of increased longevity? The second conceives of human capital as learning on the job. This has very different implications – when you work, you not only earn a wage, but also gain experience which allows you to earn higher wages in the future. These decisions are made sequentially throughout the life course.

Planned behaviour is modified in light of new information. Structural estimation of these models is challenging, but allows insights into how well they can explain actual behaviour and choice. In cases where they fail to predict well, policy intervention may be called for – household decision making is not working well, although the reasons may not be clear. This modelling has been undertaken for Australia and the US. In other research in this tradition, decision making incorporating investment in health is being undertaken; thus far, this model has been calibrated, not yet econometrically estimated – that remains for the future.

- **COMPLEXITY OF RETIREMENT FINANCIAL PLANNING**
Because the allocation of resources in retirement in Australia lies more in the domain of individual choice than in almost any other country, the complexity of financial decision making in retirement is of special interest. Al Hazel Bateman and her collaborators have led a major project over several years examining this issue, in particular trying to discover what aspects of decision making are the most challenging, and how different modes of information presentation might make these easier.

- **DETERMINANTS OF THE DYNAMICS OF MENTAL CAPITAL MAINTENANCE AND DEPRECIATION**
This broad research grouping, led by CI Kaarin Anstey, covers new research attempting to link vision and hearing loss in older individuals with cognition; research documenting peoples' awareness of the impacts of damaging behaviours, such as alcohol abuse, on cognition; and cortical correlates of cognitive change. This last project extends previous research, undertaken on people in their 60s, to younger age groups.

RESEARCHERS

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(BOTH WISCONSIN)

At the heart of the idea that consumers behave by trying to optimise their choices to yield them the greatest satisfaction, is the life-cycle model. This approach to human decision making allows a benchmark to be established, under differing circumstances regarding personal characteristics and external environment, against which actual behaviour might be measured. In the context of analysing retirement behaviour, and preparations for retirement, investment in human capital is critical.

Longer lives mean more time spent working, and the return to training is therefore enhanced. If retirement is delayed, then returns to such investment are augmented. Depending on how such investment is viewed, human capital can also impact labour supply response to changes in wages over the life-cycle. An even more comprehensive view of human capital would encompass investment in health – the project write-up on pages 36-37 describes a major project which aims to come to grips with this dimension of investment in a life-cycle model.

Two CEPAR projects focus on how different treatments of human capital investment impact on labour supply, saving and retirement. In the first (Keane and Iskhakov), human capital

is viewed as a gradually accumulating process in which workers learn by doing. As they work, they not only earn a wage, but also gain experience which impacts on future earnings. In the second (Fan et al), the human capital decision is taken at the beginning of life, through education decisions. But that decision is itself influenced by changes in life expectancy. Both these project use models that are estimated using structural techniques.

LIFE-CYCLE MODELLING OF LEARNING BY DOING, SAVING, LABOUR SUPPLY AND RETIREMENT

Human capital accumulation has been shown to be an important part of these processes in the previous literature. In this project we build a comprehensive life-cycle model that comprises labour supply decisions, consumption-savings choices and human capital accumulation. Human capital investment accrues along with working, through experience gained on the job. We investigate how this affects optimal behaviour under different institutional settings. Considering all four decisions simultaneously allows us to draw conclusions about how different choices interconnect.

Including both labour supply during working ages and the retirement decision (intensive and extensive margins) into the model with human capital allows us to shed light on the mechanics of low estimates of labour supply elasticity that are usually obtained in microeconomic models.

This is a long-term project. During 2014 the project focused on the empirical analysis of the HILDA panel data along with the further development of the computational model to ensure a good match between the simulated data produced by the theoretical model and the observed data. It was found that the model matches the data remarkably well in both labour supply dynamics, retirement choice, hours of



PROFESSOR MICHAEL KEANE

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Michael Keane is an Australian Laureate Fellow and Professor of Economics in the UNSW Business School. He is also a Professor of Economics at the University of Oxford.

Several independent sources have placed Michael Keane

among the top 50 economists internationally in terms of citations and the impact of his work. He is considered to be a world leader in choice modelling and his expertise is sought both nationally and internationally. He has had a long association with two agencies of the US Department of Health and Human Services, as a member of the Institute for Research

on Poverty's Working Group on Problems of the Low Income Population since 1992, and as a member of the Peer Review Panel of the National Institutes of Health (NIH) in 1995-6, 1999 and 2001-5. In November 2009 he prepared a report on tax transfers and labour supply for the Australian Treasury's Commission on Australia's Future Tax System. He has been a visiting scholar at the

International Monetary Fund at various times throughout his career.

He was elected to the Council of the Econometric Society in 2009 and is also a member of the American Economic Association and the American Statistical Association. He is an Associate Editor of the *Journal of Econometrics* and *Quantitative Marketing and Economics*.

work, wages and wealth accumulation and decumulation dynamics. The formal estimation procedure is progressing well and once complete the estimation results will be used to analyse the induced effects of the Australian pension system on labour supply and human capital accumulation processes.

This project is expected to produce several publications in leading refereed international journals in Economics.

A LIFE-CYCLE MODEL WITH HUMAN CAPITAL, LABOUR SUPPLY AND RETIREMENT

In this project, we examine how the education decision, which here is thought of as the human capital decision, is made, when retirement is delayed. In the past, in much work on labour supply and retirement, the wage process is taken as given and the focus is on retirement itself. For example, when conducting counterfactual experiments involving delaying the retirement age from age 65 to age 67, all the previous literature takes the same wage-age profile as the baseline model where the retirement age is 65 and re-estimates retirement behaviour in the new environment where the retirement age is 67. However, if one is expecting to delay retirement, she or he will certainly adjust the human capital investment decision which will affect the wage-age profile. Omitting such an effect will most likely generate bias in various policy analyses.

In this paper, we incorporate endogenous wage formation to fill this gap. We develop and estimate a Ben-Porath human capital model in which workers make consumption, human capital investment, labour supply and retirement decisions. We estimate the model using the Method of Simulated Moments (MSM), matching the wage and hours profiles from the US Survey of Income and Program Participation (SIPP) Data. After estimating the baseline model, we conduct two sets of policy analyses. In the first experiment we remove the Social Security earnings test which applies to ages 62 to 70. In the second experiment we delay the retirement age two years (from age 65 to 67). We find in both policy experiments, workers invest more in their human capital at older ages, which leads to an increase of more than 20% in wages and over 60% in labour force participation rates near retirement.

In 2014, we fine-tuned our model and estimation and demonstrated that the estimation of our parsimonious model is robust to various parameter specifications. We also incorporated health into the model and found that while this is an important factor, human capital remains the main explanation for the decline in labour supply for older workers. This project has been presented in various places including Yale and has been well received. We expect to complete the project by mid-2015 and write up the results for submission to a peer-reviewed journal.

...once complete the estimation results will be used to analyse the induced effects of the Australian pension system on labour supply and human capital accumulation processes.

RESEARCHERS

MICHAEL KEANE
SHIKO MARUYAMA
ELENA CAPATINA

The project studies the relationship between socioeconomic status (SES) and health focusing on individuals' decisions to invest in health and human capital over the life-cycle. While many previous papers have established a strong correlation between socioeconomic variables and health, little is understood about the causal pathways behind it. The challenge lies in the ability to empirically identify the effect of SES on health, the effect of health on SES and the effect of common

factors systematically correlated with both SES and health. Due to the present limited understanding of the SES-health relationship, most existing life-cycle models make drastic simplification assumptions, for example assuming that health evolves exogenously over the life-cycle and modelling human capital accumulation independent of health. However, given the rising health care costs and ageing populations in most countries, it is becoming increasingly important to develop the tools needed for the design of effective policy aimed at improving health outcomes. Therefore, we aim to fill this gap in the literature by building and

estimating a model of health formation over the life-cycle in the spirit of Grossman (1972), emphasising the role of decisions regarding investment in health and human capital.² It is important to consider these decisions jointly since a large amount of the literature suggests that human capital (and the income that it generates) affects health, and vice-versa. The magnitudes of these effects are very controversial and one of the aims of our project is to develop new methods to estimate these effects.

We build a life-cycle model with endogenous labour supply and investment in health capital. Individuals

accumulate human capital (experience) while working, and can invest in health capital through effort such as seeing a doctor regularly and exercise. The incentives to invest in health and human capital are analysed in relationship to one another. A key feature of the paper is to model a realistic health process over the life-cycle using data from the Medical Expenditure Panel Survey. In particular, we use data on respondents' detailed medical conditions to distinguish between different types of health shocks with different causes and effects: shocks that affect the ability to work and those that do not, shocks that affect future health and those that are

transitory, and shocks that are predictable in the sense that they are correlated with previous health and health behaviour and those that are unpredictable. In addition, this paper is the first to study the medical expenditure shocks associated with detailed medical conditions. This modelling and estimation are important since they enable us to accurately capture how people form expectations regarding the evolution of health and the degree of health risk they face throughout their lives in order to estimate how health impacts individuals' economic decisions such as the allocation of resources between consumption, leisure, work and health



DR ELENA CAPATINA

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Elena Capatina is a CEPAR Research Fellow located in the UNSW Business School. She joined the Centre in July 2011 after graduating with a PhD from the University of Toronto. Her research interests include Macroeconomics, Health and Labour Economics.

'Since my arrival at CEPAR, I have been continuing my research on health risk in the context of life-cycle models of labour supply and saving. CEPAR has been an ideal environment to conduct research in this area. I have met with many other researchers affiliated with CEPAR with interests and experience in this area, and have benefited greatly from their suggestions and ideas.

'Also, since CEPAR is a multidisciplinary environment, I receive valuable feedback from researchers in other fields, including Actuarial Sciences and Demographics, who provide me with new and exciting perspectives.

'It has been very interesting to participate in several conferences, workshops and seminar series organised by

CEPAR. At these events, I gained insights into potential research topics that are highly relevant today by talking with researchers from other fields, policymakers and professionals working in industry.

'One of the great benefits of working here is making my research known and developing more collaboration with others in my field.'

investment. We also emphasise that health impacts human capital accumulation over the life-cycle through its effect on labour supply decisions. After estimating the model, we apply it to conduct several counterfactual experiments. For example, we study how improvements in treatments of particular major diseases affect individual decisions and welfare.

Much of 2014 was spent on refining the model and clarifying channels of causation between variables. Significant progress was made constructing the relevant health shock variables and preparing the data for estimation. We have run

several simulations of the model economy and made progress towards calibrating it.

We anticipate having a working paper finished by the end of 2015. The paper will be presented at international conferences and will be sent for publication in a peer-reviewed top rated journal in Economics.

We also emphasise that health impacts human capital accumulation over the life-cycle through its effect on labour supply decisions.

² Grossman, Michael (1972). On the Concept of Health Capital and the Demand for Health, *Journal of Political Economy* 80 (2); 223–255.

A LIFETIME MODEL OF LABOUR SUPPLY AND ASSET ALLOCATION OF AUSTRALIANS: ESTIMATION AND POLICY IMPLICATIONS

RESEARCHERS

XIAODONG FAN
ALAN WOODLAND

Over three quarters of age-eligible Australian retirees receive the assets and income-tested Age Pension. The exemption of the residential home in the Age Pension assets test has been blamed for creating a cohort of asset rich but income poor Australian retirees. Compared with most other developed countries where home ownership rates decline steeply among retirees, the pre-retirement high home ownership rate in Australia continues into the post-retirement years. Furthermore, while the level of home ownership wealth declines steeply with age in most other developed

countries, in Australia retirees do not decumulate or down-value their housing wealth as quickly.

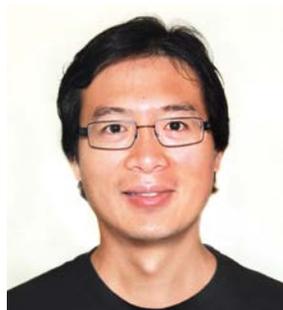
One of the major reasons for such a distortion is the strong incentive for Australian retirees to allocate most of their assets in the principal home in order to qualify for the Age Pension. The benefits of the Age Pension extend beyond the pension payment itself. Those who receive full or partial Age Pension also receive discounts on medical expenses, utilities, transportation, as well as many other expenses. On the other hand, decumulating or down-valuing housing assets incur not only the high transaction costs, but also the cost of losing the Age Pension income and its built-in benefits.

This distortion in asset allocation among Australian retirees has not only imposed a barrier for optimal pre- and post-retirement consumption, but also generates great financial pressure upon the Australian Government, which will only increase as the population ages. On the other hand, with the maturation of the superannuation guarantee scheme and its inclusion in the assets test, the incentive to decumulate housing value might increase. Policymakers are also seeking policy options to encourage Australians to take better advantage of their housing wealth. These include capping the exemption amount of the principal home, imposing bequest taxes, or providing income and assets test

exemptions for eligible pensioners who choose to downsize their home.

In this project, we propose and estimate a life-cycle model of consumption, asset allocation, labour supply, retirement, and bequests which represents the decision making process of Australians. We expect to have completed estimating the model using HILDA survey data by mid-2015 and then will conduct various experiments to investigate their effects on Australian behaviour with regard to saving and asset allocation, as well as labour supply and retirement. These policy experiments include imposing a cap for the exemption value of the principal home, implementing bequest taxes, and providing an

assets test exemption for downsizing the home, and take into account population ageing and maturing superannuation. We expect to complete the project at the end of 2015 and write up the results for submission to a peer-reviewed journal.



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His research interests include Labour Economics, Applied Microeconomics, and Computational Economics. His current research studies the determinants of labour supply and retirement in the life-cycle context, as well as policy evaluations.

‘Working at CEPAR provides me with a great opportunity to focus on my research in the next few years, as well as opening up windows to ageing related policy analysis.’

RESEARCHERS

MICHAEL KEANE
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It is well known that adverse selection and moral hazard can distort functioning of health insurance markets. Understanding the magnitudes of these effects and their variability across different groups of population is important for formulating efficient health care policies.

This project studies adverse selection and moral hazard in the US Medigap health insurance market. Medigap is a supplement to Medicare private health insurance for senior individuals in the US. We develop an econometric model of insurance demand and health care expenditure, where adverse selection is

measured by sensitivity of the demand for Medigap insurance to health care expenditure risk, while the moral hazard is measured by the difference in health care expenditure between individuals with and without Medigap who have the same expenditure risk.

In 2014, in response to feedback from journal referees, the paper has been revised. First, the measurement of health expenditure risk has been refined to exclude non-covered discretionary expenditures driven by high income. Second, an extensive analysis of heterogeneity of the moral hazard effect has been carried out. Third, the implications of this heterogeneity for changes in health care costs which

would result from expanding Medigap insurance coverage universally have been examined.

In the revised version of the paper we still find advantageous selection into Medigap, with income and cognitive ability being the most important factors explaining why higher-risk individuals are less likely to buy insurance.

We also find a moderate moral hazard effect of Medigap insurance (on average, Medigap causes a 25% increase in health care expenditure). This effect decreases as a proportion of health care expenditure risk as health status deteriorates. We identify several health status types of individuals and find that on average

individuals of the healthiest type spend about twice as much on health care when Medigap insured compared to their counterparts without Medigap, while for the least healthy type the moral hazard effect of Medigap is close to zero. These results have a novel implication: that the price elasticity of health care demand of older individuals decreases as health status deteriorates.

We also simulate the effect of a universal Medigap coverage on health care expenditures and find that it would increase per capita health care expenditure, and that the major part of this increase would come from the healthiest individuals increasing their health care spending due to the moral hazard effect.

The revised research paper is currently under review in the *Journal of Econometrics*.

These results have a novel implication: that the price elasticity of health care demand of older individuals decreases as health status deteriorates.



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Olena Stavrunova is a Senior Lecturer in the Economics Discipline Group at the University of Technology, Sydney and a CEPAR Research Fellow.

Olena joined UTS in July 2007 after completing her PhD in Economics at the University of Iowa. Olena's research interests include Applied Econometrics, Bayesian Econometrics, Health Economics and Labour Economics.

She has published in international and Australian journals on a variety of topics in applied econometrics and health economics, including econometric modelling of health care expenditures and hospital waiting times; the impact of hospital waiting times on patient

utilisation of health care services; and econometric modelling of the demand for private health insurance in Australia.

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In 2014 CEPAR researchers, in conjunction with their external collaborators, continued to investigate aspects of retirement saving choices and decisions in research funded primarily by a five year ARC Discovery

Grant 'The paradox of choice: unravelling complex superannuation decisions'.

A continuing focus has been the investigation of retirement benefit decisions. We continued to analyse observed benefit choices data from two related discrete choice experiments of allocations of retirement wealth implemented online to representative samples of around 900 near-to-retirement superannuation fund members. Participants were asked to allocate their accumulated retirement wealth into an annuity product and/or a phased withdrawal product using a 'configurator'.

Allocations were made at four different levels of risk of exhausting the phased withdrawal balance before end of life and 'just in time'

information on product characteristics was provided. Bateman, Eckert, Iskhakov, Louviere, Satchell and Thorp (2014a) investigated the extent to which participants took account of the risk of ruin in their benefit decisions.

A key finding was that more numerate individuals who put effort into understanding product features chose more longevity insurance at higher ruin risks. Financially literate members were more likely to show understanding of the product features, but general financial literacy did not directly improve ruin risk management. These results suggest that initiatives aiming to help superannuation and pension fund members understand income stream products at the time of the decision are warranted.

In a related paper, Bateman, Eckert, Iskhakov, Louviere, Satchell and Thorp (2014b) examine and identify the use of heuristics - specifically defaults and the diversification (1/n or 50:50) heuristic - in retirement benefit decisions. Analysis using a novel finite mixture modelling approach shows that more than 30% of decumulation choices rely on these two heuristics and that cognitive and product knowledge limitations contribute to their use. These results suggest that policy design around decumulation default settings should proceed with care. More generally, the model developed has the potential to provide better understanding of the use of heuristics in a broad range of complex financial decisions.

In complementary work Iskhakov, Thorp and Bateman (2014) developed and simulated a stochastic life-cycle model to investigate optimal annuity purchases at retirement. Baseline parameters were matched to current Australian settings (including the means-tested Age Pension) and scenario analysis of a wide range of individual preferences and financial market outcomes was conducted. Results showed that except where individuals need to insure a consumption floor, both immediate and deferred annuity purchases are largely crowded out by the means-tested Age Pension. Furthermore, welfare losses caused by zero annuitisation are small compared with losses caused by completely annuitising all savings,



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Hazel Bateman is Head of the School of Risk and Actuarial Studies in the UNSW Business School.

She is one of Australia's leading experts in superannuation and pensions and is widely published in the area of the economics and finance of retirement

incomes. The overall themes of her research are the adequacy and security of retirement saving and retirement benefits and issues associated with the increasing risk and responsibility faced by retirement savers under defined contributions arrangements. Her work on administrative costs and charges of superannuation funds has informed global pension policy developments,

including the financial product disclosure legislation in Australia. Over the past eight years, Hazel Bateman has jointly held six ARC Discovery Grants, including an ARC Discovery Grant of \$960,000 over 2010-2014 to undertake research to better understand complex retirement and superannuation decision making.

Hazel has been a consultant on retirement income issues to a range of Australian and international organisations including the OECD, the World Bank, the Social Insurance Administration (China) and the Korean Institute of Health and Social Affairs. She has served on the Australian Government's Superannuation Roundtable and is currently a member of the editorial board of the *Journal of Pension Economics and Finance*.

particularly if wealth at retirement is low. These results highlight the difficulty of designing a broadly applicable benefit default.

Following our focus over the past 4-5 years on choice of investment options, benefits and financial advisers, we started to extend the consideration of retirement decisions in two directions. First, we undertook preliminary work on the design of a discrete choice experiment to analyse preferences for long-term care annuities. It is particularly challenging to design an effective experimental task for complex products which are unfamiliar to survey participants.

However, following feedback from a pilot survey instrument, we expect to field a long-term care annuity online experiment in early 2015. Second, we aim for a greater focus on cross-country experimental analysis and commenced a comparative study of the

drivers of subjective life expectancy in Australia and the Netherlands (Teppa, Thorp and Bateman, 2014). Preliminary results for the Netherlands indicate that priming people with personalised information about cohort or family longevity does not induce them to revise their subjective survival expectations. The survey will be fielded in Australia in early 2015.

Project outputs:

Bateman H., Eckert, C., Iskhakov, F., Louviere, J., Satchell, S. and Thorp, S. (2014a), 'Individual capability and effort in retirement benefit choice', UNSW Australia Business School Working Paper 2014ACTL07.

Bateman H., Eckert, C., Iskhakov, F., Louviere, J., Satchell, S. and Thorp, S. (2014b), 'Default and naïve diversification heuristics in annuity choice', UNSW Australia Business School Working Paper 2014ACTL03.

Iskhakov F., Thorp, S. and Bateman, H. (2014), 'Optimal annuity purchases for Australian retirees', CEPAR Working Paper 2014/06.

Teppa F., Thorp, S. and Bateman, H. (2014), 'Family, friends and framing: An international comparison of longevity expectation information', Working Paper (in progress).

These results suggest that initiatives aiming to help superannuation and pension fund members understand income stream products at the time of the decision are warranted.

RESEARCHERS

KAARIN J. ANSTEY
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PETER BUTTERWORTH

Self-rated health (SRH) is a subjective measure of a person's general health and is an important indicator of health outcomes in late life. Understanding the link between SRH and health behaviour can provide insight into methods for maintaining positive SRH and improving health behaviours. Data from the PATH Through Life longitudinal Study were used to examine whether maintaining or improving positive behaviours can protect SRH over time. SRH trajectories were modelled in this large representative Australian sample (n = 7485 at baseline), of three age cohorts (20–24, 40–44 and 60–64 years at baseline; 1999, 2000 & 2001 respectively), over an eight year period. Change in smoking, alcohol consumption and physical activity on SRH trajectories were examined, controlling for demographic, physical and mental health factors. SRH became poorer over time across the sample. Being a non-smoker was associated

with more positive SRH levels across all groups. Maintaining or increasing moderate physical activity was associated with less of a decline in SRH. These findings highlight the benefits of positive health behaviours, particularly performing regular physical activity over time, for reducing the risk of subjective health becoming poorer across the adult life course. These results were published in:

Sargent-Cox, K.A., Cherbuin, N., Morris, L.J., Butterworth, P., and Anstey, K.J. (2014). The Effect of Health Behaviour Change on Self-rated Health Across The Adult Life Course: A Longitudinal Cohort Study. *Preventive Medicine*, 58,75–80.

Mastery is a psychological construct that represents a sense of control over circumstances that influence a person's life. Research shows that mastery is associated with health outcomes in late life, where individuals with high levels of mastery are more likely to perform behaviours to control their health trajectory. This relationship between mastery and health

behaviours was examined within the PATH dataset, using physical activity levels as the health behaviour of interest. The results showed that level of mastery was related to changes in physical health and cognitive function (processing speed), and that level of physical activity influenced the relationship between mastery and physical health as well as psychological health and processing speed in older adults. The findings are published in:

Sargent-Cox, K.A., Butterworth, P., and Anstey, K.J. (2014). Role of Physical Activity in the Relationship between Mastery and Functional Health. *The Gerontologist*. In press (available online November 2014).

These findings highlight the benefits of positive health behaviours, particularly performing regular physical activity over time, for reducing the risk of subjective health becoming poorer across the adult life course.

RESEARCHERS

KAARIN J. ANSTEY
KERRY SARGENT-COX
DIANE HOSKING

A large body of research has focused upon promoting and assessing peoples' knowledge of the behavioural strategies that may delay onset or prevent dementia and to date, older adults have been the group primarily targeted in these investigations.

A complementary approach is the promotion of cognitive health at every life stage. Behaviours that support cognitive health not only buffer the brain against the neurodegenerative processes of ageing but enable individuals throughout adulthood to contribute fully to society and experience a high quality of life.

The Survey of Cognitive Health (SCH) was a telephone administered survey designed to assess the cognitive health beliefs, behaviours, intentions, and fears of a geographically diverse Australian sample (N=900) spanning early adulthood to old age. Preliminary analyses began in 2013 and work this year has focused upon further analyses to investigate age-group differences in cognitive health knowledge, behaviours, and fears and whether other socio-demographic and health factors impacted upon responses.

Alcohol abuse was nominated by the highest proportion of people (34.3%) as having an adverse effect on brain health. A significantly higher proportion of younger

compared to middle-aged or older people were aware of the detrimental effects of not only alcohol but of drug abuse and smoking also. Across all age groups very low proportions (<5%) knew of the links between vascular risk factors such as obesity, high cholesterol, or hypertension and brain health. On average, approximately 50% of the sample undertook lifestyle behaviours such as physical activity, socialising, and good nutrition specifically to benefit their cognitive health. Of relevance for potential intervention is the substantial gap demonstrated between high levels of knowledge that behaviours may be beneficial and low levels of intention to undertake behaviours in the future.

A non-linear relationship was shown between age-groups and fear of Alzheimer's, with fear being high in the early adulthood groups, rising higher for those up to 60 years of age, and then becoming less fearful in later life (60+ years). Further investigation found that levels of fear of Alzheimer's were associated with age, education, subjective memory, and expectations of ageing. Interestingly, associations between physical activity levels and fear differed according to age. Adults 40 to 59 with high fear were more likely to be doing physical activity, whereas those in the oldest age-group were less likely to be doing physical activity if they had high fear.

Findings from the SCH were presented by Diane Hosking at the 2014 Australian Association of Gerontology Conference and a manuscript is currently under review.

Of relevance for potential intervention is the substantial gap demonstrated between high levels of knowledge that behaviours may be beneficial and low levels of intention to undertake behaviours in the future.



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RESEARCH FELLOW

Diane Hosking joined the ANU CEPAR node in March 2014 as a Research Fellow at the Centre for Research on Ageing, Health and Wellbeing. Diane moved to ANU after undertaking her PhD in Psychology at the University of Adelaide and CSIRO Animal, Food and Health Sciences.

Diane's research focuses broadly on cognitive health and cognitive ageing. Her PhD research project investigated the impact of dietary intake across the lifetime upon older age cognition and cognitive change.

Recently, Diane has been examining cognitive health beliefs, behaviours and intentions in order to inform educational and lifestyle interventions that aim to

optimise cognitive health across the lifespan.

Current projects are examining the social and economic impacts of cognitive ageing with particular focus upon quantifying longitudinal associations between ageing, time given to care-giving and volunteering in later life, and levels of cognitive functioning.

RESEARCHERS

KIM KIELY
KAARIN J. ANSTEY

This program of research commenced in August 2014 and will investigate the impacts of age-related hearing and vision loss, with a focus on their links to cognitive decline and dementia. Sensory loss disproportionately affects older adults, and is a leading contributor to non-fatal disease burden for older Australians. Vision and hearing loss can have debilitating impacts on a person's professional and personal life, especially for those who have enjoyed good sensory functioning earlier in life.

Despite high prevalence of hearing loss and vision loss,

decline in sensory acuity is poorly recognised and 'invisible', exerting subtle effects that accumulate over time if not detected and treated early. Communication and mobility difficulties arising from sensory loss can give rise to loss of independence, social withdrawal, poorer mental health, and reduced quality of life. The comorbidity of vision and hearing loss can be particularly disabling due to the removal of an important compensatory mechanism. Importantly, as both hearing and vision loss predict cognitive impairment and dementia incidence, their comorbidity may not simply be a coincidental result of general ageing processes but could reflect a causal connection.

The project will use data from a number of representative longitudinal studies of ageing that have collected self-report and clinical measures of sensory functioning, including visual acuity, pure-tone audiometry and speech reception in noise. Key outcomes of this project will be to estimate sensory impaired life expectancies, investigate the association between cognitive and hearing decline, and profile users of hearing services and technology in Australia. Preliminary analyses have demonstrated that older adults live for extended periods with hearing loss and/or vision loss and shown that this can lead to a range of adverse outcomes. Notably, at age 65 both men and women could expect to live (on average) with mild

hearing loss for at least half of their remaining years of life. This indicates that interventions targeting sensory impairment have good potential to compress morbidity.

In late 2014 Dr Kim Kiely was awarded an NHMRC Early Career Fellowship and an Australian Association of Gerontology RM Gibson Scientific Research Award to support his research in this stream.

... as both hearing and vision loss predict cognitive impairment and dementia incidence, their comorbidity may not simply be a coincidental result of general ageing processes but could reflect a causal connection.



DR KIM KIELY
BLib (Hons) USyd, PhD ANU
ASSOCIATE INVESTIGATOR

Kim Kiely is a Postdoctoral Research Fellow within the Centre for Research on Ageing, Health and Wellbeing (CRAHW) at the Australian National University. He currently holds a Fellowship from the Alzheimer's Australia Dementia Research Foundation, and in 2015 will

commence his NHMRC Early Career Fellowship entitled 'Estimating and Alleviating the Impacts of Age-Related Sensory Decline'.

Kim has a background in psychology and epidemiology, and his research is orientated by a contextualised perspective to human development across the life course. His core research interests encompass aspects of healthy and productive

ageing, focusing on the social, functional and cognitive impacts of sensory loss in late life.

Current work includes the estimation of sensory impairment and cognitive impairment free life expectancies, analyses of the determinants and outcomes of successful sensory aid use, and identifying mechanisms underlying sensory-related cognitive decline. Kim also

maintains a strong interest in psychiatric epidemiology through his involvement in a research program investigating the mental health of welfare recipients. This stream of research examines mental health inequalities among Age Pension recipients and considers the implications of reforms to the pension system.

CEREBRAL CORRELATES OF COGNITIVE AND MENTAL WELLBEING IN THE 50s

RESEARCHERS

NICOLAS CHERBUIN
KAARIN J. ANSTEY

To date more than 2,500 scans have been processed on the supercomputer at the National Computing Infrastructure facility using a software package that identifies precisely different regions of the brain, computes their volume and other characteristics, and enables their reconstruction in 3D models that can be visualised. Each scan takes about 12-24 hours to process and therefore these analyses alone represent the equivalent of 40,000 hours of computing time on a standard desktop computer.

This work is required to be able to compare and contrast brain changes occurring in the 50s to those more typically investigated in the 60s and 70s.

A manuscript describing the changes in cortical thickness in older individuals is already under review for publication and a matching paper in individuals in their 40s and 50s is under preparation.

Initial results suggest that the cerebral cortex experiences thinning in the 50s at relatively similar rates as those observed in the 60s and affect mostly the same regions including the temporal lobe, the temporo-parietal junction, and the lateral frontal lobe.

Initial results suggest that the cerebral cortex experiences thinning in the 50s at relatively similar rates as those observed in the 60s and affect mostly the same regions including the temporal lobe, the temporo-parietal junction, and the lateral frontal lobe.



DR NICOLAS CHERBUIN
BA UNSW, BA (Hons) PhD ANU
ASSOCIATE INVESTIGATOR

Nicolas Cherbuin is an ARC Future Fellow at the Centre for Research on Ageing, Health and Wellbeing at the Australian National University, where he leads the Neuroimaging and Brain Lab. He is a member of the Dementia Collaborative Research Centres initiative.

His main research interests are the investigation of risk factors for dementia and cognitive ageing, the development of instruments for the early identification of individuals at risk of developing dementia, and the investigation of neuroanatomical changes associated with cognitive decline and dementia using brain imaging techniques.

He is particularly interested in the development of public health approaches aimed at maximising cognitive health throughout the lifespan and at decreasing individuals' risk of dementia in later life.

Nicolas is also a Chief Investigator on the PATH Through Life Study, a large prospective epidemiological study of mental health and ageing surveying more than

7500 community-based participants which provides important normative and clinical information on the Australian population.

MENTAL CAPITAL AND SUCCESSFUL AGEING: PROMOTING HEALTHY AGEING AND WELLBEING IN ADULTHOOD

RESEARCHERS

RICHARD BURNS
KAARIN J. ANSTEY

Work into mental health and wellbeing in late life has continued and built on findings from last year. For instance, findings previously identified that most change in wellbeing and mental health was attenuated by changes in physical health and functioning drives. Now, using latent growth mixture modelling to derive different classes of individuals according to the trajectories of the change in their wellbeing or mental health, we have identified that in unadjusted latent growth models, most (circa 90%) of the older adult population do not report changes in their wellbeing or mental health. Rather any overall

population change in mental health and wellbeing was driven by substantial change in a small but significant minority of the older adult population (Burns, Byles, Maglian, Mitchell and Anstey, in press). Relatedly, another recent finding again indicated that the association between mental health and mortality risk was fully attenuated by physical health (Burns, Butterworth, Browning, Byles, Luszcz, Mitchell, Shaw and Anstey, in press).

Work this year has extended previous work into the importance of flourishing across the lifespan, examining the extent to which having positive mental health (e.g., having a sense of vitality, resilience) is as important for promoting quality of

life, healthy ageing and productivity, as simply not having poor mental health (depression, anxiety, psychological distress). Currently, two manuscripts are close to submission. Relatedly, a series of findings have indicated that intra-individual variability in positive components of wellbeing were more strongly related to self-rated health, than mental health (Burns, Sargent-Cox, Mitchell and Anstey, 2014).

Last year a pilot study was undertaken which examined how mental capital (resilience, mastery, autonomy, personality) was associated with intra-individual variability in affect over a 14-day period with daily assessment of positive and negative affect and

life stressors. A paper is currently under review. This year, a pilot study was undertaken to examine the importance of sexual health and wellbeing in older adults. Pilot studies have also been undertaken to inform future projects. Again, a paper submission is imminent.

This year, Burns has undertaken two trips to visit Associate Investigators Colette Browning (Monash University), and Tim Windsor (Flinders University).

Currently one paper has been provisionally accepted; the paper examines the trajectories of multiple wellbeing and mental health outcomes in the 12 years pre and post-partner bereavement. Results indicated substantial long-term declines in

negative affect, but not positive affect or depression in the bereaved. Several other papers are in preparation. One examines the utility of life satisfaction as an indicator of lives going well; another paper re-examines the cognitive terminal decline hypothesis within a growth mixture modelling framework; and another paper examines the socio-demographic characteristics of those who experience wellbeing whilst living with chronic disease.



DR RICHARD BURNS
BMus ANU, BA CSU, PGDE UC, MSc
Manchester, PhD USQ
RESEARCH FELLOW

Richard Burns joined the ANU CEPAR node in January 2013 as a Research Fellow at the Centre for Research on Ageing, Health and Wellbeing (CRAHW). Previously, Richard was a Research Fellow on a

Capacity Building Grant and a joint NHMRC/ARC funded project, the DYNOPTA project which were based at CRAHW.

Richard's research focuses on wellbeing and mental health and has encompassed varied contexts including educational, organisational and epidemiological. More recently, Richard has been examining longitudinal

changes in dimensions of wellbeing and mental health across adulthood and more specifically in the years leading to death. Current work is focusing on describing 1) changes in wellbeing and cognitive function in late life, 2) the psycho-socio-demographic factors that drive flourishing and positive mental health across the

lifespan, and 3) the impact of job strain and workplace climate on employee health and wellbeing, and as barriers to workforce participation in later life.

ESTIMATING DISCRETE-CONTINUOUS CHOICE MODELS: ENDOGENOUS GRID METHOD WITH TASTE SHOCKS

RESEARCHER

FEDOR ISKHAKOV

External Collaborators

JOHN RUST
(GEORGETOWN UNIVERSITY)

BERTEL SCHJERNING
THOMAS JØRGENSEN
(BOTH UNIVERSITY OF
COPENHAGEN)

This project develops a new method of solving and estimating computationally demanding life-cycle models involving simultaneous discrete and continuous choices. Computational tractability has always been a limiting factor in studying realistic models of this class, which has essentially led to oversimplification and limited policy relevance.

The method of endogenous grid points is an innovative approach which allows us to model consumption/savings or other continuous choices at very low computational cost. However, because the choice to retire is intrinsically discrete, the approach had to be extended to allow for discrete decisions to be present in the model.

This project started out in 2012 as a direct extension of the method of endogenous grid points to solve the models with discrete and continuous choice. In the first two years all the aspects of the retirement model with consumption/savings choices were developed and the corresponding solution method was undertaken. This work revealed several

surprising theoretical properties of the model which were never explained in the literature. The method performed exceptionally well in most applications but there were more complex models of interest in which the method failed to perform consistently.

In 2014 a more systematic assessment of the performance of the endogenous grid point method for discrete-continuous choice was undertaken. From using the method in several other research projects at CEPAR and elsewhere, it became clear that the overall complexity of the deterministic solution of such models is impractical for empirical applications.

However, inclusion of the extreme value distributed shocks associated with every discrete choice in the model, significantly reduced the complexity of the solution while also enhancing the empirical applicability of the method. At the end of 2014 the project was nearing completion, with all the major results obtained, and most of the writing also completed.

This project has already produced a software package which facilitated faster and easier model development in other CEPAR projects. It will also lead to a publication in a high quality international peer-reviewed journal.



DR FEDOR ISKHAKOV

BMath CandSc St Petersburg
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SENIOR RESEARCH FELLOW

Fedor Iskhakov is a Senior Research Fellow at CEPAR located in the UNSW Business School. Previously he was a research fellow at the Centre for the Study of Choice, University of Technology, Sydney (2010-2012); lecturer in the Graduate School of

Management at St Petersburg University (2009- 2010); and a Visiting Research Scholar at the University of Maryland (in 2006 and 2010) and the University of Oxford (in 2012 and 2013). Between 2002 and 2011 he had an association with the Ragnar Frisch Centre for Economic Research at the University of Oslo where he has held the positions of Research Fellow and Postdoctoral Research Fellow.

His doctoral thesis, 'A dynamic structural analysis of health and retirement,' was awarded His Majesty the King of Norway's gold medal, for the best research in social sciences among young researchers in Norway in 2008.

His research interests lie in the area of structural microeconometrics, and more specifically in dynamic modelling of individual choice.

'Working at CEPAR gives me a unique chance to participate in research projects of the highest theoretical and methodological quality which have substantial relevance for economic policy in Australia and the world.'

AREA OF RESEARCH FOCUS

3

RESOURCES IN RETIREMENT

Governments around the world have been reforming policies (and often breaking public pension promises) to find ways to reduce the fiscal impact of the ageing baby boomer cohorts. Australia is unusual in having promised relatively little in public pensions, buttressing retirement incomes through mandated superannuation.

This policy regime provides a valuable test-bed for research into non-government approaches to retirement provision. Research in this area of focus takes private provision as a point of departure, and examines risk pooling, spreading and sharing mechanisms, public-private coordination, and the impacts of incentives, defaults, and compulsion on behaviour with respect to retirement choices. The analysis is designed to discover what innovations, by government and business, might improve outcomes.

TO VIEW PUBLICATIONS
AND WORKING PAPERS RELATING
TO THIS RESEARCH VISIT CEPAR.EDU.AU

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Many projects in this Area of Research Focus have some connection with research documented under ‘Causes and Consequences of Demographic Change’ and ‘Cognition and Decision Making’. But the framework is distinct, focusing on how policy interacts with individual decision making; how markets can assist in reinsuring, allocating and diversifying risk, especially longevity risk; and how new products can assist in managing longevity risk. Major contributions in this Area of Research Focus include projects on:

- THE ROLE OF DEFAULTS IN MANDATORY RETIREMENT SAVING**
Led by Al Loretto I. Dobrescu, this project studies the default behaviour of members of an industry-wide pension fund in an attempt to explain the high prevalence of defaults, which specify individual pension outcomes when no choice is made. Defaults are known to be powerful in their influence on retirement saving choices, worldwide. This research, using a structurally estimated life-cycle model, finds that preferences, demographic characteristics and labour mobility can go a long way towards explaining the low active plan choice and overall level of retirement savings, implying that defaults will have a big influence. Defaults are found to be pervasive and ‘sticky’, both over time and across different decisions. And if defaults are changed, this has a big impact on retirement saving.
- INDIVIDUAL DECISIONS TOWARDS RISK IN THE PRESENCE OF SYSTEMATIC LONGEVITY RISK**
Led by CI Michael Sherris, this long-term project, planned with a three year horizon, aims to examine how optimal decision making with regard to risk, both before and after retirement, is impacted by systematic longevity risk. The aim is to determine analytical and numerical solutions to the problem in both a continuous-time setting and a multi-period discrete-time setting with a focus on the impact of systematic improvements.
- THE DEVELOPMENT AND APPLICATION OF RISK-BASED PRODUCTS TO MANAGE LONGEVITY RISK**
This group of projects, mainly led by CI Michael Sherris, ranges across longevity linked life annuities and home equity release products to the use of longevity derivatives and public-coordination to support asset-liability management in a multi-pronged investigation aimed at reducing the social cost of longevity risk.
- A COMPREHENSIVE ECONOMETRIC ANALYSIS OF RECENT PENSION REFORMS IN NORWAY**
These are of special interest because Norwegian policymakers carefully removed impediments to continued work while allowing pension access at a relatively early age (62), with a focus on encouraging mature labour force participation while allowing pension liquidity. The analysis uses detailed population-wide administrative data. It is found that in terms of mature labour force participation, flexibility works just as well as prescription (represented by increasing access age to force continued labour supply or spillage to disability benefits).

RETIREMENT SAVINGS: A TALE OF DECISIONS AND DEFAULTS

RESEARCHERS

LORETTI I. DOBRESCU
XIAODONG FAN
HAZEL BATEMAN

External Collaborators

BEN NEWELL
ANDREAS ORTMANN
(BOTH UNSW)
SUSAN THORP
(UNIVERSITY OF SYDNEY)

This project studies the default behaviour of members of an industry-wide pension fund in an attempt to explain the high prevalence of defaults, which specify individual pension outcomes when no choice is made. And given that so many people rely on pension defaults, we also evaluate the impact of default provisions on retirement savings.

To do so, we first identify the empirical elements of the choices related to pension plan and voluntary contributions. We find that preferences, demographic characteristics and labour mobility can go a long way towards explaining the low active plan choice and overall level of retirement savings.

Using a realistic structural dynamic life-cycle model, we then assess the ability of these empirically motivated decision drivers to explain the data. In our model, individuals make decisions on consumption and on how much they save for retirement. A novel feature of our model is that it captures the impact of default provisions in a setting that combines an irreversible automatic enrolment decision with

an active decision regime. Under automatic enrolment, permanent employees initially choose between two pension plans (Defined Benefit(DB) vs. Defined Contribution (DC)), and then each period they decide i) the voluntary contributions rate, and ii) whether to opt out of the default (balanced) investment allocation. For casuals, the decisions are restricted to choosing the investment allocation and the voluntary contributions they make to their pre-defined DC-casual plan. Obviously, each time one switches out of default options, she or he must pay a 'switching cost' modelled in terms of utility lost. We use simulated method of moments to estimate the model on administrative data from one of Australia's largest pension funds,

UniSuper, which covers all employees of the higher education and research sector.

We find several interesting results. First, defaults seem to be highly persistent (i.e., 'sticky'), both over time and across decisions. For instance, only very few people opt out of the default (DB) plan and more than half remain in the default (balanced) investment allocation. Second, we find an increasing incidence and level of voluntary contributions with age. Finally, counterfactual experiments show that changing the default structure has a big impact on retirement savings. For instance, changing the default plan for permanent employees from DB to DC leads to a 9.5% and 18% net increase in total pension

wealth for males and females, respectively. Similarly, allowing people to freely switch between DB and DC brings by far the highest pension wealth gains (5.5% for men and 9.3% for women) compared to switching contributions or investments options.

This project was completed at the end of 2014 and a paper was submitted to a top, general interest journal in economics.

... changing the
default structure
has a big impact on
retirement savings.



DR LORETTI I. DOBRESCU

BA Hons Nottingham Trent University; MSc West University of Timisoara; PhD University of Padua
RESEARCH FELLOW

Loretti I. Dobrescu is a Senior Lecturer in the School of Economics, UNSW Australia. She is funded by an ARC award to support early career researchers in the Centre.

She is an established researcher with expertise in developing structural models and using panel data and bounds methods to study various issues related to savings and cognition in older age. She has published significantly in international journals of economics and mathematical modelling and is generally active in the

research fields of microeconometrics, with particular emphasis on the Economics of Ageing and Health Economics. Loretti was also part of the backbone team that developed the first comprehensive dataset of ageing in Europe – the Survey of Health, Ageing and Retirement in Europe, being operatively involved in the

'Earnings and Pensions' section and in the development of the dataset's imputation phase.

OPTIMAL INDIVIDUAL PRE AND POST RETIREMENT DECISION MAKING UNDER SYSTEMATIC LONGEVITY RISK

RESEARCHERS

YANG SHEN
MICHAEL SHERRIS

This research project provides a rigorous theoretical analysis of the optimal investment, consumption, insurance and retirement choice problem of an individual investor, whose mortality evolves in a stochastic manner over time. Most prior analysis assumes mortality rates are known and deterministic and address only idiosyncratic longevity risk. The project uses stochastic optimal control theory, including the dynamic programming principle, maximum principle, optimal stopping theory and convex duality martingale methods, to analyse the individual's decision problem. The aim is to determine analytical and

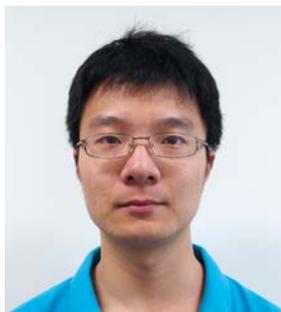
numerical solutions to the problem in both a continuous-time setting and a multi-period discrete-time setting with a focus on the impact of systematic improvements. This project extends over 3 years.

During 2014 the project considered the lifetime asset allocation problem with both idiosyncratic and systematic longevity risks, in which the stochastic mortality model is given by a general diffusion process. A wage earner can invest in a zero-coupon bond, a stock and a longevity bond, consume part of his wealth and purchase life insurance or annuity so as to maximise the expected utility from consumption, terminal wealth and bequest. The problem is solved via the dynamic programming principle and the Hamilton-

Jacobi-Bellman equation. General solutions and special solutions are derived for the general diffusion mortality model and the square-root mortality model, respectively. To illustrate the results, numerical examples based on special solutions are derived. It is shown that idiosyncratic mortality risk has significant impacts on the wage earner's investment, consumption, life insurance purchase and bequest decisions regardless of the length of the decision-making horizon, while systematic mortality risk only has significant impacts on the wage earner's investment in the zero-coupon bond and the longevity bond. Since the model allows systematic mortality risk to be hedged by trading the longevity bond, its impacts on

consumption, purchase of life insurance and bequest are less significant, especially when the decision-making horizon is short. Results are reported in a CEPAR Working paper 'Lifetime Asset Allocation with Idiosyncratic and Systematic Mortality Risks'.

... idiosyncratic mortality risk has significant impacts on the wage earner's investment, consumption, life insurance purchase and bequest decisions regardless of the length of the decision-making horizon, while systematic mortality risk only has significant impacts on the wage earner's investment in the zero-coupon bond and the longevity bond.



DR YANG SHEN

BEd East China Normal University,
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RESEARCH FELLOW

Yang Shen is a CEPAR Research Fellow located in the UNSW Business School. He joined the Centre in September 2013 after submitting his PhD thesis at Macquarie University.

His research interests include Actuarial Science, Financial Mathematics, and Stochastic Control. He has published research articles in journals including *Automatica*, the *European Journal of Operational Research*, *Insurance: Mathematics and Economics*, the *Journal of Futures Markets*, *Nonlinear Analysis: Theory, Methods & Applications*, and the

Scandinavian Actuarial Journal. His current research at CEPAR focuses on optimal retirement decision making with systematic longevity risk.

POST-RETIREMENT INCOME: FINANCIAL AND ACTUARIAL ISSUES

RESEARCHERS

ERMANNO PITACCO
ANNAMARIA OLIVIERI
MICHAEL SHERRIS

Post retirement income has become the focus of current research as well as the wealth management industry. Increasingly products are being developed to manage post retirement risks with a focus on longevity, disability and health. Governments are increasingly expecting individuals to provide for their own retirement income and long-term care needs with the public pension and health support provided as a safety net.

Against this background, this project aims to produce a book that will provide coverage of major issues related to the financial and actuarial aspects of post-retirement income. The book will cover longevity and disability trends, basic models of mortality and heterogeneity, post-retirement income institutions, markets, and products, and a framework for individual financing decisions. It will provide details of various forms of annuity and pensions including long-term care annuities and variable annuities.

It will analyse life-cycle models and decisions around annuitisation of retirement wealth. The book is based on existing institutional and regulatory structures and requirements and incorporates current research perspectives.

...this project aims to produce a book that will provide coverage of major issues related to the financial and actuarial aspects of post-retirement income.



PROFESSOR MICHAEL SHERRIS
BA Macq., MBA Syd., FIA, FIAA, FSA
CHIEF INVESTIGATOR

Michael Sherris is Professor of Actuarial Studies in the UNSW Business School. His research sits at the intersection of actuarial science and financial economics, and has attracted a number of international and Australian awards. He has published in

leading international risk and actuarial studies journals, including *Journal of Risk and Insurance*, *Insurance: Mathematics and Economics*, *Journal of Economic Dynamics and Control* and *Geneva Papers on Risk and Insurance*. He is on the editorial board of the *Annals of Actuarial Science* and served on the editorial board of the *North American Actuarial Journal*.

Prior to becoming an academic he worked in the banking and finance industry for a number of major banks and a life insurance company. He has been an active member of the Australian actuarial profession having served on the Council of the Institute of Actuaries of Australia. He was President (2008-2009) of the Asia Pacific Risk and Insurance Association and a

Board and Executive Member of the Enterprise Risk Management Institute International. He was named Australian Actuary of the Year 2007 in recognition of his contributions to actuarial research and education both internationally and within Australia.

RESEARCHERS

CRAIG BLACKBURN
MICHAEL SHERRIS

This project has considered a range of research issues related to life insurer asset liability management for retirement insurance products. In 2014 this project has considered asset liability management for a life insurer with multiple cohorts and a longevity bond that can hedge only one of the cohorts. The design of longevity bonds has attracted interest in recent years but as yet no successful issue of a longevity bond has taken place. Even if a longevity bond was available then it is likely that it would be based on a specific cohort of lives initially.

This raises the issue of how to manage the risk for a life insurer selling life annuities to multiple cohorts with differing ages.

A framework for asset-liability risk minimisation is developed and used to assess the effectiveness of longevity bonds when the market for these bonds is incomplete. The framework includes interest rate risk as well as mortality risk. Dependence between cohorts is included in the analysis.

A framework for asset-liability risk minimisation is developed and used to assess the effectiveness of longevity bonds when the market for these bonds is incomplete.



DR CRAIG BLACKBURN

PhD UNSW, MAct St UNSW, BSc (Hons) LSE, MEng(R) JCU, BEng (Hons) QUT

RESEARCH FELLOW

Craig Blackburn is a CEPAR Research Fellow located in the UNSW Business School. Craig joined CEPAR full-time in May 2013 after completing a PhD in Actuarial Studies at

UNSW. While studying for his PhD, Craig received scholarships from the UNSW Business School and CEPAR.

His research interests focus on longevity modelling, pricing, and risk management, including the effects of Solvency II on an insurer's firm value. Craig has published articles in *Insurance: Mathematics and Economics*.

His current research projects involve multiple cohort population modelling and hedging, and risk minimisation of longevity risk in an incomplete market.

RESEARCHERS

CRAIG BLACKBURN
ANNAMARIA OLIVIERI
ERMANNANO PITACCO
MICHAEL SHERRIS
MAN CHUNG FUNG

External Collaborator

KATJA IGNATIEVA (UNSW)

Two projects, one focused on the design of longevity-linked life annuities and the other on managing mortality risk in life annuities using longevity derivatives have been advanced in 2014.

ON THE DESIGN OF LONGEVITY LINKED LIFE ANNUITIES

New solutions to the management of systematic longevity risk are being developed to address the limitations of life annuities. Amongst these are products that link payments to longevity in one form or

another. These products require much less capital to the fully guaranteed life annuities and have the potential to be more cost effective. There has been limited analysis of alternative designs and of the costs and benefits of these products.

This project, involving Blackburn, Olivieri, Pitacco and Sherris, uses a stochastic mortality model with systematic improvement and cohort trends to assess the different designs of longevity linked annuities. By considering the average payments and the variability in payments that an individual experiences, these designs can be compared. The variability in future payments also determines the cost of

any guarantees that may be included in these products. A fully guaranteed life annuity has no variability and has the maximum capital cost. This can be calibrated to cost of longevity swaps offered by reinsurers.

The annuity product with the lowest guarantee is the group self annuitisation structure which shares longevity risk within the pool. There are a number of different ways of sharing the longevity risk within the pool.

MANAGING MORTALITY RISK IN LIFE ANNUITIES: AN APPLICATION OF LONGEVITY DERIVATIVES

Developing a liquid market to trade longevity risk requires reliable and well-designed financial contracts. Many derivative

contracts based on survival probabilities have been proposed including forward contracts, swaps and options. In this project Sherris, Fung and Ignatieva analyse an index-based longevity swap and an option based cap contract using a stochastic mortality model for a single cohort calibrated using Australian mortality data. The model allows derivation of analytical formulas for prices of longevity derivatives.

The hedge effectiveness of the contracts is examined for a hypothetical life annuity portfolio subject to longevity risk. Sensitivity of the hedging results using the longevity swap and cap is assessed using different assumptions for the underlying market price of

longevity risk, the term to maturity of the hedging instruments, and the size of the underlying annuity portfolio. The results provide a comparison of the optimal use of longevity hedging instruments with linear and nonlinear payoff structures under different scenarios.

The results provide a comparison of the optimal use of longevity hedging instruments with linear and nonlinear payoff structures under different scenarios.



PROFESSOR ANNAMARIA OLIVIERI

Degree in Business Economics, University of Parma, Degree in Actuarial Science and Statistics, University of Florence, PhD University of Brescia

ASSOCIATE INVESTIGATOR

Annamaria Olivieri is Professor of Mathematical Methods for Economics, Actuarial Science and Finance in the Department of Economics at the University of Parma.

Her areas of research include life and health insurance modelling and risk management. She is an actuary and full member of the *Istituto Italiano degli Attuari* (Italy) and Associate Editor of the *European Actuarial Journal*. In 2011 she was awarded the Bob Alting von Geusau Memorial Prize, together with Ermanno Pitacco, for the best paper published in the *ASTIN Bulletin*

on an AFIR related topic. She has presented in continuous professional development courses and master programmes (in Italy and abroad) for both actuaries and non-actuaries, in the field of actuarial mathematics and risk management techniques. She is an author and co-author of many research articles and the recent textbooks *Introduction to Insurance Mathematics*:

Technical and Financial Features of Risk Transfers (2011) with Ermanno Pitacco and *Modelling Longevity Dynamics for Pensions and Annuity Business* (2009) with Pitacco, Denuit and Haberman.

MODELS FOR DEPENDENCE IN MORTALITY WITH FINANCIAL APPLICATIONS

RESEARCHERS

DANIEL H. ALAI
MICHAEL SHERRIS

External Collaborators

KATJA IGNATIEVA (UNSW)
ZINOVIY LANDSMAN (HAIFA)

Dependence in mortality modelling is assessed using a forward mortality model in research with Daniel Alai, Katja Ignatieva and Michael Sherris. Forward mortality rates are based on cohorts. The model captures patterns of dependency using gamma and generalised Tweedie distributions for mortality rates that differ by age. Dependence between ages is modelled with a multivariate copula. Dependence is found to increase with age and has a covariance structure that is approximated with a function based on the

minimum age for any pair of ages. This allows a parsimonious structure for the dependence between ages to be included in the model. A working paper reporting this research titled 'A Multivariate Forward-Rate Mortality Framework' has been completed.

In another approach to dependence modelling, lifetimes are modelled using a truncated multivariate gamma distribution that induces dependence through a shared gamma distributed component or common factor. This research, with Daniel Alai, Zinovy Landsman and Michael Sherris, has developed parameter estimation methodology based on the method of moments.

The model is applied to assess life annuity valuation for portfolios. Dependence is shown to have a significant impact. Research in 2014 has further developed the estimation methodology for the models.

The model is applied to assess life annuity valuation for portfolios.



DR DANIEL H. ALAI
BMath Waterloo, PhD ETH Zurich
ASSOCIATE INVESTIGATOR

Daniel Alai is a Lecturer in the Centre for Actuarial Science, Risk and Investment at the University of Kent.

Prior to his appointment at Kent in early 2014, Daniel was a Senior Research Associate in the Australian Institute for Population Ageing Research at the UNSW Business School.

Daniel joined UNSW in June 2010 following his graduation from the Department of Mathematics at ETH Zurich. He has also worked for insurance companies such as Sun Life (Waterloo) and Manulife (Waterloo), as well as for consulting companies KPMG (Toronto) and Tillinghast-Towers Perrin (New York City).

He has expertise in actuarial risk management and loss modelling, development and assessment of models for longevity risk and application to product developments, risk management and regulatory requirements.

RESEARCHERS

MICHAEL SHERRIS
 CRAIG BLACKBURN
 QIMING ZHOU

MODELLING HEALTH STATUS AND MORTALITY WITH PHASE-TYPE MARKOV-AGEING MODELS

In this project Sherris and Zhou have developed and calibrated models that include both systematic risk and heterogeneity, using both population mortality and health condition data. An analysis of the impact of heterogeneity on solvency and tail risk for longevity risk products appears as a recent book chapter:

Sherris, M. and Q. Zhou (2014). 'Model Risk, Mortality Heterogeneity, and Implications for Solvency and Tail Risk,' in P. B. Hammond, R. Maurer, and O. S. Mitchell, eds., *Recreating Sustainable Retirement: Resilience, Solvency, and Tail Risk*. Oxford, U.K.: Oxford University Press, pp. 113–133.

During 2014 the model has been further developed to consider the estimated trends in mortality rates by health states and the changing distributions of health states by cohort. Although mortality rates have shown improvements over recent decades for the major health states in the model, there have been major changes in the prevalence of different health states reflecting reduced exposures to a range of diseases. The model is being used to assess the returns to life annuities over different holding periods and over the time period until death allowing for future health states. Mortality credits that have been assumed to enhance the attractiveness of life annuities are no longer guaranteed with uncertain future health states and mortality rates, thus requiring a re-evaluation of the benefits of life annuities. The model developments were presented at the 18th International Congress on Insurance: Mathematics and Economics, July 10–12, 2014, Shanghai, China.

MODELLING MULTIPLE POPULATION MORTALITY AND IMPLICATIONS FOR INSURER RISK MANAGEMENT

Recently, increased attention has been given to modelling the mortality of multiple populations. These models have many applications including the design of contracts to hedge the mortality of one population against another and to gain a better understanding of the relationships between different country mortality improvements. In this project Sherris and Blackburn develop a general framework for jointly modelling and estimating the cohort mortality rates of two similar populations using a forward model based on the Heath-Jarrow-Morton (HJM) interest rate framework. The model assumes a deterministic volatility function and a finite dimensional realisation (FDR) of the HJM model. This framework is new to mortality modelling and provides greater flexibility to designing suitable multi-population models. The framework includes common factors and dependence between population specific

factors. Hedging and the management of longevity risk are based on the best estimate cohort survivor curve. The model is estimated with a standard Kalman filter.

The framework is applied to assess the static hedging performance of a portfolio of Australian male annuitants with a survivor swap. The survivor swap is based on a population index; with the index being either the same population as the annuitants, or another similar population, in this case Swedish males, of the same age. Hedge efficiency of the survivor swap and the 1-year 99.5% Value-at-Risk solvency capital requirement is compared for varying portfolio sizes. The annuity portfolio is subject to idiosyncratic longevity risk as well as basis risk.

This framework is new to mortality modelling and provides greater flexibility to designing suitable multi-population models.

A VALUE BASED LONGEVITY INDEX WITH APPLICATIONS TO LONGEVITY RISK MANAGEMENT

RESEARCHERS

MICHAEL SHERRIS
YANG CHANG

Longevity risk is a risk that has the potential to be transferred to financial market participants rather than being held on the balance sheets of reinsurers, insurers and pension funds. Financial markets contracts are based on indices so that an index that captures the risks involved is required. Current indices for longevity take the form of projected survival probabilities or numbers of survivors in a cohort. Because of the typical maturity of coupon and annuity bonds in financial markets, indices that reflect the longer term nature of longevity risk should be considered.

This project develops a new cohort-based value index that is designed to allow insurers to better assess and manage longevity risk. Existing longevity indices are based on population mortality experience only. The value index is based on the present value of future cash flow obligations and allows for the number of future survivors in a cohort and the value of an underlying annuity obligation. The value index captures both longevity risk and interest rate risk. Existing financial markets are sophisticated and allow the interest rate risk to be efficiently managed.

Underlying the value index is a cohort-based stochastic mortality model that is calibrated to Australian cohort data to capture cohort based trends as well as correlations across cohorts in a parsimonious way. The model uses age-dependent parameters for trend and volatility of cohort mortality. We show how the mortality model gives realistic cohort correlation structures and improves fitting performance, particularly for very old ages, compared to other models. The performance of the index is illustrated by assessing the hedge for an annuity.

This project develops a new cohort-based value index that is designed to allow insurers to better assess and manage longevity risk.



DR YANG CHANG
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RESEARCH FELLOW

Yang Chang joined the UNSW CEPAR node in February 2014 as a Research Fellow. He completed his PhD in Quantitative Finance at UTS in March 2014.

Yang's PhD thesis focused on the anomalies in the fixed income and foreign exchange market after the Global Financial Crisis and proposed a consistent approach to modelling such anomalies. His research interests include financial modelling and risk management of longevity risk.

VALUE HEDGING OF ANNUITIES WITH AN UNCERTAIN MARKET PRICE OF LONGEVITY RISK

RESEARCHER

RALPH STEVENS

This project aims to provide insights into the effectiveness of hedging of systematic longevity risk using capital market solutions. Annuity providers and life insurers face systematic longevity risk, i.e. the risk arising from uncertain future mortality probabilities. Annuity providers and life insurers have to hold capital reserves for systematic longevity risk, which is costly. Therefore, capital market transfers of systematic longevity risk could benefit annuity providers and life insurers by reducing their required capital reserves.

To date there haven't been any capital market transfers of systematic longevity risk, although there have been attempts to do this using products which aim to provide a cash flow hedge. An example is the EIB/BNP longevity bond. However, these attempts have not been successful. Whereas cash flow hedging aims to provide products which replicate the cash flow of annuity providers, value hedging aims to provide products whose value changes in line with the liabilities of the annuity provider. The advantage of value hedging is that products will have a shorter duration and therefore are more attractive to capital market participants, resulting in lower costs.

The literature consists of methods for modelling systematic longevity risk and proposed methods to mitigate it. A capital market solution to transfer systematic longevity risk is a value hedge contract, such as the proposed q -forwards. Those contracts have the benefits of standardisation and commoditisation. This enhances the potential to appeal to a larger investor base, thus increasing liquidity and lowering the risk premium. However, given that there is not yet a mature and liquid market for systematic longevity risk there is no accurate measure for the price of systematic longevity risk. Therefore, while the market is not mature and liquid, it is likely that there is a time

variation in the implied market price of systematic longevity risk inferred from the value hedge contracts.

We use the Cairns-Blake-Dowd model for the distribution of mortality probabilities and a Bayesian model for the uncertainty in the evolution of the market price of systematic longevity risk. We use this model to determine the optimal hedging portfolio. Moreover, we evaluate the hedge effectiveness of this portfolio. The optimal hedging portfolio and its hedge effectiveness are compared to the case in which the market price of systematic longevity risk is a known time-invariant constant.

The results indicate that while value hedging can be effective when assuming a constant market price of systematic longevity risk, allowing the market price to fluctuate over time substantially decreases the hedge effectiveness of value hedging strategies.

The results of this research were presented at the 22nd Annual Colloquium of Superannuation Researchers in July 2014.



DR RALPH STEVENS

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SENIOR RESEARCH FELLOW

Ralph Stevens joined the UNSW CEPAR node in July 2012 as a Senior Research Fellow. Previously he held the position of Lecturer in the School of Risk and Actuarial Studies at the University of New South Wales. He holds a PhD degree from CentER,

Tilburg University, where his research was focused on the Network for Studies on Pensions, Aging and Retirement (Netspar) theme: Living Longer in Good Health. He is also a Netspar Fellow.

His current research focuses on the effects of systematic longevity risk on annuities. This includes managing and measuring systematic longevity risk in a portfolio

of life insurance and pension products and calculating the capital reserves for systematic longevity risk. He is also interested in retirement choices. This incorporates optimal decision making in life-cycle models as well as describing, understanding and improving choices related to the individual retirement decision.

RISK MANAGEMENT AND PAYOUT DESIGN OF REVERSE MORTGAGES

RESEARCHERS

KATJA HANEWALD
MICHAEL SHERRIS

External Collaborator
DANIEL CHO (SWISS RE)

This project analyses the risk and profitability of reverse mortgages from the lender's perspective for both lump-sum and income stream payments. In order to model the risks involved, a multi-period cash flow model is developed and calibrated. Reverse mortgage cash flows and loan balances are modelled in the multi-period stochastic framework that allows for house price risk, interest rate risk and risk of delayed loan termination. A Vector Auto-regressive (VAR) model is used to simulate economic scenarios and to derive stochastic discount

factors for pricing the no negative equity guarantee embedded in reverse mortgage contracts.

The results demonstrate how lump-sum reverse mortgages have potentially higher expected returns and require less risk-based capital than income stream reverse mortgages, which is a factor that may explain why this product design dominates in many markets. The loan-to-value ratio, the borrower's age, mortality improvements and the lender's financing structure are shown to be important drivers of the profitability and riskiness of reverse mortgages, but changes in these parameters do not change the main conclusions.

A paper based on the research has been submitted for publication and is under review.

The results demonstrate how lump-sum reverse mortgages have potentially higher expected returns and require less risk-based capital than income stream reverse mortgages, which is a factor that may explain why this product design dominates in many markets.



DR KATJA HANEWALD
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Katja Hanewald was a Senior Research Associate in the Australian Institute for Population Ageing Research at the UNSW Business School from January 2011 to July 2013. She now lives in Berlin and works as an Executive

Officer in the German Federal Ministry of Finance.

Her research interests include optimal risk management decisions of households and firms facing longevity risk and financial risk; pricing and risk management of equity release products; and solvency capital requirements for banks, insurers and pension funds.

'I am always interested in a number of research topics beyond the projects I am currently working on. CEPAR provides the perfect setting for me to develop my projects and deepen my interest in other economic, demographic and actuarial areas.'

HOME EQUITY RELEASE PRODUCTS ALLOWING FOR IDIOSYNCRATIC HOUSE PRICE RISK

RESEARCHERS

ADAM WENQIANG SHAO
MICHAEL SHERRIS
KATJA HANEWALD

Home equity is a significant component of individual wealth of Australians as they reach retirement. Recently there has been increased attention given to the possibility of using home equity to finance health and other costs in retirement. Reverse mortgages provide an alternative source of funding for retirement income and health care costs. The two main risks that reverse mortgage providers face are house price risk and longevity risk.

This project provides an analysis of the combined impact of house price risk and longevity risk on the pricing and risks of reverse mortgage loans in a stochastic multi-period model. The model incorporates a new hybrid hedonic-repeat-sales pricing model for houses allowing for individual characteristics, as well as a stochastic mortality model for mortality improvements along the cohort direction (the Wills-Sherris model). We show that pricing based on an aggregate house price index does not accurately assess the risks underwritten by reverse mortgage lenders, and that failing to take into account cohort trends in mortality improvements substantially underestimates the longevity risk involved in reverse mortgage loans.

A paper based on the research has been submitted for publication and is under review.

We show that pricing based on an aggregate house price index does not accurately assess the risks underwritten by reverse mortgage lenders, and that failing to take into account cohort trends in mortality improvements substantially underestimates the longevity risk involved in reverse mortgage loans.



DR ADAM WENQIANG SHAO

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Adam Wenqiang Shao joined the UNSW CEPAR node in July 2014 as a Research Fellow. He holds a PhD from the School of Risk and Actuarial Studies, UNSW.

Adam's research interests include idiosyncratic house price modelling, longevity risk, solvency capital requirements, and pricing and risk analysis of post retirement financing products such as equity release products and long-term care insurance. More recently, Adam has been investigating the dynamics of population health and their impact on the

demand for post-retirement financing products under a life-cycle model framework.

PENSION REFORM AND LABOUR SUPPLY – FLEXIBILITY VS PRESCRIPTION

RESEARCHERS

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SIMEN MARKUSSEN
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External Collaborator

KNUT RØED
(FRISCH CENTRE)

Two broad objectives in pension reform are to increase mature labour force participation, and to reduce the fiscal cost of pension outlays. Increasing access age is one response which achieves these objectives, but very inflexibly, given the heterogeneity of mature populations. An alternative reform approach is to remove the disincentives to continue working beyond the pension access age by abolishing earnings tests and graduating payouts so that benefit deferral is appropriately rewarded,

thus allowing individual workers the flexibility to decide independently both the retirement age and the age at which to claim benefit payments.

Policymakers need to have information on the expected labour supply responses to these different measures to assess their relative efficacy. This project studies in detail the comprehensive 2011 Norwegian pension reform, using longitudinal administrative data, to examine the labour supply responses to alternative reform paths. The reform had widely different implications for different workers, and therefore presents a surprisingly complete quasi-natural experimental set-up for our investigations.

Our analysis is based on two complementary empirical strategies. The first approach compares earnings and employment patterns before and after reform implementation for groups who were affected by it in different ways and directions. The second approach exploits the fact that individuals who primarily were subject to improvements in work incentives were affected to varying degrees depending on their (predetermined) earnings levels and past earnings histories. We compute the (hypothetical) work incentives that individuals would have had under both the pre-reform and the post-reform pension regimes, and examine the relationship between employment/earnings and

the two sets of work incentives for the affected and the unaffected cohorts.

Our findings thus far show that the flexibility approach has the potential for raising labour supply considerably. For example, the repeal of the early retirement earnings test in the private sector (leaving the access age of 62 years unchanged) increased annual average earnings at age 63 (conditional on employment at age 60) in the first affected cohort by around \$14,700 (NOK 90,000 measured in 2013 value), corresponding to approximately 25 % of average pre-reform earnings. Most of the labour supply response arose at the extensive margin, however, primarily by raising the probability of staying on

in the labour market with roughly the same annual earnings level as before rather than pulling out of the labour market.

The labour supply responses attributed to the removal of all earnings tests were of similar magnitude as those we estimate for workers who were also subject to increased access age.

We also find that persons who as a result of the reform were subject to a lower access age to an actuarially fair early retirement pension (i.e., improved liquidity only) responded by reducing labour supply slightly at the intensive margin, while maintaining the level of employment unchanged.



SCIENTIA PROFESSOR JOHN PIGGOTT

BA Syd., MSc PhD Lond., FASSA
CENTRE DIRECTOR

John Piggott is Scientia Professor of Economics and ARC Australian Professorial Fellow in the UNSW Business School.

He has a long standing interest in retirement and pension economics and finance, and in public finance.

His publications include more than 100 journal articles and chapters in books, which have appeared in the leading international academic journals as well as in highly cited conference volumes. In addition, he has co-authored two books, both published by Cambridge University Press.

His policy experience includes membership of both the Henry Tax Review Panel (2008-2009) and the Australian Ministerial

Superannuation Advisory Committee (2007-2011). For nearly a decade, from 1999, he worked with the Japanese Government (Cabinet Level) on pension and population ageing issues, and in 2004 was tasked with evaluating World Bank assistance on pension reform in the Asian region for the Bank's Operations Evaluation Department. In 2007 he was appointed Visiting Professor, Zhejiang University, China,

and from 2008-2010 was Visiting Scholar with the Department of Insurance and Risk Management, Wharton School of Business, University of Pennsylvania.

John serves as book review editor of the *Journal of Pension Economics and Finance* and is an Associate Editor of the new Elsevier journal, *The Journal of the Economics of Ageing*.

Results from the project thus far suggest that well-designed incentives may generate responses similar in magnitude to those associated with prescription. If confirmed, this finding will have major implications for pension policy reform throughout the developed world.

Our paper adds to the existing literature in several ways. First, we have access to data based upon an extraordinarily radical and swift reform process, whereby incentives and access ages changed dramatically for some – but not all – workers virtually overnight and in a highly transparent fashion, with limited scope for pre-reform strategic behaviour. Second, we build our causal analysis on two different sources of identification, thereby

facilitating an assessment of robustness and reliability. And third, by exploiting different aspects of the reform, we can directly compare the responses to two alternative reform-strategies, based on raising the earliest access age (prescription) and on improving work incentives by eliminating earnings tests (flexibility), respectively.

Results from the project thus far suggest that well-designed incentives may generate responses similar in magnitude to those associated with prescription. If confirmed, this finding will have major implications for pension policy reform throughout the developed world.



ERIK HERNÆS
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Erik Hernæs is a Senior Research Fellow at the Ragnar Frisch Centre for Economic Research at the University of Oslo, one of Norway's leading economics research centres.

Erik's primary research interests are related to pension economics and he

is currently leading a project on evaluating the labour market effects of Norwegian pension reform.

After working at Statistics Norway, he became the inaugural Director of the Frisch Centre in 1999. He was one of the first researchers to organise administrative register data and use these for econometric analysis. This is now a major research focus of the Frisch Centre.

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* and in volumes published by the NBER, Kluwer, Edward Elgar and Routledge.

ASSESSING PENSION TAX REGIMES: AN AUSTRALIAN PERSPECTIVE

RESEARCHERS

HAZEL BATEMAN
GEORGE KUDRNA

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

approach – TTT – where pensions are taxed at all three points.

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

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

to the Australian economy, to numerically evaluate the impacts on equity and efficiency, as well as to draw out main macroeconomic implications.

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

This research was presented at the CEPAR-CESifo Workshop on Pension Taxation, Population Ageing and Globalisation, Sydney, November 2014. It is anticipated that the paper will be submitted for publication in early 2015.

Our model-based simulation results indicate that the AFTS proposed reform to superannuation taxation would improve vertical equity and reduce income inequality upon impact, as well as in the long term.



DR GEORGE KUDRNA

MA Econ TUL Czech Republic, PhD Econ Syd.

RESEARCH FELLOW

George Kudrna is a CEPAR Research Fellow, located in the UNSW Business School. He joined the Centre in July 2011 after working as a Postdoctoral Fellow for the UNSW School of Economics. He completed his undergraduate studies in

economics and insurance management in the Czech Republic, and received a PhD in Economics from the University of Sydney in 2009.

His research interests include pension economics, economic modelling, computational economics and population ageing. He has written articles published in the *Journal of Macroeconomics* and the *Economic Record*. George is currently involved in research

projects on taxation of private pensions, means testing of public pensions, and economic implications of population ageing and pension reforms in Australia.

'Since joining CEPAR I have benefited tremendously from the comments and suggestions of Chief Investigators and exchange of ideas with other research fellows at the Centre. Participation at CEPAR

conferences and workshops involving policymakers and industry professionals has broadened my understanding of the issues related to population ageing.'

AREA OF RESEARCH FOCUS

4

AGEING WELL AND PRODUCTIVELY

A whole of life approach to ageing naturally suggests that healthier lifestyles will lead to more productive ageing, whether in the formal labour market or in the family context. The core research question here is how public education and policy initiatives can encourage behavioural change to support ageing well and productively.

Research examines ways in which health and psycho-social factors influence productive contributions as well as independence, wellbeing, and use of health and community services. It focuses especially on those aspects of decision making and life choices that are important for a longer and more productive life, an important issue in the context of demographic change because as baby boomers age, the potential productivity of this cohort will depend on how well they age.

TO VIEW PUBLICATIONS
AND WORKING PAPERS RELATING
TO THIS RESEARCH VISIT CEPAR.EDU.AU

RESEARCH PROJECTS

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Some research projects documented under this Area of Research Focus examine both the social and health contexts within which older people currently live: they focus on mortality predictors, chronic disease, the tension between work and care, and active ageing and its benefits. Other projects take a much longer perspective, using life history, socioeconomic status, and other data to draw inferences about the relationship between early trauma, lifestyle and health at later ages. Among notable advances in 2014 are projects focused on:

- **LONGITUDINAL PREDICTORS OF MORTALITY**

Analyses of two separate surveys identify risk factors for mortality among older cohorts in Australia. Both the MELSHA-based study by CI Hal Kendig, AI Collette Browning et al., and the analysis of CHAMP data (which focuses on older men) involving CI Bob Cumming and CEPAR Research Fellow Vasant Hirani, identify a range of risk factors, and while these are not identical, the overlap is considerable. Notable among the overlaps are being underweight and current smoking. Physical activity was strongly identified as protective, and being overweight was associated with reduced risk of dying. Interestingly, the CHAMP study, which had access to blood samples, found that neither high cholesterol nor diabetes were mortality risk factors, perhaps because they were identified and controlled. Generally, the CHAMP study, which undertook an eight year follow-up during 2014,

finds that most Australian men are in good health well into their 80s.

- **BABY BOOM LIFE COURSE EXPERIENCE AND HEALTHY AGEING**

This long-term project, a collaboration led by CI Hal Kendig and PI James Nazroo, examines how the life experiences of the baby boom cohort (born 1946-1950) influence health, productivity, wellbeing, and pension and service use at ages 60 to 64 years. CEPAR researchers have papers under review on life span determinants of wellbeing in Australia, cohort differences in work and family trajectories in England, and trajectories of frailty. International comparative findings on life course influences on inequalities in later life in relation to Australia, England, and Germany were presented to the International Sociology Association's World Congress of Sociology in Yokohama. Papers are in progress on the

influence of childhood opportunity and disadvantage, the influence of occupational health and exposures, and the experiences of migrants in comparison to the Australian-born. The Australian and English comparisons in progress examine the influence of different societal and policy developments over the post war period.

- **PHYSICAL ACTIVITY AND COGNITIVE AGEING**

CI Kaarin Anstey and AI Loretta Dobrescu led two studies investigating the relationship between physical activity and cognitive ageing. Using Australian data from the PATH Through Life Study, and European data from the Survey of Health, Ageing and Retirement in Europe (SHARE), both studies found a strong association between physical activity and reduced risk of age-associated cognitive decline and dementia.

RESEARCHERS

COLETTE BROWNING
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LONGITUDINAL PREDICTORS

This project analyses longitudinal data from the Melbourne Longitudinal Studies on Healthy Ageing program (MELSHA), an ongoing longitudinal study of the health of older people living in the community. It examines the predictors and consequences of ageing well as key factors that can be addressed in healthy ageing interventions and services and addresses issues related to measuring wellbeing.

During 2014 CEPAR drew on data collected in earlier years and contributed time from the CEPAR-funded Research Fellow Richard Burns and Research Officer Nina Lucas to produce the following publications:

- 1 Kendig, H., Browning, C.J., Thomas, S.A. and Wells, Y. (2014). Health, Lifestyle and Gender Influences on Ageing Well: An Australian Longitudinal Analysis to Guide Health Promotion. *Frontiers in Public Health*, 2(70).

The purpose of this study was to examine lifestyle influences on ageing well using survival analysis techniques applied to the MELSHA database. For men, risk factors were low strain, lower levels of social activity, perceived inadequacy of social activity, low perceived social support and being a current smoker. For women, urinary incontinence, being underweight and low levels of physical activity were risk factors. The findings indicate that healthy

lifestyles can assist ageing well, and suggest the value of taking gender into account in health promotion strategies.

- 2 Burns, R.A. and Browning, C. (in press). Wellbeing and its Improvability as National Goals. In Kendig, H., McDonald, P. and Piggott, J. (Eds) *Population Ageing and Australia's Future*. ANU Press for the Academy of Social Sciences in Australia: Canberra. (publication due mid 2015)

Wellbeing is frequently used to measure the impact of social and economic policy. Traditionally defined in terms of economic growth and wealth accumulation, more recent wellbeing definitions have incorporated other objective and measurable

social factors including, but not limited to, health care provision, education access, housing affordability and equality. For others, questions of wellbeing relate specifically to the burden of disease and disability in a population. Behavioural scientists may define wellbeing in terms of psychological functioning and feeling, perhaps defined in terms of level of cognitive function, affect, and motivation. This book chapter emphasises the importance of measuring wellbeing beyond economic and social indicators, and to consider the impact of policy on individuals' experiences. We highlight the limitations of individual wellbeing measures that have been implemented to date which have typically focussed on clinically-relevant



PROFESSOR COLETTE BROWNING

BSc (Hons) MSc Monash, PhD La Trobe

ASSOCIATE INVESTIGATOR

Colette Browning is Professor of Healthy Ageing and Director of the Monash Research for an Ageing Society and Director of Primary Care Research in the School of Primary Health Care, Monash University.

She is recognised as a national and international leader in psychology and health. Professor Browning is a Fellow of the Australian Psychological Society. Together with Hal Kendig, she co-directs the Melbourne Longitudinal Studies on Healthy Ageing program. Previously she convened the Healthy Ageing theme of the ARC/NHMRC Research Network in Ageing Well.

Her research focuses on healthy ageing and improving quality of life for older people, chronic disease self-management and consumer involvement in health care decision making. She leads a large program of research in China on chronic illness management supported by the China Ministry of Health. She is an Honorary Professor at Peking University and is Co-Director of the Peking

University Centre for Ageing and Health Services. She is a member of the China Family Panel Study Advisory Committee and a Member of the Ministerial Advisory Committee for Senior Victorians.

dimensions of mental health or individuals' generalised evaluations of their life satisfaction and satisfaction with different life domains (e.g., work, relationships etc.), ignoring other important psychological indicators of functioning and feeling.

Further MELSHA analyses are underway to inform implementation of aged care policy reforms and to further explore predictors of ageing well. The team are also working with a number of international colleagues in the area of cross-national comparisons of wellbeing.

INTERVENTIONS FOR COMMUNITY RESIDING OLDER PEOPLE

This research supports ageing in place by promoting positive health trajectories. It recognises the importance of physical and meaningful activity, coping skills, self-management and social connectedness for at-risk older people to maintain participation and safety. Examples include a project titled *Potential benefits of assistive technology to care providers and recipients*, which draws on the collaborative work of Als Clemson and O'Loughlin and the findings of a UK project (Yeandle et al) to examine the use of telehealth/telecare to support effective networks of care.

TRANSLATING EVIDENCE INTO PRACTICE AND EXPANDING POPULATION REACH

This research supports implementation and sustainability of new knowledge into aged care and public health practice and policies. This includes *LIFE*, the Lifestyle Functional approach to Exercise, to reduce falls in older people; and the *iSOLVE* project (Integrated SOLutions for sustainable falls preVENTion) which aims to establish integrated processes and pathways at the levels of practitioner, GP practice, and program to identify older people at risk of falls and engage a whole of primary care approach to fall prevention.



PROFESSOR LINDY CLEMSON

Dip (OT) NSW College of Occupational Therapy, B App Sc (OT) WAIT, MAppSc (OT) PhD Syd.
ASSOCIATE INVESTIGATOR

Lindy Clemson is a Professor in Ageing and Occupational Therapy. She is the Joint Head of the Ageing, Work & Health Research Unit at the University of Sydney and an NHMRC Career Development Research Fellow.

Lindy has more than 100 peer-reviewed publications, with over half on falls prevention, and has produced several practical manuals providing frameworks for practice. She developed the first assessment procedure for identifying fall hazards in the home. This Westmead Home Safety assessment, currently considered a gold standard, is used by numerous universities and

clinical settings nationally and internationally.

Lindy served on the Board of Directors of the Independent Living Centre for ten years up to 2008, has served on the NSW Policy Development Working Party (Falls) and as a NHMRC Grant Review Panel member in 2005 and 2007. She currently serves on the executive of the Australian and New Zealand Falls

Prevention Society and as an invited member of the World Federation of Occupational Therapists International Advisory Group on Accessibility and Participation. She is on the editorial board of the *Journal of Aging and Health* and the *Australian Occupational Therapy Journal*.

RESEARCHERS

ROBERT CUMMING
HAL KENDIG
VASANT HIRANI
ROSILENE WAERN

External Collaborators

FIONA BLYTH
DAVID HANDELSMAN
DAVID LE COUTEUR
VASI NAGANATHAN
MARKUS SEIBEL
STEPHEN SIMPSON
LOUISE WAITE
CLIVE WRIGHT
(ALL UNIVERSITY OF SYDNEY)
THOMAS TRAVISON
(BOSTON UNIVERSITY)

The Concord Health and Ageing in Men Project (CHAMP) is designed to fill the gap in knowledge about the health of older men. Between 2005 and 2007, men aged 70 years and over living in the community around Concord Hospital in Sydney were invited to participate in CHAMP. A total of 1705 men were recruited. Two-year and five-year follow-up assessments have been completed, with 1367 men after two years and 955 men after five years. An eight-year follow-up commenced in August 2014.

Detailed diet histories were collected from 804 men at the five-year assessment. The dietary data will form the basis of Rosilene Waern's PhD thesis, in which she is investigating how the relative proportions of

protein, carbohydrate and fat in the diet are related to health in older men. This work could lead to fundamental changes in dietary recommendations for older people. As a first step, Rosilene conducted a small study to validate the dietary collection method used in CHAMP. The paper reporting on the validation study has been accepted for publication (Waern, R. et al. *Journal of Nutrition, Health and Aging* (in press)). Rosilene is on a CEPAR PhD scholarship.

The eight-year follow-up has a focus on oral health. The mouths of older Australians now are very different to those of previous generations. In the past, older people tended to be edentulous (complete tooth loss). The prevalence of

edentulism in Australia among men aged 65 years and over fell from 60% in 1979 to 17% in 2010. CHAMP will report on prevalence of tooth and gum disease and the use of oral health services, as well as investigating relationships between oral health and general health and between oral health and nutrition. Professor Clive Wright has joined the CHAMP team for the oral health study. Clive was formerly Chief Dental Officer in the NSW Ministry of Health and is a respected authority on oral health in older people.

CHAMP is now a mature study that is producing important findings. An overall conclusion from work done to date is that older Australian men are generally in good health until they are

well into their 80s. Most older men rate their own health as good or excellent and most never develop any of the so-called geriatric syndromes (dementia, incontinence, multiple falls, serious mobility restriction). During seven years of follow-up, only 11% of men in CHAMP have been admitted to a nursing home.

Forty eight CHAMP papers have been published or are in press. Papers in 2014 covered a wide range of topics, including metabolic syndrome, chronic pain, fall and fracture risk, prostate specific antigen, knee pain, vitamin D and reproductive hormones.



PROFESSOR ROBERT CUMMING
MBBS UNSW, MPH PhD Syd.
CHIEF INVESTIGATOR AND
UNIVERSITY OF SYDNEY NODE
LEADER

Robert Cumming is Professor of Epidemiology and Geriatric Medicine at the University of Sydney. He shares his time between the School of Public Health at the University of Sydney and the Centre for Education and Research on

Ageing (CERA) at Concord Hospital.

He has an international reputation for his research on osteoporosis, falls and fractures. His research on falls prevention in older people has had major impact on policy and practice in this important field. Much of his research brings together biological, psychosocial and medical aspects of ageing. In

recent years he has extended his work to the study of ageing and health in developing countries in Asia and sub-Saharan Africa.

He is currently the Chair of the National Dementia Guidelines Committee for the NHMRC Cognitive Decline Partnership Centre. He is a member of the Australian Institute of Health and Welfare's National Arthritis and Musculoskeletal

Conditions Monitoring Advisory Group and serves on the editorial board of *Osteoporosis International*. He is a Life Member of the Australasian Epidemiological Association.

Of particular interest is a paper by CEPAR Research Fellow Vasant Hirani who used CHAMP data to develop a model of predictors of mortality over seven years of follow-up. The final model included being underweight, high white cell count, anaemia, low albumin, cigarette smoking, history of cancer, myocardial infarction or congestive heart failure, depressive symptoms and physical disability. Being overweight or obese and/or being a lifelong non-drinker of alcohol were associated with reduced risk of dying during the study period.

Surprisingly, high blood pressure, high cholesterol and diabetes were not associated with higher risk of dying, perhaps because these conditions were all being controlled by appropriate interventions. (Hirani, V. et al. (2014) Multiple, but not Traditional Risk Factors, Predict Mortality in Older People: The Concord Health and Ageing in Men Project. *Age*, 36(6).)

CHAMP is supported by the NHMRC, CEPAR, the Sydney Medical School Foundation and the Ageing and Alzheimer's Institute.

Surprisingly, high blood pressure, high cholesterol and diabetes were not associated with higher risk of dying, perhaps because these conditions were all being controlled by appropriate interventions.



DR VASANT HIRANI

BSc Leeds, MSc London School of Hygiene and Tropical Medicine, Diploma in Dietetics London Metropolitan University, PhD University College London
RESEARCH FELLOW

Vasant Hirani is a CEPAR Research Fellow at the University of Sydney working at the Centre for Education and Research on Ageing. Her PhD investigated associations between vitamin D levels,

obesity and health risk outcomes. Her primary research interests are focused on vitamin D epidemiology and the impact of vitamin D status on healthy ageing. Other research interests are in the field of population health and nutrition, including obesity, chronic disease, anthropometry such as demi-span, and mental health.

She is a lead author for papers published in a range of international peer-reviewed journals. She has worked on the Health Survey for England (HSE) and the National Diet and Nutrition Survey (NDNS). She has been an author on 21 National Government Health and nutrition reports and was a co-editor of the HSE reports. She has also worked at the London School of Hygiene and Tropical Medicine on a project to develop and pilot tools for

the prevention and management of overweight in primary care.

Vasant previously worked as a Senior Research Fellow at University College London focusing on the health of older people.

‘Working for CEPAR provides me with an excellent opportunity to work in a collaborative environment with experts in this field.’

SOCIOECONOMIC DETERMINANTS OF HEALTH AND WELLBEING ACROSS THE LIFE COURSE

RESEARCHERS

HAL KENDIG
JULIE BYLES
JAMES NAZROO
KATE O'LOUGHLIN
VANESSA LOH
CATHY GONG
TAZEEN MAJEED

External Collaborator

BRAM VANHOUTTE
(MANCHESTER)

This project examines how the life experiences of the baby boom cohort (born 1946-1950) influence health, productivity, wellbeing, and pension and service use at ages 60 to 64 years. Building on their earlier ARC Discovery grant, colleagues at the Australian National, Newcastle, Sydney, and Manchester universities completed file construction and began comparative analyses of the Australian Life History and Health (LHH)

Survey and the English Longitudinal Study of Ageing (ELSA). This work has been facilitated by CEPAR ECR Travel Grants for Vanessa Loh from Sydney to visit Manchester from 23 April to 5 June 2014, and for Bram Vanhoutte from Manchester to visit Sydney and ANU from December 2014 to February 2015. An NHMRC project proposed by CEPAR collaborators sought funding for a five year follow-up examining change as people pass through retirement and other transitions in later life.

A collaborative article was published by the team on the innovative CATI methodology in *BMJ Open*. An article on a gendered approach to workforce participation patterns over the life course, led by Tazeen Majeed from Newcastle, was accepted for

publication in the *Journal of Vocational Behaviour*. Additional papers by CEPAR colleagues are under review on life span determinants of wellbeing in Australia, cohort differences in work and family trajectories in England, and trajectories of frailty. International comparative findings on life course influences on inequalities in later life in relation to Australia, England, and Germany were presented in an invited symposium led by Kendig and Nazroo to the International Sociology Association's World Congress of Sociology (see page 118 for further details) in Yokohama. Papers are in progress on the influence of childhood opportunity and disadvantage, the influence of occupational health and exposures, and the

experiences of migrants in comparison to the Australian-born. The Australian and English comparisons in progress examine the influence of different societal and policy developments over the post war period.

Additional work was completed on spatial and temporal dimensions of inequalities in later life. A paper on Health Outcomes and Social Change by age and cohort was led by Cathy Gong for an invited symposium for the US Gerontological Society of America. She also led an article on spatial dimensions of inequalities for the *Australasian Journal of Regional Studies*, and is currently working on a paper with Kendig examining the determinants of ageing in place. Kendig led an article

on developing age friendly cities in Australia which was published by the *Journal of Ageing and Health*. He was also invited by the British Academy Policy Centre to co-author with Chris Phillipson a chapter on new approaches to challenging health and social inequalities at a local level.

This project examines how the life experiences of the baby boom cohort (born 1946-1950) influence health, productivity, wellbeing, and pension and service use at ages 60 to 64 years.



PROFESSOR JAMES NAZROO
BSc MB BS Lond., PhD UC Lond.
PARTNER INVESTIGATOR

James Nazroo is Professor of Sociology at the University of Manchester, UK. He also serves as co-Director of the Manchester Institute for Collaborative Research on Ageing and Director of the Centre on Dynamics of Ethnicity. His research

focuses on issues of inequality, social justice and underlying processes of stratification, particularly in relation to ageing and ethnicity. He works on the social determinants of health and wellbeing in later life, social inequalities over the life course, and longitudinal surveys of health and retirement.

He is the lead investigator for the five year interdisciplinary research programme 'Frailty, Resilience and Inequalities in Later Life (fRailL)' (2011-2016); a Chief Investigator on the ongoing 'English Longitudinal Study of Ageing' (ELSA); and a Partner Investigator on the ARC Discovery grant 'Socioeconomic determinants and health inequalities over the life course' being

conducted in collaboration with CEPAR Investigators Kendig, Loh, Gong, Byles and O'Loughlin.

RESEARCHERS

CATHY GONG
HAL KENDIG
KATE O'LOUGHLIN
VANESSA LOH

In Australia, there has been increasing policy attention on maintaining productivity by enabling and supporting Australians to continue participation in productive activities as they age. Countering the negative view of ageing as a process of declining health, the productive ageing approach recognises that older individuals can and often do continue making valuable social and economic contributions by engaging in a range of productive activities. Productive activities may be paid or unpaid, and include volunteering, care-giving,

and other informal help to others such as childcare and housework.

This project uses Australian longitudinal data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey from 2001 to 2012. The aim of this research is to investigate the extent of engagement in productive activities (including paid and unpaid work, volunteering, care-giving, childcare, and housework) and the determinants and consequences of engagement in productive activities for more recent cohorts of ageing individuals in Australia.

The cross-sectional analysis of engagement in different productivities by age groups has been conducted and the findings are consistent with

socially graded, age and gender related norms and expectations within the Australian context and a life course perspective. The data also highlighted the potential for competition between paid work and other productive activities, and the importance of modifiable factors such as health and education for productivity across all ages.

The next phase of this research examines transitions in engagement over time using the longitudinal HILDA Survey data. The preliminary findings for the early baby boomer cohort (born 1946-1955) showed that whilst their engagement in paid work decreased as they aged, their engagement in productive activities other than paid work increased.

Dr Cathy Gong has been working on the social determinants and impacts of voluntary and involuntary job exits at mature ages in Australia using 2001-2011 HILDA data. She presented on healthy life expectancy and labour force participation for older people to the NSW AAG seminar 'Economics of Ageing in the 21st century – Who pays for what?' in September in Sydney.

During 2015 she plans to work on articles on the following topics: work beyond standard retirement age or work after retirement, work-life balance in later life and its impact on job and life satisfaction, perceived and observed age discrimination, as well as multi-state transitions of health and their impacts on care needs,

care-giving, paid work, voluntary work and wellbeing.

The aim of this research is to investigate the extent of engagement in productive activities (including paid and unpaid work, volunteering, care-giving, childcare and housework) and the determinants and consequences of engagement in productive activities for more recent cohorts of ageing individuals in Australia.



DR VANESSA LOH
BLibStudies (Int) (Hons), PhD Syd.
ASSOCIATE INVESTIGATOR

Vanessa Loh was a CEPAR Research Fellow in the Ageing, Work and Health Research Unit, Faculty of Health Sciences at the University of Sydney until July 2014, and is now a Postdoctoral Research Fellow in the School of Psychology at the University of Sydney.

Her research interests include the psychosocial, individual and environmental predictors and determinants of healthy and productive ageing, work and retirement, and older adults' continuing contributions via paid work and other productive activities.

'My work as a CEPAR Research Fellow between 2012 and 2014 enabled me to broaden and extend my research

interests from individual and organisational factors in work and retirement to broader issues in population ageing research and healthy and productive ageing. Working with CEPAR has provided me with unique opportunities to meet and collaborate with both CEPAR-affiliated and other researchers from a range of disciplines with similar research interests. For example, my six-week study

visit to work with Partner Investigator Prof James Nazroo and his colleagues at the University of Manchester, provided me with a fantastic opportunity to establish lasting collaborative ties, and to develop my research and knowledge of quantitative methods used in sociological research by consulting directly with leading international experts in the field.'

RESEARCHERS

KAARIN J. ANSTEY
KERRY SARGENT-COX
LORETTI I. DOBRESCU
DIMITRI CHRISTELIS

THE EFFECT OF COGNITIVE TRAINING ON EVERYDAY FUNCTION IN OLDER ADULTS

Normal cognitive ageing is characterised by slowing of information processing and decline in a range of cognitive abilities that involve novel problem solving and reasoning, attention, working memory, shifting focus, multitasking, and recalling information. These changes typically do not interfere with the healthy older adults' ability to live independently and engage in most activities. However, the effects of normal cognitive ageing on daily activities can be

apparent when these activities demand complex cognitive skills along with sensory and physical demands. Driving a motor-vehicle is one such task that can be impacted by normal cognitive ageing. Because maintaining mobility is vital for continued social engagement, independence and quality of life in older adults, it is important that we investigate methods to enhance both cognitive and physical function in this age-group. A pilot study is currently underway to examine how cognitive training may improve driver skill.

PHYSICAL ACTIVITY AND COGNITIVE AGEING

In 2014, two projects investigating the relationship between physical activity and

cognitive ageing - one using Australian data from the PATH Through Life Study and the other using European data from the Survey of Health, Ageing and Retirement in Europe (SHARE) - were progressed.

Project 1 using data from the PATH Through Life Study:

There is now consistent evidence that physical activity is associated with reduced risk of age associated cognitive decline and dementia, with higher levels of activity being associated with lower risk. The benefits of physical activity for cognitive health appear to accumulate over the life course. For example, higher fitness levels in young adulthood has been linked with better cognitive outcomes in mid-adulthood, and better midlife fitness

has been linked to reduced risk of late-life dementia. However, it is not clear whether changes in physical activity alters the trajectory of age-related cognitive decline or whether it reflects higher baseline levels of cognitive ability in individuals engaging in higher levels of physical activity.

Data from the PATH Through Life Study was used to examine this issue for young, middle aged and older adults. Multilevel models accounting for employment status, sex, education, health, and mental and social activity showed that between-person differences in physical activity participation positively predicted baseline performance on fluid

cognitive ability (perceptual speed, short-term memory, working memory, and episodic memory). These effects were similar across age groups, but strongest for the youngest cohort, for whom there was also evidence of co-variation between within-person change in activity and cognitive score. Physical activity was not associated with change in cognition over time. The findings suggest that the association between physical activity and cognition reflects higher initial cognitive function in physically active adults, and that this advantage is preserved over time.



PROFESSOR KAARIN J. ANSTEY
BA (Hons) Syd., PhD Qld., FASSA
CHIEF INVESTIGATOR AND
ANU NODE LEADER

Kaarin J. Anstey is Director of the Centre for Research on Ageing, Health and Wellbeing and Director of the Dementia Collaborative Research Centre - Early Diagnosis and Prevention, both of which are based at the Australian National University.

She is also an NHMRC Senior Research Fellow, an ANU Public Policy Fellow, and an Adjunct Professor at the Pennsylvania State University Gerontology Centre.

Her substantive research interests include cognitive ageing, depression, and wellbeing. Kaarin has worked extensively with longitudinal studies and leads the PATH Through Life study. She is

interested in the social impact of late-life cognitive impairment with increasing longevity. Kaarin is also working on interventions to reduce the risk of cognitive decline and dementia and to promote healthy ageing.

Kaarin has developed a model of driving safety and conducts research to improve older driver safety.

The findings are published in:

Bielak, A.A.M., Cherbuin, N., Bunce, D. and Anstey, K. J. (2014). Preserved Differentiation Between Physical Activity and Cognitive Performance Across Young, Middle and Older Adulthood over Eight Years. *The Journals of Gerontology Series B*, 69, 523-532.

Project 2 using data from the Survey of Health, Ageing and Retirement in Europe (SHARE):

Ageing well, economically or otherwise is, in many ways, closely related to preserving cognition in old age. For instance, enhanced cognitive skills are associated with better physical and mental health, superior job performance,

occupational rank and income, higher financial literacy, wealth and risky portfolio holdings and life-satisfaction after retirement in general.

Identifying the factors that can help maintain or enhance cognitive functioning is thus crucial for the elderly. Interestingly, these factors were found to be mainly related to individual lifestyle, beliefs and health behaviours. Among the health-protective behaviours, exercising proved to be strongly and positively associated with better old age cognition. But is this relation causal?

Using cross-country harmonised data from 13 European countries, we address this issue using

novel nonparametric partial identification methods (that bound the causal effect of interest while making weak assumptions). We find a considerable positive causal impact of physical activities on cognition. Interestingly, this result is more likely to hold for females than for males. We also provide evidence, again using bounds-based estimation, for the economic significance of social participation by documenting the beneficial effect of higher cognition on households' economic wellbeing.

This project is close to completion with subsequent journal submission following soon.

There is now consistent evidence that physical activity is associated with reduced risk of age associated cognitive decline and dementia, with higher levels of activity being associated with lower risk.



DR DIMITRIS CHRISTELIS

PhD Pennsylvania
ASSOCIATE INVESTIGATOR

Dimitris Christelis is a Research Fellow of the Centre for Studies in Economics and Finance at the University of Naples Federico II. He holds a PhD in Economics from the University of Pennsylvania.

In his research he primarily uses micro data surveys of older households. Some of the

topics he has worked on include the effect of cognitive abilities, health insurance coverage and fear of terrorism on risky financial asset investment, the analysis of differences in household portfolio choices across different countries, the interaction between different modes of stockholding, and the effect of unemployment and capital losses during the Great Recession on household

consumption. He also works on issues related to health economics, including the cross-country analysis of smoking persistence, and the effect of being socially and physically active on the preservation of cognitive abilities in older age.

He has been involved with the production of micro data, as he participated in the design of the questionnaire and implemented the imputation

of missing data for the first two waves of the Survey of Health, Ageing and Retirement in Europe. He has also worked as a senior economist in the Directorate General Research of the European Central Bank and has consulted on micro survey issues with the Bank of Greece, the European Central Bank, the Hebrew University of Jerusalem, the University of Québec at Montréal, and the World Bank.

RESEARCHERS

HEATHER BOOTH
TIM WINDSOR
MARIA PILAR RIOSECO LOPEZ
MAHIN RAISSI

External Collaborator

ROBERT ACKLAND
(AUSTRALIAN NATIONAL
UNIVERSITY)

The aim of the Social Networks and Ageing Project (SNAP) is to understand the role of social networks in successful ageing. Longitudinal survey data were collected in 2010/11 and March 2012, including patterns of face-to-face and other forms of communication between participants and their family members and friends, as well as indicators of social connectedness and wellbeing. Doctoral research using these data addresses

the role of social connectedness in the process of retirement (Pilar Rioseco).

One focus of the research is the role of demography in social networks and social support and their relationship with wellbeing. Demography defines the social-structural context of the social network, differentiates family networks from friend networks, determines family network structure, and influences friend and group network structure through homophily. Analyses of self-rated health by sex, by partnership status and by age show that these different demographic groups access different social networks (family, friend and group) and social support (instrumental and

emotional). This analysis identifies the group social network as the strongest predictor of self-rated health, except among the unpartnered. However, this analysis does not distinguish between causation and reverse causation. In current analyses, the problem of reverse causation is addressed by modelling separate subsamples with and without social network restriction due to disability or poor health. Findings indicate a strong causal association among those without such restrictions, but that reverse causation entirely explains the association among those with restrictions.

Other analyses examine social network profiles. Using variables representing

different aspects of social network structure (i.e., size of networks, and contact frequency) several different network profiles have been identified.

Current work is focused on associations of different profile classification with mental health, and the extent to which these relationships vary according to health status.

SNAP survey data on use of the internet and online social networking websites have been used to identify the offline social network predictors of online use, revealing that women use online social networking (OSN) to address a lack of offline emotional support whereas men use OSN as a practical tool to enhance offline practical activity or social support.

An additional data collection instrument captures online social networking. A purpose-designed Facebook application (AuSON) collects data on the structure of participants' Facebook-friends networks and on the participants' social capital and wellbeing. The study also examines the relationship between online and offline social networks and its impact on individual social capital and wellbeing. The initial sample comprises Facebook-users from the SNAP sample, with expansion through snowball sampling. This doctoral research is conducted by Mahin Raissi.

This research is supported by an ARC Linkage Grant involving National Seniors Australia (LP0990974) and CEPAR.



DR TIM WINDSOR
BA PHD UNE
ASSOCIATE INVESTIGATOR

Tim Windsor is an Associate Investigator with CEPAR, and an Australian Research Council Future Fellow based at the Flinders Centre for Ageing Studies and School of Psychology, Flinders University.

Before commencing at Flinders in 2011, Tim worked as part of the Centre for Research on Ageing, Health, and Wellbeing team at the Australian National University. His research interests are focused on psychosocial aspects of adult development and ageing. Current projects are concerned with changes that take place in social networks and social behaviour

in later life, and how these changes relate to emotions, mental health, and cognition. Tim is involved in a number of collaborative studies of ageing in Australia including The Australian Longitudinal Study of Ageing (ALSA), PATH Through Life, DYNOPTA, and the Transitions in Later Life Study (TRAILLS).

ACTWELL - THE INFLUENCE OF AGEING ATTITUDES AND EXPECTATIONS ON HEALTH BEHAVIOURS AND MEDICAL HELP-SEEKING

RESEARCHERS

KERRY SARGENT-COX
KAARIN J. ANSTEY

Negative stereotypical views of older adults are linked to poor health outcomes, but the mechanisms behind this relationship are unclear. A promising hypothesis argues that stereotypes create expectations of ageing processes and interpretation of health problems, which in turn affect health behaviours and medical actions. Identifying and debunking stereotypes may improve health and self-management.

This study employed a cross-sectional survey to collect original, representative (population-

based), quantitative data. The aim was to identify the degree to which expectations of ageing affect health literacy, health behaviours and health outcomes in young, mid-aged and older adults. The attribution of musculoskeletal symptoms to the 'normal ageing processes' was also explored.

There were 3000 individuals randomly selected and invited to participate in a survey on health and wellbeing in the Australian Capital Territory between July and September 2011. From these respondents 44 had missing data, leaving a final sample of n=739 (42.2% female) aged between 20 and 92 years (mean = 57.31, SD=13.67).

The majority of participants were married (65.8%), had an undergraduate degree (24.1%), or higher (19.5%), and employed full time.

In 2014 the ACTWell data contributed to the manuscript published in the *Psychology and Health* Special Issue 'Health Psychology and Aging'.³ The paper integrated healthy ageing and health psychology theories to explore mechanisms underlying the relationship between health control expectancies and age-attitudes in the process of ageing well. Significant gender and age interactions were found to influence the relationship between age-stereotypes and health locus of control dimensions.

The findings point to the importance of targeting health promotion and interventions through addressing negative attitudes to ageing.

This project has now been finalised.

Significant gender and age interactions were found to influence the relationship between age-stereotypes and health locus of control dimensions.

3 Sargent-Cox, K., and Anstey, K.J., (2014). The relationship between age-stereotypes and health locus of control across adult age-groups. *Psychology & Health*. doi.org/10.1080/08870446.2014.974603



DR KERRY SARGENT-COX
BAppPsych (Hons) UC, PhD ANU
ASSOCIATE INVESTIGATOR

In 2014 Kerry Sargent-Cox was a Senior Lecturer at the ANU Medical School and Research Fellow located at the Centre for Research on Ageing, Health and Wellbeing at the Australian National University. Kerry's research explores the psychosocial predictors of

positive and healthy ageing. Her work is primarily focused on examining stereotypes and attitudes towards ageing and the ageing process, and how these attitudes affect ageing and health outcomes at an individual and society level.

'My involvement with CEPAR has provided me with unique opportunities to further my career, establish collaborative partnerships,

and enhance my research skills. For example, I attended a CEPAR meeting with the Age and Disability Discrimination Commissioner, the Hon. Susan Ryan, AO, which resulted in advisory work with her office. I also organised a CEPAR Early Career Researcher Workshop, 'Methods for modelling dynamic processes in ageing', held at ANU. Working with the presenter of the workshop, Dr Nilam Ram, led to

collaborative prospects with him and his colleagues at Pennsylvania State University.'

RESEARCHERS

HAL KENDIG
KATE O'LOUGHLIN
COLETTE BROWNING
KERRY SARGENT-COX

The rights and self-respect of older people depend largely on their 'social treatment' in everyday life, but there is growing evidence that they face negative attitudes and discrimination that limits their contributions and wellbeing. Negative views on ageing are increasing along with rising public concerns about the costs to government of an ageing population (The Treasurer's Intergenerational Report (IGR) 2010). Negative attitudes are considered to be a major factor influencing

older people in the workplace and in poor quality of care experienced in the health system.

The Australian Government aims to increase productivity by encouraging people to work longer and limit health and social expenditure in order to reduce fiscal costs associated with rapid population ageing over the coming decades (IGR, 2010). However, these actions will depend heavily on the practices of employers and governments. The Age Discrimination Act (2004) addresses these problems but there is little evidence to date on its effectiveness or on the knowledge required to guide effective action against age discrimination and promote positive attitudes towards ageing.

As part of our research investigating issues of ageing and attitudes, this project aims to determine the influence of attitudes specific to the different life situations of older workers, recent retirees, and those in advanced old age and identify societal attitudes to ageing, intergenerational justice, and related policies.

Analyses of the 2010 Australian Social Survey of Attitudes (AuSSA) data and preparation of publications continued in 2014, including a chapter on 'Attitudes to Ageing' (O'Loughlin and Kendig) in the book *Ageing in Australia: Challenges and Opportunities*. A discussion of recent Australian initiatives in ageing and human rights was published in the *Proceedings of the 20th Biennial General*

Conference of the Association of Asian Social Science Research Councils at Cebu, Philippines.

A follow-up national set of questions is being developed for the 2015-2016 AuSSA survey to identify the effects of prevailing social attitudes of recent economic and policy changes. The focus will continue to be on the attitudes between different age groups, possible social and economic influences on them, and how they relate to political and social views relevant to older people (e.g., raising the pension age eligibility). We will examine in greater depth ageing people's experiences and perceptions of ageist treatment as well as younger people's experiences and perceptions that may give rise to them.

...this project aims to determine the influence of attitudes specific to the different life situations of older workers, recent retirees, and those in advanced old age and identify societal attitudes to ageing, intergenerational justice, and related policies.



PROFESSOR HAL KENDIG
AB UC Davis, MPI PhD USC, FASSA
CHIEF INVESTIGATOR

Hal Kendig is a sociologist and gerontologist. He is Professor of Ageing and Public Policy at the Australian National University in the Centre for Research on Ageing, Health and Wellbeing in the Research School of Population Health. He previously served at the

University of Sydney as Professor of Ageing and Population Health and Head of the Ageing, Health and Work Research Unit.

He served on the CEPAR Management Committee through 2014 and as ANU Director of Research Engagement. He leads research on healthy and productive ageing and socioeconomic determinants

of health and wellbeing; and collaborates in research on aged and health care, attitudes, men's health, and international comparisons. In 2014 he led the National Symposium on Population Ageing and Australia's Future for the Academy of Social Sciences in Australia (ASSA).

Professor Kendig is an ASSA Fellow, Fellow of the Gerontological Society of

America, Foundation Fellow of the Australian Epidemiology Association and a founding Board member of the Global Social Initiative on Ageing. He serves on the editorial boards of *Ageing and Society*, the *Australasian Journal on Ageing*, the *Journal of Population Ageing* and the *Journal of Gerontology: Social Sciences*.

AREA OF RESEARCH FOCUS

5

HEALTH AND AGED CARE

An ageing demographic will have dramatic implications for health and aged care budgets, and new strategies for delivering service while containing cost are urgently needed. Among older cohorts, health and aged care fit together.

When prolonged hospitalisation is required (the most expensive type of health care delivery), this often leads to long-term residential care. In many countries aged care is largely publicly funded or subsidised. While in Australia the cost is not currently large, it is projected to increase rapidly as baby boomers age. Patterns of use, changes in health status, new financing mechanisms, and delivery innovations, all fall within this Area of Research Focus.

TO VIEW PUBLICATIONS
AND WORKING PAPERS RELATING
TO THIS RESEARCH VISIT CEPAR.EDU.AU

RESEARCH PROJECTS

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Research undertaken through 2014 under this heading explores patterns of use of health care service among older people, how health status relates to mortality lightening, and new product innovation to improve the efficiency of long-term care insurance products. Aged care policy has recently received major attention in Australia, requiring new evidence on how work and care interact in a home care environment, and how residential care is to be funded. Work in 2014 included projects focused on:

- **WORK AND CARE**
The project examines the nexus between paid work and care-giving and the impact on individuals, families and the broader economy with a particular focus on the baby boomer cohort and the gendered nature of care-giving. Led by Al Kate O'Loughlin, research in 2014 included linking care-giving and paid work with carer health status among Australia's baby boomers; and international comparisons of the work-care-health status relationship across several countries.
- **LONG-TERM CARE INSURANCE**
Rapid population ageing poses significant challenges in terms of long-term care (LTC) provision and financing. In countries that lack a universal public LTC insurance system, out-of-pocket LTC costs are high and persistent, and represent a large source of individual financial risk. Two projects focus on this topic. The first, led by Research Fellow Elena Capatina, with collaborators from UCLA and the National Graduate Institute for Policy Studies in Japan, incorporates family dynamics into a life-cycle model, focusing on risk of spouse death, and its interaction with risk of own death. As well, it explicitly recognises the distinction between community based and residential LTC.

These features allow pricing of LTC insurance to be more realistically assessed, as well as better understanding the market for such a product. This is a multi-year project initiated in late 2013. The second project, led by Al Ermanno Pitacco, takes a supplier perspective, focusing on the uncertainty in the technical bases which must be adopted when pricing and reserving for LTC insurance policies.

- **HEALTH STATUS AND MORTALITY IMPROVEMENTS**
This project uses Health and Retirement Study panel data to model health status and longevity in the US. Led by Al Ramona Meyricke, the project jointly models the impact of systematic improvement and heterogeneity on mortality rates. The results show that several diseases, including high blood pressure, cancer and heart problems, have had a decreasing impact on mortality risk over time. This finding is consistent with medical advances which have occurred, benefiting a wide range of people and decreasing the mortality associated with these diseases.

RESEARCHERS

JULIE BYLES
HAL KENDIG
CATHERINE CHOJENTA

External Collaborators

XENIA DOLJA GORE
MELISSA HARRIS
(BOTH UNIVERSITY OF
NEWCASTLE)

This project will assess patterns of health care use by specific sub groups of older people including men and women aged 85 years and older and those who have experienced stroke, as well as health care use in the two years prior to death. To date, linked data from the Australian Longitudinal Study on Women's Health (ALSWH) and the NSW Admitted Patient Data Collection (APDC) have been analysed to describe hospital use by older women.

APDC data for the years 2000-2010 were linked with ALSWH survey data for 1847 women resident in NSW for the entire period, who had not died, and who completed ALSWH survey 5 in 2008 (age 82-87 years).

Among these women

- 87% (1612) had at least one hospital admission in the years 2000-2010.
- The probability of admission increased with each year as the women aged from 74-79 years in 2000, to 84-89 years in 2010.
- The average length of stay/year also increased with age: from a mean of 4.8 days in 2000, to 11.3 days in 2010.
- Most women had more than one admission from 2000-2010 and some had more than 20 admissions.
- Reasons for admissions varied, but a large number were classified as 'factors influencing health status and contact with health services'.
- Four different patterns of hospital use were identified:
 - 18% of women had very low levels of use across the whole period (low).
 - 43% of women had low use in 2000, but increased use by 2010 (increasing).

- 20% had a high probability of hospital admission early in the period, but decreasing levels of hospital use over the remainder of the period (decreasing).
- 20% had consistently high probability of hospital admission across the whole period (high).

Upstream and downstream factors associated with risk of hospital admission, different reasons for hospital admissions, and different patterns of hospital admission for these women are being analysed.

Another 1283 women had records of admission to hospital in NSW between 2000 and 2010 but died before completing survey 5. We are analysing the patterns of hospital use for these women, and associations between age at death and proximal and distal health and social factors that might increase hospital use in the last year of life.

During 2015 analyses of NSW 45 and Up data will repeat these analyses and compare hospital use for older men and women. Specific analyses will also address the use of hospitalisation following stroke. Other analyses will examine the probability of hospital admission for less specific 'social' reasons for admissions.

Within the context of aged care reforms, the health needs of older people must be an over-riding consideration. Currently little emphasis has been given to the roles of hospitals and other health services in meeting the needs of very old people, particularly those with disability and requiring long-term care in the community or in residential care. This issue was featured at the Australian Association Rural Conference in Port Macquarie March 2014, and at the Australian Association Symposium on Integrated Care Newcastle September 2014 and in a Health Care Roundtable led by the Academy of Social Science in Australia.

RESEARCHERS

HAL KENDIG
COLETTE BROWNING
CATHY GONG

The Government's 2010 Intergenerational Report projects that population ageing will lead to increases in individual usage of health and aged care services. In view of this, Australia urgently needs deep analyses to identify major drivers of health service use and factors associated with different levels and patterns of usage among particular population subgroups according to age, gender, socio demographic resources, and geographical location. This project provides an overview of the services available to and utilised by older people in hospital and community settings as well as primary

health care in terms of access, affordability and efficacy.

During 2014 the focus was mainly on translating findings from other research projects for national and international audiences.

This included:

- 1 A chapter on the shifting balance of individual, family, and state support for older people for the Academy of Social Sciences in Asia: Kendig, H. & Lucas, N. (2014). *Individuals, Families and the State: Changing Responsibilities in an Aging Australia*. In Torres, A. & Samson, L. (Eds.), *Aging in Asia-Pacific: Balancing the State and the Family*. Quezon City: Philippine Social Science Center.

- 2 A paper on Australian policy issues presented to the International Alliance of Research Universities (IARU) Conference, Cultures of Health and Ageing, in Copenhagen in June.
- 3 A chapter on Normalising Old Age for an international book on Social Role Valorisation and Ageing Services: Fine, M. and Kendig, H. (in press) *Normalising Old Age: Social Valorization, Aged Care and International Trends*. In Held, R. and Armstrong, J. (Eds) *Social Role Valorisation and Ageing Services*, Valor Institute: Plantagenet, CA.

The ANU CEPAR team conducted a pilot research project on ageing well in retirement communities, with support from the IRT in collaboration with University of Canberra colleagues, including a review of the literature, analysis of agency records, and development of a research agenda. A Linkage Project proposal for a larger scale study on ageing well in retirement communities was submitted by the multidisciplinary research team and three collaborating industry partners.

In addition, the team will explore the opportunity to use the Australian Institute of Health and Welfare's 'Pathways of Aged Care' dataset to analyse the assessment, take up and transition of aged care services as well as usage before death by care type, age, gender, co-residential carer, housing tenure type, diseases, community living/retirement village/supportive accommodation.



PROFESSOR JULIE BYLES
B Med PhD Newcastle
ASSOCIATE INVESTIGATOR

Professor Julie Byles is Director of the Research Centre for Gender, Health and Ageing – a Priority Research Centre at the University of Newcastle that includes the World Health Organization Collaborating Centre for International Longitudinal Studies on Gender, Ageing and

Health. She is also Acting Head of the International Longevity Centre – Australia.

As a clinical epidemiologist, Professor Byles' interests are in risk determination, health assessment, other health care evaluation, and measurement of health outcomes. As a Gerontologist and Fellow of the Australian Association of Gerontology, Professor Byles' research interests in ageing include the

role of health services, preventive activities, and treatments in maintaining quality of life for older people, and in determining physical, psychological and social factors associated with optimal physical and mental health of men and women as they age. Her work has included health assessment, medications used by older people, sleep disturbance, health effects of alcohol,

nutrition screening and interventions, health and retirement, and prevention of falls in residential care.

Professor Byles is co-director of the Australian Longitudinal Study on Women's Health, a co-investigator on the NHMRC Centre of Excellence in Women's Health in the 21st Century, and is closely involved with the NSW 45 and Up Study.

RESEARCHERS

KATE O'LOUGHLIN
VANESSA LOH
HAL KENDIG

The Older Workers and Care-giving Project was formed following the establishment in 2011 of the Global Social Initiative on Ageing (IAGG core activity) with two key objectives: 1) to build international comparative knowledge on older workers and care-giving to inform global initiatives in socioeconomic policies; and 2) establish an international collaborative network to work towards sustainability in policy-relevant population ageing research. Funding from CEPAR and the Worldwide Universities Network at the universities of Alberta, Leeds and Sydney supports the collaboration. The project examines the nexus between paid work and care-giving and the impact on individuals, families and the broader economy with a particular focus on the baby boomer cohort and the gendered nature of care-giving. Specific aims of the project are to determine how individual circumstances and social and economic policy impact on productivity (labour force participation, care-giving

activities) and health and wellbeing. This will be achieved through analyses of Australian data on work and care-giving and comparative analyses with other national data where available.

OUTCOMES 2014:

- Letter of Intent (submitted February) plus full proposal (submitted November) to Canada's Social Sciences and Humanities Research Council (SSHRC) for Partnership Grant on Care, Work and Sustainability: lead Janet Fast (Alberta); collaborators include Yeandle (Leeds), O'Loughlin (Sydney/CEPAR), Alpass (Massey). Funds requested C\$2.5 million.
- University of Leeds sponsored pre-conference International workshop - Older workers and care-giving: comparative analyses from the UK, Australia, Canada and New Zealand, Yokohama, 12-13 July 2014. Meeting of collaborators to present an update on research findings on paid work and care-giving, planned conference

presentations and publication schedule; planning of full proposal to SSHRC; review of options for Special Issue proposal.

- XVIII ISA World Congress of Sociology, Yokohama, July 13-19, 2014. Invited Symposium on 'Population ageing, work and care-giving responsibilities in four liberal democracies' (Convenor/presenter O'Loughlin; other presenters Keeling (Otago), Fast, Yeandle. Individual paper presented 'Employment and Health Consequences of Care-Giving for Older Workers in Australia' (Loh, O'Loughlin, Kendig).
- DSS/CEPAR Roundtable, Canberra, 25 August 2014: Employment and Health Consequences of Care-Giving for Older Workers (O'Loughlin (presenter), Loh, Kendig, Yeandle, Fast, Keeling, Alpass).
- Proposal for Special Issue submitted to *Journal of Cross-cultural Gerontology* (November). Includes papers on work and care-giving from researchers in Australia, Canada, UK, New Zealand, China, Singapore and Sub-

Saharan Africa.

- Invitation from publisher Sage to submit proposal for *International Journal on Care and Caring* (submitted October). Inaugural editor Sue Yeandle; editorial board includes O'Loughlin, Fast and Alpass.
- Working papers: 'Care-giving, paid work and health status among Australia's baby boomers' (O'Loughlin, Loh & Kendig); 'Reflections on Australian and New Zealand policy initiatives in the interface between work and care' (O'Loughlin, Alpass, Keeling & Kendig); 'Employment and Health Consequences of Care-Giving for Older Workers in Four Liberal Democracies' (O'Loughlin, Loh, Yeandle, Fast, Keeling); 'Interrelations between care-giving, paid work, and health status for Australia's baby boomers' (O'Loughlin, Loh, & Kendig).

PLANNED ACTIVITIES 2015:

- NHMRC Partnership Project (due April 2015) on the potential benefits of assistive technology to care providers and care recipients (O'Loughlin, Clemson, Yeandle).
- IAGG 8th European Regional Congress, Dublin, Ireland, April 22-26, 2015. GSIA Master Class for Early Career Social Science Scholars on Population Ageing and Work-Care Challenges in a Global Context. Convenor Prof Sue Yeandle; presenters/facilitators include O'Loughlin, Fast.
- IAGG 8th European Regional Congress, Dublin, Ireland, April 22-26, 2015. Abstract submitted for IAGG-CSO Invited Symposium: International networking and collaboration on work and care: insights from three continents. Convenor/presenter Yeandle; other presenters Fast, O'Loughlin.
- 6th International Carers Conference, Gothenburg, Sweden, 3-6 September 2015. Abstract to be submitted by 27 February 2015.

TABLET BASED WELLBEING CHECK SYSTEM FOR THE ELDERLY LIVING INDEPENDENTLY

RESEARCHERS

PRADEEP RAY
VASVI KAPADIA
AISWARYA BAKSHI

External Collaborators

SONYA PEDELL (SWINBURNE)
J LI (TMU-TAIWAN)

To maintain their independent lifestyles, many frail elderly people prefer to live alone at home rather than in nursing homes. However, family members often worry about their elderly relatives' wellbeing and feel insecure leaving them unsupervised at home. In some cases geographical distances mean family members are often unable to visit their relatives frequently, leading to loneliness amongst the elderly. A variety of solutions (e.g., smart home sensors and fall detection pendants)

are available to address some of the safety concerns, but such technologies are not well accepted by the elderly due to their operational complexity and limited human interaction. A solution is therefore required which would enable family members to monitor the wellbeing of their elderly relatives daily while providing the elderly with an opportunity for emotional and human interaction.

In 2013 a tablet based system⁴ was developed to enable family members to remotely monitor the wellbeing of their elderly relatives who live alone, in addition to providing human interaction. This year a trial of the tablet based Wellbeing Check system was carried out in seven homes through a NSW based aged

care provider, Julie Warner Community Care (JWCC). The current prototype was modified based on the user trial results. A paper based on this work was submitted to the premier Australian Conference in the field and was nominated for the Best Paper Award in 2014:

Kapadia, V., Pedell, S., Li, J., Bakshi, A. and Ray, P. (2014) A tablet-based interactive wellbeing check prototype for the elderly. *Proceedings of the 2014 Health Informatics Conference*. Melbourne, Australia.

In addition, the project team carried out a systematic survey that was published in an international journal in 2014:

Kapadia, V., Li, J., Bakshi, A. and Ray, P. (2014) Issues Influencing IT Implementation for Aged Care, *Gerontechnology*, 13(2), 221.

The next stage of the trial involves nearly one hundred homes in Queensland (in collaboration with the University of the Sunshine Coast and the University of the Third Age) and Kalyani India (in collaboration with an NGO called KINSPARC). Both these trials will start in January 2015.

⁴ Funded by Smart Services CRC



PROFESSOR PRADEEP RAY
BTech BHU-IT India, MTech IIT, Kanpur India, PhD UTS
ASSOCIATE INVESTIGATOR

Pradeep Ray is a Professor of Information Systems at the UNSW Business School and the Director of the Asia Pacific ubiquitous Healthcare Research Centre (APuHC) at UNSW Australia.

He leads a number of collaborative research projects on eHealth (healthcare using information and communication technologies) involving global organisations (e.g., WHO, ITU and IEEE), industry and academia in Australia, Europe, North America and Asia. His work on the WHO project (involving four countries in the Asia-Pacific) on the assessment of eHealth for Health Care Delivery (eHCD) led

to the designation of APuHC as a WHO Collaborating Centre on eHealth in 2013 with a focus on mHealth (healthcare using mobile phones) for Aged Care.

Pradeep has been the Chair of the eHealth Committee of the Institute of Electrical and Electronic Engineers (IEEE) Communication Society and the IEEE global spokesman on telemedicine. He has been appointed as a Distinguished

Lecturer of eHealth at IEEE for 2014-2015. Under his leadership, APuHC was invited in 2010 by the Aged Care Industry IT Council (ACIITC) to develop a long-term strategic IT plan for the aged care sector in Australia. This led to the ongoing \$1 million collaborative initiative on IT in aged care involving academic and industry organisations in Australia, Europe, Asia and USA.

LONG-TERM CARE INSURANCE: A SENSITIVITY ANALYSIS

RESEARCHER

ERMANNNO PITACCO

Long-term care insurance (LTCI) products deserve, in the framework of health insurance, special attention. As a result of demographic change in many countries, household sizes are progressively shrinking, and this implies a reduction in family-based assistance and care services provided to older family members.

While interest in the benefits LTCI provides is likely to grow as the population ages, the products are seen as 'difficult'.

These products are relatively new, and consequently senescent disability data are scant which leads to pricing problems because of difficulties in the choice of appropriate technical bases. As a result, high premiums (in particular due to a significant safety loading) charged to policyholders constitute an obstacle to the diffusion of these products (especially stand-alone LTC covers which only provide 'protection').

This project focuses on the uncertainty in the technical bases which must be adopted when pricing and reserving for LTCI policies. A sensitivity analysis will be performed, in order to assess the change in expected present value of benefits provided by LTCI products when changing in particular:

- the assumptions about senescent disability, in terms of probability of entering the LTC state(s);
- the age-pattern of mortality of people in LTC state(s).

Both LTC stand-alone cover and LTC combined products will be addressed, and the advantages provided by packaging LTC benefits together with lifetime-related benefits (i.e. conventional life annuities and death benefits) will be explored.

This project focuses on the uncertainty in the technical bases which must be adopted when pricing and reserving for LTCI policies.



PROFESSOR ERMANNNO PITACCO
ASSOCIATE INVESTIGATOR

Ermanno Pitacco is Professor of Actuarial Mathematics at the University of Trieste, and Academic Director of the Master in Insurance and Risk Management at the MIB School of Trieste.

His current research interests lie in the area of life and health insurance mathematics and techniques,

focussing in particular on longevity risk and life insurance portfolio valuations and solvency assessment. He is an author and co-author of textbooks and papers in the actuarial field. He has published in leading international risk and actuarial studies journals, including *Insurance: Mathematics and Economics*, the *ASTIN Bulletin*, and the *Journal of Pension Economics and Finance*.

He was awarded the 1996 INA Prize for Actuarial Mathematics, from the *Accademia Nazionale dei Lincei*, and the 2011 Bob Atting von Geusau Memorial Prize, together with Annamaria Olivieri.

Ermanno is editor of the *European Actuarial Academy* series (Springer), co-editor of the *European Actuarial Journal* and Associate Editor of a number of international journals.

Professor Pitacco visited CEPAR in December 2014 where he worked with Michael Sherris and his team as well as presented lectures at the CEPAR Long-term Care and Longevity Insurance Workshop hosted by PwC and the UNSW-CSIRO Workshop on Risk: Modelling, Optimization and Inference.

RESEARCHER

ELENA CAPATINA

External Collaborators

GARY HANSEN
(UNIVERSITY OF CALIFORNIA,
LOS ANGELES)

MINCHUNG HSU
(NATIONAL GRADUATE
INSTITUTE FOR POLICY
STUDIES)

Rapid population ageing poses significant challenges in terms of long-term care (LTC) provision and financing. In countries that lack a universal public LTC insurance system, out-of-pocket LTC costs are high and persistent, and represent a large source of individual financial risk. This project aims to increase our understanding of how individuals insure against this risk and how current partial LTC insurance systems affect their

choices. This project advances the current literature by incorporating two key features in a consumption/savings life-cycle model analysing LTC risk. First, we model family dynamics, focusing on the risk of a spouse needing LTC and risk of death of a spouse, which interact closely with an individual's own LTC risk. Second, we model the choice of institutionalised versus community based LTC, taking into account how family structures affect these options. Policy is increasingly focused on LTC provided in the community since individuals generally prefer this type of care and provision costs are lower, yet much of the current related literature has focused only on nursing home based LTC.

The project will fill these gaps in the literature, providing a framework in which policy reform can be analysed.

We build a rich general equilibrium framework that accounts for the features listed above and for population ageing. The model is calibrated to the United States using data from the Health and Retirement Study. We use the calibrated model to quantify the impacts of LTC policy reforms such as the expansion of the Medicaid LTC insurance program, the expansion of public insurance for non-institutionalised LTC and the provision of a universal public LTC insurance system. Finally, we discuss the feasibility of financing various insurance systems in the face of population ageing.

We anticipate having a working paper by the end of 2015 which we will present at international conferences.

Policy is increasingly focused on LTC provided in the community since individuals generally prefer this type of care and provision costs are lower, yet much of the current related literature has focused only on nursing home based LTC.

MODELLING HEALTH STATUS AND SYSTEMATIC MORTALITY IMPROVEMENTS WITH LONGITUDINAL DATA

RESEARCHERS

RAMONA MEYRICKE
MICHAEL SHERRIS
MENGYI XU

This project considers the modelling of health status and mortality using US Health and Retirement Study (HRS) longitudinal data. The research has practical significance for underwriting annuity products and quantifying basis risk of different populations. The project jointly models the impact of systematic improvement and heterogeneity on mortality rates by using two model frameworks: a modification to the Lee-Carter model and incorporating a time component in marginal models. We also look at the issue, which no research has explored before, of quantifying population

mortality improvement from the HRS using stochastic mortality models. Systematic improvements are shown to be different across sub-populations, which were identified based on individual-level characteristics. This means that applying the same systematic improvement, which is usually derived from the aggregate population, to different groups of individuals, will not adequately reflect life expectancy improvements. The results also shed insight on the difficulty of quantifying statistical differences of systematic improvements across groups of individuals using individual-level data based on panel data surveys.

The research has also applied longitudinal modelling to jointly analyse

systematic improvement and heterogeneity. The results confirm that systematic improvements in mortality rates remain significant after allowing for a wide range of static and time-varying individual-level factors including: age, gender, race, education, marital status, self-reported health, weight, drinking and smoking behaviour and health history. The results show that several diseases, including high blood pressure, cancer and heart problems, have had a decreasing impact on mortality risk over time. This finding is consistent with medical advances which have occurred, benefiting a wide range of people and decreasing the mortality associated with these diseases.

The research has practical significance for underwriting annuity products and quantifying basis risk of different populations.



DR RAMONA MEYRICKE
PhD Camb., FIAA
ASSOCIATE INVESTIGATOR

Ramona Meyricke is a CEPAR Associate Investigator and an Actuary at Swiss Re Life & Health Australia.

Ramona spent one year at CEPAR as a Research Fellow following completion of her PhD at the University of Cambridge before moving to

Swiss Re. She continues to research matters of financial risk management for pension plans and life insurers, as well as methodologies for modelling longevity risk, morbidity and mortality. Other research interests include coordinating private and public insurance for longevity and aged care.

She is a Fellow of the Institute of Actuaries Australia and has completed a PhD in Financial Economics at the University of Cambridge. Prior to commencing her PhD, Ramona worked for PwC Australia for five years as a Pensions Actuary.

AREA OF RESEARCH FOCUS

6

AGEING IN ASIA AND ITS IMPACT ON AUSTRALIA

Asia is the world's most rapidly ageing region, with a range of demographic stages represented. The Asian region is also home to more than 40% of the world's population, living in countries with dramatically different per capita incomes and rates of economic growth. Research focuses on these population dynamics and their interactions, including the determination of evolving demographics in some of the region's largest countries.

It examines differences between and within national populations, their health status, and their life expectancy, and studies policy reform and its implications both for the countries involved and for Australia.

TO VIEW PUBLICATIONS
AND WORKING PAPERS RELATING
TO THIS RESEARCH VISIT CEPAR.EDU.AU

RESEARCH PROJECTS

Age Patterns and Sex Differentials of Mortality in Asia Since 1950	84
The Demography of Indonesia	85
Population Ageing and Social Security Policy in Asia	86
Comparative Ageing in Asia	87
China's Insurance Systems for Retirement and Old Age	88
The Long-Term Decline in BMI Among Japanese Women	90

2014 contributions to this area of research focus fall into three groupings: studies that help determine and refine the evolving demographics of particular countries in Asia, and their causes; studies that try to come to terms with national differences in health status and healthy life expectancy; and research focused on policy issues. Among the major contributions are projects which focus on:

- **ANALYSING MORTALITY PATTERNS IN ASIA SINCE 1950**
This long term project, led by AI Zhongwei Zhao, aims to systematically examine mortality change for all 50 Asian countries and territories over the past 60 years. A major focus is how changes in female and male mortality vary across age groups and whether, in the Asian context, the sex-specific age variations change across key dimensions of interest such as mortality level, historical time and populations.
- **MAPPING INDONESIA'S DEMOGRAPHY**
Up to the present, social and economic policy has been hampered by lack of consensus on Indonesia's demographic evolution. Led by CI Peter McDonald, this path-breaking work, undertaken at both the national and provincial levels, will reconstruct Indonesia's demography between 1970 and 2010. In 2014, major progress was made through the evaluation of the population counts and statement of age in the five Indonesian censuses from 1971 to 2010. The analysis found that there was apparent considerable undercount in some age groups and that these undercounts could have major implications for estimation of fertility and mortality in Indonesia over the 40-year period.
- **ANALYSING GENDER DIFFERENCES OF HEALTHY LIFE EXPECTANCIES IN ASIAN COUNTRIES**
Work on Healthy Life Expectancies in China, based on the China Health and Retirement Longitudinal Study (CHARLS) dataset, has been presented and submitted to the Bulletin of the World Health Organization (WHO) for review.
- **ASSESSING SOCIAL SECURITY POLICY IN ASIA, IN THE CONTEXT OF DEMOGRAPHIC CHANGE**
In 2014, CEPAR generated a policy overview for social security in Asia, invited as a lead paper in a special issue of the *Asian Economic Policy Review*, and undertaken by Rafal Chomik and John Piggott. China was the special focus of several projects including one investigating regional differences in mortality improvement; and preparatory work was undertaken for a major analysis of long-term care in China.

AGE PATTERNS AND SEX DIFFERENTIALS OF MORTALITY IN ASIA SINCE 1950

RESEARCHERS

YAN YU
ZHONGWEI ZHAO

Life expectancy at birth (e_0) increased from 42 years in 1950 to 70 years in 2010 in Asia. This dramatic mortality improvement reflects the socioeconomic development, improvement in standards of living, and advancement in medical technology and health care that have been achieved by many countries in Asia over this timeframe. Some countries, on the other hand, have been subject to past or ongoing military conflicts and societal dysfunctions. This project aims to systematically examine mortality change for all 50 Asian countries and territories over the past 60 years, using the life tables

published by the World Population Prospects (WPP) 2012 Revision in five-year time intervals between 1950-1955 and 2010-2015. Specifically, we ask how changes in female and male mortality vary across age groups and whether, in the Asian context, the sex-specific age variations change across key dimensions of interest such as mortality level, historical time and populations.

For a combination of biological, social and behavioural reasons, life expectancy varies by age and sex. In the early stages of mortality transition, mortality decline is most dramatic in younger age groups, driven largely by the reduction in infectious diseases; when infectious diseases are under control,

fighting degenerative diseases, which afflict mainly the older age groups, becomes a major challenge. As for sex differentials, although it is not uncommon for female mortality to be higher than male mortality in historical and contemporary populations, women tend to live longer than men, and the sex gap in longevity tends to widen with mortality decline. Sex and age compositions are key characteristics of a population. Uncovering the empirical mortality variations by age and sex not only provide basic facts about population dynamics but may also contribute to understanding the determinants of mortality change.

The analysis classifies six age groups (0, 1-14, 15-44, 45-64, 65-84 and 85+), and uses the e_0 value at three time points (that is, 1950-1955, 1980-1985 and 2010-2015) to represent mortality level. We then use the life tables for the three time points to calculate, separately for each 30-year period, two mortality indicators: percentage change in death probabilities for each age group and contributions of age-specific mortality change to the gains in e_0 (based on Arriaga's decomposition procedure). The work is intended as an invited chapter for the *Routledge Handbook of Asian Demography*, expected to be published in 2015.

Uncovering the empirical mortality variations by age and sex not only provide basic facts about population dynamics but may also contribute to understanding the determinants of mortality change.



PROFESSOR ZHONGWEI ZHAO
BA PKU, MA Exeter, PhD Camb.
ASSOCIATE INVESTIGATOR

Zhongwei Zhao is Professor of Demography in the Australian Demographic and Social Research Institute at the Australian National University. He is also a member of the Board of Trustees of the International Centre for Diarrhoeal Disease Research, Bangladesh.

Prior to taking up his present appointment, he was a senior fellow at the Demography Program in the Research School of Social Sciences at the Australian National University; a senior research associate at the Cambridge Group for the History of Population and Social Structure; and a Bye Fellow at Pembroke College, University of Cambridge.

Zhongwei has published many papers in world leading demographic journals. Research interests include: the environmental impacts on population health and mortality; mortality and fertility transition in Asia, especially East Asia; computer microsimulation in demographic research; historical demography; changes in families,

households and kinship networks; demographic estimation and mortality models; and demographic impacts of famines.

RESEARCHERS

PETER MCDONALD
IWU UTOMO

External Collaborators

TERENCE HULL
KHOO SIEW-EAN
(BOTH ANU)
GRAEME HUGO
(ADELAIDE)

A large three-year Linkage Project led by Peter McDonald and conducted in cooperation with AusAID, UNFPA, Statistics Indonesia, and the Indonesian National Population and Family Planning Board, focuses on population and development in Indonesia.

Social and economic planning in Indonesia today is problematic because of a lack of consensus regarding the current and likely future demography of this, the world's fourth most populous nation. Making use of all available data sources and innovative techniques, the project aims to reconstruct Indonesia's demography over a 40-year period from 1971 to the 2010 Census of Indonesia. The work will be done at both the national and the provincial levels.

Beyond demographic estimation, the project will also produce reports on social and economic trends based mainly upon analysis of the Indonesian censuses. This includes analysis of internal migration, urbanisation, housing, labour force participation, industrial composition, and education. The project brings together technical demographic expertise in Australia and Indonesia to develop reliable population estimates and to inform evidence-based policymaking including policies related to the ageing of the population of Indonesia.

In 2014, major progress was made through the evaluation of the population counts and statement of age in the five Indonesian censuses from 1971 to 2010. The analysis found that there was apparent considerable undercount in some age groups and that these undercounts could have major implications for estimation of fertility and mortality in Indonesia over the 40-year period.

The analysis was conducted at both the national and provincial levels and there was considerable variation in accuracy across provinces. This work will be used in 2015 to develop new estimates of the population and age structure of Indonesia over the 40 years to 2010 and to obtain new estimates of fertility and mortality trends.

PROJECT OUTPUTS:

In April, as part of this project, Peter McDonald delivered the 2014 Sadli lecture in Jakarta and Yogyakarta. The Sadli lecture address and a related paper were published in 2014:

McDonald, P. (2014). The Demography of Indonesia in Comparative Perspective. *Bulletin of Indonesian Economic Studies*, 50(1): 29-52.

McDonald, P. (2014). 'A Population Projection for Indonesia, 2010-2035'. *Bulletin of Indonesian Economic Studies*, 50(1): 123-129.

Other work on the project in 2014 included a study of ethnicity at the local level in Greater Jakarta, analysis of internal migration patterns in Indonesia at the provincial level with special attention on the eight million migrants who left the province of Central Java (with major implications for population ageing in that province), and a study of ethnic intermarriage across Indonesia (with implications for the disruption of traditional caring patterns for older persons).

Social and economic planning in Indonesia today is problematic because of a lack of consensus regarding the current and likely future demography.

RESEARCHERS

JOHN PIGGOTT
RAFAL CHOMIK

Nowhere is population ageing as extreme as it is in Asia. While countries in Central and South Asia are relatively young and will remain so for some time, those in East and South-East Asia are expected to age at an unprecedented rate in the next few decades. Japan has reached the future first, with the oldest population in the world. But at its heels are countries such as China, Singapore and Korea that are ageing at a rate not seen elsewhere. By 2050, Thailand, Vietnam and Indonesia are projected to have an older population age structure than Australia or the US has today.

Policymakers in these countries are only beginning to see the implications of this demographic transition on social policy, particularly relating to pensions, healthcare, and aged care. Focusing on countries in East and South-East Asia, the project seeks to consolidate existing knowledge about good social policy design and develop areas of research that result in practical policy recommendations.

CEPAR's work in this area has seen a large number of research papers, which were previously summarised in a series of research briefs. The work informed recent CEPAR presentations, such as at the Australian National University's March 2014 conference on 'G20's Policy Challenges for Asia and the

Pacific', and the World Bank's April 2014 conference on 'Challenges of Population Aging in Asia'.

A 2014 working paper on the topic, presented in Tokyo in October 2014, is expected to be soon published in the *Asian Economic Policy Review* as an overview for a special volume on population ageing and social security. It looks at the demographic, urbanisation and social trends facing Asia; and discusses two areas of social policy most pertinent to population ageing: retirement income and health care.

The overall message is clear. Well-designed social policies can address the challenges of population ageing but also represent a

opportunity to rebalance growth across Asia – allowing individuals to pool idiosyncratic risks associated with income and health shocks and reducing the need for households to accrue excessive precautionary savings. Comparing the structure, parameters and outcomes and identifying issues with respective pension and health systems can guide policymakers in which policies work and which need adjusting.

The establishment of a new research hub on ageing through the Association of Pacific Rim Universities will give impetus to future collaboration in this area, developing early career academics and showcasing Australian research.

By 2050, Thailand, Vietnam and Indonesia are projected to have an older population age structure than Australia or the US has today.



RAFAL CHOMIK
BEcFin UWA, MEc London
Metropolitan
SENIOR RESEARCH FELLOW

Rafal Chomik is a Senior Research Fellow at CEPAR, located in the UNSW Business School. He joined CEPAR in April 2012.

Rafal has worked in public administration and policy analysis for over a decade,

initially as a project manager in economic regeneration and subsequently as an economist focusing on social policy.

He has experience in economic and business consulting in the private sector, working as an economic advisor for the British Government and as a pensions economist at the Organisation for Economic

Cooperation and Development in Paris. He specialises in social policy design, public and private pension analysis, static microsimulation modelling of the tax-benefit system, and poverty and income measurement.

His current work at CEPAR is centred on producing policy related briefing papers, summarising existing CEPAR and external research and

assisting the secretariat in producing technical content for conferences and the media.

RESEARCHERS

CATHY GONG
COLETTE BROWNING
HAL KENDIG

Populations are ageing rapidly in both developed and developing countries, raising increasing concerns for workforce supply, fiscal sustainability, retirement incomes and quality of life for older people. The impact of and response to these unprecedented challenges in countries at different levels of development will create new opportunities for a range of contributions to the international comparative literature on ageing within different cultural and social economic environments.

As part of this project, a symposium was led by Dr Cathy Gong and Professor Yasuhiko Saito (Nihon University) for the Gerontology Society of America (GSA) Annual Scientific Meeting 2014 in Washington DC in November 2014 entitled 'Healthy Life Expectancies and Health Inequalities among the Asia-Pacific Countries: Evidence from Australia, Korea, China, Singapore and India'. Papers were presented by Professor Jinkook Lee on Korea, Dr Hao Luo on China, Dr Cathy Gong on Australia, Ms Catherine Wargo on India, and Professor Angelique Chan on Singapore. These papers investigated gender and regional disparities in health and healthy life expectancy (HLE) among older people and explored the socioeconomic factors that drive these differences.

Two papers were supported by CEPAR: 'Healthy Life Expectancy among Older Australians: Evidence and Factors Impacting Gender and Regional Disparities' and 'Health Expectancies among Chinese Older Adults: Evidence from the China Health and Retirement Longitudinal Study (CHARLS)'. A related work, 'How the Increase in Life Expectancy and Health Life Expectancy Change our Future Perspective of Labour Force Participation for Older People', was presented by Dr Gong as an invited address to the Australian Association of Gerontology (AAG) NSW forum in September 2014.

The paper on HLE in China has been submitted to the *Bulletin of the World Health Organization (WHO)* for review and the Australian paper will be prepared for submission to a similar journal. A comparative paper on healthy life expectancies across a number of Asian-Pacific countries, including Australia, Japan, China, India and Bangladesh will be also developed.

With further support from CEPAR, additional analysis using the CHARLS and Household, Income and Labour Dynamics in Australia (HILDA) Survey data will be conducted in 2015 on the impact of education and social economic status (SES) gradients on different health outcomes and healthy life expectancies, the determinants and trajectories of health, labour force participation and wellbeing and how life history impacts on independence and ageing well. Several ARC grant proposals are planned for 2015.

These papers investigated gender and regional disparities in health and healthy life expectancy among older people and explored the socioeconomic factors that drive these differences.

RESEARCHERS

LU BEI
JOHN PIGGOTT
HAZEL BATEMAN
JICHEN LI

External Collaborators

KEVIN LIU (UNSW)
WENJIONG HE
XIANGUO YAO
HONG MI
ZHENZHEN ZHANG
(ALL ZHEJIANG UNIVERSITY)

A number of CEPAR researchers have been analysing retirement resources in China for some time. Several academic publications have resulted, along with many conference and government presentations in China.

PENSIONS FOR THE DISENFRANCHISED: SOCIAL AND MIGRANT PENSIONS

Two projects, one focused on the feasible parameters of a social pension offering poverty alleviation to all Chinese retirees, and the second focused on pensions for migrant workers, were completed and resulted in publications over the last 18 months. This research was a critical input into a major invited report on pension reform in China, with Lu Bei as lead author.

The overall report, which was submitted through Zhejiang University, focused on sustainable poverty alleviation of China's elderly. It proposed a first pillar style social pension through the conduit of the new Rural Pension, which currently has very broad coverage, but

miniscule benefits. The proposal modified this structure and increased the annual benefit to between 6 and 10% of GDP per capita, while at the same time increasing the access age from 60 to 65 on varying timescales (2030 and 2050). The second pillar, currently the Employee Pension Scheme, a Defined Benefit (DB) scheme, is to be recast as a Notional Defined Contribution (NDC) scheme, at reduced levels of expected replacement, while a fully funded third pillar would have a DC structure. Costs, estimated using parameters from CEPAR research, were estimated at between 1.8 and 3.1% of GDP in 2020, increasing to between 4.4 and 6.6% of GDP by 2050.

The report represents a synthesis of analysis spread over several years, and presented a feasible way forward for the Chinese government in its quest to deliver sustainable retirement income to the elderly.

LONG-TERM CARE IN CHINA: ESTIMATING MULTI-STATE LIFE TABLES AND COSTS FROM A PILOT PROVISION PROJECT

Research is now beginning to focus on aged care in China. Little is known about this new frontier in Chinese social policy. There are several pilot programs in specific counties or townships, but thus far, no national policy has been developed, even in guideline form.

Initial research has focused on generating a statistical description of the overall long-term care (LTC) needs

and provision, and their distribution across the country. Using data from the China Health and Retirement Longitudinal Study (CHARLS), we find that there are currently about 13.6% of disabled elders who cannot get any informal care, and some 254,000 people aged more than 60 who cannot access required support. By 2030, if the ratio remains unchanged, this number will increase to about half a million (524,000).

In addition, many do not have adequate informal care and need community care or home care support. Some 25% of the informal care receivers have less than 30 hours caring time and 50% less than 63 hours per month. Using one hour a day as a standard of adequacy, this translates into 22% of the total disabled needing



DR LU BEI

BA Tsinghua, MBA S. Aust., PhD
UNSW

RESEARCH FELLOW

Lu Bei is a CEPAR Research Fellow located at the UNSW Business School and a Research Fellow with Zhejiang University, China.

After graduating from Tsinghua University in Beijing, Lu Bei worked as an international trader in the

metal industry for 12 years. She returned to academia in 2002 to undertake a PhD in Economics at UNSW. Her thesis and subsequent research focuses on pensions and related social welfare and economic issues.

Lu Bei has been very successful in developing international linkages over the past ten years. In 2003, she initiated a research project with the provincial

government of Zhejiang province, China, which examined the impacts of various pension reform proposals in that province, and this has formed the basis of an ongoing engagement with pension economists and policymakers in China. In 2004, she assisted the World Bank's Operations Evaluation Department in evaluating the Bank's support of pension reform in the Asian region. She

also spearheaded a research project with Zhejiang University which formed the basis of a successful Linkage grant application in 2010. She has presented her research at a number of international conferences including the Stanford-Harvard Population Ageing Conference and the London School of Economics Long-Term Care Conference.

some home or community support on top of informal care, translating in absolute numbers to about 410,000 in 2010 and 850,000 in 2030.

CEPAR is partnering with the Zhejiang University Institute for Population and Development Studies to bid for funding to support a research project to analyse the Long-term Care pilot project in Qingdao, which has collected detailed data on LTC service use over the last two years. If successful, this will allow path breaking work to be undertaken, both empirically and methodologically.

ESTIMATING AND EXPLAINING REGIONAL DIFFERENCES IN MORTALITY IMPROVEMENTS IN CHINA

To assist with a better understanding of the future liabilities of China's decentralised public pension system, a study was undertaken to estimate and project mortality improvements in China on a regional basis – specifically by each province and administrative region for both urban and rural populations. Due to the absence of life tables on a regional basis, this required the construction of over 800 life tables using primary census data from 1987, 1990, 1995, 2000, 2005 and 2010. The constructed data was then utilised to estimate and project mortality improvements using the Lee Carter model extended to account for the limited time series. Initial results confirm nationwide improvements in mortality with a narrowing in the differences in life expectancy between the

highly developed provinces of the east and the far less developed provinces of the west. However, further investigation revealed different trends for the urban and rural populations within each province. While life expectancy in urban areas is converging, the differences appear to be widening for rural populations. Supplementary analysis to investigate the role of economic development on mortality improvements suggests a strong association with regional GDP growth and health expenditures.

Project outputs:

Lu, B., He, W. and Piggott, J. (2014). Should China Introduce a Social Pension? *The Journal of Economics and Ageing*, 4, 76-87.

Piggott, J. and Lu, B. (2014). Meeting the Migrant Pension Challenge in China. *CESifo Economic Studies*. In press (available online June 2014).

The report ... presented a feasible way forward for the Chinese government in its quest to deliver sustainable retirement income to the elderly.

THE LONG-TERM DECLINE IN BMI AMONG JAPANESE WOMEN

RESEARCHER

SHIKO MARUYAMA

External Collaborator

SAYAKA NAKAMURA
(NAGOYA UNIVERSITY)

Men and women are rapidly gaining body weight in most parts of the world - a phenomenon called the global obesity epidemic. Conventional explanations for this trend include the availability of high-calorie food, the higher opportunity costs of preparing healthy food, and decreased energy consumption at work. In sharp contrast to this global trend, however, the Japanese have a body mass index (BMI) significantly lower than those in other high-income countries, and the thinness of Japanese women is particularly prominent. Moreover, the

age-specific BMI of adult Japanese women has steadily decreased over a half century, in contrast to the consistent increase in that of Japanese men. Curiously, there are other unusual behavioural features among Japanese women that have been observed together with the long-term decline in BMI - they have a lower marriage rate than women in most other countries, and their fertility is very low. This latter decision, in particular, has led to Japan being the world's oldest significant economy.

This project aims to investigate the mechanism underlying the BMI trend among Japanese women. The unique gender difference in Japan cannot be explained by the standard

theories based on nutrition, public health, or food prices. In this project, we investigate whether the peculiar BMI trend among Japanese women reflects long-term socioeconomic structural changes such as the long-term trends in the fertility rate, female labour force participation, and marriage market in Japan.

In 2014, two working papers were produced. The first paper provides a comprehensive description of BMI trends over the last 100 years in Japan, illustrating that the gender difference is driven by adults and that the long-term BMI decline among Japanese women began at the end of

World War II as a cohort-specific phenomenon. The second paper utilises the model of steady-state weight and shows that the driving force between the unique gender difference in BMI trends in Japan is the trend in energy consumption rather than energy intake. In 2015, we plan to conduct a more detailed decomposition analysis to identify the factors most closely related to the BMI trend and to shed light on the mechanism. We will

examine a range of alternative hypotheses, including the marriage market hypothesis, the decline in fertility, female labour force participation, and gender difference in the trends of occupation choice.

...we investigate whether the peculiar BMI trend among Japanese women reflects long-term socioeconomic structural changes such as the long-term trends in the fertility rate, female labour force participation, and marriage market in Japan.



DR SHIKO MARUYAMA

BA MA Keio University, PhD
Northwestern University
ASSOCIATE INVESTIGATOR

Shiko Maruyama is a Senior Lecturer at the University of Technology, Sydney (UTS) Business School. Prior to his appointment at UTS, he was a CEPAR Research Fellow located at the UNSW node.

His research interests include empirical applied microeconomics and a wide range of health economics topics, such as health insurance, informal care, elderly care, the long-term BMI trends, and the effect of birth outcomes.

Previously he has held Visiting Scholar positions at the Department of Economics at Queen's University, the Department of Management and Strategy at the Kellogg School of Management and the Institute of Economic Research at Hitotsubashi University.

RESEARCH TRAINING & MENTORING

CEPAR DEMONSTRATED ITS ONGOING COMMITMENT TO THE DEVELOPMENT OF NATIONAL RESEARCH CAPACITY IN AGEING RESEARCH IN A VARIETY OF WAYS IN 2014.

CEPAR's leadership of the 2014 Go8C9 PhD forum, an annual event focused this year on population ageing, provided us with an opportunity to emphasise the importance of cross-national, cross-disciplinary research to the outstanding young Australian and Chinese researchers in ageing assembled at this year's forum.

Australian PhD students in ageing also came together in November 2014 for the 13th National Emerging Researchers in Ageing (ERA) Conference. Sponsored by CEPAR and jointly hosted by the Flinders Centre for Ageing Studies at Flinders University and the Australian Population and Migration

Research Centre at the University of Adelaide, the conference featured a keynote presentation by CEPAR Chief Investigator Kaarin Anstey, as well as presentations from 49 students (eight of them CEPAR affiliates). At the honours level, the population ageing stream of the 2014 National Honours Colloquium provided an excellent opportunity for fourth year honours students to present their research-in-progress and benefit from interactions with students from a range of disciplines working in the ageing field.

CEPAR Partner Investigator, Professor Carol Jagger, returned to CEPAR in June 2014 to build on her successful 2013 Early Career Researcher (ECR) workshop on Healthy Life Expectancy, focusing this year on understanding how health and mortality evolve. Links between CEPAR and partner and affiliated organisations were further strengthened this year through the CEPAR ECR Exchange Program which provided funds for CEPAR Research Fellows to

spend extended periods of time away from their node working with CEPAR Partner and Associate Investigators. In addition, the Centre hosted visits by a number of students and ECRs keen to connect with CEPAR researchers and take advantage of the dynamic research environment CEPAR offers.

In 2015, we look forward to implementing new initiatives which will provide further training opportunities for our young researchers, enhance their appreciation of the importance of collaboration with industry and government, and strengthen their networks.

Peter McDonald
Deputy Director and
Chair, Mentoring Committee

EARLY CAREER RESEARCHER MENTORING AND TRAINING

ECRs are mentored by CEPAR senior researchers and have opportunities to interact with experts within the three collaborating universities, as well as international leaders in the field who visit the Centre during the year. A range of events held throughout 2014 also provided frequent occasions to engage with our industry and government partners. Our ECRs participate in Centre activities such as workshops and seminars, contribute to the Centre's working paper series and have opportunities to develop a range of skills.

In 2014, 23 research fellows were funded directly by the Centre and, additionally, eight of our CEPAR Associate Investigators (AIs) were ECRs.

EARLY CAREER RESEARCHER WORKSHOP

An advanced training workshop titled 'Healthy Life Expectancy from Longitudinal Data: Understanding how Health and Mortality Evolve' was hosted by the CEPAR ANU node in June 2014. Convened

by CEPAR Partner Investigator Carol Jagger, the workshop attracted ECRs and PhD students from around the nation. The workshop was offered free of charge to both CEPAR and non-CEPAR affiliates and CEPAR travel bursaries were available to assist with interstate travel.

Through lectures and practicals, the workshop provided the fundamental tools to understand the benefits of health expectancies (HEs) from longitudinal data; appreciate the different longitudinal study designs and their implications for calculating HEs from them; and understand how to calculate HEs from longitudinal data using two software packages. The hands-on three day workshop encouraged participants to bring their own data and research questions.

Participants found the workshop extremely valuable, both in terms of the opportunity to advance their skills and network with other emerging researchers working in the field.

RESEARCH TRAINING & MENTORING



DR DIANE HOSKING

CEPAR Research Fellow
2014 ECR WORKSHOP PARTICIPANT

‘As a CEPAR Early Career Researcher, I really appreciated the opportunity to attend this very ‘hands-on’ workshop for calculating healthy life expectancy using longitudinal data. Professor Jagger and Andrew Kingston provided an excellent framework for understanding the relevance of demographic and lifestyle predictors of disability incidence, recovery, and mortality.

These methodological experts in the field were able to enrich and enliven the course by drawing upon experiences from their own work developing and implementing the approach. I found the applied focus taken to teaching the material, together with the excellent course resources ensured the workshop provided valuable knowledge and skills to inform my future research endeavours.’

NATIONAL AND INTERNATIONAL NETWORKING OPPORTUNITIES

Creating opportunities for young researchers to develop their international networks and communicate the results of their research to international peers continued to be an area the Centre invested significant resources.

Two CEPAR Research Fellows, Vanessa Loh and Richard Burns, were awarded ECR Travel Grants to spend time working intensively with CEPAR teams located at other universities.

Vanessa Loh spent six weeks working directly with and learning from CEPAR Partner Investigator James Nazroo, Dr Bram Vanhoutte, and their colleagues at the Cathie Marsh Centre for Census and Survey Research (CCSR) at the University of Manchester. The visit had two key objectives. The first was to begin work on a cross-national comparative research program examining the differences and similarities in patterns of health, work and wellbeing between Australian-born, migrant, and English baby boomers as they age. Using data from the Australian Life

Histories and Health (LHH) survey and the English Longitudinal Study on Ageing, the research advanced the CEPAR project ‘Socioeconomic determinants of health and wellbeing across the life course: Australians and English comparisons’ (see page 68 for further details). The second objective was to improve her understanding of quantitative research methods and further develop her analytic skills by enrolling in advanced short courses in multilevel modelling and longitudinal data analysis and causal modelling. Building on this successful visit, Dr Vanhoutte from CCSR will be funded to visit CEPAR in 2015 to further advance this collaborative research project.



PROFESSOR CAROL JAGGER

BSc MSc Leeds, PhD Leicester
PARTNER INVESTIGATOR

Carol Jagger is the AXA Professor of Epidemiology of Ageing in the Institute of Health and Society, Newcastle University, UK and a theme lead (Ageing: Economic and Social Impact) for the Newcastle University Institute for Ageing, UK.

She has an Honorary Visiting Fellowship at the Department of Public Health and Primary Care, Cambridge, is a Fellow of the Royal Statistical Society and Gerontological Society of America, is a Member of the British Geriatrics Society and a Chartered Scientist. She sits on the Institute and Faculty of Actuaries Mortality Research Steering Committee, the NHS Outcomes Framework Technical Advisory Group and the Office for National

Statistics National Population Projections Expert Advisory Panel. In 2014 she was awarded an honorary fellowship by the Institute and Faculty of Actuaries.

Her research spans the demography and epidemiology of ageing with a focus on trajectories of mental and physical functioning, and determinants of healthy active life expectancy.

She brings to the Centre statistical and epidemiological expertise particularly in cross-national comparative analyses, healthy life expectancy and its determinants and consequences, and simulation modelling of disease and disability. In 2014 she led the CEPAR ECR workshop on ‘Healthy Life Expectancy from Longitudinal Data’.



DR VANESSA LOH

CEPAR Associate Investigator
ECR TRAVEL GRANT RECIPIENT

‘I am extremely grateful to Professor Kendig, Professor Nazroo, and CEPAR for providing me with this invaluable experience. It was a great opportunity to advance my research as well as learn more about quantitative research methods used in sociological research and to further develop my analytic skills. I also had the chance to consult directly with leading experts in social statistics. The team at CCSR were all extremely welcoming and I was immediately invited to participate in a number of research seminars, talks and workshops.’

Richard Burns used the scheme to visit CEPAR AIs Colette Browning at Monash University’s School of Primary Health Care and Tim Windsor at the Flinders Centre for Ageing Studies at Flinders University. The purpose of the visits was to undertake exploratory work to examine potential for collaborative research projects involving Burns, the AIs, and CEPAR CIs Anstey and Kendig. The visits resulted in the development of three projects which are each expected to result in a journal article:

- 1 Examining the utility of life satisfaction as a measure of population health and wellbeing across the lifespan (Burns, Windsor and Anstey);
- 2 Determining the extent to which population-level mortality-related declines in cognitive functioning are normative (Burns, Windsor and Anstey); and
- 3 Examining social-economic determinants of living well with chronic disease (Burns, Browning and Kendig).



DR RICHARD BURNS

CEPAR Research Fellow
ECR TRAVEL GRANT RECIPIENT

‘CEPAR was extremely gracious in supporting my visits with two CEPAR AIs. As a consequence of these trips several important findings were identified and have been prepared for or are already under review. For example, using MELSHA data we have explored the impact of bereavement on individual’s mental health and wellbeing. Frequently, the death of a spouse has been implicated in a range of health and economic consequences for the surviving partner. Using data from the MELSHA study, we were able to follow the mental health and wellbeing trajectories of bereaved individuals over a 16-year period and to compare these trajectories with individuals who remained married. A common theory is that individuals bounce-back to their pre-bereavement

wellbeing levels. Whilst this appears true for mental health, we identified significant and substantial long-term changes in wellbeing. This also highlights the importance of considering multiple dimensions of mental health and wellbeing as the effect of bereavement was not consistent across all wellbeing/mental health dimensions.’

Our visitors program also provided our students and ECRs with an opportunity to expand their international networks. This included international experts who were distinguished speakers at 2014 CEPAR or CEPAR-sponsored events such as the ASSA symposium and joint CEPAR-CESifo workshop. Many of these visitors spent extended periods of time at the Centre meeting with CEPAR personnel to discuss CEPAR research and the development of joint projects. For our junior researchers, this provided an excellent opportunity to exchange ideas and perspectives with a range of multidisciplinary experts in an informal setting. Hosting visiting PhD students from institutions with which we are building a collaborative research

program, also expanded the networks of our young researchers and fostered the development of collaborative research relationships. CEPAR students were also encouraged to present their research at international conferences. To enable this, CEPAR provided funding to nine PhD students in 2014 to assist with conference travel expenses.



SERVAAS VAN BILSEN

PhD student, Tilburg University
CEPAR VISITOR, 7-13 DECEMBER 2014

‘CEPAR provides an inspiring environment fostering the exchange of knowledge and ideas among researchers and between researchers and practitioners. I really appreciate the opportunity CEPAR has given me to present my work to a wide audience at PwC. I hope to visit CEPAR again in the future.’

RESEARCH TRAINING & MENTORING

ENGAGEMENT WITH INDUSTRY AND GOVERNMENT

Two Directors of Research Engagement, one focused on industry and the other on government linkages, are charged with actively supporting the career development of our ECRs and students. This includes identifying opportunities for their participation in meetings, roundtables and briefing sessions with external stakeholders, co-authoring briefing notes and other relevant documentation, and more generally becoming familiar with the protocols and processes involved with external engagement.

This year, several CEPAR ECRs were selected to participate in the Department of Social Services-CEPAR roundtable in August (see page 112 for further details) and were provided with practical support from senior CEPAR researchers in preparing presentations for a non-academic audience. Other opportunities for young researchers to present and interact with policymakers, business leaders and community groups included the CEPAR

Long-Term Care and Longevity Insurance Workshop hosted in collaboration with PwC; the 2014 COTA NSW Parliamentary Forum; a workshop on the Financial System Inquiry organised by the Centre for International Finance and Regulation; the 2014 ASSA Symposium on Population Ageing; and a forum with an international delegation of policymakers visiting from China.

In December 2014, PhD student Kimberly Ashby-Mitchell won a prestigious 2015 Deeble Institute Summer Scholarship which supports talented students to produce an Issues Brief on an important national health services or health policy topic. Developing her brief on the topic 'estimating the cost of cognitive impairment in Australia' will provide Kimberly with an excellent opportunity to gain a better understanding of how to make academic research relevant to policymakers and practitioners.

HIGHER DEGREE RESEARCH TRAINING

47 HDR students are currently enrolled under the supervision of CEPAR Investigators and working on topics aligned with the Centre's research agenda. Details of their research theses are provided on pages 96 – 107. These students have the opportunity to participate in a range of Centre activities, including conferences and workshops and meetings with international visitors.

We contribute to the development of national research capacity more generally through our support for Emerging Researchers in Ageing (ERA), an initiative which aims to bring together students interested in ageing research and provide them with opportunities to form networks and undertake collaborative endeavours. In 2014 ERA membership continued to grow, with over 700 registered members,

primarily doctoral students drawn from a wide range of disciplines. ERA members have the opportunity to participate in the annual conference, virtual seminar series, as well as take advantage of other opportunities, for example, the ERA travel exchange scheme.

EMERGING RESEARCHERS IN AGEING CONFERENCE

The theme of the 13th National ERA conference was *Making Research Matter*. Jointly hosted by the Flinders Centre for Ageing Studies at Flinders University and the Australian Population and Migration Research Centre at the University of Adelaide, the conference attracted a large number of participants and covered a wide range of issues from a number of disciplinary perspectives including: cognition and psychological ageing; dementia and cognitive impairment; decision making and community participation; social relationships; workforce participation and retirement; health service use, aged care and policy; and perspectives of care.

Run immediately prior to the Australian Association of Gerontology (AAG) National conference, ERA 2014 provided participants with an opportunity to attend both conferences as well as the ERA and AAG workshops. CEPAR Chief Investigator and Professor of Psychology, Kaarin Anstey, delivered the keynote address:

'Developing your research career in ageing, focusing on scientific excellence and knowledge translation'. Drawing on her personal experience, she outlined opportunities available for young researchers at key points in their careers and stressed the importance of mentoring.

Three post-conference workshops were well attended by ERA participants:

- Contemporary Methods for Analysing Longitudinal Data (presented by CEPAR Associate Investigator Tim Windsor);
- Writing for Publication (presented by the *Australasian Journal on Ageing*); and
- Navigating the Media Jungle: Your Guide to Staying Relevant (presented by the AAG).



DOROTHY DUDLEY
CEPAR PhD student,
University of Sydney
ERA 2014 PARTICIPANT

Dorothy Dudley, a PhD student at the University of Sydney, was one of eight CEPAR researchers to present at ERA 2014. She was awarded the national prize for Best Presentation by an AAG student in 2014. Dorothy's paper 'Greener pastures? A portrait of life satisfaction among older Australians' delivered on the Conference theme *Making Research Matter*, with its relevance to contemporary discussion about raising the pension eligibility age and the consequent impact on the overall life satisfaction of ageing Australians.

She examined self-reported life satisfaction among Australians aged 55+, and reported a quality of life perspective beyond the common focus on economic labour market and healthcare impacts of population ageing.

ERA CONFERENCE PUBLICATION SURVEY

In 2014 the ERA team set out to ascertain the number of publications arising from participation in the 2011 and 2012 ERA conferences. Based on student responses to an online survey and google scholar searches, they found that 109 journal articles relating to work presented at the 2011 and 2012 ERA conferences had been published. Forty-seven (53.4%) of the eighty-eight delegates to the 2011 and 2012 conferences were responsible for this output.

ERA VIRTUAL SEMINAR SERIES

The ERA Virtual Seminar series provides a regular opportunity for ERA members from across Australia and internationally to come together virtually to hear from leading researchers and stakeholders in the field of ageing and engage in extended discussion. Participation in the series has significantly grown in the last two years with up to 70 participants per virtual seminar based in Australian metropolitan and regional areas as well as New Zealand, China and Malaysia. Three virtual seminars took place in 2014: A session on research publications in March; on engaging with

the media in May; and on evidence-informed practice in July.



CEPAR RESEARCH FELLOW LU BEI AND STUDENTS AT THE GO8C9 GRADUATE FORUM WORKSHOP

GO8C9 GRADUATE FORUM ON POPULATION AGEING

On December 1 2014, thirty-four PhD students drawn from the top universities in Australia and China assembled at UNSW for the Go8C9 PhD forum. Organised by UNSW in collaboration with CEPAR, this year's forum focused on the theme of population ageing. The students participated in a range of activities spread across five days, providing them with opportunities to present their research-in-progress, network with their peers, and hear from established researchers. The forum emphasised the importance

of collaboration with international research institutions as well as with industry and government – something CEPAR particularly values. To support this theme, CEPAR Research Fellow Lu Bei led an innovative workshop focused on the benefits of cross-national, collaborative research, an area in which she has considerable expertise. In addition, CEPAR organised for Jim Harrowell, a member of the Board of the Australia China Business Council and UNSW Business School Alumni Leader, to address the students and share with them his perspectives on China.



KIMBERLY ASHBY-MITCHELL
CEPAR PhD student,
Centre for Research on Ageing,
Health and Wellbeing,
Australian National University
GO8C9 GRADUATE FORUM
PARTICIPANT

'What a great opportunity it was to have been selected to be part of the Go8C9 PhD Forum. As we presented our research and participated in discussions and workshops, I became acutely aware of the wide array of factors that must be considered if we are to develop communities and cities that are truly age-friendly. With participants from universities in Australia and China, I was able to better understand how culture influences attitudes and perceptions to ageing, health and wellbeing.

I strongly encourage other PhD students to attend this forum in the future as it allowed me to forge links with other students who are involved in aspects of ageing that are far removed from my

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field of study. This I view to be a major positive as a multidisciplinary and creative approach is needed to address the gamut of ageing-related issues we face.'

HONOURS STUDENT ENGAGEMENT

NATIONAL HONOURS COLLOQUIUM

The population ageing stream of the UNSW Business School's 2014 National Honours Colloquium provided an opportunity for fourth year honours students to present their research-in-progress in a stimulating and supportive environment. The stream is designed to provide participants with an enriched appreciation of multidisciplinary research and the impetus to consider higher degree research. CEPAR Research Fellows were on hand to provide feedback on a range of topics including falls and falls prevention; China's regional differences in life expectancy; using superannuation to purchase a family home; and hedging and immunisation of longevity risk.



CHANGYU ESTELLE LIU

Honours Student, UNSW Business School

2014 NATIONAL HONOURS COLLOQUIUM PARTICIPANT

'By presenting at the National Honours Colloquium, I felt integrated with the academic community. It was a great experience for me as I got the opportunity to meet other researchers in similar fields and receive invaluable feedback for my research work.'

STUDENT THESES

CEPAR affiliated students work under the supervision of CEPAR Investigators on topics aligned with the Centre's research agenda.

In 2014 a total of 47 HDR students and four honours students were affiliated with the Centre. This year eight HDR CEPAR affiliates submitted their theses for examination and/or graduated:

- Xiao Chen (PhD awarded)
- Simon Man Chung Fung (PhD submitted)
- Mydair Hunter (PhD submitted)
- Sarang Kim (PhD submitted)
- Thomas Lo (PhD submitted)
- Adam Wenqiang Shao (PhD awarded)
- Sarah Walker (PhD submitted)
- Chwee Chwee von Sanden (MPhil submitted)

PHD STUDENTS AT THE UNSW BUSINESS SCHOOL

NATALIA ARANCO

MEc Universidad de Montevideo

SUPERVISORS

Professor John Piggott and Dr Shiko Maruyama

Assessing the impact of fertility differentials in the accumulation of human capital

The aim of this thesis is to shed new light on the relationship between education and mortality as it evolves across countries at different stages of development. Specifically it aims to quantify the impact of education-fertility differentials (FD) on the intergenerational transmission of human capital. It computes a novel measure of FD, based on the observation that if low-educated women have more children than on average in a given cohort of babies, then the average education level of the mothers of that cohort will be lower than the education level of all women of reproductive age in the country. Data are drawn from the Demographic and Health Surveys program: the final database comprises 192 surveys from 63 countries across 30 years.

BIANCA BONOLLO

BSc Econ University of Padua, MSc Econ Ca' Foscari University of Venice

SUPERVISOR

Dr Loretta I. Dobrescu

CO-SUPERVISOR

Professor John Piggott

Social networks and formal care usage

This research aims to provide a deeper understanding of the role of social networks in determining the amount of formal care demanded by the elderly. There are two main channels through which social networks could impact health care. First, social ties could provide informal care (as a substitute for formal services). Second, they could also provide better information about available formal care, and help access it. This topic will be studied exploiting the new modules of the fourth wave of the Survey of Health, Ageing and Retirement in Europe, which collects specific information about the social networks of the elderly in several European countries.

XIAO CHEN*BSc Peking University, MA Syd.***SUPERVISOR**

Professor Alan Woodland

Implications of population ageing for education, technological progress and economic growth

This thesis focuses on the impacts of individual and population ageing upon education, technological progress and economic growth. It first constructs a model with technology adoption and innovation, and studies how ageing could affect technological progress. The thesis then uses the overlapping-generations model with survival uncertainty and defines population ageing as a higher survival rate, to investigate how population ageing affects educational efforts, the direction of technological change and economic growth. Finally, this thesis studies the interaction of population ageing and international trade in determining education and skill premium. Population ageing is found to be a key factor in explaining the observed significant rises in skill premium over the recent decades. The thesis was submitted in March 2014 and the degree conferred in June 2014.

SIMON MAN CHUNG FUNG*BSc (Hons) ANU***SUPERVISOR**

Professor Michael Sherris

CO-SUPERVISOR

Dr Katja Ignatieva

Pricing and risk management of long dated contracts in finance and insurance

Retirement products are expected to play a significant role in addressing the needs of a rising number of retirees. These products are of a very long-term nature and insurers who offer them are often subject to financial and demographic risks. Part of the thesis is concerned with the pricing and risk analysis of financial guarantees in variable annuities, focusing on the longevity risk component. The thesis was submitted in October 2014.

NATALIA GARABATO*BA Econ (Hons) University of the Republic, Montevideo***SUPERVISORS**

Professor John Piggott and Professor Denzil Fiebig

What motivates people to save for retirement? The role of personality & impatience

This thesis investigates the determinants of retirement income and savings focusing on the role of impatience and how it affects people's disposition

to save for retirement. Literature suggests that impatience and present bias are plausible explanations for suboptimal financial decisions as evidence shows that individuals do not allocate resources intertemporally in ways that are likely to be welfare improving. Using a one off experiment included in the Social Protection Survey in Chile to measure people's impatience, we analyse the determinants of the subjective discount rate, its relation to retirement income (actual or projected) and how/whether individuals respond to incentives to delay gratification. The findings show that impatience is negatively correlated with actual retirement income (for retirees) and expected pension income for non-retirees, which confirms a link between impatience and the ability to save for retirement. Moreover, the findings suggest people can be significantly affected by financial incentives to delay consumption. The findings have important implications for the design of incentives to save in retirement products.

ADAM WENQIANG SHAO*BA Finance Beijing International Studies University, MA Actuarial Central University of Finance and Economics, China***SUPERVISOR**

Professor Michael Sherris

CO-SUPERVISOR

Dr Katja Hanewald

An analysis of pricing and risks of reverse mortgage loans and long-term care insurance

The thesis develops new pricing and risk analysis frameworks for reverse mortgage loans and long-term care insurance. These are two important products that are increasingly used by individuals to finance their health costs and retirement needs. The results provide insights into the design of affordable products and risk management for product providers. This thesis was submitted in June 2014 and the degree conferred in November 2014.

SHANG WU*B Bus (Hons) UTS, MAcc Syd., BAppFin/BActStud Macq.***SUPERVISORS**

Professor Hazel Bateman and Dr Ralph Stevens

CO-SUPERVISOR

Professor Susan Thorp

Demand and supply side issues for a long-term care (LTC) annuity market

This project aims to provide empirical evidence, theoretical justification, and pricing aids for the hybrid product LTC annuity which combines a life annuity and LTC insurance. On the demand side, studies will be undertaken both empirically and theoretically. The empirical study will use data from a large experimental survey to examine the demand for LTC annuities. The theoretical study will estimate a life-cycle model to explore the influence of having LTC annuities on the investment menu on the optimal decisions for consumption, saving, annuitisation, and LTC coverage. On the supply side, the project will address potential risk management issues of offering LTC annuities.

Progress has been made on the development of the survey and the theoretical study in 2014. The first draft of the survey has been

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completed and tested in a focus group. For the theoretical study, preliminary results have been derived and presented in a school seminar. Working papers for both the empirical and the theoretical studies are expected to be available in 2015.

MENGYI XU

BCom (Hons), UNSW Australia

SUPERVISOR

Professor Michael Sherris

CO-SUPERVISOR

Dr Adam Wenqiang Shao

Housing and retirement saving

The research aims to integrate pre-retirement investment strategies and post-retirement income solutions in the presence of housing. These two phases are linked through a target income stream. The accumulation phase focuses on achieving the target, allowing for housing investment, whereas the decumulation phase is to optimally draw down the accumulated wealth. The target is determined by the post-retirement consumption profile, taking into account both health status and home ownership.

YAJING XU

BActSc MActSc Central University of Finance and Economics, China

SUPERVISORS

Professor Michael Sherris and Dr Jonathan Ziveyi

CO-SUPERVISOR

Professor John Piggott

Cohort models of mortality and the design of derivative contracts for longevity risk management

For pension funds and insurance companies, longevity risk is systematic in nature so that it cannot be eliminated by increasing the size of the portfolio. In order to manage this risk, longevity-linked derivatives are needed. The aims of this research are threefold: propose a cohort-based mortality model that is compatible for the pricing of longevity-linked derivatives, review and compare different pricing methods and design longevity-linked derivatives with attractive contracting features. Work in 2014 focused on proposing a mortality model for multiple cohorts that can adequately capture the dynamics of the term structure of mortality intensity.

XIAOYUN ZHANG

BMgt Zhejiang University, China

SUPERVISOR

Professor John Piggott

CO-SUPERVISOR

A/Professor Elisabetta Magnani

Female labour participation and parental care in China: Analysing the effect of the New Cooperative Medical Scheme (NCMS)

This thesis is focused on the interaction between female labour force participation in China, and the role of the working age woman as a carer for parents and parents-in-law. It is specifically concerned with the health status of the older generation of family members, and the impact on health status of access to the NCMS. It has been demonstrated that their health status is an important determinant of the amount of informal care that is needed and provided. Further, it is established that access to the NCMS, a rural based medical scheme that has been progressively rolled out through counties and provinces in recent years, impacts reported health status for the elderly. The aim is to assess the impact of access to the NCMS on female labour force participation through the conduit of informal care demand. Data are drawn from the China Health and Nutrition Survey from 2000 to 2010.

HONOURS STUDENTS LOCATED AT THE UNSW BUSINESS SCHOOL

SHAHIN ELLIIN

BCom UNSW

SUPERVISOR

Dr Ralph Stevens

CO-SUPERVISOR

Dr Katja Ignateiva

A trend-change extension of the Lee-Carter model with applications to annuity pricing

This research is focused on examining trend changes in mortality improvements, particularly for advanced ages. The Lee-Carter model was applied to Swedish mortality data for the period 1741 to 2002. Both regime switching and structural change models were applied on the time index of mortality, with several properties of these models examined in detail. The forecasts of these models were compared to the traditional Lee-Carter method. The application of this research was to annuity pricing and reserving.

RUIZHU LI

BCom UNSW

SUPERVISOR

Dr Ralph Stevens

CO-SUPERVISOR

Dr Kevin Liu

Perceived value of using superannuation for purchasing a family home

The family home and superannuation savings represent the two largest household assets in Australia. This thesis aims to investigate the perceived value of using superannuation assets for purchasing a family home, as well as the factors that determine the valuation heterogeneity among different individuals. Furthermore, this thesis examines whether people would become more actively involved with superannuation if superannuation assets were allowed for housing purposes. A laboratory experiment was implemented to a sample of 143 students. Overall, it was found that subjects value using superannuation to reduce the outstanding mortgage on the family home more than using it to purchase a more expensive family home. The findings also suggest that using superannuation to purchase a family home could

potentially increase involvement with superannuation, and ease the financial constraints for first home buyers without leading to individuals purchasing more expensive houses.

JICHEN LI

BCom UNSW

SUPERVISORS

Professor Hazel Bateman and Dr Kevin Liu

Regional differences in life expectancy in mainland China

China's central government is currently undertaking extensive pension reforms which require accurate life expectancy forecasts at both national and regional levels. However, the lack of prior research in this area is an obstacle to policy formulation. The aim of this research is to forecast the future trend of the change in China's regional differences in life expectancy. The analysis of constructed life tables reveals that across all regions the differences in life expectancy at birth and at age 65 were mainly driven by the differences in life expectancy of the rural population in each region. In addition, this thesis forecasts a narrowing regional difference for urban populations and a widening

regional difference for rural populations in the future. Ultimately, the sensitivity analysis incorporating socioeconomic variables predicts that life expectancy at birth in the least developed regions will catch up with the developing regions by 2040.

CHANGYU ESTELLE LIU

BCom UNSW

SUPERVISOR

Professor Michael Sherris

Hedging and immunisation of longevity risk

Longevity risk is a significant issue for annuity providers and pension funds. They face major challenges in managing their longevity risk including the lack of long-dated bonds and suitable longevity bonds given their long-dated liabilities. This thesis investigates immunisation strategies for longevity risk hedging from the perspective of a life annuity provider. The major contributions of this thesis are new insights and methods for the immunisation of annuity portfolios against both interest rate and mortality risks. Methods for effectively selecting optimal assets to hedge both the risks are proposed and assessed using coupon bonds, annuity

bonds and longevity bonds. Delta-gamma hedging and duration-convexity hedging are compared and it is concluded that to hedge against both interest rates and mortality risks, delta-gamma hedging requires both longevity bonds and fixed-income securities. The risk analysis for the optimal asset allocation demonstrates the benefits of deferred longevity bonds. These results provide guidance to markets and governments considering the design of longevity bonds for portfolio immunisation.

PHD STUDENTS LOCATED AT THE CENTRE FOR RESEARCH ON AGEING, HEALTH AND WELLBEING, ANU

RICHARD ARTHUR

BSc Computer Science UNSW, BSc Psych (Hons) ANU

SUPERVISOR

Professor Kaarin J. Anstey

ADVISORS

Dr Moyra Mortby, Dr Richard Burns and A/Professor Richard O'Kearney

Is anxiety a risk factor for cognitive ageing?

Little research exists on the relationship between anxiety and cognitive ageing. Some research has suggested anxiety predicts cognitive decline (CD) in older adults. Such an association may be important because of the implications for treatment of anxiety, and potential slowing of cognitive ageing for some individuals. Using 12 years of data from the Personality and Total Health (PATH) Through Life project (among other resources), this study aims: to investigate epidemiologically whether, and under what conditions, anxiety is associated with CD in older adults; to delineate possible neuropsychological mechanisms; and to describe possible clinical implications.

KIMBERLY ASHBY-MITCHELL

BSc Human Ecology – Nutrition and Dietetics MSc Nutrition University of the West Indies

SUPERVISOR

Professor Kaarin J. Anstey

ADVISORS

Professor Carol Jagger and A/Professor Anna Peeters

The relationship of diet and physical activity behaviours to cognitive impairment

This thesis adopts a cross-national approach examining diet and physical activity behaviours among individuals in Australia and seven Latin American and Caribbean countries. Clarification and consensus of the effect of both of these modifiable risk factors on cognitive status is important since there is a need for effective preventative treatment approaches as even a modest protective result can have a significant impact on public health.

CAROLINE BRODRICK

BSc Psych (Hons) ANU

SUPERVISOR

Professor Kaarin J. Anstey

Depressive symptoms and progression to cognitive disorder: The PATH Through Life Project

Cognitive disorders are increasingly diagnosed within Australia, with significant financial costs associated with

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rehabilitation. This increase highlights the necessity to identify predictors of cognitive disorders, to potentially prevent or delay the onset of these disorders. Past research shows that depression is a predictor for the onset of cognitive disorders, for example, dementia and pre-clinical dementia syndromes including Mild Cognitive Impairment (MCI). However, there is a limited amount of longitudinal research investigating specific depressive symptoms as predictors of progression to cognitive disorders which are pre-clinical to dementia. Further research outlines specific depressive symptoms are associated with cognitive impairment/ cognitive performance and therefore may have implications for investigating progression to cognitive disorders. This study investigated whether specific depressive symptoms predicted progression to MCI and Any-Mild Cognitive Disorder. This study utilised 3 waves of data from The PATH Through Life Study while adjusting for demographic, health and lifestyle factors and medication. Results indicated depressive symptoms of difficulties concentrating and loss of

confidence were stronger predictors of progression to cognitive disorders and remained significant when adjusting for all demographic, health and lifestyle factors and medication. The findings suggest specific depressive symptoms may be more predictive of cognitive disorders. Early screening and monitoring of the specific depressive symptoms may prevent or delay progression to cognitive disorders with appropriate intervention.

NATASHA GINNIVAN
BSc Psych UNSW, PGDip Psych Macq.

SUPERVISOR
Professor Kaarin J. Anstey

ADVISORS
Dr Kerry Sargent-Cox and
A/Professor Kate O'Loughlin

Self-perceptions of ageing from a cross-cultural perspective: The differential impact of socio-cultural practices on identity and age-stereotypes

Due to differing social practices around elder respect in more collectivist cultures such as China, Japan and the Philippines, it is hypothesised in some research that older people in these cultures are less prone to the internalisation of negative age stereotypes.

Preliminary results from focus group data in both Australia and the Philippines show that older people in collectivist cultures rely on a more cohesive frame of reference for the social role of an older person than older people in Australia. Different groups of seniors (Australians N = 66 aged 60-75 and Filipinos N= 15 aged 55 - 77) were randomly assigned to either one of two experimental conditions where there was a positive prime or a negative prime, or the control condition where there was no prime. The aim was to see if the subtle prime commenting about age in either a positive or negative way on memory ability would have an effect on performance. Participants then took part in a survey on cultural attitudes and attitudes towards ageing. Preliminary findings show no significant differences in performances between experimental conditions, nor cultural differences in memory ability. However, the Filipino sample is quite small in numbers and therefore we are aiming to recruit more Filipinos for the memory test aspect of the study with the view to conducting more statistical analysis for more accurate comparison between the groups. Results

from the survey so far showed that there were significant differences between cultural attitudes towards ageing; namely elder respect was held to be of importance to the senior Filipinos in comparison with the Australians.

PUSHPANI HERATH
MBBS University of Sri Jayawardenepura, MSc UTexas, Arlington

SUPERVISOR
Professor Kaarin J. Anstey

ADVISOR
Dr Nicolas Cherbuin

Understanding the relationship between treatment of common chronic diseases and cognitive function

Dementia and cognitive impairment are becoming two of the most important neurological disorders among the elderly. The proposed study was designed to examine the impact of long-term medical treatments for chronic diseases such as diabetes, hypertension, hypercholesterolemia, and depression on cognitive function. This study is using data from two large longitudinal cohorts: the PATH Through Life Project, and the AusDiab study. The first part of this project, 'Exploring the link between

type 2 diabetes and diabetes medication with cognitive function', is already completed for both the PATH Through Life Project and the AusDiab Study and a manuscript has been submitted to the Journal of the American Geriatrics Society. The second part of the project, 'the effect of statins on cognition, mild cognitive impairment and structural brain changes: evidence from the PATH Through Life Study' is being prepared for publication.

SARANG KIM
BA Melb., PGDip MA Bond

SUPERVISOR
Professor Kaarin J. Anstey

ADVISORS
Dr Kerry Sargent-Cox and Dr Nicolas Cherbuin

Motivations and barriers to lifestyle and behavioural changes for dementia risk reduction

Dementia and cognitive decline are often thought of as a part of normal ageing. However, recent research has identified some risk factors for dementia, some of which are modifiable. This project aims to identify factors that motivate and discourage people from changing their behaviour and lifestyle in order to reduce their risk of developing dementia. The

motivation scale for dementia risk reduction has been developed and validated. The relationships between components of the scale and intentions as well as the actual changes in lifestyle and health behaviours have also been examined. The thesis was submitted in June 2014.

LARA MORRIS

BSc Psych (Hons), MClinPsych

SUPERVISOR

Professor Kaarin J. Anstey

ADVISORS

Dr Kerry Sargent-Cox,
Dr Nicolas Cherbuin and
Professor Catherine D'Este

Cumulative adversities in childhood, lifestyle health risk factors and cognition over the life course

This research examines lifestyle-related risk factors known to contribute to chronic disease. This year the work has examined the clustering of lifestyle risk factors and the psychosocial determinants of multiple unhealthy behaviours. Currently, the effects of cumulative adversities in childhood on emergent risk factors for chronic disease are being examined. Future plans are to extend this work to examine the effect of childhood adversity on

cognition over the life course. The research utilises data from the PATH Through Life Study.

LILY O'DONOUGHUE-JENKINS

BA BSc Psych (Hons) ANU

SUPERVISOR

Professor Kaarin J. Anstey

Cognitive impairment and service use: Translating research for policy

In 2014 the topic of this thesis changed slightly. The main focus of this thesis is still how individuals with cognitive impairment use health services but it also looks at the concept of knowledge translation. For the past eight months Lily has been on secondment to ACT Health, where she has been working on several papers. The first analyses the relationship between cognitive impairment, depression and primary care. The second analyses hospital admission and cognitive impairment and the final paper focuses on knowledge translation and research within the ACT Government.

QUANG TRINH

BA Sociology Vietnam National University, Master of Social Sciences Sociology National University of Singapore

SUPERVISOR

Professor Hal Kendig

CO-SUPERVISORS

Professor Peter McDonald and
A/Professor Minh Huu Nguyen

Ageing population and the elderly's contributions and roles in the transitional family and society in Vietnam

The thesis looks at the population ageing process in Vietnam in association with the socioeconomic context. It examines the elderly's contributions to their family and society, their perception of rights and explores the many aspects of the intergenerational relationship including living arrangements, living conditions and health status. The Vietnamese elderly's quality of life will also be analysed in comparison with some Asian countries using WHO SAGE-INDEPTH data. One abstract has been submitted for an international conference in Japan, the other is under preparation for a conference next year in Thailand. These focus on the elderly's contributions to their households and their living arrangements respectively.

SARAH WALKER

BA Psych (Hons) ANU

SUPERVISOR

Professor Kaarin J. Anstey

CO-SUPERVISORS

Dr Jay Brinker and Dr Tim Windsor

The psychosocial impacts of giving up driving in later life

This thesis examines post-driving cessation experiences of volunteers aged 65 plus; and explores the driving cessation-wellbeing relationship, whether psychological needs satisfaction mediates that relationship, and whether coping strategies and alternative transport availability moderate the relationship. Data has been collected via focus group, interviews, and questionnaire. The results show that the post-cessation phase of driving is a period of gains and losses requiring flexible adjustment to new circumstances. No association was found between driving cessation and wellbeing, precluding mediation analysis. Ex-drivers with tendencies towards accommodative coping tended to report fewer depressive symptoms and more positive affect. Alternative transport availability failed to moderate the driving status-wellbeing relationship. The thesis was submitted in June 2014.

PHD STUDENTS LOCATED AT THE AUSTRALIAN DEMOGRAPHIC AND SOCIAL RESEARCH INSTITUTE, ANU

JEOFREY B. ABALOS

BS Commerce University of Luzon, Master in Population Studies University of the Philippines Population Institute

SUPERVISOR

A/Professor Heather Booth

CO-SUPERVISOR

Professor Zhongwei Zhao

Trends and geographic differentials in health expectancy among older persons in the Philippines

The thesis examines whether there is compression, expansion or dynamic equilibrium in morbidity among Filipinos aged 60 years and over. It also investigates regional and provincial differences in health expectancy and provides explanations for these differences. Finally, it explores the relationship between life expectancy and health expectancy at the sub-national level. The Sullivan's method will be used to calculate health expectancy. Data will be drawn from two national surveys on older persons in the Philippines and the 2010 Census of Population and Housing. An outline of the thesis was presented in a proposal seminar at the Australian Demographic and Social Research Institute on 28 November 2014.

RESEARCH TRAINING & MENTORING

BRIDGET BROWNE

BEc Macq., FIAA, FIA

SUPERVISOR

A/Professor Heather Booth

CO-SUPERVISORS

Professor Michael Sherris,
Dr Tim Higgins and Dr Anna Howe

Aged care in Australia: What place for long-term care insurance?

This research examines why there is no private, voluntary long-term care insurance product in Australia to support the costs of aged care. It also examines the variability in individual financial exposure to aged care costs and considers potential insurance product designs.

In the second component of the research, data from the Australian Institute of Health and Welfare's Pathways in Aged Care linkage dataset of 2003-04 (PiAC 03-04) has been analysed. Mortality rates for this population are examined and compared to those of the general population. Transition rates between care statuses and state-dependent life expectancies by age and sex are also calculated. These results will be used to develop an underlying biometric basis for a long-term care insurance product in further work, but have much wider application to our understanding of

outcomes for aged care recipients and should be of value to policymakers and practitioners in the aged care domain. This work forms a pilot project for a similar analysis process to be undertaken on the extended PiAC database (PiAC 02-11), which was reported on by AIHW in August 2014.

ALICE FALKNER

BA (Hons) MSocRes ANU

SUPERVISOR

Professor Peter McDonald

CO-SUPERVISOR

Dr Anne Evans

Dual caring in Australia: An examination of the experiences of people with multiple caring responsibilities

Informal care provided by family members is the most common form of care for people with disabilities, long-term health problems and the frail aged in Australia. Although there is a range of research focusing on the experiences of informal carers in Australia, there are some key areas that have been neglected. One such area is the study of informal carers that provide care to more than one recipient, or balance informal care with child care responsibilities. This thesis bridges the gap in knowledge about dual caring

in Australia. In 2014 this project focused on investigating the impact of dual caring on a number of variables, such as reported life satisfaction. This was achieved primarily through multilevel modelling of longitudinal data from the Household, Income and Labour Dynamics in Australia (HILDA) survey.

CUC THU HOANG

BA Sociology VNU, MA Population Studies ANU

SUPERVISOR

A/Professor Heather Booth

CO-SUPERVISORS

Dr Iwu Utomo and Dr Philip Taylor

Modes of aged care in Vietnam: Adaptation to change

This thesis is a study of intergenerational care and support for the elderly in Vietnam in the context of rapid demographic, social, and economic changes. The thesis will contribute to the ongoing efforts to understand changes that have and are taking place in Vietnam in general and in the field of aged care in particular. This thesis offers an exploration of how the elderly people and their families are finding ways to adapt their traditional modes of aged care to socioeconomic changes to provide a clear

understanding of what it means to be a 'filial' child and an elderly person in Vietnam today. Progress in 2014 included the presentation of Cuc's final seminar, completing the final draft of all the chapters of the thesis and revising all chapters with a view to submit in February, 2015.

NERIDA HUNTER

BA BCom Melb, MGovt & M Comm Law ANU

SUPERVISOR

Professor James Raymer

CO-SUPERVISORS

Professor Peter McDonald and
A/Professor Heather Booth

The geodemographic and life course dimensions of population ageing in Australia

This study examines demographic change in Australia over the period 1961 to 2011 and a future projection period of 2011 to 2031. It focuses on the population aged sixty-five years and over and how it varies across space and time by cohort size, structure, characteristics and life course. In 2014 thesis development was progressed and the candidate completed their mid-term review and presented to the Department of the Prime Minister and Cabinet on Demographic Perspectives on Longevity.

MARIJAN JUKIC

BA MSc Geography University of Zagreb, MSc Demography University of Southampton, PhD Population Geography University of Zagreb

SUPERVISOR

A/Professor Heather Booth

CO-SUPERVISOR

Professor Zhongwei Zhao

The decision to enter residential aged care: An agent based model

The research aims to apply agent-based modelling to ageing research with special attention to the decision to enter residential aged care. The model will include disability transitions, family structure modelling and decision making from an individual perspective. A comprehensive feasibility study on agent-based modelling in ageing research has been completed and two research papers are being prepared on the theoretical and practical aspects of modelling. Also, a working paper concerned with residential care provision will be presented.

MAHIN RAISSI*BS MA Tehran***SUPERVISORS**A/Professor Robert Ackland and
A/Professor Heather Booth**CO-SUPERVISOR**

Dr Lexing Xie

Influences in online social networks and successful ageing in Australia

The project aims to understand the relationship between online and off-line social networks and the wellbeing of older Australians (50+) by examining the mechanisms and processes of behaviour transmission in social networks. As a component of the Social Networks and Ageing Project (SNAP), a Facebook application called Australian Seniors' Online Networks (AuSON) was developed and released in October 2012. AuSON collects information about participants' social networks, social capital and wellbeing. Many Facebook users who are mainly Australian seniors (50+) or others who are friends with them have used AuSON. During 2014, the analysis has been finalised and some chapters of the thesis written. The aim is to finish the remaining chapters in the first part of 2015. Findings of this research have also been

communicated through academic conferences and seminars such as the 2014 APA conference and the 2014 ACSPRI Social Research Methodology Conference. Two journal papers have also been prepared with the aim of publishing in 2015.

MARIA PILAR RIOSECO LOPEZ*Licentiate in Psychology Pontificia Universidad Catolica de Chile, MSocRes ANU***SUPERVISORS**A/Professor Heather Booth and
A/Professor Robert Ackland**CO-SUPERVISORS**Dr Tim Windsor and
Professor Hal Kendig**The role of social connectedness in the process of retirement in Australia**

Retirement is a key area of social and policy research in the context of population ageing. However, little is known about the role of social connectedness in the retirement transition. Analysis of the Social Networks and Ageing Project (SNAP) data showed a significant association between social connectedness and retirement status and expected time to retirement. Longitudinal analysis using the Household, Income and Labour Dynamics in Australia (HILDA) survey showed that retirement has a significant

effect on different aspects of social connectedness, and changes in social connectedness over time differ by retirement status. Findings were presented in three conferences during 2014 and the candidate is currently revising her PhD thesis for submission.

PHD STUDENT LOCATED AT THE CRAWFORD SCHOOL OF PUBLIC POLICY, ANU**MATTHEW KIDMAN***BA LLB Macq.***SUPERVISOR**

Professor Peter McDonald

CO-SUPERVISOR

Professor Alex Frino

The impact of population ageing on the prices of domestic housing and equities in Australia

This thesis will look at the impact ageing will have on Australian house and equity prices between 2016 and 2050. Australia has approximately \$6 trillion invested in these two asset classes or about 4 times the annual gross domestic product. Previous studies, emanating mainly from the USA, have been inconclusive and any pricing forecasts have proven to be wildly inaccurate. The overwhelming belief is that ageing will have an impact on pricing of these assets. Core to this belief is that the

large baby boomer cohort, those born between 1946 and 1964, bid up asset prices during their working lives. As they enter their post working lives they will similarly place downward pressure on asset prices as they look to divest and fund their retirements. This theory is based upon the life-cycle hypothesis developed in 1954. Australia is a key country to study in this area. It represents the high population growth and gentle ageing model. There is a high probability that this population model will see support for asset prices even though the baby boomers are starting to retire.

PHD STUDENT LOCATED AT THE COLLEGE OF BUSINESS AND ECONOMICS, ANU**ARM NAKORNTHAB***MA U.Va.***SUPERVISOR**

Dr Cagri Kumru

Annuities and estate taxation in an entrepreneurship model

There is an extensive literature exploring the reasons behind thin annuity markets, and a separate line of literature that analyses the implications of estate taxation. The literature is silent on the impact of estate taxation on annuity purchase. In this project, annuity buying decisions will be explored by employing a model that incorporates estate taxation, bequest motives, and entrepreneurship, accounting for the correct wealth distribution. This project will contribute to our understanding of the annuity puzzle since estate taxation affects savings for the old. In sum, this computationally challenging project will extend our understanding of annuity buying decisions substantially.

RESEARCH TRAINING & MENTORING

PHD STUDENTS LOCATED IN THE FACULTY OF HEALTH SCIENCES, UNIVERSITY OF SYDNEY

JOHANNE ELIZABETH BRADY

BA (Hons) UNSW

SUPERVISOR

A/Professor Kate O'Loughlin

CO-SUPERVISOR

Dr Jennifer Smith-Merry

The meaning of living with Parkinson's Disease (PD) in an Australian community setting from the perspectives of people diagnosed and partners/carers

This sociological study explores the effect of Parkinson's disease on a person's identity and forms of social interaction. The main empirical study constitutes part of a doctoral thesis that includes an analysis of other texts that construct social meanings of Parkinson's disease in society. Qualitative data was collected via interviews and focus groups with members (>55) of nominated Parkinson's support groups in Sydney. An interpretive and constructive thematic analysis of the data has revealed varying social factors influence peoples' perceptions and meanings of ageing and the symptomology of Parkinson's disease.

Nuanced meanings of Parkinson's disease in everyday life contexts have potential to inform the type of support that people diagnosed and partners/carers need to maintain their quality of life.

CLAIRE O'CONNOR

BSc Med UWS, MOT (Hons) Syd.

SUPERVISOR

Professor Lindy Clemson

CO-SUPERVISORS

Dr Eneida Mioshi,
Professor Henry Brodaty,
A/Professor Olivier Piguat and
A/Professor Kate O'Loughlin

Understanding behaviour and function in frontotemporal dementia (FTD): Developing better assessments and intervention approaches

This thesis will explore the relationships between behaviour and functional ability across the behavioural and language variants of FTD. A tool will be developed to measure functional changes across the severe stages of disease. Finally, a feasibility trial will be conducted of a Tailored Activity Program (TAP) specifically designed for FTD cohorts to improve activity engagement, reduce difficult behaviours in people with FTD, and alleviate carer burden. Data collection through the TAP project has begun, as has

data collection for the measurement tool. Oral presentations of case study data at two international conferences (Japan and Canada) have been completed this year, as well as an oral and a poster presentation at two domestic conferences. Two manuscripts are currently in the final stages of preparation for submission for review in academic journals.

DOROTHY DUDLEY

BBus UTS, MASS ACAP

SUPERVISOR

A/Professor Kate O'Loughlin

ASSOCIATE SUPERVISOR

Dr Vanessa Loh

Understanding personal goals in retirement and their relationship with life satisfaction: An Australian perspective

This sociological research project aims to understand the existence and nature of personal goals held by Australian retirees aged 55 to 85 years. It will examine the influence of personal goals on subjective wellbeing and their impact on successful ageing. A review of the literature has been undertaken and an initial phase of quantitative analysis employing the Household Income and Labour Dynamics in Australia

2011 dataset is now complete. The results identify the impact of a range of demographic, activity and retirement variables on the life satisfaction of older Australians and will inform the design of the primary qualitative research phase. Findings from the quantitative phase were presented through an oral presentation and written paper at the 13th National Conference of Emerging Researchers in Ageing.

KYLIE WALES

B AppSc Occupational Therapy UWS

SUPERVISOR

Professor Lindy Clemson

CO-SUPERVISORS

A/Professor Natasha Lannin and
Professor Glenn Salkeld

Measuring function and cost effectiveness in occupational therapy home discharge planning

Best practice guidelines for occupational therapy discharge planning have not been identified or evaluated for their clinical or cost effectiveness. In addition, a lack of information exists as to how function should be assessed. Improving function is a key outcome in occupational therapy discharge planning for older adults. A cost-effectiveness analysis of occupational

therapy discharge planning practice is currently being undertaken on the NHMRC-funded HOME trial. A further two studies are being conducted around the assessment of older adults, one is a validation study conducted in a metropolitan hospital and the second is a systematic review on 28 assessment tools that have previously been used with older adults to measure function. Data is currently being analysed.

JACQUELINE WESSON

*B AppSc Occupational Therapy
Cumberland College, MA Macq.*

SUPERVISOR

Professor Lindy Clemson

CO-SUPERVISORS

Professor Henry Brodaty and
Dr Simone Reppermund

Evaluating functional cognition and performance of everyday tasks in older people with dementia – the validity, reliability and usefulness of the Allen's model of cognitive disability

Assessment for dementia/MCI includes assessment of everyday functioning. However, objective, reliable and valid measurement tools are lacking. Occupational therapy (OT) functional assessments, while commonly used, have shortcomings. Allen's Cognitive Disabilities Model

is an OT model offering information about cognition during functional task performance, as measured by the Large Allen's Cognitive Level Screen-5 (LACLS-5). The project aims to explore psychometric properties of the LACLS-5 with a community sample of older people and examine the relationship of performance on this tool with other standardised measures of everyday function and cognitive measures. It will also explore OT perceptions of clinical utility of the tool. All data collection is completed and undergoing analysis.

LYNDA WOODWARD

BPhysio BSc Biotech (Hons) N'cle (NSW)

SUPERVISOR

Professor Lindy Clemson

CO-SUPERVISORS

A/Professor Cathie Sherrington and A/Professor Karen Willis

Exploring the perceptions and experiences of older people in the 'Stepping on after hip fracture' program

Using qualitative thematic analysis, the study aims to determine whether older men and women who have had a fall-related lower limb fracture have different experiences related with their journey after having a fall, acute treatments

related with their fall and fracture, and pre and post participation in a long-term exercise self-management falls prevention program. The past 12 months have seen the completion of all interviews with a total of 17 men and 16 women. Analysis is underway, with preliminary findings suggesting that these older men and women do have differing experiences with certain aspects of this journey.

PHD STUDENTS LOCATED AT THE CENTRE FOR EDUCATION AND RESEARCH ON AGEING, UNIVERSITY OF SYDNEY

KATE MILLEDGE

B.Nutrition and Dietetics (Hons) University of Wollongong

SUPERVISOR

Dr Vasant Hirani

CO-SUPERVISOR

Professor Robert Cumming

Study of the inter-relationships between food choice, nutritional status, oral health, frailty and polypharmacy among older Australian men

The thesis aims to describe the dietary intake and nutritional status of older Australian men in the ongoing CHAMP study. Protocols for a systematic review focusing on Oral Health and Dietary Intake in Community Dwelling Older Adults are currently being developed. It will also include an analysis of the associations between dietary intake, oral health, frailty and polypharmacy using Network Modelling. Data is currently being collected through two separate interviews.

ROSILENE WAERN

BNut MND Syd., APD AN

SUPERVISOR

Professor Robert Cumming

CO-SUPERVISORS

Professor Margaret Allman-Farinelli, Dr Vasant Hirani and Dr Thomas G Travison

Geometric Framework and nutrition in old age

Diet is an important modifiable factor affecting the maintenance of health in old age. Utilising the Geometric Framework – a generation state-space model that deals with eating behaviour – we have been investigating associations between macronutrient intakes and a number of conditions experienced in older age (e.g., frailty). In 2014, we published the results of a validation study of the Concord Health and Ageing in Men Project's (CHAMP) dietary assessment methodology, which showed that the method was appropriate for use in the population being studied i.e. men aged 75 years and older. A manuscript discussing the nutritional profile of CHAMP's participants is in preparation.

PHD STUDENTS LOCATED AT THE FLINDERS CENTRE FOR AGEING STUDIES, FLINDERS UNIVERSITY

VICTORIA ALLEN

BPsych (Hons) Flinders

SUPERVISOR

Dr Tim Windsor

ASSOCIATE SUPERVISOR

Professor Mary Luszcz

Daily stress and emotion regulation in younger and older adults: An intensive micro-longitudinal study

This project involves one large-scale study exploring age differences in emotion regulation and daily processes, and how such differences relate to psychological wellbeing, physical health, mental health, and interpersonal relationships/social support. An intensive micro-longitudinal design will be employed allowing relationships between key variables to be explored at daily, cross-sectional, and prospective levels. The project has received full ethics approval and software for the project is currently being finalised. Data collection is set to commence early 2015.

RESEARCH TRAINING & MENTORING

RACHEL CURTIS*BPsych (Hons) Flinders***SUPERVISOR**

Dr Tim Windsor

CO-SUPERVISOR

Professor Mary Luszcz

Do perceptions of control predict activity engagement in older adults?

Perceptions of control may contribute to older adults' ability to maintain their activity as they age, as individuals with high perceived control are likely to engage in more difficult tasks and persist to overcome challenges that may hinder activity. This research aims to examine associations of control beliefs with activity engagement in older adults in a series of studies utilising multiple data sources. Longitudinal analysis of data from the Australian Longitudinal Study of Ageing showed that perceived control moderates the negative effects of functional disability on social activity. A paper reporting this finding is in preparation.

MYDAIR HUNTER*BPsych (Hons) DipAppSc (Nsg) Flinders***SUPERVISOR**

Prof Mary Luszcz

CO-SUPERVISOR

Dr Tim Windsor

Prospective memory in the fourth age: Evidence from the ADuLTS Study.

This thesis examined several theoretical predictors of prospective memory performance in a sample of positively ageing oldest-old adults. Data was collected from the ALSA Daily Life Time-Sampling (ADuLTS) Study, pairing a week long measurement burst diary study of cognitive, affective, and daily-life outcome data with daily stress hormone levels (cortisol). Intra-individual variation and inter-individual differences in prospective memory were analysed. Prospective memory performance of the oldest-old in a naturalistic environment was assessed, and the coupling of daily stress processes and prospective memory performance was analysed. The final study of the completed thesis examined the association between cognitive processes, that is, executive functioning,

working memory, and retrospective memory, and prospective memory performance. Results were presented at the 13th National Conference of Emerging Researchers in Ageing. Mydair submitted her PhD thesis in September 2014.

PHD STUDENTS LOCATED AT THE FACULTY OF HEALTH AND MEDICINE, UNIVERSITY OF NEWCASTLE**YODI CHRISTIANI***MD Gadjah Mada University, MPH ANU***SUPERVISOR**

Professor Julie Byles

CO-SUPERVISORS

Dr Meredith Tavener and A/Professor Paul Dugdale

Urban women's health inequalities and their determinants in Indonesia

The research focuses on women's health in Indonesia's urban area, covering disease morbidity and priority health problems among women across different age groups and their inequalities; the impact of urban living on women's health; and policy responses to the increasing burden of chronic conditions among the population related to demographic change. Four manuscripts have been prepared for submission, looking at priority health problems, inequalities in hypertension, depression, and access to health insurance among the study population.

PARIVASH EFTEKHARI*PhD TMU Iran***SUPERVISOR**

Professor Julie Byles

CO-SUPERVISOR

Ms Peta Forder

Quality care in older Australian women with asthma

In 2014 a literature review was conducted around the thesis subject and the five studies in the thesis. An EoI was approved to access the ALSWH data linked to MBS and PBS. Analyses were performed on the data for mortality considering comorbidities and other social factors and a paper which was finalised which is now ready for submission. Moreover, an abstract of this study was presented at the 2014 ATS conference in San Diego, CA. Since the doctor-diagnosed self-reported asthma data is being used in the study, the thesis specifically looks at MBS (asthma specific items such as asthma cycle of care, respiratory tests and other asthma specific tests) and PBS (asthma medications) records for patients and compares them to the patients' report of asthma. Data cleaning for this study has been done in December 2014 and the dataset is ready for further analyses in 2015.

THOMAS LO*MClinEpi N'cle (NSW)***SUPERVISOR**

Professor Lynne Parkinson

CO-SUPERVISORSDr Michelle Cunich and
Professor Julie Byles**The cost of arthritis**

The objective of this study was to extend the understanding of the healthcare utilisation and the cost of arthritis. It postulated that traditional regression methods which produce a single rate of change (a slope) as indicated by the regression coefficient, may be incapable of accurately describing the relationships between the explanatory variable and costs across the entire cost distribution. Thomas employed quantile regression and showed that the adjusted effect sizes of some explanatory factors of healthcare cost are statistically significantly different at different quantiles (e.g. the 50th, 75th, 90th, and 95th) of cost. Thomas submitted his PhD thesis in August 2014.

TAZEEN MAJEED*MPH N'cle (NSW), MBBS Dow
University of Health Sciences***SUPERVISOR**

Professor Julie Byles

CO-SUPERVISOR

Peta Forder

Life course impact of chronic diseases on patterns of workforce participation: A gendered approach

This research project involved five studies designed to identify various workforce participation patterns among mature age men and women in Australia over the life course and to investigate dynamic associations between these workforce participation patterns and chronic diseases (particularly diabetes, asthma, arthritis and depression). It also explored how early and adult life experiences, and social and economic conditions affect an individual's health and workforce participation over time, with a gendered approach.

The results show that distinct differences exist between workforce participation patterns of mature age men and women

in the study population, and these patterns of workforce participation (various combinations of being in and out of paid work) have been found to be significantly associated with chronic diseases (particularly diabetes, arthritis and depression), and various early and adult life socioeconomic and health factors. However, it is of interest to note that these associations differ between men and women.

XIAOYUE LUNA XU*PhD Gender, Health & Ageing MPH
N'cle (NSW), MSc Nursing University
of Bedfordshire, BN Bengbu Medical
College***SUPERVISOR**

A/Professor John Hall

CO-SUPERVISORS

Professor Julie Byles and Dr Zumin Shi

The association between dietary patterns and nutrition-related non-communicable diseases (NR-NCDs) among older Chinese in China and Australia

The thesis evaluates the dietary intakes and dietary pattern among older Chinese people, and also explores the association between dietary pattern and chronic diseases among older Chinese in China and

Australia. The first three papers, which evaluated macronutrient intake, dietary intake and dietary quality of older Chinese people, have been completed. Two papers focused on the association between dietary patterns and obesity/hypertension are being prepared for submission. Another paper on dietary behaviour transition among older Chinese people is planned.

PHD STUDENT LOCATED AT THE INSTITUTE OF HEALTH AND SOCIETY, NEWCASTLE UNIVERSITY, UK**ANDREW KINGSTON***BSc Mathematics (Hons) N'cle (UK),
MSc Medical Statistics Leicester
(UK), CStat Royal Statistical Society,
UK***SUPERVISOR**

Professor Carol Jagger

CO-SUPERVISOR

Professor Tom Kirkwood

Trajectories and transitions of disability in the very old (85+ years)

This thesis explores trajectories and transitions of disability in the very old; its causes, mechanisms, dynamics and development. It models trajectories using different statistical techniques, in particular group based trajectory modelling accounting for non-random subject attrition. The research also focuses on multi-state modelling in continuous time and examining the impact of various factors on the incidence and progression of disability and extending this to life expectancy calculation. Andrew currently has a paper under review which has exposed specific trajectories of disability in the very old and the impact of life-course socioeconomic status.

SECTION

7

UNSW
AUSTRALIA

EXTERNAL LINKAGES

NOBEL LAUREATE PROFESSOR JOSEPH E. STIGLITZ
DELIVERING HIS CEPAR-HOSTED PUBLIC LECTURE

INDUSTRY & GOVERNMENT LINKS

A NATIONAL SYMPOSIUM ON POPULATION AGEING, A ROUNDTABLE WITH THE DEPARTMENT OF SOCIAL SERVICES, A RESEARCH BRIEF SERIES ON AGED CARE, AND A SERIES OF SUBMISSIONS TO THE FINANCIAL SYSTEM INQUIRY, WERE SOME OF THE HIGHLIGHTS OF CEPAR'S 2014 EXTERNAL ENGAGEMENT STRATEGY.

CEPAR was delighted to collaborate with the Academy of Social Sciences in Australia (ASSA) to present the 2014 ASSA symposium on Population Ageing and Australia's Future. Attracting over 150 participants from academe, government and industry groups, the symposium featured presentations from local and international experts focused on the challenges of our ageing populations. The symposium was followed by a policy roundtable which assembled leading researchers and policymakers to consider the policy implications of demographic change.

Aged Care and Private and Public Retirement Incomes were the themes of our 2014 Roundtable with the Department of Social Services. The program featured presentations from both CEPAR and DSS, allowing a fruitful exchange of ideas. Particularly valuable to our researchers were the Department's views on current and future pressure points and policy issues.

Bringing together pension and superannuation experts from around the world, the 22nd Annual Colloquium of Superannuation Researchers was a key component of our outreach program. Hosted by CEPAR in conjunction with the UNSW School of Risk and Actuarial Studies, the Colloquium featured sessions on a wide range of issues including challenges for retirement

income, retirement benefits, the superannuation industry, benefit decisions and policy, consumer behaviour, and current policy issues.

Our Research Brief Series continues to provide an important mechanism for facilitating engagement and impact with the relevant sector of end-users. Each brief integrates research findings to present a synthesis of evidence pertaining to a particular area of knowledge or policy issue. Informed by a multidisciplinary knowledge base, the briefs are written and presented in a format accessible to academics, business and government. This year, the focus was on Aged Care and we were delighted to have PwC host the launch of the briefs in their Sydney Office.

With the population aged 65 and over in Australia expected to reach 7.2 million by 2050, CEPAR researchers called for the Murray Inquiry to focus on improving options for retirees in the draw-down phase of superannuation, pointing out that this is the least developed dimension of Australia's otherwise robust retirement income system.

Following an initial approach and discussion with Inquiry personnel, CEPAR provided a series of invited submissions which drew on our research on economic impact, product design, longevity and morbidity projections, decision making and choice, and cognitive capacity at older ages. The material in the submission will help us build towards a 2015 CEPAR Research Brief series on Resources in Retirement.

Throughout the year our researchers contributed to the policy debate through their participation in a range of advisory panels, workshops and roundtables. Hal Kendig addressed the Committee for Economic Development of Australia (CEDA) on the financial implications of aged care reforms; John Piggott and CEPAR Advisory Board Chair Marc de Cure participated in the ASSA-Treasury roundtable on retirement income policy; Rafal Chomik spoke on drivers of change in aged care at a PwC client

briefing seminar, 'What does good governance look like in a time of change in aged care?' and Kaarin Anstey joined Ita Buttrose and Paul Barclay on a panel at the 2014 Alzheimer's Australia Forum and ABC Big Ideas held at Questacon in Canberra. A workshop hosted jointly with PwC on long-term care and longevity insurance was one of the ways in which we communicated our findings to the private sector.

Population ageing and the challenges and opportunities it presents are of great interest to the public and private sectors and CEPAR is pleased to take a leading role in the exploration of a range of issues associated with the changing demographic.

Professor Michael Sherris
Chair, Outreach
Subcommittee

INDUSTRY & GOVERNMENT LINKS

EVENTS

ACADEMY OF SOCIAL SCIENCES IN AUSTRALIA SYMPOSIUM: POPULATION AGEING AND AUSTRALIA'S FUTURE

CEPAR was the official sponsor of the 2014 annual symposium of the Academy of Social Sciences in Australia (ASSA), an autonomous organisation of elected interdisciplinary Fellows working to advance knowledge and research in the social sciences.

CEPAR co-convenors worked closely with ASSA, developing both our organisational relationship with ASSA as a peak organisation, and individually with the Fellows who contribute to its academic standing and reputation. The theme of Population Ageing and Australia's Future provided an opportunity for CEPAR to lead national thinking on the long-term challenges and opportunities of an ageing Australia.

Local and international experts, led by opening speaker The Hon Susan Ryan AO, the Age and Disability Discrimination Commissioner, addressed

issues such as age discrimination; building social support and participation; social inequalities and diversity relating to gender, socioeconomic resources, ethnicity and geographical location; and the Federal Government's Strategic Research Priority of promoting population health and wellbeing.

Sessions considered national directions for action by individuals and families as well as for governments, businesses and not-for-profit organisations, and the impact of an ageing population on the medium to long-term future of Australia's economic viability, social cohesion and security.

Following the Symposium, a Roundtable convened a multidisciplinary panel to address key challenges in anticipation of the Federal Government's next Intergenerational Report (expected to be released in 2015). Compilation and publication of Symposium contributions as an e-book will occur in 2015.



LAUNCH OF CEPAR RESEARCH BRIEFS ON AGED CARE IN AUSTRALIA. FROM LEFT: CATHERINE NANCE (PWC), JOHN PIGGOTT (CEPAR), SUSAN RYAN (AUSTRALIAN HUMAN RIGHTS COMMISSION), AND RAFAL CHOMIK (CEPAR)



CHRIS CUFF, CHAIR OF UNISUPER, DELIVERING HIS KEYNOTE ADDRESS AT THE 22ND ANNUAL COLLOQUIUM OF SUPERANNUATION RESEARCHERS

22ND ANNUAL COLLOQUIUM OF SUPERANNUATION RESEARCHERS

This annual Colloquium, now in its twenty-second year, is an opportunity for superannuation and pension experts from around the world to share their research. Hosted by CEPAR in conjunction with the UNSW School of Risk and Actuarial Studies, the Colloquium attracted over one hundred participants and featured presentations from a range of Australian and international presenters. The opening plenary session heard from three experts on challenges and opportunities for three different economies: Chris Cuffe (Chair of UniSuper) on Australia; Olivia S. Mitchell (Director of the Pension Research Council at the Wharton School) on the US;

and Cai Fang (Director of the Institute of Population and Labor Economics at the Chinese Academy of Social Sciences) on China.

Over the next two days of presentations, academics joined industry experts and senior public servants to explore and analyse a range of issues. Demonstrating a high level of engagement from government and industry, the conference included presentations from representatives from the Australian Treasury, the Department of Social Services, the Association of Superannuation Funds of Australia, UniSuper, Challenger, and National Treasury, South Africa.

Professor Hazel Bateman, the program coordinator for the Colloquium and CEPAR

Associate Investigator, said 'The Colloquium continues to grow both in popularity and quality. The program included over 40 research papers which examined such issues as member behaviour, benefit design, decumulation, investments, super fund governance and regulation, and current policy issues. This included presentations from nine CEPAR personnel on a variety of topics which showcased Centre research in this area.'

'AGED CARE IN AUSTRALIA' RESEARCH BRIEF LAUNCH

Through our Research Brief series, we aim to communicate to the wider community the outcomes of CEPAR research in the context of a discussion about a particular issue of interest to our end-users. These briefs leverage the vast accumulation of knowledge held by our investigators as well as highlight CEPAR developments.

A two part brief on Aged Care in Australia was launched on 9 April at an event hosted by CEPAR Partner PricewaterhouseCoopers. Prepared by Senior Research Fellow Rafal Chomik, more than 25 CEPAR affiliated researchers, drawn from multiple disciplines, contributed research to the synthesis, which provides

the most up-to-date and comprehensive knowledge base on aged care in Australia.

In launching the briefs, Age and Disability Discrimination Commissioner The Hon Susan Ryan AO commented on the importance of focusing on the opportunities provided by the ageing population: 'While the funding and staffing challenges are huge, dramatic employment growth in many kinds of jobs in the aged care sector present new opportunities for mature, experienced people who are often blocked by age discrimination in other sectors. As well, businesses should be alert to opportunities in product and services innovation in this rapidly growing area.'



PROFESSOR OLIVIA S. MITCHELL
BA Harvard, MA PhD
Wisconsin-Madison
PARTNER INVESTIGATOR

Dr Olivia S. Mitchell is International Foundation of Employee Benefit Plans Professor, and Professor of Business Economics/Policy and Insurance/Risk Management, at the Wharton School of the University of Pennsylvania. She is also the Executive Director of the

Pension Research Council and the Boettner Center on Pensions and Retirement Research; is a Fellow of the Wharton Financial Institutions Center and the Leonard Davis Institute; and sits on the Board of the Penn Aging Research Center. Concurrently Dr Mitchell is a Research Associate at the National Bureau of Economic Research and a Co-Investigator for the Health and Retirement Study at the University of Michigan.

Dr Mitchell's main areas of research and teaching are international private and public insurance, risk management, public finance, and compensation and pensions. Her extensive publications (25 books and more than 180 articles) analyse pensions and healthcare systems, wealth, health, work, wellbeing, and retirement.

She served on President Bush's Commission to Strengthen Social Security and the US Department of Labor's ERISA Advisory Council. She has spoken for groups including the World Economic Forum; the International Monetary Fund; the Investment Company Institute; the White House Conference on Social Security and the President's Economic Forum.

INDUSTRY & GOVERNMENT LINKS

ROUNDTABLE WITH THE DEPARTMENT OF SOCIAL SERVICES

In August CEPAR was invited to Canberra to engage with senior staff from the Department of Social Services (DSS) and The Treasury. The 2014 DSS-CEPAR Roundtable followed on from a previous event in 2012, providing a unique forum for mutual sharing of research and discussion of its efficacy for policy direction and development at the national level.

CEPAR presentations

- addressed the role and responsibility of unpaid carers, who are themselves ageing;
- considered the concept of 'ageing well' with good health and social engagement and the capacity for independent living;
- explored options for financing retirement income such as reverse mortgages/home reversion equity release into lump sums, and long-term care insurance products and the risks associated with each of them;

- generated a very lively discussion on pension economics using CEPAR's modelling of how recent changes in income testing for the Age Pension might improve retirement savings and extend work lives; and
- reported on the financial illiteracy of most Australians, and how this affects superannuation choices/behaviours including a preference for lump sum withdrawals.

Of particular value to CEPAR, were DSS presentations on current and future policy issues. The 2014 Roundtable concluded with a general discussion on future DSS-CEPAR engagement, and acknowledgment of the benefits of continued meetings to sustain a dynamic exchange of information and resources.



CEPAR RESEARCH FELLOW ADAM WENQIANG SHAO PRESENTING AT THE LONG-TERM CARE AND LONGEVITY INSURANCE WORKSHOP

CEPAR LONG-TERM CARE AND LONGEVITY INSURANCE WORKSHOP

Each year, CEPAR joins forces with our partner PwC to host a workshop on an issue of importance to industry. This year the focus was on long-term care and longevity insurance and featured a keynote talk from CEPAR Associate Investigator Ermanno Pitacco from the University of Trieste. His talk focused on long-term care insurance products, the biometric model, premiums, and technical bases and was illustrated with numerical examples and a sensitivity analysis based on mortality of the disabled.

Included in the program, were opportunities for CEPAR Early Career Researcher, Adam Wenqiang Shao, and Visiting Netspar PhD student, Servaas van Bilsen, to present and discuss their work with industry specialists. The workshop was very successful with representatives from AMP, Challenger, PwC and State Super Financial Services participating.

PUBLIC LECTURES

NATIONAL TRANSFER ACCOUNTS FOR AUSTRALIA, 2003-04 AND 2009-10

Speaking at the launch of the National Transfer Accounts (NTA) for Australia, at ANU on July 24, Peter McDonald warned that Australia's public and private economy-wide deficit could blow out to more than \$400 billion by 2050 due to the nation's ageing population.

The report provides the first National Transfer Accounts (NTA) measure for Australia, based on figures from 2009-10. NTA measures how each age group produces, consumes, shares, and saves resources in the economy, and gives an insight into how a country's demographics will affect its economy and finances.

'The fiscal imbalance indicated in the 2009-10 NTA is not sustainable as the Australian population ages,' said Professor Peter McDonald. 'If the projected deficit by 2050 is not addressed by falls in per-capita consumption, increases in labour force participation and in the productivity of labour and capital are essential.'

The report gives detailed results of the NTA for 2003-04, and for 2009-10. It found Australia was running an economy-wide deficit of \$166 billion in 2009-10. That would blow out to around \$400 billion by 2050 in 2009-10 dollar terms, Professor McDonald said. He said the results for 2009-10 would have been worse without the shift over the past decade of many older Australians continuing to work.

The full report is available on the CEPAR website.

COTA NSW PARLIAMENTARY FORUM

CEPAR's Rafal Chomik was invited by the Council on the Ageing to speak at a recent forum in NSW Parliament House. The well-attended forum titled 'Paying the Price: Women, Work and Care' was opened by the Minister for Ageing, the Hon John Ajaka MLC, and included speakers from the Human Rights Commission, Westpac, and the Workplace Gender Equality Agency.

Chomik said: 'It might be obvious to many that the gender wage gap and career breaks to care for children and the elderly translate to lower retirement incomes, but the extent of the accumulation of inequality



SENATOR THE HON MITCH FIFIELD AND CEPAR CHIEF INVESTIGATOR HAL KENDIG AT THE COMMITTEE FOR ECONOMIC DEVELOPMENT OF AUSTRALIA CONFERENCE (PHOTO COURTESY OF CEDA)

and how the pension system intermediates it is not always fully appreciated.'

Chomik's presentation showed that a woman entering the labour market today could expect a retirement income that was around 30% lower than a man with a full career if she took time off to have a family and returned to work in a part time capacity, demonstrating the cumulative effects of the prevailing gender pay gap, maternity leave with no super contributions, a commonly seen wage growth penalty when returning to work, and a number of years spent in part time work.

Chomik said: 'The pension system, through the Age Pension means test, already offsets some of the outcomes that women suffer in the labour market, but announcements in the 2014 budget mean that women will be able to rely on the pension system less in future.'

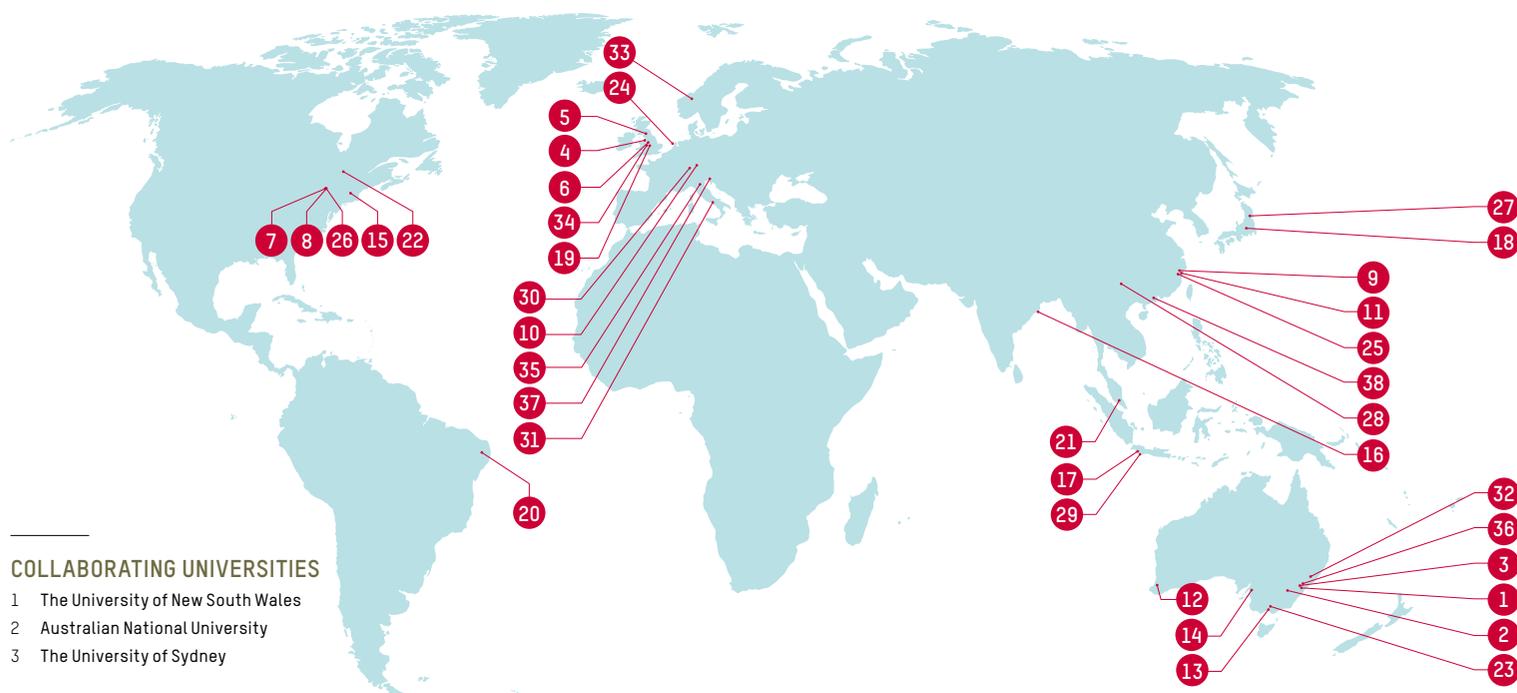


CEPAR SENIOR RESEARCH FELLOW RAFAL CHOMIK SPEAKING AT THE COTA NSW PARLIAMENTARY FORUM

NATIONAL & INTERNATIONAL LINKS

THROUGHOUT 2014, CEPAR EMPLOYED A NUMBER OF STRATEGIES TO FORGE AND STRENGTHEN BOTH NATIONAL AND INTERNATIONAL LINKS. THESE INCLUDED JOINT CONFERENCES AND WORKSHOPS, INTERNATIONAL DELEGATIONS AND VISITS

AND THE SUBMISSION OF JOINT FUNDING PROPOSALS. THESE LINKS SERVE TO FACILITATE RESEARCH COLLABORATION AND FURTHER BUILD CEPAR'S REPUTATION FOR GLOBAL LEADERSHIP IN THE FIELD OF POPULATION AGEING RESEARCH.



COLLABORATING UNIVERSITIES

- 1 The University of New South Wales
- 2 Australian National University
- 3 The University of Sydney

PARTNER UNIVERSITIES

- 4 School of Social Sciences University of Manchester
- 5 Institute for Ageing and Health University of Newcastle (UK)
- 6 School of Economics University of Nottingham
- 7 Department of Economics University of Pennsylvania
- 8 Wharton School University of Pennsylvania

ASSOCIATED UNIVERSITIES/INSTITUTIONS

- 9 Brookings-Tsinghua Centre for Public Policy
- 10 CESifo
- 11 Chinese Academy of Social Sciences
- 12 Curtin University
- 13 Deakin University
- 14 School of Psychology Flinders University
- 15 Department of Global Health and Population (GHP) Harvard University

- 16 Indian Statistical Institute
- 17 Indonesian National Population and Family Planning Board
- 18 Institute for Economic Research Hitotsubashi University
- 19 Institute for Fiscal Studies
- 20 Instituto de Estudos de Saúde Suplementar (IESS)
- 21 University of Malaya
- 22 Michigan Retirement Research Center (MRRRC)
- 23 School of Primary Health Care and Emerging Researchers in Ageing Initiative Monash University

- 24 Netspar
- 25 Research Centre for Ageing and Health Services Peking University
- 26 Gerontology Centre Pennsylvania State University
- 27 Research Institute for Policies on Pension and Ageing
- 28 Southwestern University of Finance and Economics
- 29 Statistics Indonesia
- 30 Department of Economics St Gallen University
- 31 Centre for Studies in Economics and Finance University of Naples Federico II

- 32 Research Centre for Gender, Health and Ageing The University of Newcastle [Australia]
- 33 Ragnar Frisch Centre for Economic Research University of Oslo
- 34 Nuffield College University of Oxford
- 35 Department of Economics University of Parma
- 36 Centre for the Study of Choice University of Technology, Sydney
- 37 Faculty of Economics University of Trieste
- 38 College of Public Administration Zhejiang University

INTERNATIONAL LONGEVITY CENTRE AUSTRALIA (ILC-A)

CEPAR is proud to be a foundation member of the successful consortium to establish the International Longevity Centre Australia (ILC-A). Announced on 28 October 2014, the establishment of the ILC-A will strengthen links between collaborating research institutions within Australia as well as act as a conduit for connecting with other researchers, both nationally and internationally, focused on the challenges and opportunities associated with demographic change. CEPAR Associate Investigator Julie Byles has been appointed Acting Head of ILC-A, and Chief Investigator Kendig serves on the Council, demonstrating CEPAR's commitment to this major initiative and placing CEPAR in a strong position to contribute to the development of a major network of Australian researchers in the field. 'This is a great opportunity to join a global alliance of centres whose mission is to help societies address longevity and population ageing in positive and productive ways,' said Acting Head, Professor Julie Byles.

ESTABLISHING AN ASIA-PACIFIC RESEARCH HUB

UNSW recently joined a global network aiming to bring universities – and therefore nations – around the Pacific Rim closer together. The Association of Pacific Rim Universities (APRU) aims to build collaborations around the Pacific, facilitating research which has consequences for the Pacific Rim nations.

CEPAR, in collaboration with UNSW, has leveraged this association to successfully secure APRU support for the establishment of an APRU research hub focused on population ageing. The hub's mission is to connect leading population ageing experts across the APRU network; to share best practice and showcase research, to engage with governments and industry; and to stimulate new and relevant research collaboration amongst the Early Career Researcher community.

CEPAR will be at the forefront of this initiative and is currently working with UNSW to assemble a Hub Steering Group consisting of representatives of ten member universities drawn from leading research institutions in the Asia-Pacific. An annual symposium is planned, with CEPAR hosting this event at UNSW in September 2015. In addition to this, a three year program of activity will be developed by the Steering Group to strengthen links and build research collaboration in the region around this important issue.

DEVELOPING LINKS WITH CHINA

Our research program focused on China recently received a significant boost with the award of over \$2 million in UNSW Strategic Funds to support the hiring of research personnel focused specifically on ageing in China.

China is not just the world's most populous nation. It is also its most rapidly ageing significant economy. Understanding demographic change in China and its implications for Australia is

therefore vital. As Australian companies become increasingly focused on foreign investment in China, our research program will expand understanding of the Chinese business and policy environment, better equipping Australian business to capitalise on emerging opportunities.

Building links with leading Chinese research institutions is also important for CEPAR as it seeks to gain global traction. Connection with China provides a pipeline of future research students and fellows as well



REPRESENTATIVES OF THE SUCCESSFUL CONSORTIUM TO ESTABLISH THE ILC-AUSTRALIA INCLUDING CEPAR CHIEF INVESTIGATOR HAL KENDIG AND ASSOCIATE INVESTIGATORS JULIE BYLES AND COLETTE BROWNING

NATIONAL & INTERNATIONAL LINKS

as linkages with emerging research groups. In 2014 we continued to strengthen our relationship with Zhejiang University through a number of activities. In October 2014, CEPAR sponsored the 'International Conference on Ageing and Public Policy – Health Care, Urbanization and the Environment' organised and hosted by Zhejiang University. Featuring keynote presentations from leading Chinese and international experts, including CEPAR Director John Piggott, the two day conference provided an excellent forum for experts on ageing and public policy to meet and exchange ideas. Zhejiang University also hosted two visits from CEPAR Research Fellow Lu Bei, who used the opportunity to develop a research proposal which became the basis for a 2015 Linkage Grant application on long-term care in China.

In April 2014 our relationships with two other prestigious Chinese institutions were consolidated by the signing of Memoranda of Understanding (MOUs) in relation to the development of joint research projects and exchange of personnel.

This included MOUs between CEPAR and two Chinese Academy of Social Sciences (CASS) organisations - the Social Security Laboratory and the Institute of Population Ageing and Labor Economics – as well as an MOU with the Institute of Population Research at Peking University.

Providing advice on Australian policy and practice to Chinese policymakers and business leaders is another way in which CEPAR seeks to build links between the two economies. In October, as part of our outreach program, we hosted a large delegation of Chinese government officials interested in developing their understanding of the retirement industry and aged care in Australia.



CEPAR RESEARCH FELLOW LU BEI ADDRESSING VISITING CHINESE GOVERNMENT OFFICIALS FROM HANGZHOU PROVINCE AT UNSW

CEPAR AND INDONESIA

A large three-year Linkage Project led by Peter McDonald and conducted in cooperation with AusAID, UNFPA, Statistics Indonesia, and the Indonesian National Population and Family Planning Board, focuses on population and development in Indonesia (see page 85). As part of this project, Peter McDonald delivered the prestigious Sadli lecture in Jakarta and Yogyakarta in 2014.

In 2014, CEPAR progressed discussions with the Centre of Ageing Studies at the University of Indonesia about a joint project focused on the study of older persons in Indonesia. As a result of these discussions, a HRS-style pilot survey of older people in two or three villages will be conducted in 2015. The project will form the basis of a 2016 ARC Discovery Grant application. A planned Memorandum of Understanding between CEPAR and the Centre of Ageing Studies will support further collaboration.

A CEPAR-NETSPAR NEXUS

The relationship between CEPAR and the Network for Studies on Pensions, Aging and Retirement (Netspar) was considerably strengthened by the award of an ARC Linkage grant to fund a large-scale research program focused on mandatory pre-funded retirement income systems. The joint project, in collaboration with partners APG in the Netherlands and AMP and PwC in Australia, brings together a coalition of world-class researchers and leading industry experts to

undertake a rigorous investigation of the critical elements of retirement income design in two countries with established and high quality mandatory pre-funded systems: Australia and the Netherlands.

CEPAR's Director, John Piggott, and Netspar's Scientific Director, Theo Nijman, are committed to building an ongoing, collaborative research program on topics of relevance to policymakers and industry practitioners. To facilitate this, both institutions have promoted opportunities to bring researchers from the two organisations together. Federica Teppa, a Netspar Fellow and Economist with the Dutch Central Bank, spent a month at CEPAR

working closely with Hazel Bateman and other CEPAR researchers focused on pensions, and in December Netspar PhD student, Servaas van Bilsen, visited CEPAR for research consultation and to present his research at the CEPAR Long-term Care and Longevity Insurance Workshop.

CEPAR AND FRISCH

CEPAR's collaboration with the Ragnar Frisch Centre for Economic Research in Oslo was further strengthened in 2014 by extended visits to the UNSW node from two of our Associate Investigators, Erik Hernæs and Simen Markussen, both based at Frisch. Working with John Piggott and Knut Røed at the Frisch Centre in Oslo, Simen and Erik advanced a project

titled 'Flexibility and Prescription' which focuses on decisions to work longer under alternative social security and earnings test arrangements, and makes use of the unparalleled administrative databases in Statistics Norway, leased to Frisch, and recent Norwegian pension reforms, to estimate labour force participation response (see pages 60-61 for further details). This is part of a larger project led by Hernæs, evaluating the Norwegian Pension. Following up on this work is a second, large project led by Markussen, involving personnel from the Frisch Centre, CEPAR, the University of Stockholm, Uppsala University, and the University of Turin.

ENGAGING WITH THE US SOCIAL SECURITY ADMINISTRATION

Early in 2014 CEPAR was approached by the Director of the Michigan Retirement Research Center (MRRC) to submit a funding application for a project focused on means testing public pensions. The MRRC is housed at the University of Michigan and funded by the US Social Security Administration (SSA).

The application was successful and the project, which undertakes research into means testing social security structures and age pension programs through macroeconomic modelling and policy analysis, commenced in late 2014. The US and Australia differ markedly in their retirement

policy structures and much can be learnt from the Australian policy framework, especially in an era where the IMF and others have advocated means testing as a way to address both fiscal stress and inequity issues. The models developed as part of this project will be able to generate estimates of labour supply and saving decisions, the retirement decision, and overall efficiency and distributional impacts of alternative policy scenarios.

In April 2015 CEPAR researchers involved in the project will participate in the MRRC's annual workshop which will provide an opportunity to network and share ideas with other researchers as well as US Social Security



DR SIMEN MARKUSSEN
BEc MEd PhD Oslo
ASSOCIATE INVESTIGATOR

Simen Markussen is a Senior Research Fellow at the Ragnar Frisch Centre for Economic Research in Oslo, Norway.

Since completion of his PhD in Economics in 2010 he has published several research papers in the leading journals

within labour and health economics. He conducts empirical research aimed at identifying causal effects of various labour market policies or events.

He participates in the public debate around labour, health and education in Norway, holding numerous talks with relevant organisations and governmental agencies as

well as filling a periodic column in *Dagens Næringsliv*, a major Norwegian newspaper, every sixth week.

NATIONAL & INTERNATIONAL LINKS

Administration personnel. The annual Retirement Research Consortium conference which takes place later in the year in Washington, DC, provides an opportunity for selected personnel associated with funded projects to present research results to the policy community.

JOINT SYMPOSIA AND WORKSHOPS

One of the ways in which we facilitate global discussion of the implications of population ageing as well as increase the visibility of the Centre, is through the hosting of special events which bring together international experts around a particular issue.

LIFE COURSE INFLUENCES ON INEQUALITIES IN LATER LIFE: COMPARATIVE PERSPECTIVES

A CEPAR-sponsored invited symposium for the International Sociology Association meeting

CEPAR Chief Investigator Hal Kendig and Partner Investigator James Nazroo spearheaded the organisation of a prestigious invited symposium as part of the XVIII ISA World Congress of Sociology in Yokohama in July 2014.

The symposium examined variations in the pattern of life course trajectories (across countries, gender, class and ethnicity) and the influence of these trajectories on later life outcomes in terms of psychological wellbeing, health and social inclusion. Key influences discussed

at the Symposium included early life circumstances, education, work experiences, family circumstances, and social class attainment. The symposium showcased the research being undertaken by CEPAR on this important topic and drew on comparable and detailed life history data collected in England, mainland Europe and Australia, and also drew on data available from the US.

It brought together international leaders from CEPAR; the Cathie Marsh Centre for Census and Survey Research at the University of Manchester; the International Centre for Life Course Studies at University College, London; and the University of Bremen.

Symposium co-convenor Hal Kendig said, 'the symposium brought together some of the world's leading experts and provided an excellent opportunity to promote CEPAR's leadership in this important field. A special issue of the *Journal of Population Ageing* comprising the papers presented at the Symposium is planned for 2015 which will further serve to increase the profile of the issue as well as showcase CEPAR's expertise'.

POPULATION AGEING, WORK AND CARE-GIVING RESPONSIBILITIES IN FOUR LIBERAL DEMOCRACIES

A CEPAR-sponsored invited symposium for the International Sociology Association meeting

Convened by CEPAR Associate Investigator Kate O'Loughlin, the symposium examined work-care interface in mid and later life with a particular focus on the gendered nature of care-giving and the baby boomer cohort (45-65 years). It provided an opportunity to explore major trends and undertake comparative analyses on the interrelations between care-giving, paid work, and health status for older individuals using national data sets and social surveys in Australia, Canada, New Zealand and the UK. Findings were discussed in terms of significance for individuals (labour force participation, health status), employers (flexible work practices), and social security systems (financial/social support for carers) in the context of



PROFESSOR ROBERT HOLZMANN
HONORARY PROFESSOR

Robert Holzmann holds the chair of Old Age Financial Protection at the University of Malaya in Kuala Lumpur, is a Research Fellow of IZA and CESifo, and a Fellow of the Austrian Academy of Science. He also serves as a consultant on pensions, financial literacy

and education, labour market and migration issues. From 1997 to 2011 he held various positions at the World Bank including Sector Director for Social Protection and Labor. Before joining the Bank he was a professor in Germany and Austria and senior economist at the IMF and OECD. He has published 34 books and over 150 articles on social, fiscal

and financial policy issues.

Robert visited CEPAR twice in 2014 to participate in CEPAR conferences and advance collaborative research projects. In July, he delivered 'Addressing Longevity Risk through Private Annuities: Issues and Options' at the 22nd Colloquium of Superannuation Researchers. At the Pension Taxation,

Population Ageing and Globalisation Workshop in November he spoke on the issue of 'Taxing Pensions of an Internationally Mobile Labor Force: Portability Issues & Taxation Options'.

policy initiatives within and across the four countries. The symposium involved international researchers from CEPAR; the Centre for International Research on Care, Labour and Equalities at the University of Leeds; the Department of Human Ecology at the University of Alberta; Massey University and the University of Otago, New Zealand. These discussions informed Kate O'Loughlin's presentation to Australian policymakers at the August CEPAR-DSS Roundtable where she included a summary of the comparative findings.

PENSION TAXATION, POPULATION AGEING AND GLOBALISATION

A CEPAR joint conference with the CESifo group

The CESifo Group is a leading research organisation based in Europe. It hosts a powerful network of researchers, currently numbering 1163 Fellows and Affiliates, drawn from all over the world.

In 2014 CEPAR joined forces with this group to develop two inter-related and sequential two day workshops focused on pension taxation, population ageing and globalisation.

The first of these workshops was held at UNSW in November 2014. Overseen by an Organising Committee comprising CEPAR Honorary Professor Robert Holzmann, CEPAR Director John Piggott, and Bernd Genser, Professor Emeritus at the University of Konstanz, the workshop brought together leading Australian and international experts including Paul Johnson from the Institute for Fiscal Studies in the UK. Sean Innis from our partner organisation, the Department of Social Services, was also on hand to provide a policymaker's perspective.

The second workshop is scheduled to take place in Munich on September 3-4, 2015, where revised and further papers with an international perspective will be presented.

INTERNATIONAL VISITORS

The Centre hosted 26 international visitors in 2014. These visitors ranged from experts with distinguished reputations in their fields to Early Career Researchers interested in developing research programs in the area of population ageing. They participated in a range of CEPAR events and activities, contributed to the development and execution of research projects and brought an international perspective to bear on the research program.

Our visitors also contribute to our program of outreach to the wider community through distinguished lectures and public presentations. 2014 highlights included:

JOSEPH E. STIGLITZ

We were very fortunate to have the opportunity to host a presentation by Nobel Laureate Joseph E. Stiglitz in July at the UNSW CEPAR node.

Addressing a packed auditorium of researchers, alumni and members of the public, Stiglitz spoke on 'The global financial crisis: Where are we now and what can be done about it?'

Stiglitz was critical of governments everywhere for not doing enough to draw the global economy out of its lacklustre growth performance since the GFC. He focused especially on the US and Europe, suggesting that the GFC was really a trans-Atlantic FC. Australia, he said, had largely escaped the impacts of the GFC, in part because of what he regarded as the world's best-designed fiscal stimulus package.

The lecture, which was also live-streamed over the internet, was co-hosted by CEPAR and the UNSW Business School. A Professor at Columbia University in New York, where he is a member and former chair of its Committee on Global Thought, Professor Stiglitz was in Australia as a guest of the Economic Society of Australia, sponsored by the Crawford School of Public Policy at the ANU.



JOSEPH E. STIGLITZ SPEAKING AT THE CEPAR-HOSTED PUBLIC LECTURE IN JULY

NATIONAL & INTERNATIONAL LINKS

NAOHIRO OGAWA

Naohiro Ogawa, Professor of Population Economics at Nihon University and Director of the Nihon University Population Research Institute, delivered a public lecture at the ANU Crawford School of Public Policy in November titled 'Declining fertility and increasing investment in children: The quantity and quality trade-off in Japan and selected Asian countries'.

Drawing heavily upon National Transfer Accounts (NTAs), Professor Ogawa discussed Japan's changing pattern of intergenerational transfers, both public and private, over the period 1984-2009. Also, within the NTA framework, he shed light on the rising per capita costs of children and the elderly, and discussed the applicability of the 'crowding

out' effect to contemporary Japan. He then compared these Japanese results with findings for other Asian countries, mostly those in East Asia.

Professor Ogawa was the CEPAR-sponsored keynote speaker at the 2014 Academy of Social Sciences in Australia Symposium on Population Ageing and Australia's Future. In a session on 'Population ageing: global, regional, and Australian perspectives', Professor Ogawa shared insights on rapid population ageing and changing intergenerational transfers in Japan and selected Asian countries.

FRANK LIN

Frank Lin from the Departments of Otolaryngology-HNS, Geriatric Medicine, Mental Health, and Epidemiology at Johns Hopkins University delivered a public lecture at the ANU CEPAR node in May.

Dr Lin spoke on the broader implications of hearing loss for the health and functioning of older adults which are now beginning to surface in epidemiologic studies. He discussed recent epidemiologic research demonstrating that hearing loss is independently associated

with accelerated cognitive decline, incident dementia, and poorer physical functioning, citing results from analyses of several large epidemiologic datasets. Current and planned studies to investigate the impact of hearing rehabilitative interventions on reducing cognitive decline and the risk of dementia in older adults were also discussed.

CEPAR hosted visits from the following researchers in 2014:

NATALIA ARANCO

Universidad de Montevideo
12 - 23 May 2014

PROFESSOR MARTIN BOYER

HEC Montreal
5 - 28 November 2014

PROFESSOR MONIKA BÜTLER

University of St Gallen
23 September - 29 October 2014

PROFESSOR MARCO CAGETTI

US Federal Reserve
8 - 14 November 2014

JASMYN DIAS

World Health Organization
2 September - 24 October 2014

PROFESSOR HANS FEHR

University of Würzburg
16 - 19 November 2014

PROFESSOR NORMAN GEMMELL

Victoria University of Wellington
16 - 19 November 2014

PROFESSOR BERND GENSER

University of Konstanz
14 - 28 November 2014



DR PAUL JOHNSON
2014 CEPAR VISITOR

Paul Johnson is Director of the Institute for Fiscal Studies (IFS) in the UK and a Visiting Professor at University College London.

He visited CEPAR in November 2014 to discuss the development of a collaborative research program between CEPAR and

the IFS. A highlight of his visit was his participation in the joint CEPAR-CESifo workshop on Pension Taxation, Population Ageing and Globalisation where he spoke on the changing taxation of private pensions in the UK.

Paul has published and broadcast extensively on the economics of public policy including tax, welfare, inequality and poverty, pensions, education, climate

change and public finances. He is the author of major books on pensions, tax and inequality, and is one of the authors of the 'Mirrlees Review' of tax system design.

Paul has previously been Chief Economist at the Department for Education and Director of Public Spending in HM Treasury as well as Deputy Head of the UK Government Economic Service.

Paul is currently a member of the council and executive committee of the Royal Economic Society, a member of the Climate Change Committee, and a member of the actuarial council of the Financial Reporting Council.

**SENIOR RESEARCH FELLOW
ERIK HERNÆS**

The Ragnar Frisch Centre for Economic Research,
University of Oslo
28 January - 22 April 2014

PROFESSOR ROBERT HOLZMANN

University of Malaya
6 - 10 July 2014
29 October - 20 November 2014

PROFESSOR CAROL JAGGER

University of Newcastle (UK)
14 - 25 June 2014

DR PAUL JOHNSON

Institute for Fiscal Studies
16 - 22 November 2014

ANDREW KINGSTON

University of Newcastle (UK)
14 - 25 June 2014

PROFESSOR ZINOVIIY LANDSMAN

University of Haifa
15 August - 23 September 2014

DR SIMEN MARKUSSEN

The Ragnar Frisch Centre for Economic Research,
University of Oslo
13 December 2013 - 2 May 2014

PROFESSOR OLIVIA S. MITCHELL

The Wharton School,
University of Pennsylvania
6 - 12 July 2014

PROFESSOR NAOHIRO OGAWA

Nihon University
9 - 13 November 2014

PROFESSOR ANNAMARIA OLIVIERI

University of Parma
25 March - 4 April 2014

DR MIKE ORSZAG

Towers Watson
21 - 27 October 2014

DR STEFFEN OTTERBACH

University of Hohenheim
8 September - 31 October 2014

PROFESSOR KIM PEIJNENBURG

Bocconi University
9 April 2014

PROFESSOR ERMANNO PITACCO

University of Trieste
7 - 13 December 2014

PROFESSOR DAVID SMITH

University of Oxford
11 August 2014

DR FEDERICA TEPPA

Dutch Central Bank
24 November - 20 December 2014

SERVAAS VAN BILSEN

Tilburg University
7 - 13 December 2014

PROFESSOR JOHN WHALLEY

University of Western Ontario
14 - 30 November 2014

INTERNATIONAL VISITS

CEPAR investigators were invited to visit a number of leading research institutions in 2014:

JULIE BYLES

World Health Organisation
14 - 15 October 2014

LU BEI

World Bank, Beijing
Chinese Academy of Social Sciences
Tsinghua University
Peking University
14 - 19 April 2014

London School of Economics and Political Science
29 August - 5 September 2014

Zhejiang University
14 - 19 April 2014
5 - 10 October 2014

HEATHER BOOTH

Max Planck Institute for Demographic Research
29 September 2014

Catholic University of Leuven
18 - 19 September 2014

ELENA CAPATINA

Graduate National Institute for Policy Studies
30 July - 4 August 2014

Academia Sinica, Taiwan
12 - 23 December 2014

FEDOR ISKHAKOV

University of Copenhagen
21 January - 13 February 2014
17 - 26 June 2014
29 October - 9 November 2014

VANESSA LOH

University of Manchester
Cathie Marsh Centre for Census and Survey Research
31 April - 1 June 2014

RACHEL ONG

Delft University of Technology
29 September - 3 October 2014

JOHN PIGGOTT

World Bank
13 - 20 April 2014

Wharton Business School,
University of Pennsylvania
Retirement Research Centre,
University of Michigan
23 April - 5 May 2014

South African Treasury
24 - 29 May 2014

University of Southern California
14 - 17 September 2014

Zhejiang University
6 - 9 October 2014

Keio University
16 - 19 October 2014

ADAM SHAO

Temple University
1 - 14 January 2014

YANG SHEN

Sun Yat-Sen University
23 April - 4 May 2014

MICHAEL SHERRIS

University of Parma
30 June - 6 July 2014

**PROFESSOR MONIKA BÜTLER
ASSOCIATE INVESTIGATOR**

Monika Büttler is a Professor of Economics and Public Policy at the University of St. Gallen and an affiliated researcher at CESifo, Netspar and CEPR London as well as an Associate Investigator at CEPAR. She has degrees in Mathematics, Physics, and Economics as well as a PhD in

Economics from the University of St. Gallen. Monika has been a visiting professor at UNSW Australia and a visiting scholar at the University of Virginia and the Federal Reserve Bank of Richmond. She was a member of the Board of the World Demographic Association, Advisor at The World Bank, and Managing Director at the Swiss Institute for Empirical

Economic Research. Monika visited CEPAR in September and October 2014. During this time she presented at a number of seminars as well as at a workshop on Means Testing organised by the CEPAR UNSW Node.

NATIONAL & INTERNATIONAL LINKS

PUBLIC AND KEYNOTE LECTURES

CEPAR personnel delivered a number of public lectures in 2014. Highlights included:

SADLI LECTURE IN ECONOMIC POLICY DELIVERED BY PETER MCDONALD

The demography of Indonesia in comparative perspective

Delivering the prestigious Sadli lecture in Indonesia in April this year, Peter McDonald discussed the implications of Indonesia's population growth and distribution for its economy as well as the poor quality of demographic data.

In the context of concerns within Indonesia that the present level of population growth is an obstacle to continued economic development, Peter suggested that with the right policy settings Indonesia can continue to reduce its fertility without negatively impacting labour supply or population ageing. The lecture was based on a commissioned paper published in the *Bulletin of Indonesian Economic Studies*.

Hosted by The University of Indonesia's Institute of Economic and Social Research in cooperation

with the Indonesia Project, the aim of the lecture series is to broaden understanding and stimulate debate among students, academics and policymakers of the key economic policy challenges faced by Indonesia, drawing on the experience of neighbouring countries.

KEYNOTE LECTURE AT APACPH DELIVERED BY ROBERT CUMMING

Ageing and Health in Developing Countries in the 21st Century

Robert Cumming gave a keynote lecture at the Asia Pacific Academic Consortium for Public Health (APACPH) Conference in Kuala Lumpur in October. He showed that population ageing results in two patterns of degenerative disease: initially, the traditional non-communicable diseases (mainly cardiovascular disease and cancer) and then, as the population becomes older, the conditions of advanced old age (physical and cognitive disability and frailty). There were over 600 people at the conference, a mixture of health officials and public health academics.



CHIEF INVESTIGATOR ROBERT CUMMING AT THE APACPH CONFERENCE IN KUALA LUMPUR

KEYNOTE LECTURE AT AEPRC DELIVERED BY JOHN PIGGOTT

John Piggott's Overview presentation at the 20th Asian Economic Policy Review Conference (AEPRC) in Tokyo in October analysed the social security policies of a range of Asian countries in a comparative context, and linked them to the stage of demographic transition, as well as its speed. He emphasised that rapid demographic transition will challenge many Asian countries, with the peak of the challenge arriving before economic growth and

affluence have been consolidated into social support structures. Managing public policy with rapid demographic change will be especially challenging because as societies become more affluent, expectations regarding public provision of services disproportionately drawn upon in later age, such as income transfers and health care, increase.

SECTION

ANNUAL REPORT 2013



Australian Government
Australian Research Council

PERFORMANCE INDICATORS
& FINANCIAL STATEMENT

EXCELLENCE IN
POPULATION
AGEING
RESEARCH

cep

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CEPAR ANNUAL

RESEARCHING THE CENTRE

2014 KEY PERFORMANCE INDICATORS

MEASURE	2014 TARGET	2014 RESULT
RESEARCH FINDINGS		
Total research outputs	55	352
– Refereed journal articles	20	130
– Percentage appearing in A* and A journals ⁵	30%	54%
Invited talks/papers/keynotes given at major international meetings	12	18
Commentaries about the Centre's achievements		
– Media releases	8	13
– Articles	6	83
RESEARCH TRAINING AND PROFESSIONAL EDUCATION		
Attended professional training courses for staff and postgraduate students	6	8
Centre attendees at all professional training courses	16	52
New PhD students working on core Centre research and supervised by Centre staff	6	15
New postdoctoral researchers recruited to the Centre working on core Centre research	5	5
New Honours students working on core Centre research and supervised by Centre staff	4	4
Postgraduate completions	3	8
Early Career Researchers working on core Centre research	9	25
Students mentored	150	700
Mentoring programs	2	6
INTERNATIONAL, NATIONAL AND REGIONAL LINKS AND NETWORKS		
International visitors and visiting fellows	11	26
National and international workshops held/organised by the Centre	2	8
Visits to overseas universities or organisations	8	23
Interdisciplinary research: Research projects and papers co-authored by writers with different disciplinary backgrounds	2	17

⁵ Based on UNSW List of Top Quality Research Outlets

MEASURE	TARGET	RESULT
END-USER LINKS		
Government, industry and business community briefings	5	62
Public awareness programs	2	4
Currency of information on the Centre's website (number of updates per year)	10	Updated at least weekly
Website hits	6,000	Over 17,000
Public talks given by Centre staff	15	22
ORGANISATIONAL SUPPORT		
Annual cash contributions from Collaborating Organisations	\$938,250	\$1,133,501
Annual in-kind contributions from Collaborating Organisations	\$1,090,621	\$1,840,943
Annual cash contributions from Partner Organisations	\$150,000	\$150,000
Annual in-kind contributions from Partner Organisations	\$929,722	\$956,098
OTHER RESEARCH INCOME SECURED BY CENTRE STAFF⁶		
– ARC Grants	\$250,000	\$1,569,372
– Other Australian Competitive Grants	\$250,000	\$1,841,368
– Other Commonwealth, State and Local Government Grants	\$125,000	\$0
– Industry/Private Sector Grants	\$125,000	\$205,413
Number of new organisations collaborating with, or involved in, the Centre	1	3
NATIONAL BENEFIT		
Contribution to the National Research Priorities and the National Innovation Priorities		
– Public conferences	2	3
– Government and industry briefings	5	62
– Communiques etc	12	96

⁶ Includes all new grants awarded since the Centre's inception where a CEPAR Chief Investigator and/or Research Fellow is included in the research team as Chief Investigator. Only 2014 income is shown.

RESEARCH OUTPUTS

B BOOK CHAPTERS

- 1 Anstey, K.J. and Eramudugolla, R. (2014). Prevention of Dementia. In N. Qizilbash, L.S. Schneider, H. Brodaty, P. Tariot, J. Kaye, H. Chui, T. Erkinjuntti and Z.S. Khachaturian (Eds.), *Evidence-based Dementia Practice*. Wiley and Sons.
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- 8 Anstey, K.J., Kingston, A., Kiely, K.M., Luszcz, M.A., Mitchell, P. and Jagger, C. (2014). The Influence of Smoking, Sedentary Lifestyle, and Obesity on Cognitive Impairment Free Life Expectancy. *International Journal of Epidemiology*. doi: 10.1093/ije/dyu170. In press [available online August 2014].
- 9 Anstey, K.J., Sargent-Cox, K.A., Garde, E., Cherbuin, N. and Butterworth, P. (2014). Cognitive Development over 8 years in Mid-life and its Association with Cardiovascular Risk Factors. *Neuropsychology*, 28(4), 653-665. doi: 10.1037/neu0000044.
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- 129 Yu, Y. and Booth, H. (2014). The Changing Role of Smoking in Educational Inequality in Female Mortality. *Journal of Population Research*, 31(2), 97-110.
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- 1 Kendig, H. (2014). Global Ageing in the Twenty-first Century: Challenges, Opportunities and Implications. Book Review, *Ageing and Society*, 34(4), 723-725. doi: 10.1017/S0144686X13001013.
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- 2 Bateman, H., Eckert, C., Iskhakov, F., Louviere, J., Satchell, S. and Thorp, S. (2014). Individual Capability and Effort in Retirement Benefit Choice. UNSW Australia Business School Working Paper.
- 3 Bateman, H., Eckert, C., Iskhakov, F., Louviere, J., Satchell, S. and Thorp, S. (2014). Default and Naive Diversification Heuristics in Annuity Choice. UNSW Australia Business School Working Paper.
- 4 Chang, Y. and Schlogl, E. (2014). A Consistent Framework for Modelling Basis Spreads in Tenor Swaps. CEPAR Working Paper Series.
- 5 Chomik, R. and MacLennan, M. (2014). Aged Care in Australia: Part 1 - Policy, Demand and Funding, Research Brief. CEPAR, Sydney, Australia.
- 6 Chomik, R. and MacLennan, M. (2014). Aged Care in Australia: Part 2 - Industry and Practice, Research Brief. CEPAR, Sydney, Australia.
- 7 Chomik, R. and Piggott, J. (2014). Population Ageing and Social Security in Asia. CEPAR Working Paper Series.
- 8 Chomik, R. and Piggott, J. (2014). The Australian Retirement Income System: Comparisons with and Lessons for the United States. CEPAR Working Paper Series.
- 9 Dobrescu, L.I., Fan, X., Bateman, H., Newell, B., Ortmann, A. and Thorp, S. (2014). A Tale of Decisions and Defaults. Working Paper.
- 10 Donald, M.S., Arnold, B., Bateman, H., Buckley, R. and Liu, K. (2014). The Implications of Complexity for Systemic Risk in the Superannuation System. UNSW Australian School of Business Research Paper.
- 11 Hanewald, K. and Kluge, F. (2014). The Impact of Family Structure on Risk Attitudes and Financial Decisions during the Financial Crisis. CEPAR Working Paper Series.
- 12 Iskhakov, F., Thorp, S. and Bateman, H. (2014). Optimal Annuity Purchases for Australian Retirees. CEPAR Working Paper Series.
- 13 Kudrna, G. (2014). The Means Testing of Australia's Age Pension: A Numerical Analysis with an OLG Model. CEPAR Working Paper Series.
- 14 Lu, B., Yang, Z., Zhang, H., Zhang, T., Niu, C., Lin, X., Ma, P., Zhou, W., Zhou, L., Xu, S., Yuan, X., Li, H., Tong, S., Jia, N., Wang, G., Yang, M., Wang, P., Ren, Z. and Zhang, W. (2014). Research on Deepening Old-age Insurance System Reform in China. Report submitted to the Pension Insurance Top Design Intra-Ministries Research Work Team Office, State Council of China.
- 15 Piggott, J. and Chomik, R. (2014). Means-testing Pensions: The Case of Australia. Michigan Retirement Research Center Policy Brief. Sydney, Australia.
- 16 Shao, A.W., Hanewald, K. and Sherris, M. (2014). Reverse Mortgage Pricing and Risk Analysis Allowing for Idiosyncratic House Price Risk and Longevity Risk. CEPAR Working Paper Series.
- 17 Shen, Y. and Sherris, M. (2014). Lifetime Asset Allocation with Idiosyncratic and Systematic Mortality Risks. CEPAR Working Paper Series.
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- OTHER OUTPUTS**
- 1 Abalos, J. (May 2014). Poster Presentation. Geographic Differentials in Functional Difficulty among Older Persons in the Philippines. 26th REVES Conference Healthy Longevity-Where you live or how you live? Edinburgh, Scotland.
- 2 Allen, V. (November 2014). Poster Presentation. Daily Stress and Emotion Regulation in Younger and Older Adults: An Intensive Longitudinal Study. 13th National Conference of Emerging Researchers in Ageing. Adelaide, Australia.
- 3 Azaris, J., Lambert, J., McDonald, P. and Malyon, K. (2014). Robust New Foundations: A Streamlined, Transparent and Responsive System for the 457 Programme. Department of Immigration and Border Protection. Canberra, Australia.
- 4 Bateman, H. (May 2014). Default and Naive Diversification Heuristics in Annuity Choice. Poster Presentation. Boulder Summer Conference on Consumer Financial Decision Making. Boulder, USA.
- 5 Bateman, H., Chomik, R., de Cure, M., Hosking, D., Piggott, J., Sherris, M. and Stevens, R. (March 2014). CEPAR submissions to the Financial System Inquiry. Sydney, Australia.
- 6 Brooks, J. (August 2014). Poster Presentation. A New Method of Exploring Daily Activities in Healthy Ageing Adults and Stroke. Living to get the Age Pension and Enjoy Life in Retirement: Prospects and Policy Options. Canberra, Australia.
- 7 CEPAR. (2014). Older Australian Fact Sheet. CEPAR, Sydney, Australia.
- 8 Cherbuin, N., Shaw, M., Salat, D.H., Sachdev, P. and Anstey, K.J. (June 2014). Poster Presentation. Longitudinal Change in Grey/ White Matter Contrast is Associated with Cortical Thinning over Eight years. Organisation for Human Brain Mapping - OHBM 2014 Annual Meeting. Hamburg, Germany.
- 9 Clemson, L., Munro, J. and Fiatarone Singh, M. (2014). Lifestyle-integrated Functional Exercise (LIFE) Program to Prevent Falls: Participant's Manual. Sydney University Press.

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- 10 Clemson, L., Munro, J. and Fiatarone Singh, M. (2014). Lifestyle-integrated Functional Exercise (LIFE) Program to Prevent Falls: Trainer's Manual. Sydney University Press.
- 11 de Luca, K., Parkinson, L., Byles, J., Blyth, F. and Pollard, H. (2014). Poster Presentation. How does Neuropathic Pain Affect Quality of Life in Women with Arthritis. Presented at the 142nd APHA Annual Meeting and Exposition. New Orleans, USA, November 2014 and 7th World Congress, World Institute of Pain, Maastricht, The Netherlands, May 2014.
- 12 de Luca, K., Parkinson, L., Byles, J., Blyth, F. and Pollard, H. (March 2014). Poster Presentation. Pain and the Older Woman: Results from a Cross-sectional Survey. AAG and ACS Regional Conference. Port Macquarie, Australia.
- 13 de Luca, K., Parkinson, L., Byles, J., Blyth, F. and Pollard, H. (May 2014). Poster Presentation. How is the Experience of Pain Measured in Older, Community Dwelling Women with Osteoarthritis – A Systematic Review of the Literature. 7th World Congress, World Institute of Pain, Maastricht, The Netherlands.
- 14 de Luca, K., Parkinson, L., Byles, J., Blyth, F. and Pollard, H. (2014). Poster Presentation. How Catastrophic are Different Types of Pain in Women with Arthritis. Presented at the 7th World Congress, World Institute of Pain, Maastricht, The Netherlands, May 2014 and at the 142nd APHA Annual Meeting and Exposition. New Orleans, USA, November 2014.
- 15 Eftekhari, P. (May 2014). Poster Presentation. Impact of Asthma on Mortality in Older Women: An Australian Cohort Study of 10413 Women. American Thoracic Society Conference. San Diego, USA.
- 16 Kaizik, C., O'Connor, C., McKinnon, C., Dyeboode, J., Piguët, O., Hodges, J.R. and Mioshi, E. (October 2014). Poster presentation. The Burden of Care in Frontotemporal Dementia: The Under-reported Impact on Child Carers. 9th International Conference on Frontotemporal Dementias. Vancouver, Canada.
- 17 Kendig, H., Crisp, D., Gong, C., Conway, E. and Squires, B. (October 2014). An Investigation of the IRT Retirement Community Landscape: A Pilot Study.
- 18 Khoo, S.K., McDonald, P. and Edgar, B. (2014). Contribution of Family Migration to Australia. Report prepared for the Department of Immigration and Border Protection. Canberra, Australia.
- 19 Luders, E., Cherbuin, N. and Kurth, F. (June 2014). Poster Presentation. Less Age-related Gray Matter Decline within the Hippocampal Complex in Meditators. Organisation for Human Brain Mapping - OHBM 2014 Annual Meeting. Hamburg, Germany.
- 20 McDonald, P. (2014). The Role of Family Migration in Australia's Permanent Migration Program. Report prepared for the Department of Immigration and Border Protection. Canberra, Australia.
- 21 McDonald, P. and Temple, J. (2014). The Long Term Effects of Ageing and Immigration Upon Labour Supply and Per Capita Gross Domestic Product: Australia 2012-2062. Report prepared for the Department of Immigration and Border Control. Canberra, Australia.
- 22 Mioshi, E., O'Connor, C., Flanagan, E., Hodges, J. and Hornberger, M. (October 2014). Poster Presentation. Effects of Antipsychotic and Antidepressant Medication on Neuropsychiatric Symptoms and Carer Burden. 9th International Conference on Frontotemporal Dementias. Vancouver, Canada.
- 23 Mishra, G., Loxton, D., Anderson, A., Hockey, R., Powers, J., Brown, W., Dobson, A., Duffy, L., Graves, A., Harris, M., Harris, S., Lucke, J., McLaughlin, D., Mooney, R., Pachana, N., Pease, S., Tavener, M., Thomson, C., Tooth, L., Townsend, N., Tuckerman, R. and Byles, J. (May 2014). Health and Wellbeing of Women Aged 18 to 23 in 2013 and 1996: Findings from the Australian Longitudinal Study on Women's Health. Report prepared for the Australian Government Department of Health. Australia.
- 24 O'Connor, C.M., Clemson, L., Brodaty, H., Hodges, J.R., Piguët, O., Gitlin, L.N. and Mioshi, E. (November 2014). Poster Presentation. The Tailored Activities Program (TAP): Increasing Activity Engagement and Improving Carer Management Skills in Frontotemporal Dementia. Imagine U – Higher Degree Research Conference. Sydney, Australia.
- 25 Ocampos, C., Shaik, N.P., Wesson, J., Swann, M. and Clark, T. (March 2014). Poster Presentation. Who needs Occupational Therapy Anyway? The Critical Role of Occupational Therapy in Residential Aged Care. OT Australia NSW and ACT Conference. Sydney, Australia.
- 26 Rice, J., Temple, J. and McDonald, P. (2014). National Transfer Accounts for Australia: 2003-04 and 2009-10 Detailed Results. ARC Centre of Excellence in Population Ageing Research and Crawford School of Public Policy, The Australian National University. Canberra, Australia.
- 27 Shaw, M., Fraser, M. and Cherbuin, N. (June 2014). Poster Presentation. Normal Hippocampal Atrophy Across the Adult Lifespan: A Systematic Review of Longitudinal Studies. Organisation for Human Brain Mapping - OHBM 2014 Annual Meeting. Hamburg, Germany.
- 28 Shaw, M., Sachdev, P., Anstey, K.J. and Cherbuin, N. (June 2014). Poster Presentation. Age-related Cortical Thinning in Healthy Sixty year Olds. Organisation for Human Brain Mapping - OHBM 2014 Annual Meeting. Hamburg, Germany.
- 29 Zugman, C., O'Connor, C.M., McKinnon, C., Kaizik, C., Roche, L., Croot, K., Piguët, O., Hodges, J.R., Novelli, M. and Mioshi, E. (October 2014). Poster Presentation. Differences in Caregiver Burden are Associated with Use of Coping Styles in FTLD. 9th International Conference on Frontotemporal Dementias. Vancouver, Canada.
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- E1 CONFERENCE: FULL WRITTEN PAPERS IN REFEREED PROCEEDINGS**
- 1 Dudley, D. (November 2014). Greener Pastures? A Portrait of Life Satisfaction Among Older Australians. *Proceedings of the 13th National Conference of Emerging Researchers in Ageing*. Adelaide, Australia, 91-94.
- 2 Kapadia, V., Pedell, S., Li, J., Bakshi, A. and Ray, P. (August 2014). A Tablet-based Interactive Wellbeing Check Prototype for the Elderly. *Proceedings of the 2014 Health Informatics Conference*. Melbourne, Australia.
- 3 Rioseco, M.P. (November 2014). Social Connectedness and Retirement Status in Australia: Results from SNAP. *Proceedings of the 13th National Conference of Emerging Researchers in Ageing*. Adelaide, Australia, 95-98.
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- E4 UNPUBLISHED CONFERENCE PRESENTATIONS**
- 1 Abalos, J. (December 2014). Gender Differences in Health Expectancy Among Older Persons in the Philippines. Australian Population Association Biennial Conference. Hobart, Australia.
- 2 Anstey, K.J. (November 2014). Keynote Address. Developing your Research Career in Ageing, Focussing on Scientific Excellence and Knowledge Translation. 13th National Conference of Emerging Researchers in Ageing. Adelaide, Australia.

- 3 Anstey, K.J., Kingston, A., Kiely, K., Luszcz, M., Mitchell, P. and Jagger, C. (November 2014). The Influence of Smoking, Sedentary Lifestyle, and Obesity on Cognitive Impairment Free Life Expectancy. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 4 Anstey, K.J., Sargent-Cox, K.A. and Luszcz, M. (November 2014). Gender and Distance to Death Effects on Late-life Memory Decline: Individual Differences or Methodological Artefacts? The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 5 Anstey, K.J. (August 2014). Keynote Address. Stability and Change in Depressive Symptoms: Implications for Treatment and Management. Academic Unit for Psychiatry of Old Age Symposium. Melbourne, Australia.
- 6 Anstey, K.J. (August 2014). Plenary Speaker. Lessons to be learned from Longitudinal Studies of Ageing: Focussing on Cognitive Health. Academic Unit for Psychiatry of Old Age Symposium. Melbourne, Australia.
- 7 Anstey, K.J. (November 2014). Plenary Speaker. Case for Action on Dementia. NHMRC Research Translation Faculty Symposium. Melbourne, Australia.
- 8 Ashby-Mitchell, K. (December 2014). Effect of Diet on Cognitive Outcome - Results from an Australian Study. Go8C9 PhD Forum 2014: Global Challenges of Ageing Populations: Graduate Perspectives from China and Australia. Sydney, Australia.
- 9 Ashby-Mitchell, K. (June 2014). Dietary Pattern Analysis and Cognitive Status of Adults 60+ in AusDiab. IARU Graduate Students Conference. Denmark, Copenhagen.
- 10 Ashby-Mitchell, K., Jagger, C. and Anstey, K.J. (November 2014). Mental Health Expectancies in Latin America and the Caribbean. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 11 Bateman, H. (2014). Individual Judgement and Trust Formation: An Experimental Investigation of Online Financial Advice. Presented at the Boulder Summer Conference on Consumer Financial Decision Making, Boulder, USA, May 2014, and at the Research in Behavioural Finance Conference, Rotterdam, The Netherlands, September 2014.
- 12 Bateman, H. (August 2014). Behavioural Approaches to Retirement Risk and Communication. Portfolio Construction Forum Conference 2014. Sydney, Australia.
- 13 Bateman, H. (January 2014). As Easy as Pie: How Retirement Savers Use Prescribed Investment Disclosures. Netspar International Pension Workshop. Amsterdam, The Netherlands.
- 14 Bateman, H. (October 2014). Lessons from Academic Research: Engaging and Communicating with Pension Fund Members. Rotman International Centre for Pension Management Discussion Forum. Toronto, Canada.
- 15 Bateman, H., Eckert, C., Iskhakov, F., Louviere, J., Satchell, S. and Thorp, S. (July 2014). Default and Naïve Diversification Heuristics in Annuity Choice. Econometric Society Australasian Meeting, Australian Conference of Economists. Hobart, Australia.
- 16 Blackburn, C., Hanewald, K., Olivieri, A. and Sherris, M. (June 2014). Life Insurer Longevity Risk Management, Solvency and Shareholder Value. Insurance Risk Research Conference. Singapore.
- 17 Booth, H. (July 2014). Surfing the Age Wave: Population Ageing and Longevity in Australia. Northern NSW Local Health District Aged Care Symposium, Ballina, Australia.
- 18 Booth, H. (October 2014). Demographic Research Priorities in Longevity, Ageing and Mortality. Symposium on New Ideas and Challenges for Demographic Research in Australia. Canberra, Australia.
- 19 Booth, H. (September 2014). Coherent Forecasting of Mortality. Max Planck Institute for Demographic Research Workshop. Odense, Denmark.
- 20 Booth, H. and Riaseco, P. (November 2014). Offline Social Network Predictors of Online Social Networking Among Older Adults. 47th Australian Association of Gerontology National Conference. Adelaide, Australia.
- 21 Booth, H. and Riaseco, P. (September 2014). What can Demography Reveal about the Association between Social Networks and Self-rated Health at Older Ages? Annual Meeting of the British Society for Population Studies. Winchester, United Kingdom.
- 22 Booth, H. and Riaseco, P. (September 2014). Why do Older Men and Women choose to use Facebook? Social Enhancement and Social Compensation in the Relationship Between Offline and Online Social Networks. 43rd Annual Conference of the British Society of Gerontology. Southampton, United Kingdom.
- 23 Brady, J. (July 2014). Personal and Interpersonal Significance of Parkinson's Disease. XVIII International Sociological Association World Congress of Sociology. Yokohama, Japan.
- 24 Brady, J. (November 2014). A Thematic Analysis of In-depth Interviews and Focus Group Data from People Diagnosed and their Partners/ Carers Living with Parkinson's Disease in an Australian Community Setting. ImagineU - Creating the Future, Higher Degree Research Conference. Sydney, Australia.
- 25 Brooks, J. (September 2014). The Perceived versus Assessed Risk of Alzheimer's Disease in Young, Mid-age, and Older Adults: A Method to Explore and Enhance Awareness. Dementia Collaborative Research Centre Annual Forum. Sydney, Australia.
- 26 Browning, C., Kendig H. and Gong, C. (November 2014). Impact of Changing Social Environments on Health: Health Outcomes and Social Change among Ageing Australians by Age and Cohort. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 27 Büttler, M. (October 2014). Ex Ante Compulsion or Ex Post Tests? CEPAR Means Testing Workshop. Sydney, Australia.
- 28 Büttler, M. (October 2014). Means-testing Benefits and Public Services: An Overview. CEPAR Means Testing Workshop. Sydney, Australia.
- 29 Butterworth, P. (November 2014). Workplace Bullying, Psychosocial Job Quality and Mental Health: Results from The PATH Through Life Project. Society for Mental Health Research 2014 Conference. Adelaide, Australia.
- 30 Butterworth, P. and Kiely, K. (August 2014). Resilience in the Face of Uncertainty in Approaching Retirement. Living to get the Age Pension and Enjoy Life in Retirement: Prospects and Policy Options. Canberra, Australia.
- 31 Byles, J. (November 2014). Current Issues and Opportunities in Research and Education in the Asia-Oceania Region. 47th Australian Association of Gerontology National Conference. Adelaide, Australia.
- 32 Byles, J. (November 2014). Knowledge Translation in Ageing and Health: Creating Links between Evidence and Policy. NHMRC Research Translation Faculty Symposium. Melbourne, Australia.
- 33 Byles, J. (September 2014). Late Life Changes in Physical and Mental Health: A Study of 12432 Women over 17 Years. British Society of Gerontology Annual Conference. Southampton, United Kingdom.
- 34 Byles, J., Francis, J.L., Choienta, C. and Hubbard, I. (September 2014). Long-term Survival of Older Australian Women with a History of Stroke. British Society of Gerontology Annual Conference. Southampton, United Kingdom.

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- 35 Byles, J., Tavener, M., Dugdale, P. and Christiani, Y. (March 2014). Low Health Insurance Coverage among Women Residing in Indonesian Cities and Its Inequity: A Challenge for Achieving Universal Health Coverage. International Conference on Urban Health, Manchester, United Kingdom.
- 36 Chang, Y. and Schlogl, E. (2014). A Consistent Framework for Modelling Basis Spreads in Tenor Swaps. Presented at the Sydney Financial Mathematics Workshop, Sydney, Australia, May 2014, the World Finance Conference, Venice, Italy, July 2014 and the International Congress on Insurance: Mathematics and Economics, Shanghai, China, July 2014.
- 37 Cherbuin, N. (November 2014). Striatal Shape Differences are Associated with Plasma Glucose Levels: The 2sweet Project. Society for Mental Health Research 2014 Conference. Adelaide, Australia.
- 38 Chomik, R. and Piggott, J. (November 2014). Re-examining Tax Expenditures. CEPAR / CESifo Workshop: Pension Taxation, Population Ageing and Globalisation. Sydney, Australia.
- 39 Clemson, L. (2014). An Introduction to LiFE: The Lifestyle-integrated Functional Exercise Program to Reduce Falls in Older People. Presented at the 9th Pan Pacific Conference on Rehabilitation, Hong Kong, China, November 2014, the 21st Annual Conference of Gerontology, Hong Kong, China, November 2014 and the ANZ Falls Prevention Conference, Sydney, Australia, November 2014.
- 40 Clemson, L. (2014). Falls Prevention and Environmental Adaptation, A Framework for Practice. Presented at the 9th Pan Pacific Conference on Rehabilitation, Hong Kong, China, November 2014, the 21st Annual Conference of Gerontology, Hong Kong, China, November 2014 and the ANZ Falls Prevention Conference, Sydney, Australia, November 2014.
- 41 Clemson, L. (June 2014). Interventions for Community Residing Older People - The HOME Trial Transition from Hospital to Home: Effectiveness of an Occupational Therapy Home Visit Discharge Planning Program for at-risk Older Adults. 16th International Congress of the World Federation of Occupational Therapists. Yokohama, Japan.
- 42 Clemson, L., Mackenzie, L., Sherrinton, C., Peiris, D., Willis, K., Pit, S., Poulos, R., Lam, M. and Lovarini, M.P. (September 2014). Using Theory to Inform Implementation Research: The ISOLVE Project. 2nd Biennial Australian Implementation Conference. Sydney, Australia.
- 43 Curtis, R.G., Windsor, T.D., Luszcz, M.A. (November 2014). Perceived Control Moderates the Effects of Functional Disability on Older Adult's Social Activity. 13th National Conference of Emerging Researchers in Ageing. Adelaide, Australia.
- 44 Dobrescu, L.I., Fan, X., Bateman, H., Newell, B., Ortmann, A. and Thorpe, S. (July 2014). Retirement Savings: A Tale of Decisions and Defaults. 22nd Annual Colloquium of Superannuation Researchers. Sydney, Australia.
- 45 Dobrescu, L.I. and Iskhakov, F. (2014). Bequest Motives in a Life-Cycle Model with Intergenerational Interactions. Presented at the 2014 North American Winter Meetings of the Econometric Society, Philadelphia, USA, January 2014, the International Association for Applied Econometrics 2014 Annual Conference, London, United Kingdom, June 2014, the 5th Microeconomic Network Meeting, Copenhagen, Denmark, June 2014, the 22nd Annual Colloquium of Superannuation Researchers, Sydney, Australia, July 2014 and the Econometric Society Australasian Meeting, Australian Conference of Economists, Hobart, Australia, July 2014.
- 46 Dudley, D. (November 2014). The Golden Years? Understanding the Impact of the Retirement Transition on the Life Satisfaction of Older Australians. Imagine.U - Creating the Future. Sydney, Australia.
- 47 Fan, X. (October 2014). A Lifetime Model of Labour Supply and Asset Allocation of Australians: Estimation and Policy Implications. CEPAR Means Testing Workshop. Sydney, Australia.
- 48 Gong, C. (September 2014). How the Increase in Life Expectancy and Health Life Expectancy Change Our Future Perspective of Labour Force Participation for Older People. Economics of Ageing in the 21st century-Who pays for What? Australian Association of Gerontology NSW Division. Sydney, Australia.
- 49 Gong, C. and Kendig, H. (November 2014). Geographical Dimensions of Ageing and Population Change and Policy Responses in Australia. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 50 Gong, C., Enticott, J., Kendig, H., Browning, C. and Luo, H. (November 2014). Healthy Life Expectancy among Older Australians: Evidence and Factors Impacting Gender and Regional Disparities in Healthy Life Years. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 51 Gong, C. and Kendig, H. (December 2014). Small Area Health Inequalities and Socio-economic Status among Older Australians. Applied Statistics and Public Policy Analysis Conference. Wagga Wagga, Australia.
- 52 Granic, A., Davies, K., Adamson, A., Mathers, J., Kirkwood, T., Siervo, M. and Jagger, C. (November 2014). Dietary Patterns and Sociodemographic Profile of the Very Old in the Newcastle 85+ Study. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 53 Hall, J., Byles, J., Shi, Z. and Xu, X. (May 2014). Evaluation of Older Chinese People's Health Beyond Macronutrient Intake across Four Regions in China (2014). International Society for Behavioural Nutrition and Physical Activity (ISBNPA). San Diego, USA.
- 54 Hall, J., Byles, J., Shi, Z. and Xu, X. (November 2014). Evaluation of Food-based Chinese Food Pagoda for Older People in Nine Provinces. 13th National Conference of Emerging Researchers in Ageing. Adelaide, Australia.
- 55 Harrison, S., Stephan, B., Siervo, M., Granic, A., Davies, K., Robinson, L., Kirkwood, T. and Jagger, C. (November 2014). Metabolic Syndrome and Cognitive Decline in the Very Old; the Newcastle 85+ Study. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 56 Heinesen, E. and Maruyama, S. (November 2014). Understanding Returns to Birth Weight. Latin American Meeting of the Econometric Society. Sao Paulo, Brazil.
- 57 Hirani, V., Naganathan, V., Blyth, F., Le Couteur, D. and Cumming, R.G. (November 2014). Cross-sectional and Longitudinal Associations between Anaemia and Frailty in Older Australian Men: The Concord Health and Ageing in Men Project. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 58 Holzmann, R. (July 2014). Addressing Longevity Risk through Private Annuities: Issues and Options. 22nd Annual Colloquium of Superannuation Researchers. Sydney, Australia.
- 59 Holzmann, R. (November 2014). Taxing Pensions of an Internationally Mobile Workforce: Portability Issues and Taxation Options. CEPAR / CESifo Workshop: Pension Taxation, Population Ageing and Globalisation. Sydney, Australia.
- 60 Hosking, D., Sargent-Cox, K.A. and Anstey, K.J. (November 2014). A Survey of Cognitive Health Beliefs, Behaviours, and Intentions through the Adult Life Course. The 47th Australian Association of Gerontology Conference. Adelaide, Australia.

- 61 Hosseini-Chavoshi, M. and McDonald, P. (December 2014). The Gendered Nature of Assistance Needs for Core Activities in Older Australians. Australian Population Association Biennial Conference. Hobart, Australia.
- 62 Hubener, A., Maurer, R. and Mitchell, O.S. (July 2014). Plenary Speaker. How Family Status and Social Security Claiming Options Shape Optimal Life Cycle Portfolios. 22nd Annual Colloquium of Superannuation Researchers. Sydney, Australia.
- 63 Hunter, M. (November 2014). Cognitive Predictors of Prospective Memory in the Fourth Age: Evidence from the ADuLTS Study. 13th National Conference of Emerging Researchers in Ageing. Adelaide, Australia.
- 64 Iskhakov, F. (June 2014). Recursive Lexicographical Search: Finding All Markov Perfect Equilibria of Finite State Directional Dynamic Games. Society for Computational Economics, 20th International Conference on Computing in Economics and Finance. Oslo, Norway.
- 65 Iskhakov, F. (October 2014). Optimal Annuity Purchases and Means-tested Public Pension. CEPAR Means Testing Workshop. Sydney, Australia.
- 66 Jagger, C., Matthews, F., Wohland, P., Fouweather, T., Stephan, B., Robinson, L., Arthur, A. and Brayne, C. (November 2014). Changes in Health Expectancies at Age 65 over Two Decades: Results of the Cognitive Function and Ageing Study I and II. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 67 Kendig, H. and Phillipson, C. (June 2014). Building Age Friendly Communities: New Approaches to Challenging Health and Social Inequalities. 'If you could do one thing...' Conference. Leeds, United Kingdom.
- 68 Kendig, H., Browning, C., Burns, R. and Loh, V. (January 2014). Life Span Influences on Well-being in Later Life: Australian Findings and Policy Issues. International Centre for Scientific Debate, Impact of Ageing on Mental Health and Wellbeing. Barcelona, Spain.
- 69 Kiely, K. and Butterworth, P. (August 2014). Attitudes to the Age Pension and Effects on Mental Health. Living to get the Age Pension and Enjoy Life in Retirement: Prospects and Policy Options. Canberra, Australia.
- 70 Kim, S. (June 2014). Determinants of Changing Lifestyle and Health Behaviour for Dementia Risk Reduction. IARU Graduate Student Conference. Copenhagen, Denmark.
- 71 Kingston, A., Robinson, L., Kirkwood, T., Collerton, J., Davies, K. and Jagger, C. (November 2014). Trajectories of Disability in the Very Old: The Effect of Early, Mid and Late Life Socioeconomic Status. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 72 Kudrna, G. (2014). The Means Testing of Australia's Age Pension: An Analysis with a General Equilibrium OLG Model. CEPAR Means Testing Workshop, Sydney, Australia, October 2014 and at the Sydney Macroeconomics Reading Group Seminar, Sydney, Australia, September 2014.
- 73 Kudrna, G. and Bateman, H. (November 2014). Assessing Pension Tax Regimes: An Australian Perspective. CEPAR / CESifo Workshop: Pension Taxation, Population Ageing and Globalisation. Sydney, Australia.
- 74 Kudrna, G., Tran, C. and Woodland, A. (July 2014). The Dynamic Fiscal Effects of Demographic Shift: The Case of Australia. 22nd Annual Colloquium of Superannuation Researchers. Sydney, Australia.
- 75 Kumru, C. (November 2014). A Stochastic OLG Analysis of Means Testing. CEPAR / CESifo Workshop: Pension Taxation, Population Ageing and Globalisation. Sydney, Australia.
- 76 Lee, D., Nazroo, J. and Pendleton, N. (November 2014). Sexual Health, Quality-of-Life and Wellbeing among Older Men and Women in England: A Dyadic Analysis from the English Longitudinal Study of Ageing. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 77 Liu, K., Humphreys, H., Hazeltine, K., Severino, T., Wesson, J., Bissett, M., Slavin, M.J., Bye, R. and Chu, L.W. (March 2014). Memory Training Program Using Perceptual and Semantic-based Strategies for People with Mild Dementia. Occupational Therapy Australia NSW and ACT Conference. Sydney, Australia.
- 78 Loh, V., O'Loughlin, K. and Kendig, H. (July 2014). Employment and Health Consequences of Care-giving for Older Workers in Australia. XVIII International Sociological Association World Congress of Sociology. Yokohama, Japan.
- 79 Lu, B. (October 2014). Informal Care Status in China: Evidence from CHARLS Data. International Conference on Ageing and Public Policy – Health Care, Urbanization and the Environment. Hangzhou, China.
- 80 Lu, B. (September 2014). Informal Care in China and its Implications for Long Term Care Policies. 3rd International Conference on Evidence-based Policy in Long Term Care. London, United Kingdom.
- 81 Lu, B. (September 2014). Long Term Care Status in China. 3rd International Conference on Evidence-based Policy in Long Term Care. London, United Kingdom.
- 82 Luo, H., Wong, G.H.Y., Lum, T., Gong, C. and Kendig, H. (November 2014). Health Expectancies among Chinese Older Adults: Evidence from China Health and Retirement Longitudinal Study. The Gerontological Society of America (GSA) Annual Scientific Meeting, Washington USA.
- 83 Mahoney, J., Gobel, V., Lecey, V., Clemson, L., Wise, M. and Isham, A. (November 2014). Preventing Falls through an Online Intervention Program: Development and Preliminary Usage Patterns. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 84 Markussen, S. and Roed, K. (January 2014). Social Insurance Networks. CEPAR Summer Workshop in the Economics of Health and Ageing. Sydney, Australia.
- 85 Maruyama, S. and Heinesen, E. (September 2014). Understanding Returns to Birth Weight. 9th Annual Meeting of Japan Health Economics Association. Tokyo, Japan.
- 86 Maruyama, S. and Nakamura, S. (July 2014). Decrease in Female BMI and Increase in Male BMI in Japan from 1975 to 2004: A Decomposition Analysis. 10th World Congress on Health Economics. Dublin, Ireland.
- 87 Maruyama, S. and Nakamura, S. (July 2014). The Decline in BMI among Japanese Women after WWII. 10th World Congress on Health Economics. Dublin, Ireland.
- 88 Matthews, K., Chandola, T., Nazroo, J. and Pendleton, N. (November 2014). The Health Effects of Later-Life Employment and the Importance of Work Quality Post-Retirement Age. The Gerontological Society of America (GSA) Annual Scientific Meeting. Washington, USA.
- 89 McDonald, P. (September 2014). Are Changes in Birth Expectations Associated with Changes in Wellbeing? Second SWELL-FER Workshop on Personality Traits and Subjective Well-being in the Life Course. Turin, Italy.
- 90 McDonald, P. (September 2014). Keynote address. Migrant Skills and Employment in the Australian Labour Force. 2014 Migration Update: Sustainable Migration into the Future. Adelaide, Australia.
- 91 McDonald, P. (September 2014). International Migration and Employment in Australia. Migration Update Conference. Adelaide, Australia.
- 92 McDonald, P. (September 2014). Birth Intentions and Subjective Wellbeing in Australia. Workshop on Subjective Wellbeing and Fertility. Collegio Carlo Alberto, Turin, Italy.

RESEARCH OUTPUTS

- 93 McDonald, P. (December 2014). Temporary Skilled Migration to Australia: An Assessment of the 457 Visa Programme. 17th Biennial Conference of the Australian Population Association. Hobart, Australia.
- 94 McFall, G.P., Wiebe, S., Vergote, D., Anstey, K.J. and Dixon, R. (November 2014). Cross-domain Biomarker Interactions Influence Cognitive Ageing: Alzheimers-related genes and Type 2 Diabetes. The Gerontological Society of America [GSA] Annual Scientific Meeting. Washington, USA.
- 95 Nazroo, J. and Jivraj, S. (November 2014). Lose your Dreams and You Will Lose your Mind. Ain't Life Unkind? Determinants of Socioeconomic Inequality in Subjective Wellbeing in Later Life. A Cross Country Comparison in England and the US. The Gerontological Society of America [GSA] Annual Scientific Meeting. Washington, USA.
- 96 O'Connor, C.M., Clemson, L., Brodaty, H., Hodges, J.R., Piguat, O., Gitlin, L.N. and Mioshi, E. (October 2014). Increasing Activity Engagement and Improving Carer Management Skills in FTD: Two Case Studies using the Tailored Activities Program (TAP). 9th International Conference on Frontotemporal Dementias. Vancouver, Canada.
- 97 O'Connor, C.M., Clemson, L., da Silva, T., Piguat, O., Hodges, J., Gitlin, L. and Mioshi, E. (July 2014). Non-Pharmacological Management of Frontotemporal Dementia: A Review of the Literature and a Case Study Illustrates Potential for Intervention. 16th International Congress of the World Federation of Occupational Therapists. Yokohama, Japan.
- 98 Ocampos, C., Shaik, N.P., Wesson, J. and Clark, T. (September 2014). S.K.I.N. and Pressure Injury Management at Montefiore Home. An Integrated Occupational Therapy Program. 3rd Annual Reducing Avoidable Pressure Injuries Conference. Melbourne Australia.
- 99 O'Donoghue-Jenkins, L. (July 2014). Use and Cost of General Practitioners by People with Mild Cognitive Impairment. Primary Health Care Research Conference. Canberra, Australia.
- 100 O'Donoghue-Jenkins, L. (November 2014). Mild Cognitive Disorder and General Practitioner Use: A Longitudinal Analysis. 13th National Conference of Emerging Researchers in Ageing. Adelaide, Australia.
- 101 O'Loughlin, K., Loh, V. and Kendig, H. (November 2014). Changes in Subjective and Economic Well-being among Australian Baby Boomers. The Gerontological Society of America [GSA] Annual Scientific Meeting. Washington, USA.
- 102 Piggott, J. (December 2014). Keynote Address. Population Ageing in Asia and Social Security Policy. Go8C9 PhD Forum 2014: Global Challenges of Ageing Populations: Graduate Perspectives from China and Australia. Sydney, Australia.
- 103 Raissi, M. and Ackland, R. (December 2014). Homogeneity in Personal Networks of Australians Aged 50 years and Over: Evidence from Facebook. Australian Population Association Biennial Conference. Hobart, Australia.
- 104 Rioseco, M.P. (July 2014). Subjective Time to Retirement in Older Workers: Gender Differences in the Role of Social Networks and the Importance of Reasons to Retire. International Sociological Association ISA World Congress. Yokohama, Japan.
- 105 Rioseco, M.P. (November 2014). Change in Social Connectedness during the Retirement Transition. Australian Association of Gerontology National Conference. Adelaide, Australia.
- 106 Shao, A.W., Hanewald, K. and Sherris, M. (July 2014). Reverse Mortgage Pricing and Risk Analysis Allowing for Idiosyncratic House Price Risk and Longevity Risk. 22nd Annual Colloquium of Superannuation Researchers. Sydney, Australia.
- 107 Siervo, M., Kingston, A., Kirkwood, T., Mathers, J., Collerton, J., Davies, K. and Jagger, C. (November 2014). Anthropometric Measures of Adiposity as Predictors of Disability-Free Life Expectancy and All-Cause Mortality in the Very Old. The Gerontological Society of America [GSA] Annual Scientific Meeting. Washington, USA.
- 108 Stephan, B., Muniz Terrera, G., Davies, K., Collerton, J. and Jagger, C. (November 2014). Longitudinal Changes in Cognitive Function in Normal and Impaired Groups. The Gerontological Society of America [GSA] Annual Scientific Meeting. Washington, USA.
- 109 Stevens, R. (July 2014). Value Hedging of Annuities with an Uncertain Market Price of Longevity Risk. 22nd Annual Colloquium of Superannuation Researchers. Sydney, Australia.
- 110 Vanhoutte, B. and Nazroo, J. (November 2014). The Social Dimension of Time-use and its Effects on Subjective Wellbeing in Later Life in England. The Gerontological Society of America [GSA] Annual Scientific Meeting. Washington, USA.
- 111 Vanhoutte, B., Nazroo, J. and Jivraj, S. (November 2014). What a Drag it is Getting Old: Trajectories of Depressive Symptoms in Later Life in the US and England. The Gerontological Society of America [GSA] Annual Scientific Meeting. Washington, USA.
- 112 Wales, K., Clemson, L., Lannin, N.A. and Cameron, I.D. (2014). A Systematic Review of the Measurement Properties of the Assessment of Motor and Process Skills. Presented at the 16th International Congress of the World Federation of Occupational Therapists, Yokohama, Japan, June 2014, and the 48th Japanese Occupational Therapy Congress and Expo, Yokohama, Japan, June 2014.
- 113 Wales, K., Clemson, L., Lannin, N.A., Salkeld, G. and Cameron, I.D. (2014). Occupational Therapy HOME Discharge Planning for Older Adults: Is this a Cost Effective Practice? Presented at the 16th International Congress of the World Federation of Occupational Therapists, Yokohama, Japan, June 2014 and the 48th Japanese Occupational Therapy Congress and Expo, Yokohama, Japan, June 2014.
- 114 Whiteford, P. (August 2014). Impacts of Policy Changes on Inequalities in Retirement. Living to get the Age pension and Enjoy Life in Retirement: Prospects and Policy Options. Canberra, Australia.
- 115 Windsor, T.D., Curtis, R.G. and Luszcz, M.A. (December 2014). Financial Strain and Depressive Symptoms in Older Men and Women: Buffering Effects of Social Resources. Australian Society for Mental Health Research Conference. Adelaide, Australia.
- 116 Windsor, T.D., Curtis, R.G. and Luszcz, M.A. (November 2014). Purpose in Life as a Psychological Resource for Ageing Well. The 47th Australian Association of Gerontology Conference. Adelaide, Australia.
- 117 Woodland, A. (November 2014). Tax Design and Demographic Change. CEPAR / CESifo Workshop: Pension Taxation, Population Ageing and Globalisation. Sydney, Australia.
- 118 Wu, S., Asher, A., Meyricke, R. and Thorpe, S. (July 2014). Asset Drawdown in Retirement: Analysis of Centrelink Data. 22nd Annual Colloquium of Superannuation Researchers. Sydney, Australia.
- 119 Wu, S., Stevens, R. and Thorp, S. (2014). Die Young or Live Long: Modelling Subjective Survival Probabilities. Presented at the Mathematical and Statistical Sciences and Finance Conference, Vietri Sul Mare, Italy, April 2014 and Australian Conference of Economics. Hobart, Australia, June 2014.
- 120 Xu, M. (2014). Modelling the Mortality of Heterogeneous Populations. Presented at the 22nd Annual Colloquium of Superannuation Researchers, Sydney, Australia, July, 2014 and the 13th National Conference of Emerging Researchers in Ageing, Adelaide, Australia, November, 2014.

121 Yu, Y. (December 2014). Obesity and the Role of Educational Attainment in the United States: Changes over a 40 Year Period. Australian Population Association Biennial Conference. Hobart, Australia.

INVITED PRESENTATIONS TO MAJOR INTERNATIONAL MEETINGS

- 1 Anstey, K.J. (July 2014). Interrelationships among Self-reported Orthostatic Hypotension, Cognitive Decline, White Matter Hyperintensities in an 8 year Longitudinal Study of a Young-old Cohort. The 12th International Conference on Cognitive Neuroscience. Brisbane, Australia.
- 2 Anstey, K.J. (July 2014). Behaviour and Lifestyle Change for Primary and Secondary Prevention of Dementia: Developments and Challenges. Alzheimer's Association International Conference. Copenhagen, Denmark.
- 3 Anstey, K.J. (July 2014). The Body Brain Life Project: Preliminary Results from an Online Trial of Dementia Risk Reduction in Middle-aged Adults. Alzheimer's Association International Conference. Copenhagen, Denmark.
- 4 Anstey, K.J., Sargent-Cox, K.A., Eramugudolla, R., Magliano, D. and Shaw, J. (April 2014). Diabetes Status, Fasting Glucose, and HBAIC as Predictors of Cognitive Function in Adults Aged 25 to 85: Findings from the AUSDIAB Study. Cognitive Ageing Conference. Atlanta, USA.
- 5 Booth, H. (September 2014). Coherent Forecasting of Mortality. 2014 International Symposium on Mortality and Longevity. Birmingham, United Kingdom.
- 6 Burns, R.A., Butterfield, P. and Anstey, K.J. (July 2014). Employee Mental Health and Wellbeing: Examining the Distal and Proximal Effects of Work Strain over a 12 Year Period. 28th International Congress of Applied Psychology. Paris, France.
- 7 Burns, R.A., Butterfield, P. and Anstey, K.J. (June 2014). Examining the Distal and Proximal Associations between Work Strain and Employee Mental Health and Wellbeing over a 12 year period. Institute of Work Psychology International Conference. Sheffield, United Kingdom.
- 8 Byles, J., Leigh, L., Chojenta, C. and Pachana, N. (October 2014). Late Life Changes in Mental Health: A Longitudinal Study of 9973 Women. Society for Longitudinal and Life Course Studies (SLLS) Annual Conference, Lausanne, Switzerland.
- 9 Clemson, L. (November 2014). Plenary Speaker. Implementing Falls Prevention Evidence Using Quality Processes. 9th Pan Pacific Conference on Rehabilitation and 21st Annual Congress of Gerontology. Hong Kong, China.
- 10 Cumming, R.G. (December 2014). Growing Old in Australia: Findings from the Concord Health and Ageing in Men Project. 10th Annual Global Health Forum. Taipei, Taiwan.
- 11 Kendig, H. (June 2014). Policy Responses to Population Ageing in Australia. IARU Conference, Cultures of Health and Ageing. Copenhagen, Denmark.
- 12 Kendig, H., Loh, V. and O'Loughlin, K. (July 2014). Life Course Influences on Inequalities in Later Life: Comparative Perspective. XVIII ISA World Congress of Sociology. Yokohama, Japan.
- 13 Piggott, J. (March 2014). Prospects for Sustainable Retirement Policy in Asia and the Pacific Policy Society Conference 2014: G20's Policy Challenges for Asia and the Pacific. Canberra, Australia.
- 14 Piggott, J. (October 2014). Keynote Address. Australia's Health and Aged Care System; New Developments in Aged Care Policy. International Conference on Ageing and Public Policy – Health Care, Urbanization and the Environment. Hangzhou, China.
- 15 Piggott, J. (October 2014). Keynote Address. Population Ageing and Social Security in Asia. Asian Economic Policy Review Conference: Social Security in Ageing Asia. Tokyo, Japan.
- 16 Piggott, J. and Chomik, R. (April 2014). Pension Policy, Social Protection and Incentives: Policy Designs and Option. World Bank Conference on Challenges of Population Ageing in Asia. Hong Kong, China.
- 17 Piggott, J. and Chomik, R. (May 2014). Australian and United States Retirement Income Systems: Comparisons and Lessons. 2014 Pension Research Council Symposium: Reimagining Pensions: The Next 40 Years. Philadelphia, USA.
- 18 Sherris, M. and Zhou, Q. (July 2014). Plenary Speaker. Longevity Risk, Health Status and Annuity Pricing. International Congress on Insurance: Mathematics and Economics. Shanghai, China.
- 8 Brady, J. (July 2014). Personal and Interpersonal Significance of Parkinson's Disease. Faculty HDR Meeting, University of Sydney. Sydney, Australia.
- 9 Browne, B. (October 2014). Transitions on Aged Care: Analysis from the First Pathways in Aged Care Study. UNSW School of Risk and Actuarial Studies External Seminar. Sydney, Australia.
- 10 Büttler, M., Peijnenburg, K. and Staubli, S. (October 2014). How much do Means-tested Benefits Reduce the Demand for Annuities? CEPAR and UNSW School of Risk and Actuarial Studies Seminar Series. Sydney, Australia.
- 11 Cools, S., Markussen, S. and Strom, M. (March 2014). Family Size and Health. CEPAR and School of Risk and Actuarial Studies Seminar Series. Sydney, Australia.
- 12 Chang, Y. and Schlogl, E. (June 2014). A Consistent Framework for Modelling Basis Spreads in Tenor Swaps. CEPAR and UNSW School of Risk and Actuarial Studies Seminar Series, Sydney, Australia.
- 13 Fan, X., Fang, H. and Markussen, S. (November 2014). Maternal Employment and their Children's Educational Gender Gap. UNSW School of Economics Seminar Series. Sydney, Australia.
- 14 Hernæs, E. (April 2014). New Evidence on Pension Incentives and the Retirement Decisions of Couples. CEPAR and School of Risk and Actuarial Studies Seminar Series. Sydney, Australia.
- 15 Iskhakov, F. (May 2014). Default and Naïve Diversification Heuristics in Annuity Choice. Empirical Micro Workshop - School of Economics. Sydney, Australia.

SEMINAR PRESENTATIONS

- 1 Abalos, J. (November 2014). Trends and Geographic Differentials in Health Expectancy among Older Persons in the Philippines. Australian Demographic and Social Research Institute Proposal Seminar. Canberra, Australia.
- 2 Anstey, K.J. (April 2014). Knowledge Translation for Dementia Research – New Projects Tackling Old Problems. Knowledge Translation in Public Health Project. Sydney, Australia.
- 3 Anstey, K.J. (December 2014). The PATH Through Life Project – Findings on Cognition. Health Informatics Society of Australia. Canberra, Australia.
- 4 Anstey, K.J. (September 2014). DCRC-Early Diagnosis and Prevention. National Dementia Research Forum. Sydney, Australia.
- 5 Bateman, H., Iskhakov, F. and Thorp, S. (July 2014). Choices over Life Annuities: Optimal Decisions for Australian Retirees. Q Group Colloquium. Sydney, Australia.
- 6 Blackburn, C. (May 2014). Forward Mortality Modelling of Multiple Populations. CEPAR and School of Risk and Actuarial Studies Seminar Series. Sydney, Australia.
- 7 Booth, H. (October 2014). Coherent Forecasting of Mortality for Multiple Populations using Functional Data Models. Actuarial Studies Seminar, Macquarie University. Sydney, Australia.

RESEARCH OUTPUTS

- 16 Keane, M. and **Stavrunova, O.** (September 2014). Adverse Selection, Moral Hazard and the Demand for Medigap Insurance. Econometrics Research Seminar, Monash University, Melbourne, Australia.
- 17 Kudrna, G., Tran, C. and Woodland, A. (2014). The Dynamic Fiscal Effects of Demographic Shift: The Case of Australia. Presented at the CEPAR and UNSW School of Risk and Actuarial Studies Seminar Series, Sydney, Australia, May 2014 and the Macroeconomic Group Weekly Seminar Series, Federal Treasury, Canberra, Australia, August 2014.
- 18 Nakornthab, A. and Kumru, C. (December 2014). Annuity and Estate Taxation in Entrepreneurship Model. ANU Research School of Economics Seminar. Canberra, Australia.
- 19 Olivieri, A. (April 2014). Longevity-linked Life Annuities: Policy Design, Risk Assessment. CEPAR and UNSW School of Risk and Actuarial Studies Seminar Series. Sydney, Australia.
- 20 Ong, R. (July 2014). Housing Equity Withdrawal by Older Australians. Ageing Well: Housing Solutions for Older Australians. Hobart, Australia.
- 21 Ong, R. (July 2014). Mortgage Equity Withdrawal in Australia: Recent Trends and Institutional Settings. Housing and Community Research Unit (HACRU) Seminar, University of Tasmania. Hobart, Australia.
- 22 Ong, R. (September 2014). Wellbeing at the Edges of Home Ownership. The Edges of Home Ownership Seminar. Delft, The Netherlands.
- 23 Shen, Y. (April 2014). Optimal Investment-Consumption-Insurance with Random Parameters. Lingnan Seminar. Guangzhou, China.
- 24 Sherris, M. and Zhou, Q. (July 2014). Longevity Risk, Health Status and Annuity Pricing. Insurance and Finance Day, UNIPR. Parma, Italy.
- 25 Woodland, A. (October 2014). Trade-Offs in Means Tested Pension Design. CEPAR and UNSW School of Risk and Actuarial Studies Seminar Series. Sydney, Australia.
- 26 Wu, S., Bateman, H., Stevens, R. and Thorp, S. (November 2014). Optimal Portfolio Allocation with Health Contingent Income Products: The Value of Life Care Annuity. PhD Seminar of UNSW School of Risk and Actuarial Studies. Sydney, Australia.



In 2014, CEPAR's communication through our on and off-line media activity focused on growing engagement.

- Our social media platforms are increasing interaction with peer researchers, organisations and individuals in the sector of ageing research, policy development and service delivery.
- Our website continues to grow traffic, with an increase to over 17000 hits in 2014.
- 'Legacy' media, especially the ABC (audio and television) and quality print mastheads, remain a key platform for CEPAR to reach opinion formers and attempt to stimulate and engage in public discussion around aspects of population ageing.

MAINSTREAM MEDIA

In 2014 we focused on developing quality relationships with key media outlets, journalists and commentators. We used both proactive and reactive media approaches to promote our research and sustain our presence in the Australian community as a key commentator on population ageing issues.

WEBSITE

The CEPAR website continues to deliver in its key function as the gateway to our activity, with increased traffic in 2014 searching for organisational updates, links to our research, information about our personnel, and special events including the 2014 visit to the Centre by Nobel Prize winning economist Joseph E. Stiglitz.

The website is CEPAR's key platform for

- CEPAR announcements
- Accessing research publications including
 - Research Briefs
 - Fact sheets
- Promoting and reporting on CEPAR events
- Accessing media releases and independent media coverage

- Downloading publications, including annual reports
- Identifying staff and their areas of research interest
- Employment and scholarship opportunities

ONLINE MEDIA

Our social media presence has grown significantly, particularly through Twitter and LinkedIn. While our number of Twitter followers has increased by 60%, a more valuable measure is the level of engagement we have with those we follow and who follow us, with an increase in comments and retweets of content relating to ageing trends in Australia and worldwide.

Our newsletter subscribers are also engaging with our content, with specific interest in following up information about research publications and events. This increases web traffic flow and the opportunity to highlight further outputs and activities.

PRINT (NEWSPAPERS AND MAGAZINES)

The Sydney Morning Herald
The ages of wealth
13-14 December 2014, featuring Peter Whiteford

Australian Ageing Agenda
Policy response on ageing needed now
12 November 2014, featuring Hal Kendig

The Canberra Times/ The Age/The Sydney Morning Herald
Age Discrimination Commissioner Susan Ryan says workplaces need an overhaul to stop age prejudice
11 November 2014, featuring CEPAR/ASSA

The Sydney Morning Herald
Rich man, poor woman: The gender wealth gap widens
9 November 2014, with Rachel Ong

Warrnambool Standard
Assessing the safety of older drivers
31 October 2014, with Kaarin Anstey

Australian Ageing Agenda
Australia succeeds in bid for longevity centre
28 October 2014, featuring Julie Byles

The Canberra Times
ANU study looks at better ways of assessing the safety of older drivers
24 October 2014, with Kaarin Anstey

Namoi Valley Independent
Assessing the safety of older drivers
23 October 2014, with Kaarin Anstey

Australian Financial Review
Take a last look at the typical older Australian
1 October 2014, with Rafal Chomik

The Senior
Stand up for balance
1 October 2014, with Lindy Clemson

Newcastle Herald
Balanced lifestyle for the elderly
29 September 2014, featuring Lindy Clemson

Business Insider
Note to baby boomers: Balance on one leg to brush your teeth
16 September 2014, with Lindy Clemson

Asia Pacific Weekly
Australia looks at developing annuities market for its many retirees
16 September 2014, with Michael Sherris

Australian Financial Review
Elderly home owners can't afford to move
14 August 2014, featuring Rachel Ong

The Age
Hey mum, can I have the keys to the house?
4 July 2014, with Rachel Ong

The Australian
SMSF call a case of protecting their turf
12 May 2014, featuring John Piggott

Canberra City News
PATH Through Life Study
7 May 2014, featuring Peter Butterworth

Jakarta Post
Fertility reduction policies must continue
23 April 2014, featuring Peter McDonald

The Sydney Morning Herald
Superannuation: Retirees served poorly by system
13 April 2014, featuring John Piggott

Australian Ageing Agenda
Workforce identified as top priority
11 April 2014, featuring Rafal Chomik

Southside Chronicle/ Queanbeyan Chronicle
Keeping our roads safe
11 March 2014, featuring Kaarin Anstey

Bayside Bulletin
Ageing well differs for men and women

28 January 2014, featuring Hal Kendig

North West Star
Over 75s oil wheels of research

1 January 2014, featuring Kaarin Anstey

RADIO

2ST NSW Southern Highlands
Population ageing and Australia's future

19 November 2014, interview with Hal Kendig

6PR Perth
Population ageing and Australia's future

12 November 2014, interview with Hal Kendig

Mix 104.7 ACT
Population ageing and Australia's future

11 November 2014, interview with Hal Kendig

Mix 106.3 Canberra
Population ageing and Australia's future

11 November 2014, interview with Hal Kendig

6PR Perth
Average older Australian

1 October 2014, interview with Rafal Chomik

ABC South East SA
Lifestyle-integrated functional exercise manual

26 September 2014, interview with Lindy Clemson

BBC Radio 4
OZ pension liberation

26 September 2014, interview with John Piggott

Radio National Big Ideas
Towards a world without dementia

20 September 2014, featuring Kaarin Anstey

891 Adelaide ABC Broken Hill
Lifestyle-integrated functional exercise manual

17 September 2014, featuring Lindy Clemson

702 ABC Sydney
Lifestyle-integrated functional exercise manual

16 September 2014, interview with Lindy Clemson

Radio Adelaide
The youthful brain

8 August 2014, featuring Joanna Brooks

Radio National Life Matters
Never too old to learn

18 July 2014, interview with Joanna Brooks

612 ABC Brisbane
Alzheimer's research

11 June 2014, featuring Kaarin Anstey

720 ABC Drive Perth
CEPAR submission to Financial Inquiry

14 April 2014, featuring Michael Sherris

2 RPH (Radio for print handicapped)
Risk factors for Alzheimer's Disease and our instruments to assess them

10 March, 7 March, 24 February and 21 February, with Nicolas Cherbuin

Radio National News
Ageing gender issues

22 January 2014, featuring Hal Kendig

ABC Newsradio Drive
Alzheimer's Disease and risk factors

3 January 2014, featuring Kaarin Anstey

TELEVISION

WIN News Canberra
ASSA Symposium

11 November 2014, featuring John Piggott

7.30, ABC Television
Government flags spending shake up in coming budget

25 February 2014, featuring John Piggott

Sky Business News
Pensions and super: Analysis of proposed changes

15 April 2014, featuring John Piggott

ONLINE

Health News
Always look on the bright side of ageing

5 December 2014, featuring John Piggott

BusinessThink
Super default options: The real cost of doing nothing

19 November 2014, featuring Hazel Bateman

Australian Ageing Agenda
Chinese market opens to Australian aged care

19 November 2014, with Colette Browning

Property Observer
Both owner occupiers and renters suffering from deteriorating housing affordability

18 November 2014, featuring Rachel Ong

The Conversation
The other gender equality gap Australia needs to think about

17 November 2014, co-authored by Rachel Ong

Nikkei Asian Review
Seeking sustainable social security in an ageing Asia

23 October 2014, featuring John Piggott

Brisbane Times Online
Assessing the safety of older drivers

23 October 2014, featuring Kaarin Anstey

SeniorAu
The average older Australian – who is she?

12 October 2014, featuring Rafal Chomik

ABC National Online
Towards a future without dementia

11 October 2014, featuring Kaarin Anstey

Australian Ageing Agenda
Research round up

23 September 2014, featuring Lindy Clemson

Hospital and Aged Care
Breathing 'LIFE' back into falls prevention

18 September 2014, featuring Lindy Clemson

BusinessThink
DIY: The truth about self-managed super funds

17 September 2014, featuring Hazel Bateman

Thomson Reuters Australia
Australia's booming aged-care sector set for unprecedented shakeup

17 September 2014, featuring Hal Kendig

BusinessThink
Murray Enquiry: The case strengthens for annuity products

18 August 2014, featuring John Piggott

Science World Report
Forever young: 'Youthful' part of human brain stays the same as we age

7 August 2014, with Joanna Brooks

Chartered Accountants Australian and New Zealand
Japanese lessons

1 August 2014, featuring Rafal Chomik

Alzforum
Healthy lives, healthy minds: Is it really true?

31 July 2014, with Kaarin Anstey

The Conversation
Turning super into income: Inquiry opens retirement funding debate

17 July 2014, Rafal Chomik

Bioscience Technology
Part of the brain stays 'youthful' into older age

8 July 2014, with Joanna Brooks

Businessthink
Employing seniors: Who wants to work until they're 70?

12 June 2014, featuring Elizabeth Magnani

AFR online
Henry Review member calls for GST increase

20 May 2014, featuring John Piggott

Australian Ageing Agenda
Budget: Stakeholders react

14 May 2014, featuring Hal Kendig

The Conversation
Raising the pension age

8 May 2014, podcast interview with Rafal Chomik

Australian Ageing Agenda
Reform stocktake: Progress made, challenges ahead

4 May 2014, by Hal Kendig

The Conversation
The pension age is rising to 70: A case of one size fits some

2 May 2014, by Rafal Chomik

Insurance News
Research unit backs annuities to address longevity risk

6 April 2014, featuring CEPAR

Middle East Insurance Review
Australia: Call for a switch to 'income' culture among retirees

15 April 2014, featuring John Piggott

Investor Daily
Regulation hindering product innovation: ASFA

15 April 2014, featuring CEPAR

Financial Standard
Could government issue its own annuities?

15 April 2014, featuring CEPAR

Money Management
Special accreditation urged for post-retirement advice

15 April 2014, featuring John Piggott

The Conversation
Why Australians don't make extra super contributions

15 April 2014, co-authored by Hazel Bateman

Ninemsm
Super should be an income, not a lump sum

14 April 2014, featuring John Piggott

Trading Room
We have to pay now, govt says of pensions

14 April 2014, featuring John Piggott

Augusta Margaret River Mail
Superannuation: Retirees poorly served by system

13 April 2014, featuring
 John Piggott

Australian Ageing Agenda
Workforce identified as top priority

11 April 2014, by Rafal Chomik

Australian Policy Online
Research briefs on Aged Care in Australia

10 April 2014, by Rafal Chomik

YOURLifeChoices
Trusted financial advice needed

8 April 2014, featuring CEPAR

Australian Ageing Agenda
Reform stocktake: Progress made, challenges ahead

4 April 2014, with Hal Kendig

International Business Times
New and free online test for ten minutes estimates risk of Alzheimer's Disease

30 January 2014, featuring
 Kaarin Anstey

Australian Ageing Agenda
Secrets to ageing well differ for men and women

30 January 2014, featuring
 Colette Browning



JOHN PIGGOTT SPEAKING TO MEDIA FOLLOWING
 THE ASSA SYMPOSIUM

END USER LINKS

PRESENTATIONS TO GOVERNMENT, INDUSTRY AND THE BUSINESS COMMUNITY

- 1 Anstey, K.J. (August 2014). Cognitive Impairment in an Ageing Population: Prevalence, Risk Factors and Socio-economic Impact. CEPAR Advisory Board Meeting. Canberra, Australia.
- 2 Bateman, H. (August 2014). Superannuation Income Streams. DSS CEPAR Roundtable Discussion. Canberra, Australia.
- 3 Booth, H. (July 2014). Surfing the Age Wave: Population Ageing and Longevity in Australia. Northern NSW Local Health District: Aged Care Symposium – The Ageing Tsunami: Face of Fiction? Ballina, Australia.
- 4 Brooks, J. (June 2014). Dementia Diaries – A New Method for Understanding Dementia Caregiving. Alzheimer's Australia ACT. Canberra, Australia.
- 5 Browning, C. and Kendig, H. (November 2014). Health and Ageing: Findings from the Melbourne Longitudinal Studies on Healthy Ageing Program. United Nations Demographic Transitions Seminar: Addressing the Economic and Social Impacts of an Ageing Population: Is there a Silver Lining? Melbourne, Australia.
- 6 Byles, J. (August 2014). Clinical Epidemiology: Making Evidence Count for Better Practice. Annual Newcastle Hospitals Congress: Translating Evidence into Clinical Practice. Newcastle, Australia
- 7 Chomik, R. (April 2014). Aged Care in Australia - Drivers of Change. PwC - What Does Good Governance Look Like in a Time of Change in Aged Care? Melbourne, Australia.
- 8 Chomik, R. (April 2014). Aged Care in Australia. PwC launch of CEPAR Aged Care Briefs. Sydney, Australia.
- 9 Chomik, R. (August 2014). Aged Care in Australia: Research Briefs Overview. DSS CEPAR Roundtable Discussion. Canberra, Australia.
- 10 Fan, X. (May 2014). Retirement Savings: A Tale of Decisions and Defaults. CIFR Financial System Inquiry Workshop. Sydney, Australia.
- 11 Hunter, N. (June 2014). Demographic Perspectives on Longevity. Presentation to the Department of the Prime Minister and Cabinet. Canberra, Australia.
- 12 Iskhakov, F. (May 2014). Choices Over Life Annuities: Optimal Decisions for Australian Retirees. CIFR Financial System Inquiry Workshop. Sydney, Australia.
- 13 Kendig, H. (August 2014). Overview of CEPAR Research on Care and Support in the Community. DSS CEPAR Roundtable Discussion. Canberra, Australia.
- 14 Kudrna, G. (August 2014). Age Pension and Means Testing. DSS CEPAR Roundtable Discussion. Canberra, Australia.
- 15 Kudrna, G. (May 2014). Economic Implications of Changes to Mandatory Superannuation. CIFR Financial System Inquiry Workshop. Sydney, Australia.
- 16 O'Connor, C. (July 2014). Increasing Activity Engagement and Improving Carer Management Skills in FTD: Two Case Studies Using the Tailored Activities Program (TAP). Alzheimer's Australia NSW State-wide Services Staff Meeting. Sydney, Australia.
- 17 O'Loughlin, K. (August 2014). Employment and Health Consequences of Care-giving for Older Workers. DSS CEPAR Roundtable Discussion. Canberra, Australia.
- 18 Ong, R. (July 2014). Housing Equity Withdrawal by Older Australians. Australian Housing and Urban Research Institute Seminar on Ageing Well: Housing Solutions for Older Australians. Hobart, Australia.
- 19 Ong, R. (November 2014). Accessing Housing Equity in Mid-to-Late Life. Ageing Well: Housing Solutions for Older Australians hosted by the Australian Housing and Urban Research Institute. Perth, Australia.
- 20 Piggott, J. (April 2014). The Australian Age Pension: A Means Tested Retirement Income Policy. The University of Michigan Retirement Research Centre. Michigan, USA.
- 21 Piggott, J. (August 2014). Academic Response to Financial System Inquiry Interim Report - Retirement Income. CIFR Financial System Inquiry Workshop II. Sydney, Australia.
- 22 Piggott, J. (August 2014). Retirement Incomes Context: CEPAR and the FSI. DSS CEPAR Roundtable Discussion. Canberra, Australia.
- 23 Piggott, J. (December 2014). Tax Expenditures on Pensions: Concepts, Concerns and Misconceptions. Tax Forum 2014: Australian Council of Social Service and Business Coalition for Tax Reform. Sydney, Australia.
- 24 Pitacco, E. (December 2014). Premiums for Long-term Care Insurance Products. A Sensitivity Analysis. CEPAR Long Term Care and Longevity Insurance Workshop, hosted by PwC. Sydney, Australia.
- 25 Shao, A.W. (December 2014). Product Pricing and Solvency Capital Requirements for Long-term Care Insurance. CEPAR Long Term Care and Longevity Insurance Workshop, hosted by PwC. Sydney, Australia.
- 26 Sherris, M. (August 2014). Financing Aged Care: Equity Release, Long Term Care Insurance and Care Annuities. DSS CEPAR Roundtable Discussion. Canberra, Australia.
- 27 Wesson, J. (October 2014). The iFOCIS Research Study: Falls Prevention for People with Cognitive Impairment. Four Ds Forum, Royal Prince Alfred Hospital. Sydney, Australia.
- 28 Windsor, T.D. (October 2014). Current Issues in Health and Ageing. South Australian Governor's Leadership Foundation, Adelaide, Australia.
- 4 Anstey, K.J. and Kendig, H. (November 2014). Participated in the Australian Association of Gerontology Workshop on Developing a National Ageing Research Agenda. Adelaide, Australia.
- 5 Brooks, J. (2014). Collaborative project briefing for the Aged Care Housing Group. Adelaide, Australia.
- 6 Brooks, J. (September 2014). Committee Member for the Australian Association of Gerontology. Canberra, Australia.
- 7 Brooks, J. and Conway, E. (2014). Participated in 2014 Roundtable Discussion, Older Person's Assembly Canberra. Canberra, Australia.
- 8 Browning, C. (October 2014). Briefed the Victorian Ministerial Advisory Committee for Senior Victorians, Victorian Minister for Ageing. Australia.
- 9 Chomik, R. and Lu, B. (June 2014). Meeting with Austrade. Sydney, Australia.
- 10 Chomik, R., Bateman, H. and Piggott, J. (March 2014). Meeting with the Financial System Inquiry Secretariat. Sydney, Australia.
- 11 Kendig, H. (June 2014). Participated in IARU Ageing, Longevity and Health Steering Group Meeting. Copenhagen, Denmark.
- 12 Lu, B. (October 2014). Briefed Chinese Government Delegation from the Hangzhou Bureau of Statistics on the Australian Retirement System. Sydney, Australia.
- 13 McDonald, P. (2014) Panel member of the Independent Review into Integrity in the Subclass 457 Programme. Involved extensive nationwide consultations and meetings with several Ministers and Shadow Ministers.

BRIEFINGS, COMMITTEE MEMBERSHIPS AND PARTICIPATION IN ROUNDTABLE AND PANEL DISCUSSIONS

- 1 Anstey, K.J. (February 2014). Participant in Australian Workplace and Productivity Agency and Academy of the Social Sciences in Australia Development Forum. Sydney, Australia.
- 2 Anstey, K.J. (June 2014). Participant in Roundtable Discussion. National Health and Medical Research Council. Canberra, Australia.
- 3 Anstey, K.J. (March 2014). Member of the National Health and Medical Research Council Guideline Adaptation Committee. Sydney, Australia.

- 14 McDonald, P. (July 2014). Briefed Business Council of Australia on population policy.
- 15 McDonald, P. (August 2014). Meeting with Treasury officials to discuss assumptions for the 2015 Intergenerational Report.
- 16 O'Connor, C. (October 2014). Participant in the Australian Fronto-Temporal Dementia Association (AFTDA) NSW Collaborative Meeting at Neuroscience Research Australia. Sydney, Australia.
- 17 O'Connor, C. (October 2014). Participant in the NHMRC National Dementia Research and Translation Priorities Workshop. Sydney, Australia.
- 18 Piggott, J. (August 2014). Participant in Roundtable Discussion with the Reserve Bank of Australia. Sydney, Australia.
- 19 Piggott, J. (August 2014). Participant in the Financial System Inquiry Workshop. Sydney, Australia.
- 20 Piggott, J. (July 2014). Participant in the Forum for the Blueprint for an Ageing Australia Agenda for Consultation on Intergenerational Cooperation held in partnership with the Australian Human Rights Commission. Sydney, Australia.
- 21 Piggott, J. (July 2014). Participant in the Human Rights Commission Roundtable: Intergenerational Cooperation. Sydney, Australia.
- 22 Piggott, J. (July 2014). Participated in Financial System Inquiry Retirement Income Working Group. Sydney, Australia.
- 23 Piggott, J. (June 2014). Panellist: NHMRC Dementia Key Stakeholder Forum. Canberra, Australia.
- 24 Piggott, J. (September 2014). Member of Age Discrimination Prevalence Study Reference Panel. Sydney, Australia.
- 25 Piggott, J. and de Cure, M. (June 2014). Meeting with Medibank CEO George Savvides to discuss CEPAR Research Program. Sydney, Australia.
- 26 Piggott, J. and de Cure, M. (August 2014). Meeting with HCF to discuss CEPAR Research Program. Sydney, Australia.
- 27 Piggott, J. and de Cure, M. (June 2014). Meeting with AMP to discuss CEPAR Research Program. Sydney, Australia.
- 28 Piggott, J. and de Cure, M. (June 2014). Meeting with Catherine Nance at PwC to discuss CEPAR Research Program. Melbourne, Australia.
- 29 Piggott, J. and de Cure, M. (June 2014). Meeting with Serena Wilson at DSS to discuss CEPAR Research program. Canberra, Australia.
- 30 Piggott, J. and de Cure, M. (June 2014). Meeting with Rob Heferen at Treasury to discuss CEPAR Research Program. Canberra, Australia.
- 31 Piggott, J. and de Cure, M. (May 2014). Briefing with Stephen Hart - NSW Treasury. Sydney, Australia.
- 32 Piggott, J. and de Cure, M. (May 2014). Meeting with The Honourable Bronwyn Bishop to discuss Population Ageing Initiatives. Sydney, Australia.
- 33 Piggott, J., de Cure, M., Chomik, R., Bateman, H. and Sherris, M. (July 2014). Meeting with the Financial System Inquiry Panel to discuss the Interim Report. Sydney, Australia.
- 34 Piggott, J., de Cure, M., Kendig, H. and Ong, R. (November 2014). Participated in the ASSA Symposium Roundtable on Retirement Incomes Policy. Canberra, Australia.
- 8 Burns, R. (November 2014). Wellbeing and Improvability as National Goals. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.
- 9 Byles, J. (September 2014). Health, Hospitals and Care in Later Life, New Research Findings. Australian Association of Gerontology Hunter Chapter Seminar - Spinning the Web: Integrating Services to Provide Person-centred Care. Newcastle, Australia.
- 10 Chomik, R. (February 2014). Work till you Drop? The Future of the Labour Force. Australian Association of Gerontology. Sydney, Australia.
- 11 Chomik, R. (May 2014). Women and Pensions. Council on the Ageing NSW Parliamentary Lecture - Paying the Price: Women, Work and Care. Sydney, Australia.
- 12 Kendig, H. (March 2014). Financial Implications of Aged Care Reform. Committee for Economic Development of Australia (CEDA). Melbourne, Australia.
- 13 Kendig, H. (November 2014). Social Change and an Ageing Australia. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.
- 14 McDonald, P. (April 2014). The Demography of Indonesia in Comparative Perspective. 2014 Sadli Lecture. Indonesia.
- 15 McDonald, P. (July 2014). National Transfer Accounts for Australia, 2003-04 and 2009-10. Launch of the National Transfer Accounts at the Australian National University. Canberra, Australia.
- 16 McDonald, P. (November 2014). Australian Population Change and Responses. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.
- 17 Ong, R. (April 2014). When it comes to Downsizing: What are the Costs and Impediments for Seniors Wishing to Downsize? Reframing Ageing: A Mindset Shift - Designing for an Ageing Population Forum. Perth, Australia.
- 18 Ong, R. (November 2014). Housing, Care and Intergenerational Relationships. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.
- 19 Piggott, J. (November 2014). National Policy Changes. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.
- 20 Wesson, J. (May 2014). The Environment and the Person - Behaviours of Concern in Dementia. Dementia Care Commitment Behaviours of Concern Seminar. Sydney, Australia.
- 21 Windsor, T.D. (November 2014). Social Connectedness, Engagement and Ageing Well. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.
- 22 Sherris, M. (November 2014). Longevity Risk, Health Status and Annuity Pricing. UNSW School of Risk and Actuarial Studies Research Day, Sydney, Australia.

PUBLIC TALKS

- 1 Anstey, K.J. (April, 2014). Landmark Women Series, National Museum of Australia. Canberra, Australia.
- 2 Anstey, K.J. (November 2014). Enhancing Cognitive Capacities over the Lifespan. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.
- 3 Anstey, K.J. (September 2014). Towards a World without Dementia: Prevention, Cure and Care. Alzheimer's Australia Forum and ABC Big Ideas. Canberra, Australia.
- 4 Anstey, K.J. (December 2014). The PATH Through Life Project - Findings on Cognition. Health Informatics Society of Australia. Canberra, Australia.
- 5 Anstey, K.J. (February 2014). Knowledge for Dementia Research - New Projects Tackling Old Problems. Knowledge Translation in Public Health Project. Sydney, Australia.
- 6 Anstey, K.J. (March 2014). Ageing and Practical Tips for Safer Driving. Seniors Week. Belconnen, Australia.
- 7 Bateman, H. (November 2014). Retirement Income Strategies for an Ageing Population. ASSA Symposium: Population Ageing and Australia's Future. Canberra, Australia.

CENTRE FINANCE

CONSOLIDATED FINANCIAL STATEMENT 2011-2014

INCOME	2011 (\$)	2012 (\$)	2013 (\$)	2014 (\$)	
ARC Centre Grant distributed as follows:					
University of New South Wales	1,203,350	1,344,910	1,287,115	1,326,010	
Australian National University	313,000	330,162	582,759	600,372	
University of Sydney	312,000	329,107	101,872	104,952	
ARC Post Award Funding distributed as follows:					
University of New South Wales		205,026	205,026	40,026	
Australian National University		255,000	340,000	85,000	
NSW Science Leveraging Fund distributed as follows:					
University of New South Wales		160,674	119,704		
University of Sydney		186,935	63,065		
University of New South Wales	678,000	678,000	678,000	678,000	
Australian National University	130,250	13,730	350,420	221,380	
University of Sydney	130,000	130,000	38,900	38,750	
Department of Social Services	50,000				
Department of Innovation, Industry, Science & Research			44,000	-11,205	NOTE 1
Department of Health	45,455				
Commonwealth Treasury	50,000	50,000	50,000	50,000	NOTE 2
Medibank	50,000		36,364		
AMP	50,000	50,000	50,000	50,000	
PwC			50,000	50,000	
Emerging Researchers in Ageing Conference					
Registration Fees	10,255				
Sponsorship	6,382	-2,000			
Academy of Social Sciences Australia		6,500			
Research Institute for Policies on Pension and Aging, Japan			56,000		
CEPAR International Conference Registration Fees			10,848		
UNSW Contestable Funds/ Fellowship contributions			27,226	195,371	
Superannuation Colloquium Registration Fees				23,164	
Total Income	3,028,692	3,738,044	4,091,299	3,451,820	

NOTE 1: Return of unspent funds - Australia-China Science and Research Fund (ACSRF)

NOTE 2: A total of \$250,000 was received in 2013, covering the period 2013-2017. \$50,000 is reported for 2014.

EXPENDITURE	2011 (\$)	2012 (\$)	2013 (\$)	2014 (\$)
Salaries	813,109	2,254,769	3,358,535	2,695,560
Scholarships	-	105,324	124,475	126,163
Travel	63,487	291,975	568,550	324,959
Emerging Researchers in Ageing initiative: annual contribution	60,000	69,803	54,771	50,783
Events	25,250	60,387	100,684	56,371
Other research related expenses	16,852	37,766	83,099	46,131
Recruitment and relocation expenses	16,935	47,648	5,344	8,636
Centre administration, consumables and IT maintenance	30,418	38,507	36,156	30,364
Equipment	16,738	49,336	24,743	9,391
Website, branding and marketing	48,403	94,800	86,273	67,805
Total Expenditure	1,091,192	3,050,315	4,442,631	3,416,163
Opening balance at the beginning of the year	-	1,937,500	2,625,229	2,273,897
Closing balance as at the year end	1,937,500	2,625,229	2,273,897	2,309,554

ESTIMATES OF FUTURE INCOME & EXPENDITURE

INCOME

The Centre's main source of funds in 2015 will continue to be the Australian Research Council (ARC). The administering and collaborating organisations, as well as the partner organisations will continue to make contributions at the contractual rate. UNSW will provide in 2015 an additional \$713,300 to support the hiring of research personnel associated with the establishment of a CEPAR research hub focused on population ageing in China; \$151,062 in the form of a Vice-Chancellor's Fellowship for one of our Early Career Researchers (ECRs); plus \$50,000 supplementary support for research fellows based in CEPAR who are funded by a Laureate Fellowship grant. New grants commencing in 2015 will generate an additional \$473,000 in revenue. CEPAR Investigators have also submitted ARC grant applications for 2015 funding, the results of which are pending. In total, we estimate 2015 Centre income to be \$4.5 million.

EXPENDITURE

In 2015 the Centre plans to continue to fund a number of successful initiatives implemented in previous years as well as expand its engagement with stakeholders and the wider community. Salaries for ECRs will continue to account for a large portion of the Centre budget. We anticipate that we will spend almost \$4.8 million in total, of which \$3.7 million will be allocated to salaries and scholarship stipends. The activities described below will draw on 2015 income as well as funds carried forward from 2014.

PERSONNEL

It is anticipated that the Centre will spend approximately \$2.94 million in 2015 on research personnel, most of whom will be ECRs.

It is expected that 24 students will be supported by CEPAR scholarships in 2015 at a total cost of \$135,000. This includes scholarships for new and continuing honours and PhD students.

MENTORING OPPORTUNITIES FOR ECRS AND STUDENTS

CEPAR will continue to support the Emerging Researchers in Ageing (ERA) initiative in 2015 as well as offer workshops/master classes for ECRs and PhD students. We will also organise a multidisciplinary workshop for honours students working in the field of Population Ageing research.

Funds will continue to be made available to support PhD student conference participation and provide opportunities for both research fellows and PhD students to spend time at one of our international partner organisations with the aim of building links between these key international hubs of ageing research and the next generation of researchers. CEPAR will also provide financial support for statistical training for PhD students.

The anticipated cost of these initiatives in 2015 is approximately \$168,000.

SUPPORT FOR PARTNER AND ASSOCIATE INVESTIGATORS

Funds will continue to be made available to support the involvement of our partner and associate investigators in the research program. It is anticipated that approximately \$110,000 will be spent in 2015 on travel and research assistance to support the development and execution of collaborative research projects.

OUTREACH AND DISSEMINATION OF RESEARCH FINDINGS

Conferences and workshops showcase the Centre's research, increase our international footprint, and provide opportunities for our industry partners to engage with the Centre. An Ageing Summit, a Public Forum on the Intergenerational Report, and the 23rd Annual Colloquium of Superannuation Researchers are planned for 2015.

Leading international experts will visit the Centre under CEPAR's Distinguished Visitor Program and funds

will be available for CEPAR personnel to visit international partners and present research findings at major conferences. A series of research briefs aimed at the wider community is also planned. It is expected that these activities will be supported by a combination of industry and collaborating university funds. Total estimated expenditure for outreach activities in 2015 is \$450,000.

OTHER

About \$845,000 will be spent on supporting the operation of the Centre. This includes salaries for administrative personnel, marketing, materials and other costs associated with the running of the Centre.

An estimated additional \$100,000 will be spent on support for surveys, experiments, and data collection.

NEW GRANTS AWARDED IN 2014

OUR RESEARCHERS WERE SUCCESSFUL IN SECURING ADDITIONAL GRANT FUNDING IN 2014. THE FOLLOWING GRANTS WERE AWARDED TO RESEARCH TEAMS WHICH INCLUDED CEPAR CHIEF INVESTIGATORS OR RESEARCH FELLOWS.

ARC GRANTS

SHERRIS, M., BATEMAN, H., PIGGOTT, J., STEVENS, R., NIJMAN, T.E., BOVENBERG, A.L., DEANE, J., TWADDLE, J. AND PONDS, E.

ARC Linkage Grant 2014:

Mandatory Pre-funded Retirement Income Schemes: Best Policy and Practice

Total amount awarded:
\$493,000

WOODLAND, A.

ARC Discovery Grant 2014:

International Trade, Climate Change and Economic Policy

Total amount awarded:
\$449,000

OTHER AUSTRALIAN COMPETITIVE GRANTS

CHERBUIN, N. AND ANSTEY, K.J.

NHMRC Project Grant:

An Investigation of the Effects of Higher Plasma Glucose in the Normal Range on Cerebral Health

Total amount awarded:
\$709,388

CUMMING, R.G., WRIGHT, C., HIRANI, V., NAGANATHAN, V., BLYTH, F. AND HARFORD, J.

NHMRC Project Grant:

Study of the Relationship of Oral Health and Oral Health Service Utilisation to the General Health of Older Australian Men

Total amount awarded:
\$459,723

OTHER GRANTS

ABBASI-SHAVAZI, M.J., HUGO, G., MCDONALD, P., SADEGHI, R. AND HOSSEINI-CHAVOSHI, M.

Department of Immigration and Border Protection. Irregular Migration Research Programme Grant:

Drivers and Decision Making Processes of Irregular Migration Among Afghans in Iran

Total amount awarded:
\$270,615

BATEMAN, H., ECKERT, C., LOUVIERE, J. AND THORP, S. Financial Literacy Australia Grant:

Developing new Financial Literacy Survey Questions to Better Link Financial Knowledge to Outcomes

Total amount awarded:
\$120,000

KENDIG, H. AND YIENGPRUGSAWAN, V. World Health Organisation Western Pacific Regional Office Fellowship:

Asia Pacific Observatory on Health Systems and Policies

Total amount awarded:
\$US140,271

MCDONALD, P. AND SETYONALURI, D.

Australia Indonesia Centre: Indonesian Data Archiving Project

Total Amount Awarded:
\$15,387

PIGGOTT, J., WOODLAND, A., KUDRNA, G., CHOMIK, R. AND KUMRU, C.

University of Michigan /US Social Security Administration Grant 2014:

Means-testing Social Security: Modelling and Policy Analysis

Total Amount Awarded:
\$US58,069

CONTACT DETAILS

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