

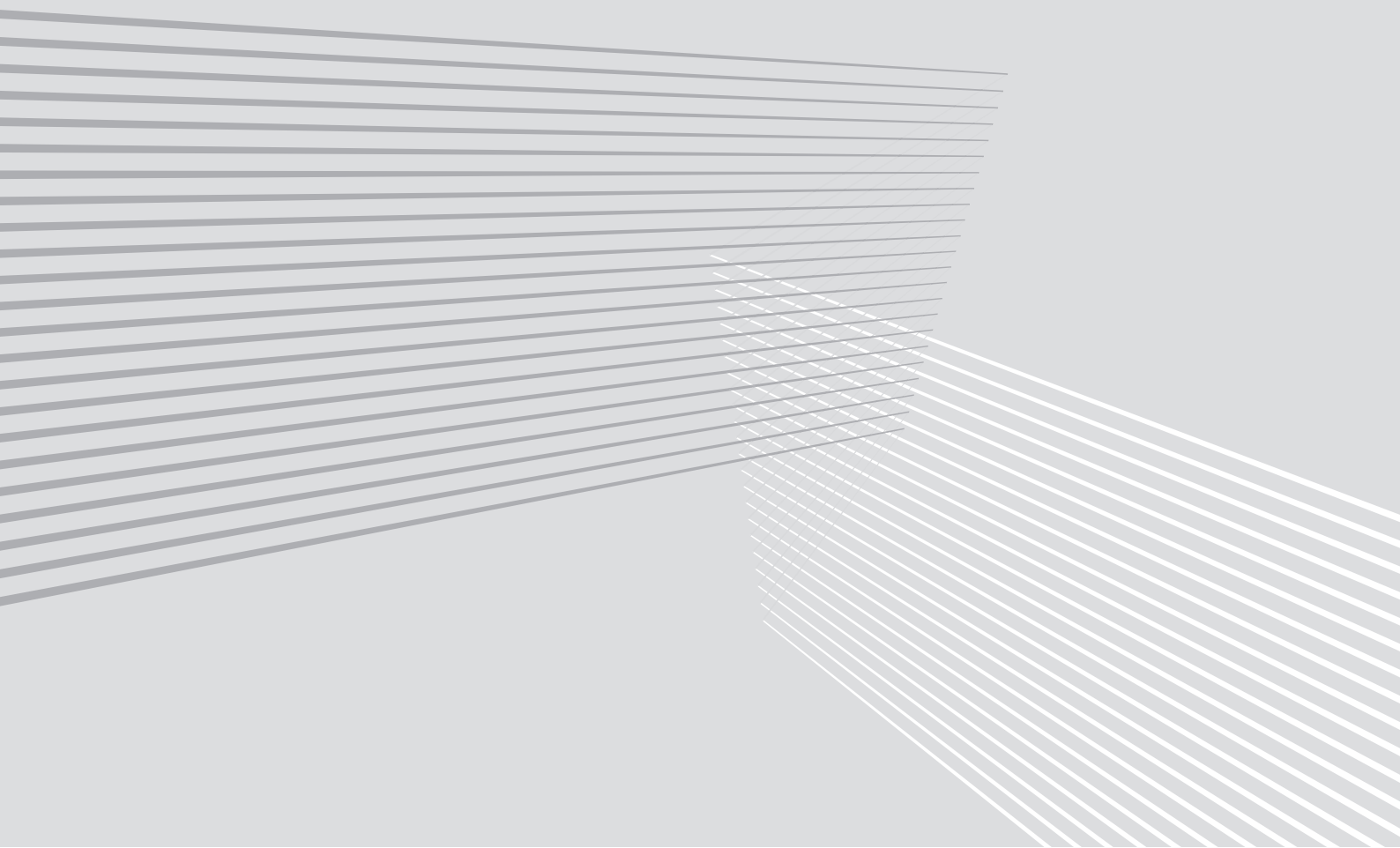
Retirement income in Australia: Part I – Overview



Australian Government
Australian Research Council

CEPAR research brief, November 2018





Summary of brief

Retirement income systems will continue to attract policy attention: As population ageing moves from projection to reality, any design flaws in the retirement income system will continue to attract attention. Australia's retirement income system is no exception and it will continue to evolve.

Australia is ageing but underlying factors are uncertain: Population ageing is driven by declines in *fertility* (which was expected to decline further in Australia but has stabilised at just below replacement rate) and declines in *mortality* (which has often been expected to level out but has not yet done so in Australia). Population ageing is offset somewhat by intakes of young migrants (which may decline from the high rates seen in recent years).

The Australian retirement income system is unique: It comprises: (1) a means tested flat-rate first pillar known as the Age Pension; (2) a mandatory privately-administered defined contribution second pillar, known as the Superannuation Guarantee; and (3) tax-advantaged voluntary superannuation contributions as the third pillar. Saving via housing assets also attracts advantages in the Australian tax-benefit system.

Incomes are improving against budget standards but some groups lag: About 63% of older Australians could afford a lifestyle that is deemed to be above a *modest* level, according to a set of commonly used budget standards. Analysis also shows that: (1) standards of living have improved over the last decade; (2) couples are consistently better off than singles; and (3) home owners are significantly better off than renters.

Replacement rates from the mandatory system are reasonable: The Superannuation Guarantee and the Age Pension are projected to deliver well for most workers. Someone on a minimum wage could expect 100% of their net working-age income, the median earner could expect about 67%, and 90th percentile earner about 27%.

Australian system compares well internationally: The Australian retirement income system is among the most sustainable and provides a more progressive level of replacement rates than seen in other countries. In 2017, the system scored highly. But weaknesses identified included a lack of requirement or incentive to take benefits as income streams, and incomplete provision of information to members.

Older Australians have higher incomes than in the past: The median person aged 65+ in 2016 had 60% of the household income of the median person aged 15-64 (adjusted for household size). Income over the lifecycle tends to peak around age 50 and declines thereafter. The greatest declines were for cohorts where the household head ended the decade in their late-60s (an 18% drop in adjusted median income). This is driven by lower labour income, partly offset by super and Age Pension income. Despite such declines, older people today have much higher real incomes (about 45%) than those of similar age ten years ago. Younger age groups saw smaller gains relative to those who came before them but greater gains relative to themselves ten years earlier.

Other resources across generations: The median person aged 65+ in 2016 had 180% of household wealth of the median person aged 15-64 (adjusted for household size). Most older people were in the bottom half of the income distribution and top half of the wealth distribution, with much of this wealth held in the home. Over the lifecycle, net wealth peaks by age 69 at a median of about \$630,000 (adjusted for household size). Super is now the second largest asset class after the family home, the fastest growing component of wealth for those aged 65-74 compared to the same age group ten years earlier. Older Australians benefit from living rent-free in their own homes (worth over \$10,000 per year, on average). And public transfers in-kind are also of value (mostly health related and worth over \$25,000 among the oldest households, on average). While private consumption drops (mostly on food, clothing and transport) as households reach retirement, on average they continue to save.

More people are working into their later years: Older Australians are retiring later than in the past and compared to the OECD average.

Summary of featured CEPAR research

Life expectancy in Australia: In the past, increases in life expectancy were driven by gains in mid-life longevity, but future potential lies with increasing the survival of Australia's oldest old. This will require public health interventions into obesity, alcohol and drug use, and cures for major diseases such as cancer (Box 1).

What can the mandatory system be expected to deliver? CEPAR modelling of mandatory superannuation and the Age Pension suggests the combination can be expected to bring most people above the poverty line and modest retirement standard (Box 2).

International comparative pension research – developed countries: Australia can both teach and learn from other developed nations. For example, the US may benefit from means testing social security, which is a fundamental part of the Australian approach. Decumulation structures in the Netherlands could act as inspiration for Australia; but Australia is leading other countries in debates about developing a choice architecture that combines the power of defaults with flexibility (Box 3).

International comparative pension research – emerging Asia: Many pension systems in Asia, such as in China, are underdeveloped, either covering a low proportion of the population, providing retirees with low benefits, or a combination of the two (Box 4).

How different resources fund consumption by age: Comparisons of income and consumption by age show that the lifecycle surplus turns into a deficit at age 58, and that health and aged care expenditure increase most significantly in retirement. Age and Service Pensions cover less than half of consumption at older ages. Total consumption by age (both private and public) has grown for all generations over their lives (Box 5).

Work and retirement: A series of projects show that it is important for health outcomes that individuals voluntarily decide when they stop work, and that efforts to reduce the barriers to working longer – such as age discrimination – will be valuable for both mature Australians and the economy (Box 6).



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1. Introduction

How should we fund retirement in the ageing century? It is a question that has worried policymakers for decades. In developed and developing countries, concerns about demography have driven a flurry of parametric and structural reforms of retirement income systems, with varying degrees of success. But fixing one set of issues can create another. For example, addressing fiscal sustainability can threaten the adequacy of retirement incomes. And shifting responsibility for retirement income from governments and employers to individuals can have unintended consequences, such as greater inequality and less risk pooling. As population ageing moves from projection to reality and affects more people, any design flaws will continue to attract attention.

This series of three CEPAR research briefs explores the current state, and projected future, of Australia's retirement income system, marrying policy developments with the latest research. Brief 1 describes the demographic context and structure of the system, how retirement resources compare across benchmarks, countries, and generations. Brief 2 focuses on the public, poverty-alleviation element of Australia's retirement income, primarily the Age Pension. Brief 3 looks at private, income replacement provision, particularly superannuation.

The Australian retirement income system has been largely a success story. It ranks among the best in the world. It provides reasonable and improving retirement outcomes and remains sustainable despite population ageing, which in Australia is taking place at a slower pace than average. The Age Pension, which represents the first pillar of the system, is affordable and – combined with owner-occupied housing – draws most people out of poverty. Mandated and voluntary superannuation, which form the second and third pillars, are raising retirement incomes and contributing to the macro-economy. But the system will continue to need refinements. For example, public support fails those who rent in retirement; and superannuation has thus far done less well on measures of cost-efficiency and providing a structure that helps households manage risk.

2. Demographic context

Demographic ageing is increasingly apparent. In Australia, demographic change and policy impacts are prominently catalogued in the Intergenerational Report (IGR), a publication produced by the Australian Government every three to five years (some states also produce a version at the sub-national level). The most recent report shows, for example, that: (1) between 2015 and 2055 the *share* of the population aged 65 and over is projected to increase from 15% to 23% (Figure 1A); (2) the *number* of people aged below 65 will less than double but those aged 65+ will more than double and the 85+ group will more than quadruple; and (3) the *dependency ratio* will drop from 4.5 working-age people per person aged 65+ to 2.7 (Treasury various years). Though population ageing is substantial in Australia, the pace of change is slower than in many countries. (Figure 1B).

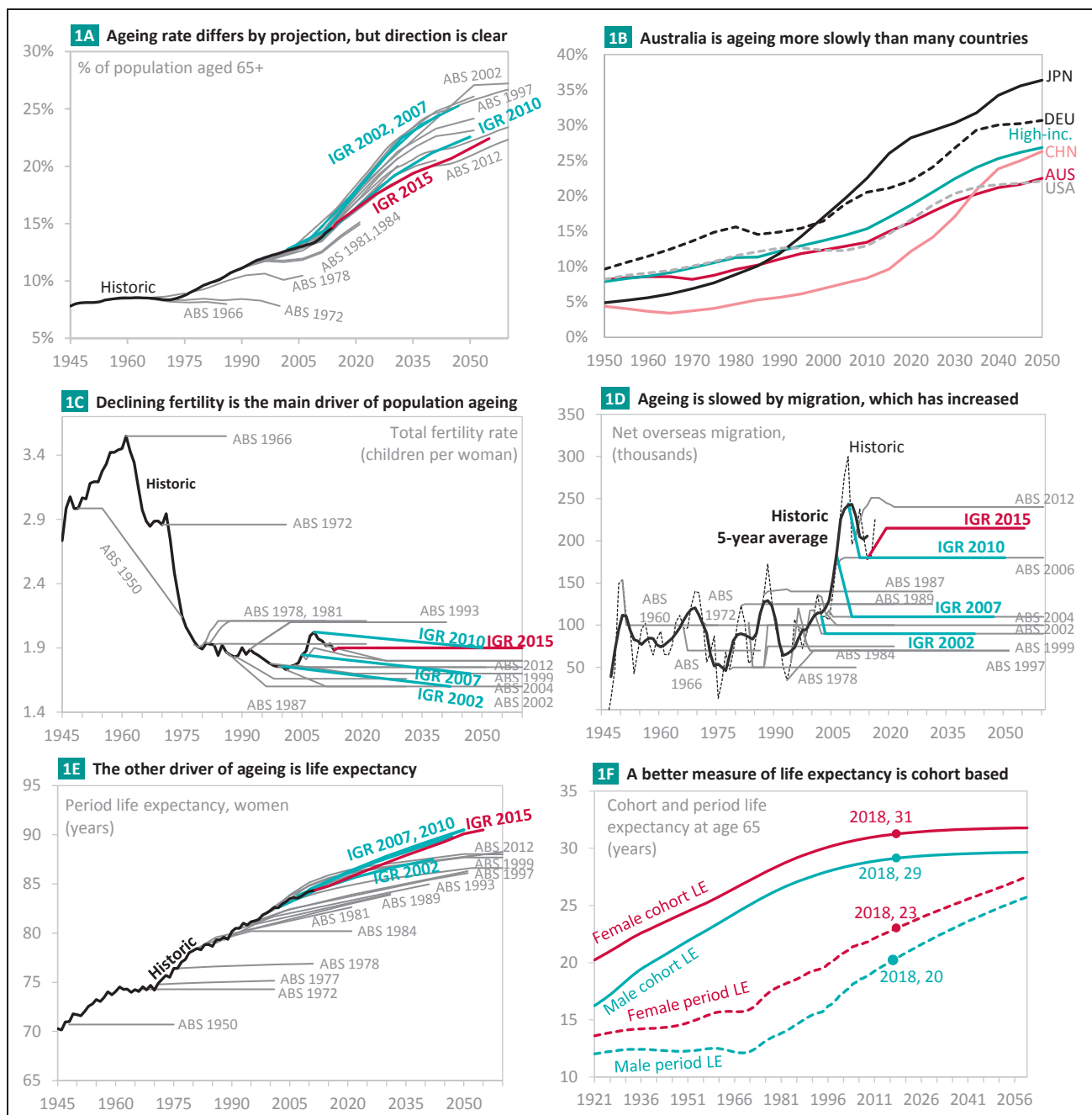
Underlying these trends are declines in fertility and mortality (which increase the rate of ageing) and high levels of young skill-based migration (which reduces it). Historic estimates and projections for these are shown in Figures 1C-1E. The patterns demonstrate an important point about demographic projections – they are subject to uncertainty and will likely change. For example, recent curbs on migration are likely to result in faster ageing. And fertility patterns are changing: less educated women used to have higher fertility rates, but this has recently reversed; they are now driving fertility declines. Projections also make assumptions about the fertility of women who have not yet been born and trend improvements in life-extending technologies that don't yet exist.

Perhaps most striking is how past projections have underestimated increases in life expectancy (which in some countries has indeed remained flat or seen decline – a pattern that may emerge in Australia too). The uncertainty in point estimates and distribution of outcomes across a cohort poses problems for anyone planning their retirement (see Brief 3). Another problem is how these statistics are communicated. The most commonly quoted life expectancy numbers, seen in government reports and the media, relate to period life expectancy. These tally the survival probabilities of all people at all ages in a given year and hypothesise how a person of a given age

would live if those probabilities applied for the rest of their life. So, this period measure takes account of improvements up to that year and ignores the likely improvements during their life. By contrast, cohort life expectancies represent the average that an individual is actually expected to live. As shown in Figure 1F, this is almost 10 years longer than suggested by the often-quoted period life expectancy measure.

Changes in cohabitation and marriage can also affect retirement incomes at the household and aggregate levels since couples can pool resources. Those entering retirement without a partner are much more likely to rely on the public pension; 82% of pensioners who live on their own receive more than half of their income through the Age Pension, as compared to 65% of pensioners couples (authors' analysis of ABS 2018a). In 1986, 14% of Australians entered their 60s living alone; by 2016, the figure was 17% (ABS 2017a).

DEMOGRAPHIC PAST AND FUTURE



Source: Chomik (2015); PC (2013); UN (2017).

The Intergenerational Report also draws a link between demography and the Government budget (Treasury various years). For example, the Commonwealth's real health expenditure per person is projected to double over the next 40 years, while pension expenditure is projected to stay stable based on efforts to tackle the effects of

population ageing. Aged care expenditure is also expected to increase, almost doubling in its share of the economy.

Box 1 CEPAR research spotlight Life expectancy in Australia

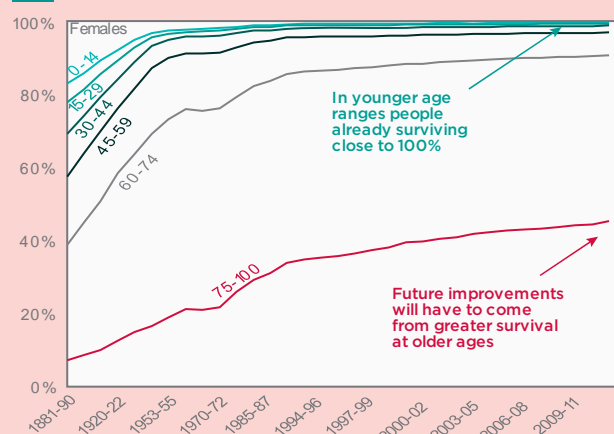
Research into mortality improvements is constantly evolving. The latest insights from experts in the field were summarised by Senior Research Associate Heloise Labit Hardy and Chief Investigator Michael Sherris (2018), who also discuss the implications of trends for the Australian annuity market (see Brief 3). Similar information was presented in a recent fact sheet by CEPAR Senior Research Fellow Rafal Chomik and PhD Student David Rodgers (2018).

For example, Chomik and Rodgers present data from CEPAR Chief Investigator Peter McDonald about gains in life expectancy, which in the past were due to the survival at younger ages but have since relied on gains in mid-life longevity – a pattern that took many by surprise. Declines in communicable diseases, smoking and ischaemic heart disease have led to Australians at younger ages surviving close to 100% (Figure 2A).

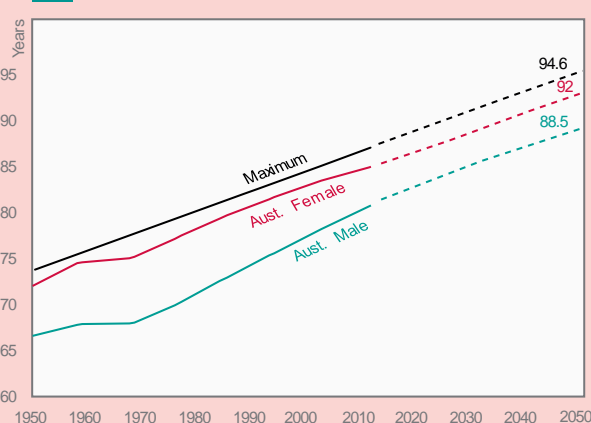
Future potential lies in increasing the survival of Australia's oldest old, which will require significant public health interventions into obesity, alcohol and drug use, and cures for major diseases such as cancer. Nevertheless, some forecasts, based on fitting a trend to the highest observed life expectancies, suggest life expectancy will continue to increase at similar to its historical rate (Figure 2B).

The fact sheet also covered mortality inequality across the income distribution, inequality between indigenous and non-indigenous Australians, and the increase in years lived with disability that has accompanied increases in life expectancy as well as areas of potential future focus.

2A Years lived in age range as % of maximum



2B Life expectancy forecast

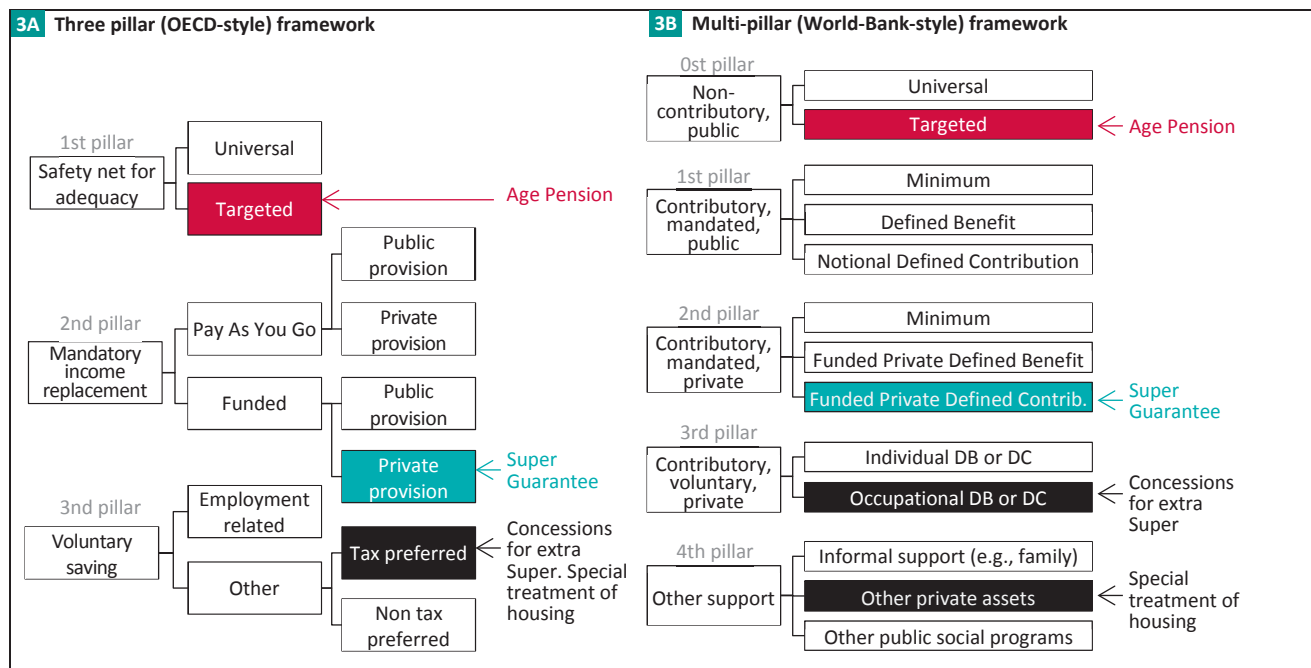


Source: Chomik and Rodgers (2018).

The work of CEPAR Associate Investigator Heather Booth provides further insight into the complex and uncertain process of forecasting life expectancy. For example, Booth and her colleagues (Booth, Maindonald and Smith 2002) developed a unique method of forecasting longevity. The Booth-Maindonald-Smith (BMS) method provides a more objective forecast, overcoming the conservatism in estimates produced by official statistical agencies. When evaluated after ten years, forecasts using BMS (Booth and Tickle 2004) showed that the method has significant reliability and precision (Booth and Tickle 2014).

3. What makes a retirement income system?

Most developed-country retirement income systems comprise of three components or *pillars* that differ by function: (1) for those unable to provide for themselves; (2) for mandatory income replacement; and (3) for those wanting more than what is mandated (e.g., see OECD 2017). An alternative typology used by the World Bank conceives five pillars, which disaggregates some of the three functional components (Holzmann and Hinz 2005). These ways of thinking about the structure of a retirement income system are illustrated in Figure 3A and 3B.



Source: Authors' compilation.

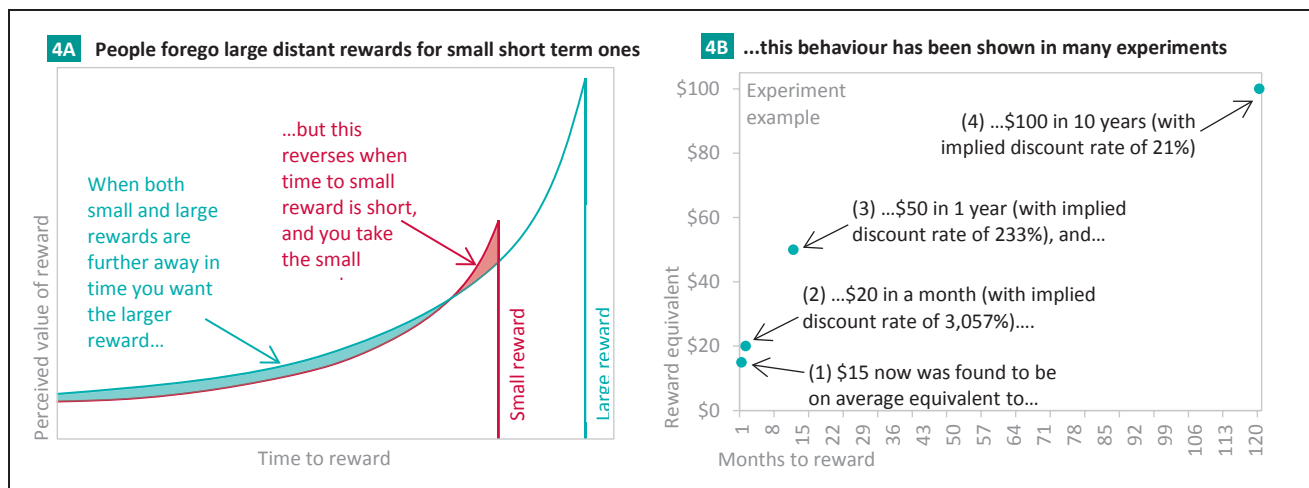
The first pillar – for those unable to provide for themselves – typically consists of public benefits that are unrelated to an individual's past earnings and are sometimes referred to as non-contributory or social pensions. The payment may be universal (i.e., available to all eligible citizens above a certain age) or targeted (i.e., dependent on the retiree's other resources), and also depend on years of work and citizenship. These schemes serve as a safety net for those without other savings and a safeguard against poverty. That is, their primary aim is to ensure a minimum adequacy of retirement incomes.

The second pillar is to provide mandatory income replacement – smoothing consumption and replacing the income that one enjoyed pre-retirement. The benefits are typically proportional to a person's salary, either based on some defined benefit (DB) formula or on some defined contribution (DC) into a funded or notional account that is then transformed into benefits. In this way, second pillar schemes can be unfunded, wherein the individual has a legal claim on the future revenues of employers, insurers, or governments, or funded with some underlying accumulation which can be converted into a lump-sum or income stream. Such schemes can be administered through public social security programs or through private pension funds, at arm's length from government.

The reason for mandating saving in a second pillar is two-fold. Firstly, mandatory saving acts as a commitment device. Many people may want to and can afford to save a portion of their income for retirement but don't get around to it. The idea of choosing a lesser option in the near over a better option in the long term is illustrated in Figure 4A. It was first proposed by Robert Strotz in 1956 and has since been backed up by significant experimental evidence (e.g., Thaler 1981). If you're anything like the subjects in one prominent experiment, you would ask for about \$20 in a month or \$100 in 10 years to compensate you for giving up \$15 now. That's like

asking for an investment return of over 3,000% p.a. over the short-term and 21% p.a. over the long term. No investment can compete with the short-term urge, so the long term investment is unlikely unless it is locked in.

Secondly, without compulsion more people are incentivised to rely on the first pillar (Hayek 1960). This is of greater concern in countries with large means tested schemes, such as Australia, which create incentives to save less and receive greater public support.



Source: Authors' adaptation of Thaler (1981).

The third pillar – for those that want more than the mandatory system – relates to voluntary saving, which is often encouraged by governments via tax incentives. It allows those who wish to completely smooth their consumption across the lifecycle to do so by contributing more than the mandated amount, or by investing in other ways that will help them in retirement. Home ownership is sometimes included in this third pillar, or, using World Bank typology, is discussed as a 'fourth' pillar.

The objectives of these different pillars often interact. For example, the adequacy of retirement income can depend on whether a retiree owns their own home and thus faces low housing costs. The median rental rate in Sydney for September 2017, for example, was \$550 (Domain 2017), which is 82% of the full weekly pension for a couple with all supplements included (\$674.20). The levels of benefits and the impacts of these on poverty in Australia are discussed in Brief 2.

The most common scheme around the world is a publicly run, earnings related (mostly defined benefit) pension. About 76% of all countries have one (authors' analysis of SSA various years), though many of these are low coverage, sometimes only for civil servants. In developed countries, providers of such pensions, including governments and employers, have been stepping away from providing defined benefit schemes or have looked for ways to lower the benefits originally promised. A third of countries have means tested or safety net pensions, most of which pay low benefits, and only 13% have defined contribution individual accounts, which have low contribution density.

4. Australia's system

The Australian retirement income system consists of a means tested first pillar known as the *Age Pension*, a mandatory privately-administered defined contribution (DC) second pillar, known as the *Superannuation Guarantee*, and tax-advantaged voluntary superannuation contributions as the third pillar. A nationwide Age Pension was introduced in 1908 after eight years of state level schemes and superannuation was mandated for all employees in 1992 (though available to employees in certain industries for some time before).

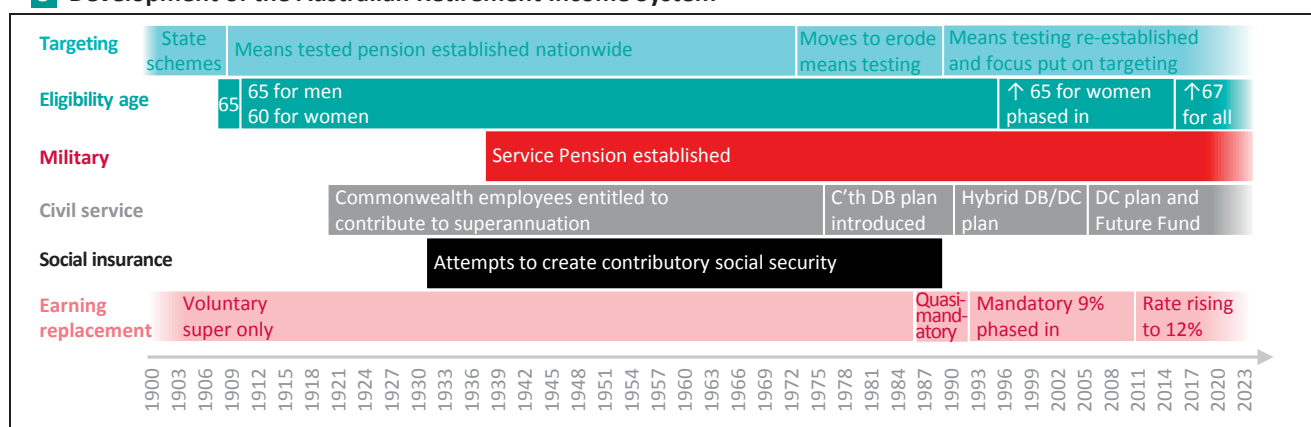
Both of these foundational pillars went through significant changes during the 20th century. The degree to which Age Pension receipts were based on assets and income varied over time. Little change occurred between 1909

and 1946, but in the post-war period policies moved toward reducing the effect of the means test. A similar trajectory occurred across the Tasman, but unlike in New Zealand where the pension is now universal, Australia reverted back to targeting after 1985 (though a reversal in policy sentiment was apparent from around 1978). At a similar time, the eligibility age for the Age Pension became a hotly debated issue after being fixed for decades.

The development of a second pillar has been a slow process and was side-tracked by several attempts to introduce contributory social security. Legislation for earnings-related social security pensions was passed in 1939 but was abandoned following the commencement of World War Two, and an inquiry in the 1970s that recommended such a scheme was rejected after a change of government. Several schemes for specific industries predate a coordinated approach, but it wasn't until landmark moments in the 1980s such as the National Wage Case and the *Occupational Superannuation Standards Act 1987 (OSSA)* that real progress was made toward universally mandated retirement saving in the form of superannuation.

Parallel to these developments, similar changes were occurring for service pensions, and defined benefit schemes for public sector employees were phased out and replaced with schemes that more closely aligned with the rest of Australia's working population (see Brief 3, Section 8).

5 Development of the Australian Retirement Income System



The means tested pension

The Australian Age Pension incorporates both income and asset testing that act to exclude the most affluent from the benefit rather than to simply target the poor. Compared to universal pensions (e.g., New Zealand superannuation), a means tested pension allows higher benefits (for those eligible) for a given budget or the same benefit at lower cost. It is often argued that means testing may distort incentives to work and save for those directly affected by the means test but analysis has shown that this is more than offset by lower distortions affecting taxpayers who fund a cheaper pension compared to a universal scheme. (See Box 5 in Brief 2).

The level of pension benefit is modest (though higher than many safety net schemes). The maximum rate for a single person is 27.7% of male average full-time earnings and 41% for couples. This amount decreases for those with income or assets over certain thresholds (see Figures 6C and 6D in Brief 2). The age at which a person can receive this pension is 65 and six months in 2018, but is scheduled to increase by six months every two years until age 67 is reached in July 2023. The government previously announced an intention to increase the eligibility age to 70 but abandoned this policy. (See Brief 2).

Mandatory superannuation

In 1992, the government introduced the Superannuation Guarantee, which requires all employers to contribute to their employee's superannuation. Prior to this, only 64% of the working population received any superannuation (Productivity Commission 1991). The Superannuation Guarantee replaced *productivity award superannuation* which was introduced as part of the 1986 National Wage Case – in which employees were offered a

3% wage increase and a 3% superannuation contribution. This could be considered as a *quasi-mandatory* retirement income pillar as it only covered those working under industrial relations rulings, known as *awards*.

The current contribution rate is 9.5% of gross salary, legislated to rise to 12% by 2025. These payments (subject to various caps) are made into a superannuation fund, which offers a range of investment options that differ in their level of risk, strategy and returns. Individuals can access their superannuation at their ‘preservation age’. This age ranges from 55 for those born prior to July 1960, up to 60 for those born after July 1964. (See Brief 3).

Voluntary contribution

Employees can make additional voluntary superannuation contributions (e.g., via *salary sacrifice* from gross earnings or from after tax earnings). Salary sacrificed contributions are tax advantaged – that is, they are income tax free and attract a tax of only 15%, less for low earners. Contributions from after tax earnings are taxed at marginal rates. Low earners can also benefit from a tax offset on salary sacrificed contributions and contribution matching on after tax contributions. Despite these benefits, only a small portion of the workforce voluntarily contributes to their superannuation (see Brief 3). In addition to savings through superannuation, most Australians save in the form of real estate. Housing assets attract various advantages in the Australian tax-benefit system, including capital gains tax exemptions and exclusion from the Age Pension means test for owner-occupied properties, as well as the ability to offset mortgage costs via *negative gearing* for investment properties.

5. Comparing outcomes against benchmarks

Current incomes

In 2016, the mean and median household disposable income (adjusted for household size) of Australians aged 65+ were about \$44,000 and \$34,000 (or about 68% and 60% of the incomes earned by people aged 15-64; ABS 2018). But how adequate are such incomes and how well do they serve retirement needs? This is commonly answered by considering: (1) what standard of living the income can buy (e.g., *budget standard*); (2) whether it is above a socially acceptable level (e.g., *relative poverty line*); or (3) how much of one’s working life income or wages does it replace (i.e., *replacement rate*)?

One approach is to survey the community on the basket of goods and services they think comprises a given standard of living and estimate the income needed to fulfil it. The resulting budget standards serve as benchmarks for assessing the incomes (Deeming 2010).

A budget standard for benchmarking retirement incomes in Australia is produced regularly by the Association of Superannuation Funds of Australia (ASFA; originally developed by Peter Saunders and colleagues at UNSW). These estimate the income necessary to fund a modest or comfortable standard of living based on household expenditure data. In the past, the ASFA budget standards assumed that retirees are home owners (in relatively good health), but recently these have been modified to also include income required by renters.

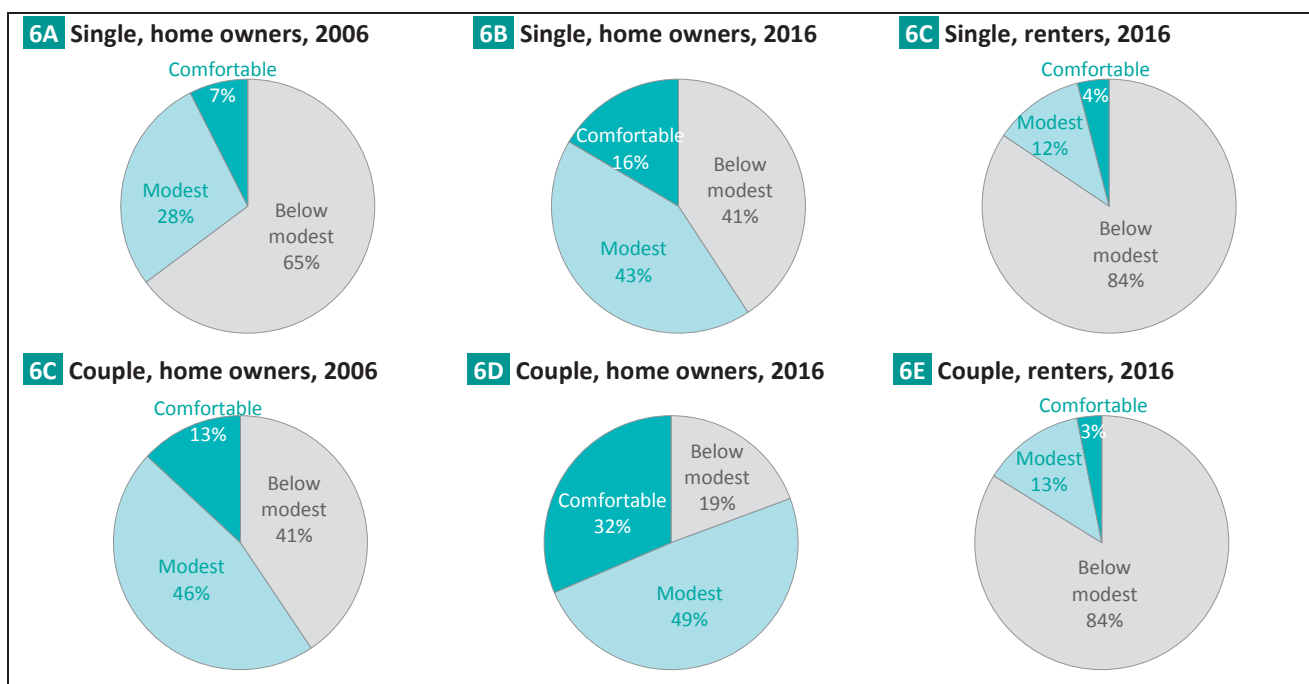
A *modest* retirement lifestyle can be financed by an amount just above that available from the Age Pension, but still affording only basic activities (for singles that is about \$27,000 in 2018, versus a pension with supplement of about \$23,000). A *comfortable* retirement lifestyle enables a broad range of leisure and recreational activities and the purchase of private health insurance, a reasonable car, good clothes, a range of electronic equipment, and travel. Some have claimed that this level is set artificially high to serve the superannuation industry (Daley 2017).

Combining these thresholds with data on incomes allows us to see the extent to which different groups have below modest, modest, or comfortable lifestyles. Overall, 21% of older Australians could afford a *comfortable* standard of living, 37% had income that equated to a *below-modest* lifestyle, and 41% of older Australians in 2016 could afford a *modest* standard of living. Figure 6 breaks this down over time and by group. There are three, perhaps unsurprising, patterns worth noting: (1) standards of living have improved over the last decade; (2)

couples are consistently better off than singles; and (3) home owners are significantly better off than renters. A break down by sex (not shown) would reveal that women who own their homes have similar risk of having income below the modest threshold as men who own (41%); but women who rent have a higher risk (87%) of having income below the modest level than men who rent (81%).

Poverty outcomes, which are more commonly used to assess the adequacy of the first retirement income pillar, are discussed in detail in Brief 2. Compared to OECD averages, rates of poverty appear relatively high in Australia among older individuals, but OECD calculations don't account for the large role housing plays in Australia's retirement income system, nor the distribution of income – the Age Pension is a safety net that sits just below the poverty line – with the result that few older Australians are in deep poverty. Retirement incomes differ considerably by gender, which largely stems from superannuation (see Brief 3, Section 5), but poverty rates between men and women are similar (see Brief 2, Section 5).

STANDARDS OF LIVING IN RETIREMENT



Notes: Shares are of households with household head aged 65+. Excludes the small number of older households with multiple families. Based on the ASFA retirement thresholds that apply in each case. Source: Authors' calculations based on ABS (2018) and ASFA (various years).

Projected incomes

For individuals and households, a key part of retirement planning is working out their likely income once they finish working. Such calculations involve multiple assumptions and predictions but the further one is from retirement, the harder it is to predict the trajectory of these parameters. As one example, the Australian Securities and Investment Commission offers a *MoneySmart* calculator to help people work out their potential accumulation and retirement income. Individuals input values for their working-life income, superannuation fund returns, fees, age of retirement, and level of voluntary contribution. Similar methods are used by researchers trying to project retirement incomes under different scenarios.

CEPAR researchers, for example, found that replacement rates vary significantly over the income distribution (Box 2), with low earning Australians more likely to see higher replacement rates (sometimes 70% is held up as a benchmark replacement rate; see OECD 2017; Mercer 2017). The pattern is also in line with what people expect from their retirement income (Figure 8).

The methodology used by CEPAR is similar to that of the OECD and other Australian analysis (Gallagher 2016). Most such analyses only model the mandatory part of the system in order to standardise comparisons

(however the OECD occasionally included voluntary savings in its calculations). But there is a more important reason: by *levelling down* to the mandatory system, analysts are capturing the minima achievable across the earnings distribution. Meanwhile, the Grattan Institute takes a different approach (Coates, Daley and Wiltshire 2018). In their projections, more emphasis is placed on non-superannuation savings and on the possibility that individuals move around the income distribution during the lifecycle. They also assume that retirement income flows are *discounted* using price inflation. As a result, they project higher replacement rates than most other researchers, with all income deciles predicted to have replacement incomes above the typical benchmark. The important thing to note is how sensitive such projections are to the underlying assumptions and parameters.

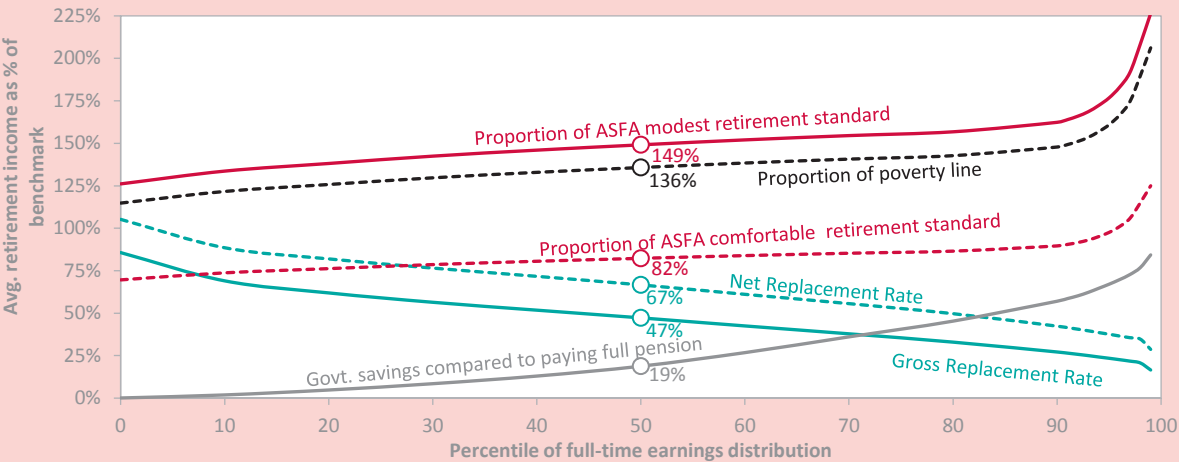
Box 2 CEPAR research spotlight What can the mandatory system be expected to deliver?

Senior Research Fellow Rafal Chomik and Centre Director John Piggott (2016a) looked at what the Superannuation Guarantee, in conjunction with the Age Pension, could deliver. Their modelling looked at outcomes, compared to various benchmarks, across the full-time earnings distribution. The methodology is comparable to that seen elsewhere. Calculations are based on an individual who starts working at age 20 in 2017, works full-time at a given point in the earnings distribution until age 67, accumulates mandated superannuation, runs this down by cohort life expectancy and receives the Age Pension according to a wage-indexed, future means test. Assumptions about price, wage inflation, returns and fees were consistent with the default assumptions in the ASIC superannuation calculator at the time of analysis, though these keep changing. The policy settings were based on those announced up to the end of 2016 (including asset test changes implemented in 2017 and a delayed uplift to the mandated contribution rate).

The results are encouraging. While only the top four percentiles achieve a ‘comfortable’ retirement income (which may call into question the appropriateness of such a budget standard), all earners can expect income well above the poverty line and modest retirement standard. Someone on a minimum wage could expect 100% of their net working-age income, the median could expect about 67%, while the 90th percentile of full-time earners can expect about 27%. For reference, these are on the back of accumulations of \$160,000, \$350,000, and \$660,000 in today’s wage terms. The gradients are also encouraging and reflect the progressive nature of the Age Pension and caps on contributions. Indeed, the progressivity would have improved following changes to the asset test in 2017 (see Brief 2).

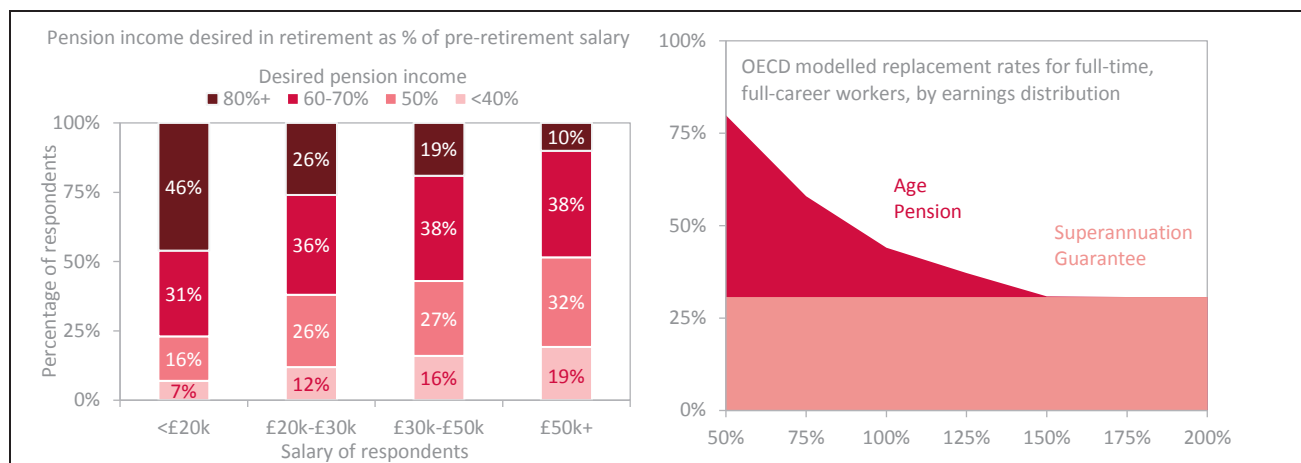
The analysis gives us an idea of how mandated super *supplements* the Age Pension, but to what extent might it *substitute* for it? Figure 7 also presents the proportion of the Age Pension that government can be expected to save for each individual across the distribution (compared to paying them a full pension for all years in retirement). SG savings accumulated by a median full-time full-career worker could reduce pension spend on that person by about 19% over their retirement; on a worker at the 90th percentile, the saving would be 57%.

7 Mandatory system can be expected to bring most people above poverty line and modest retirement standard



Note: Based on an individual who starts working at age 20 in 2017, works full-time at a given point in the earnings distribution until age 67, accumulates mandated superannuation, runs this down by cohort life expectancy and receives the Age Pension according to a wage-indexed, future means test in line with 2017 parameters (e.g., includes changes to asset test in 2017). Source: Chomik and Piggott (2016a).

8 Australian replacement rates adequately meet desired retirement incomes across income distribution



Note: Modelling in Figure 8 was completed when Superannuation Guarantee was 9.25%, not 9.5%. Source: Willis Towers Watson (2010), OECD (2015).

6. Comparing outcomes against other countries

Australia's retirement income system compares well against other countries. For a start, it is relatively sustainable. Public spending on pensions was below 3% of GDP from 2010 to 2015, third lowest among developed countries and much lower than the double-digit percentages in countries like Spain, France and Italy (Figure 9A). Australia's spending rate is also expected to stay relatively flat between now and 2050, while many other nations are expected to see increases spurred by population ageing.

The sustainable fiscal outcomes are due to the system's unique design. The Age Pension covers more retirees (78%) than is common for first pillar pensions across the OECD (where average coverage is 30%; OECD 2017). But the entitlement is: (1) modest – with a maximum worth below 30% of average earnings; (2) flat rate – the same regardless of contribution history; and (3) means tested – reduces the better off someone is. In contrast, many other countries provide a small first pillar but rely heavily on large, public, earnings related, defined benefit, second pillars. So, the benefit payments from their main public schemes increase with working-life earnings, which, combined with population ageing, can result in a surge in public spending.

Since Australia's second pillar is administered at arm's length from government, it doesn't affect spending directly. There is an indirect effect however – lower accumulations or longer retirements can impact on public spending via the Age Pension and/or revenues given superannuation tax arrangements (see Section 7 in Brief 3). Another design feature is that the direct link between contributions and benefits incentivises work and saving. Coverage (78% of working age population) and contribution rates (9.5% of salaries) are comparable to countries with similar schemes (though comparability is complex since, unlike some others, Australia's contribution rates are gross of fees and insurance etc.). For example, Denmark has a contribution rate of 12% and Chile's 10%. Overall, Australian superannuation assets have grown to be one of the largest private pension accumulations in the world – approximately 150% of GDP in 2018.

In terms of outcomes, the OECD calculates that a worker on average Australian earnings, contributing at the mandated rate over a full career, can expect a replacement of almost 60% of their working-age income in retirement, net of tax (similar to results in Box 2). This is modest compared to most other countries, placing Australia below the OECD average. However, the importance of the Age Pension is highlighted when looking at the theoretical net replacement rates of low earners. Someone on half of average earnings can expect around 90% of their working-life income in retirement, an outcome that places Australia in the top third of the OECD.

So, how does Australia rate overall? The Melbourne Mercer Global Pension Index (MMGPI) answers this question by compiling each system's strengths and weaknesses into a composite score. It is one of many indices that analyse the institutions that affect the quality of life of older people across countries (Chomik and Rodgers

2018). The Index comprises three sub-indices, which correspond to different aims of a retirement income system: sustainability, adequacy, and integrity. Sustainability measures include asset accumulations, labour market attachment, and demography. Adequacy includes data on benefit levels and methods of payment (e.g., if income streams are available). And integrity relates to costs, regulations, and communication (e.g., if income stream information is available to pension members).

The scores and rankings as well as the results for underlying measures are shown in Figures 10A-10E. These show that in 2017 the Australian retirement income system scored highly and was ranked third overall out of 30 developed and developing countries analysed, behind Denmark and the Netherlands. It ranks slightly lower (7th) on the adequacy sub-index. Looking under the bonnet of the index shows that weaknesses of the Australian system include a lack of any requirement or incentive to take benefits as income streams, lack of accrual of private pension benefits during career breaks (e.g., maternity), lower financial protections than available elsewhere, and incomplete provision of information to private pension members (e.g., income projections at retirement). While the Australian system scores well on the *integrity* sub-index, findings from a recent Royal Commission into misconduct indicate that there are systemic problems in the superannuation sector.

Box 3 CEPAR research spotlight International comparative pension research — developed countries

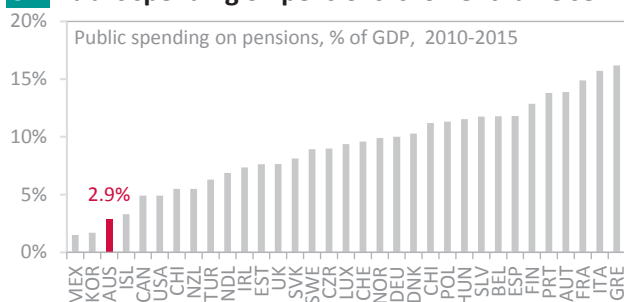
CEPAR researchers often compare Australia's retirement income arrangements with those in developed countries. Partner Investigator Olivia S. Mitchell highlights the unsustainability of US social security and suggests that benefits need to fall by a quarter to a third, or payroll taxes need to increase by over 50% if it is to remain solvent (Mitchell 2016). She proposes a contributory system like Australia's as a solution but notes that poor financial literacy and investment decisions would be a challenge in the US.

Chomik and Piggott (2016b) – who compared both the existing settings and outcomes across the two countries – suggest instead that the US could take Australia's lead and introduce some degree of means testing to their social security, which may reduce their system's current liabilities. As noted by Chomik et al. (2015), so far, US based analysts have not entertained means testing with parameters as seen in Australia (see Box 3 in Brief 2).

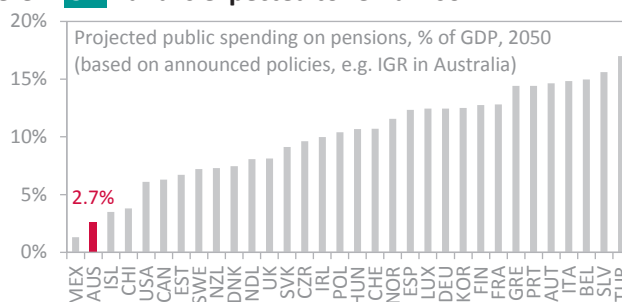
But the story is not always of other countries learning from Australia. For example, CEPAR Associate Investigator Jennifer Alonso-García and Chief Investigator Michael Sherris compared the decumulation structures of Australia and the Netherlands. They found that the Dutch setting, with its mandated annuitized drawdowns may be more cost-effective in providing welfare and simplifying investment choices than the Australian flexible system (Alonso-García and Sherris 2017). Although in related work Alonso-García, Chief Investigator Hazel Bateman and Associate Investigator Ralph Stevens and co-authors (Alonso-García et al. 2018) found that Dutch pre-retirees had preferences for some liquidity (i.e., only partial annuitisation).

HOW DOES THE AUSTRALIAN RETIREMENT INCOME SYSTEM COMPARE?

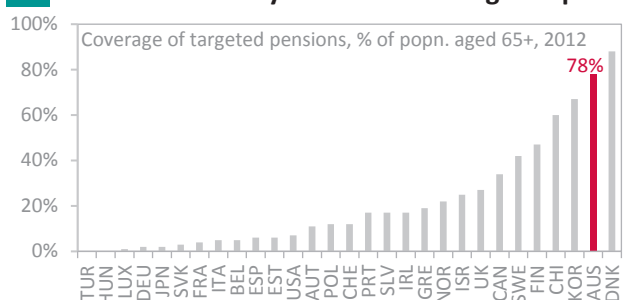
9A Public spending on pensions is lower than elsewhere



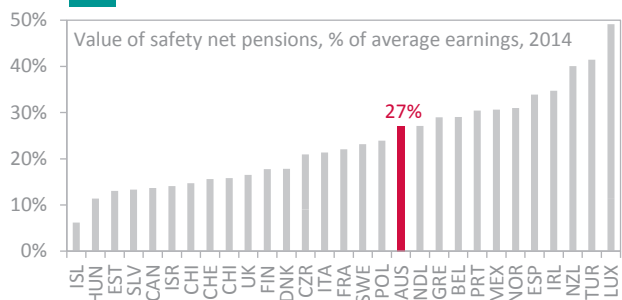
9B ...and is expected to remain so...



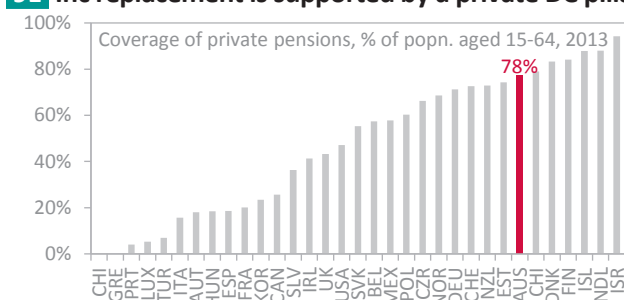
9C ...because of heavy reliance on a targeted pillar...



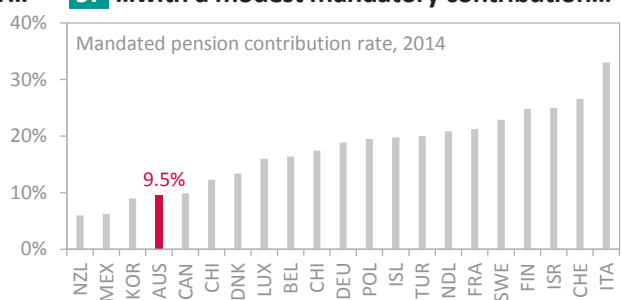
9D ...which has a modest maximum value



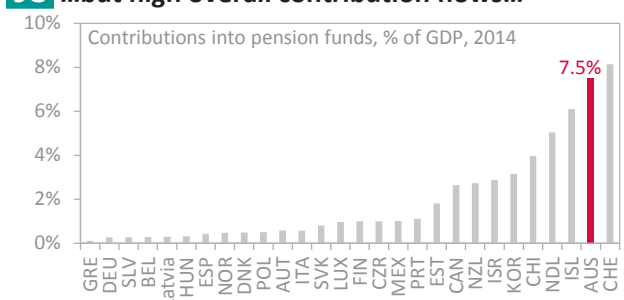
9E Inc replacement is supported by a private DC pillar...



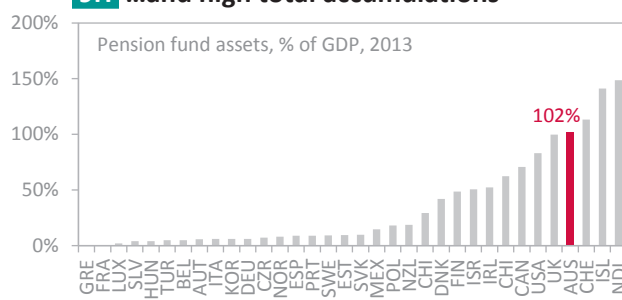
9F ...with a modest mandatory contribution...



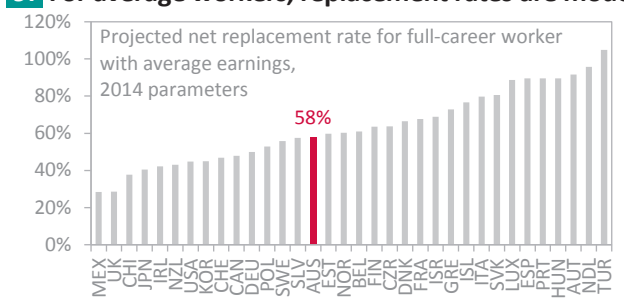
9G ...but high overall contribution flows...



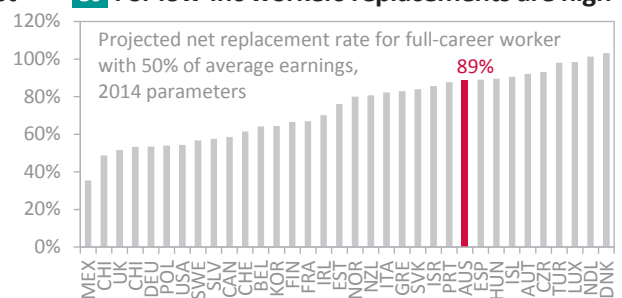
9H ...and high total accumulations



9I For average workers, replacement rates are modest



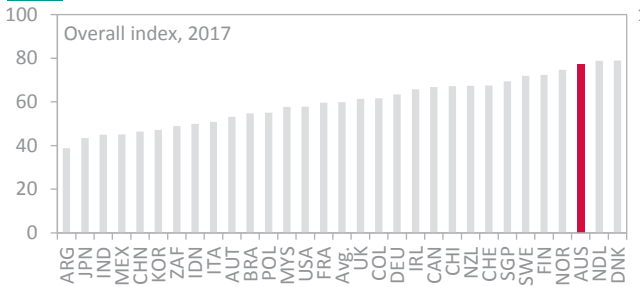
9J For low-inc workers replacements are high



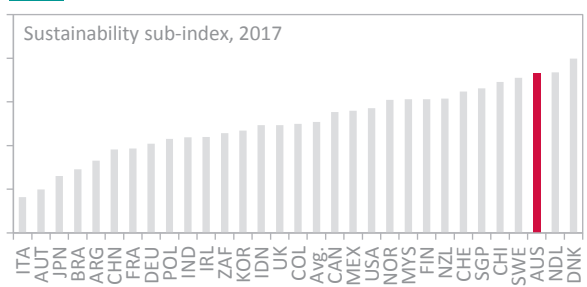
Source: OECD (various years).

MELBOURNE MERCER GLOBAL PENSION INDEX: WHAT DOES IT SHOW AND WHY?

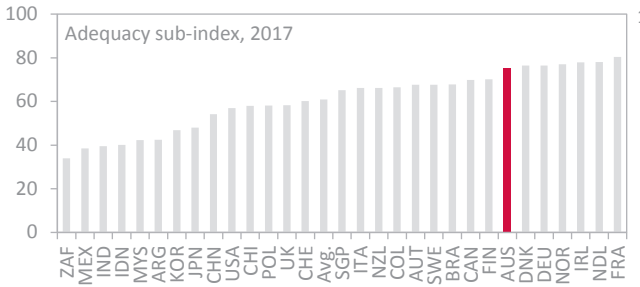
10A Australia's retirement inc system is ranked 3rd best



10B It is also ranked 3rd for sustainability



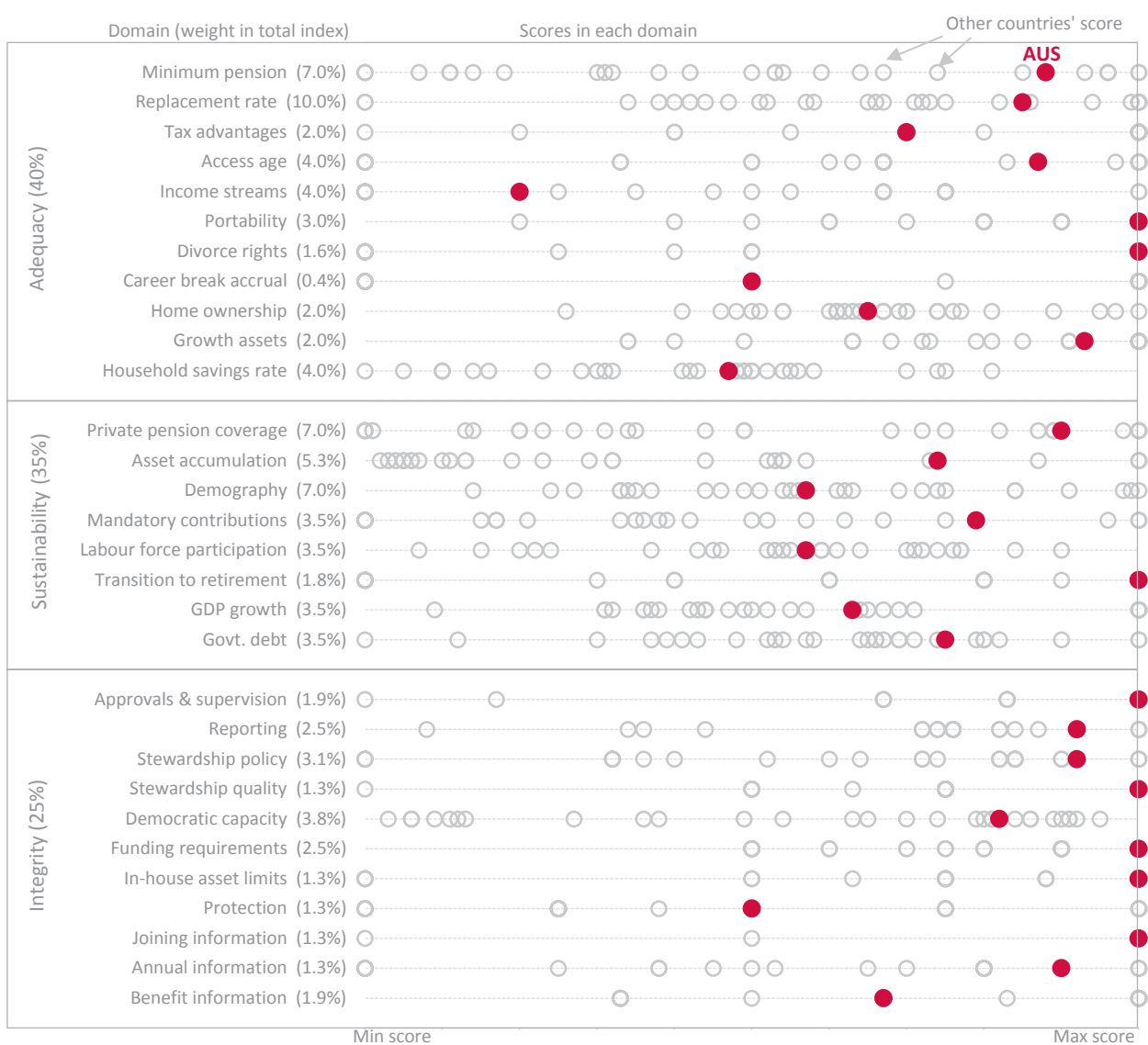
10C The system does less well for benefit adequacy...



10D ...and is top four for integrity (e.g., governance)



10E Looking at underlying scores shows strengths (e.g., portability) and weaknesses (e.g., income streams)



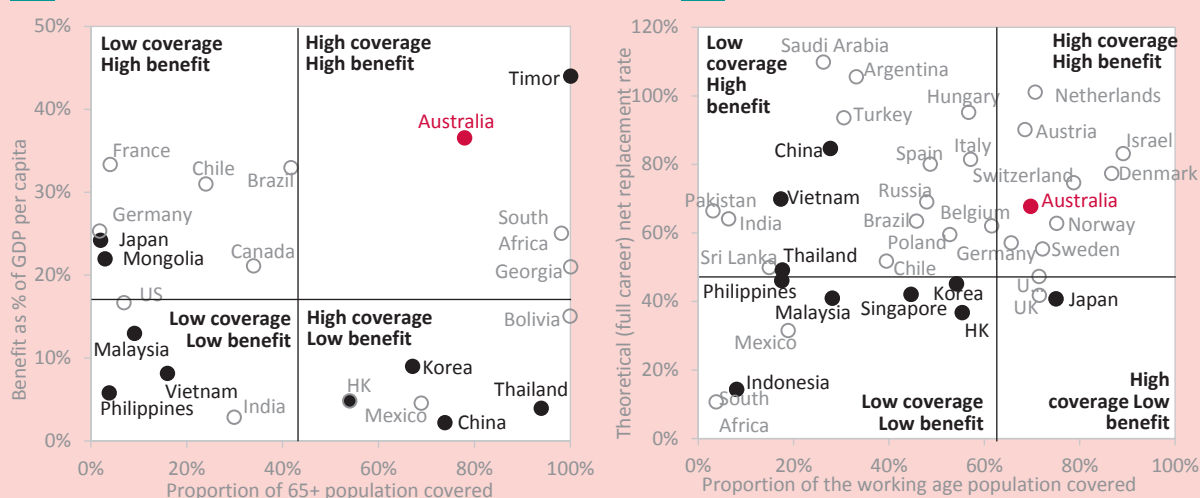
Source: Authors' analysis of Mercer (2017).

Box 4 CEPAR research spotlight International comparative pension research – emerging Asia

CEPAR researchers have not just investigated the Australian retirement income system. Countries such as Japan are already old and many countries across Asia are ageing fast. China is demographically younger than Australia, but will soon be much older. By 2050, there are expected to be 370 million people aged 65+ in China and 120 million aged 80+. Chief Investigator Peter McDonald investigated the underlying driver of this: low fertility rates. He suggests that policies supporting child-bearing and -caring in Asia need social reform, to change not only financial incentives but also attitudes and social institutions (McDonald 2011).

In a series of papers, CEPAR Director John Piggott and Senior Research Fellow Rafal Chomik have looked at ageing and retirement income systems in Asia (e.g., Piggott and Sane 2012; Chomik 2013a; Chomik 2013b; Chomik 2013c; Chomik and Piggott 2015; Chomik 2016; Chomik et al. 2017). Many pension systems remain underdeveloped. For example, both first- and second-pillar pensions in Asia tend to have low coverage of the population, low benefits, or both (Figures 11A and 11B).

11A Non-contributory pensions in Asia have low benefit and/or coverage **11B** This is also somewhat the case in contributory pensions



Note: Quadrants based on unweighted averages of countries. Source: Chomik (2016).

In response, Chomik (2016) calls for development assistance to help countries build the capacity to design, implement and monitor the pension systems, much of this via a concerted research effort.

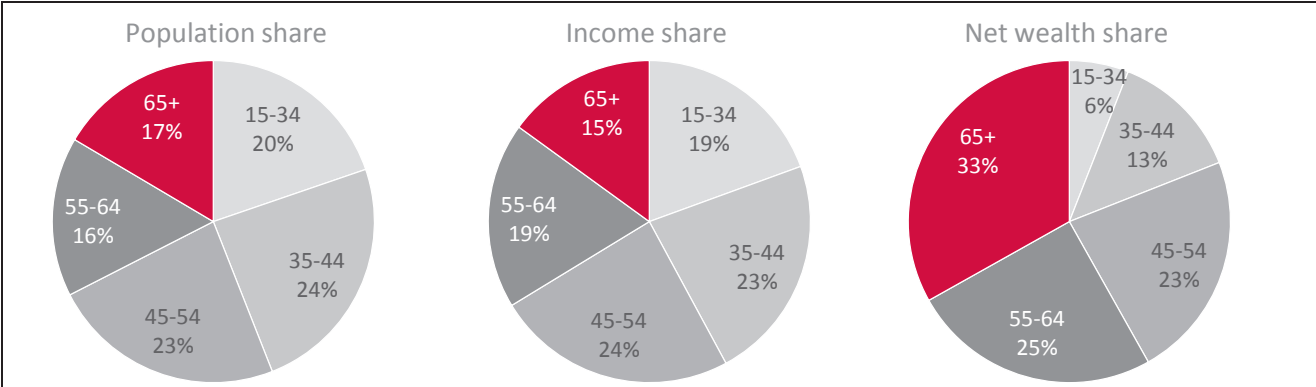
CEPAR researchers are establishing an evidence base on pension policy in China. Deputy Director Hazel Bateman compared China's retirement income system to Australia's (Bateman and Liu 2017) and found it lacking. Problems include sustainability and fragmentation between: workers vs residents, rural vs urban, local vs migrant, private vs public. Decentralised funding managed by local government doesn't help. Consolidation is suggested as a necessary step to equitable and sustainable income provision for retirees.

Centre Director John Piggott and Research Fellow Bei Lu note that such system unification in China is a 'distant hope' (Lu and Piggott 2015) and ad-hoc solutions should be the immediate priority. Their 2015 paper proposes a Notional Defined Contribution (DC) scheme for regional migrant workers, while a 2014 paper, in collaboration with their colleague Wenjiong He, proposes a universal pension to keep aged citizens out of poverty that would cost only 0.7% to 1% of GDP per annum (Lu, He and Piggott 2014).

7. Comparing outcomes across generations

Overall, older people tend to have lower incomes than the general population but hold a disproportionate amount of the country’s wealth. The median person aged 65+ in 2016 had 60% of equivalised income and 180% of equivalised wealth of the median person aged 15-64 (ABS 2018). This is illustrated in Figure 12. The disproportionate share of wealth of older households is a consequence of lifecycle savings and retirement system settings; it does not in itself imply any unfairness or imbalance between age groups.

12 Population, income, and wealth shares by age of household head, 2015-16



Source: ABS (2018).

The outcome of retirement income system settings is more visible by tracking the resources and consumption available to individuals over the lifecycle. So, what do these trends look like in Australia?

Figures 13A-17C provide a snapshot of the lifecycle movements in income, wealth, public transfers, imputed rent and expenditure, showing outcomes for households by age of household head. The analysis is based mostly on microdata from the ABS Survey of Income and Housing between 2005-06 and 2015-16 (ABS 2018).

Income snapshot: The familiar hump shape

The first thing to notice about income trends is the familiar hump shape. Mean and median income are highest in middle-age, peaking at about \$100,000 and \$90,000, respectively, for households with a household head aged in their 50s in 2016. Household income then starts declining, driven by declines in employment income, which is later replaced by superannuation and pensions (Figure 13A). For households in their late 60s, average and median incomes are \$67,000 and \$48,000. Once income is *equivalised* to account for household size – larger in middle age, smaller in older age – its trajectory is much smoother. It peaks at a median of about \$55,000 and declines to between \$27,000 and \$36,000 among older age groups.

Income inequality within each age group is apparent since average income is consistently above median income. This is to be expected since averages don’t capture the heterogeneity of experience in each age group.

Income trends by age: All rise, but older age groups now better off

How have incomes changed over time? One way to understand this is to look at the same age groups in different years – comparing 70-year-olds today with 70-year-olds ten years ago. This shows that incomes have increased in real terms for all age groups over the last decade (Figure 13B). But the greatest gains were at older ages, so a household headed by a 70-year-old today is much better off than one headed by a 70-year-old ten years ago – by about 45% for the median household and 55% for the average household of that age.

For older age groups below Age Pension age this increase was driven by greater labour incomes in line with higher mature age labour force participation rates. For those over 65, increases in income were driven by greater superannuation and pension income. Pension increases in 2009 were more important for the oldest old.

At later ages, average income grew faster than median income, which suggests a widening of the income distribution. This increase in income inequality at later ages is likely to be the compounding effect of working life income shocks, such as higher wage trajectories of some and unemployment of others, which the retirement income settings translate into unequal outcomes in retirement. Also, among existing older cohorts not everyone has superannuation. For example, for persons aged 65-74 in 2016, just over half had any super.

Income trends by cohort: Retirement and the inevitable drop in income

Another way to look at trends over the last decade is to follow cohorts over time – for example, comparing the incomes of 60-year-olds in 2005-6 with 70-year-olds in 2015-16.

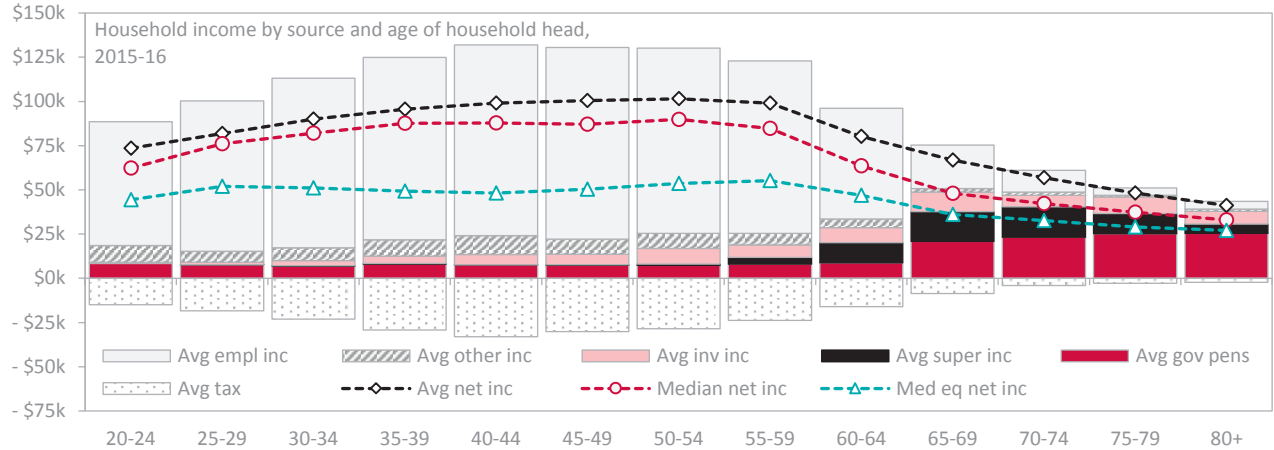
Unsurprisingly, this shows that on average, employment income increased over time until retirement age (Figure 13C and 13D). Age 50 seems to be the inflection point. The cohort turning 50 by 2015-16 saw very little growth, while older cohorts saw declines – where employment income losses were partly offset by superannuation and the pension. The largest drop in overall income occurred for the cohort of households with household heads aged 65-69 in 2015-16 – about an \$8,000 or 18% drop in equivalised median income (which implies an average household-level ‘replacement rate’ for that cohort of 82% over the decade; actual average replacement rate for households that stopped working can be expected to be lower). In cohorts older than this, overall incomes also declined over the decade but by a smaller amount, both in absolute terms and as a proportion of income.

Longitudinal analysis using the Household Income and Labour Dynamics Survey (HILDA) points to similar trends in income over the lifecycle as the pseudo-cohort analysis presented here (Wilkins and Lass 2018). A comparison of the median incomes of seven cohorts defined by decade of birth shows that between 2000 and 2016, all cohorts with a birthdate after 1950 (i.e., below age 65 in 2016) showed steady increases in income over time. This reflects declines in average income at around age 50. Those born in the 1920s and 1930s had consistently low median incomes relative to the younger cohorts, while the average income of those born between 1940 and 1949 decreased significantly as they approached retirement.

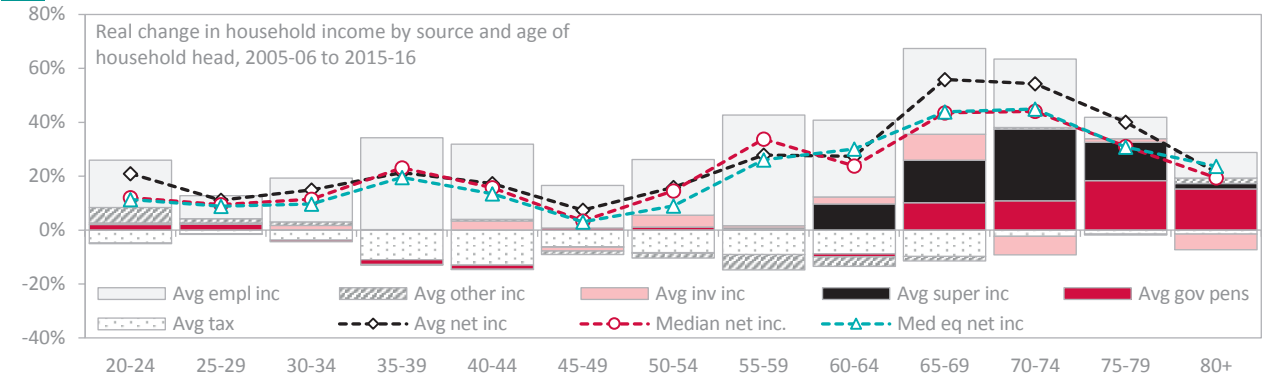
The HILDA analysis also confirms that income inequality is high among those over 55, which, as previously mentioned, is likely to be due to heterogeneous retirement ages. Inequality tends to reduce among older cohorts once most have retired (Wilkins and Lass 2018), though different savings patterns may increase inequality at older ages compared to previous periods (Whiteford 2011).

RESOURCES OVER THE LIFECYCLE – INCOME

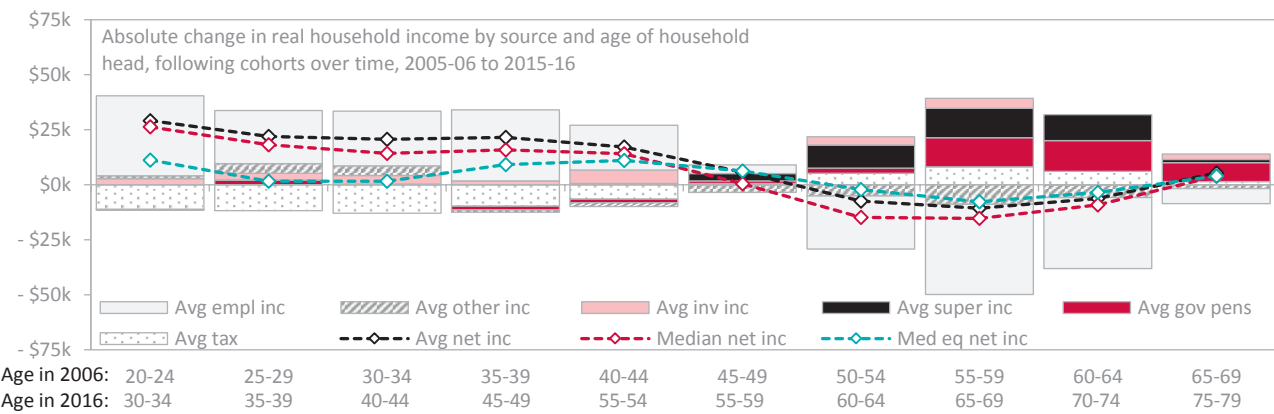
13A Income in 2016: Peaks in 40s and early 50s before employment starts to drop, later replaced by pension and super



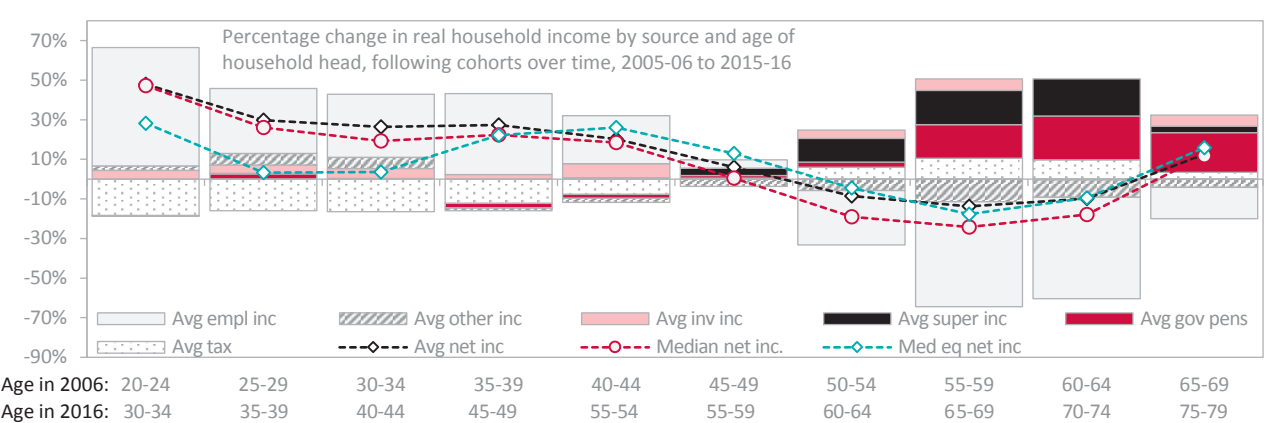
13B Income change by age group (%): 2005-06 to 2015-16 saw most age groups earning more and 65+ gained super and pension income



13C Change by cohort (\$): But if we follow cohorts over decade, we see incomes increase until retirement, when employment income drops



13D Change by cohort (%): The above pattern is replicated when looking at % change. Adjusting for household size sees lower gains/drops



Note: unit of analysis is household; figures in real 2016 dollars. Source: ABS (2018).

Wealth: Accumulation and decumulation

Of course, people can live off savings instead of income, so levels of wealth are important too. In contrast to income, wealth continues to be accumulated until ages in the late-50s or 60s, at which point it is slowly decumulated to at least part-finance retirement (Figure 15A). Net wealth peaks by age 69 (though median appears steady for longer). The unadjusted average peaks at about \$1.6m, while the equivalised median peaks at about \$630,000. The key asset for most households at their peak wealth is their home, followed by superannuation. Median wealth is below average wealth across all ages, which reflects wealth inequality. This gap is higher than for income or consumption and widens with age because small differences in income can compound into large differences in wealth over time and at older ages people benefit more from bequests.

Over the decade to 2016, superannuation assets increased significantly for all age groups, though many accumulate as much if not more savings outside the compulsory superannuation system as within it. Importantly, there has been a decline in home equity among age groups in their 20s and an increase in debt for all ages, particularly among those in their 30s and 40s. Average net worth has also grown more than median net worth over the decade, indicating an increase in inequality. The overall result has been a decline in average net worth among the young and a large increase among the old.

Looking at changes in wealth of cohorts over a ten-year period (Figure 15C), increases are fairly equal for different age cohorts. The median increase in wealth experienced by those who were 20-24 in 2005-06 is similar to that of those who were 45-49, as well as the cohorts in between.

In proportion terms however, the growth of wealth decreases exponentially as the base of wealth increases with each cohort (Figure 15D). In older age, the trend changes slightly – average and median increases in wealth decline as households liquidate their assets (mainly super and the family home) in order to fund retirement.

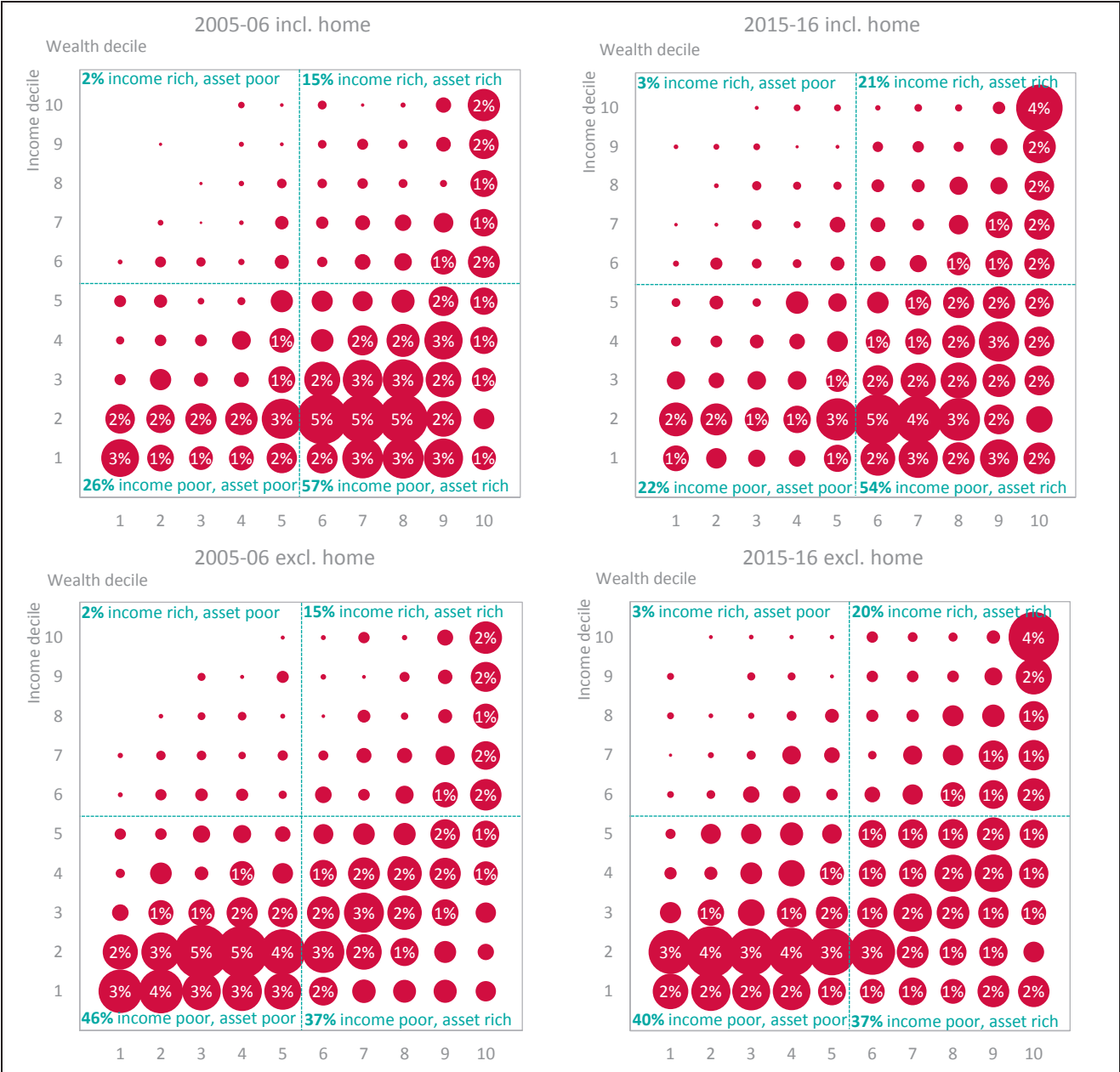
Income-poor but asset-rich?

As Figure 14 helps illustrate, the majority of Australians over 65 are asset rich and income poor when the family home is included and are ‘poor’ on both counts when it is excluded. In 2016, 54% of those aged 65+ were in the bottom half of the income distribution and top half of the wealth distribution – the *income-poor-asset-rich* quadrant. And about 20% were in the *income-poor-asset-poor* quadrant. If home equity (net of mortgage debt) is excluded, only 37% end up in the *income-poor-asset-rich* quadrant, while 40% appear as *income-poor-asset-poor*. This illustrates that housing plays a large role in Australia’s retirement income system and social policy (Age Pension design presumes people own their home in retirement; see Brief 2).

Yet, the phenomenon eased slightly in the decade to 2016, with the proportion of *income-rich-asset-rich* older individuals increasing by between 5% and 6% (depending on whether housing is included) and the proportion of *income-poor-asset-poor* individuals decreasing by 6% when housing is excluded. A decreased focus on housing due to unaffordability, along with increases in Age Pension rates and growing superannuation balances, led to the spreading out of individuals over the income and wealth deciles over the last decade.

Brief 3 of this series discusses reverse mortgages and other potential ways in which Australians can turn their illiquid net wealth into income during retirement.

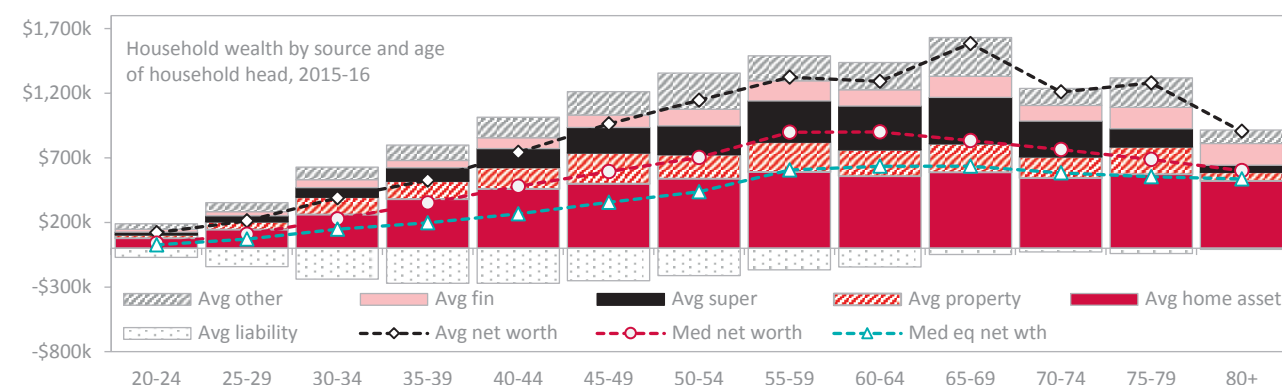
14 % of 65+ across deciles of population-wide income and net wealth, 2005-6 and 2015-16, with and without home included



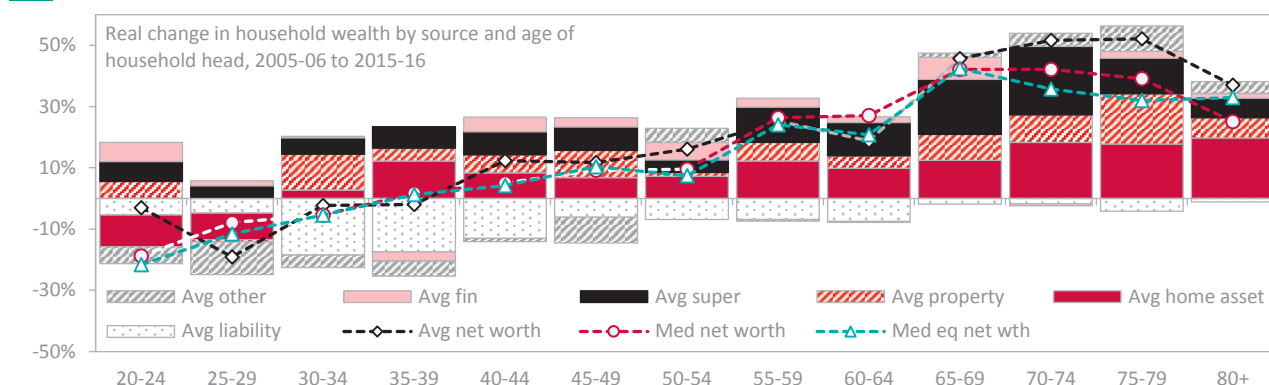
Note: Counting shares of 65+ population in deciles of population-wide distribution. Income is equivalised disposable household income ascribed to individuals and net wealth of household of individual also equivalised using square root of number of household members. Where home is excluded so is related debt before deciles of net wealth distribution are recalculated and older people within these identified. Source: ABS (2018).

RESOURCES OVER THE LIFECYCLE – WEALTH

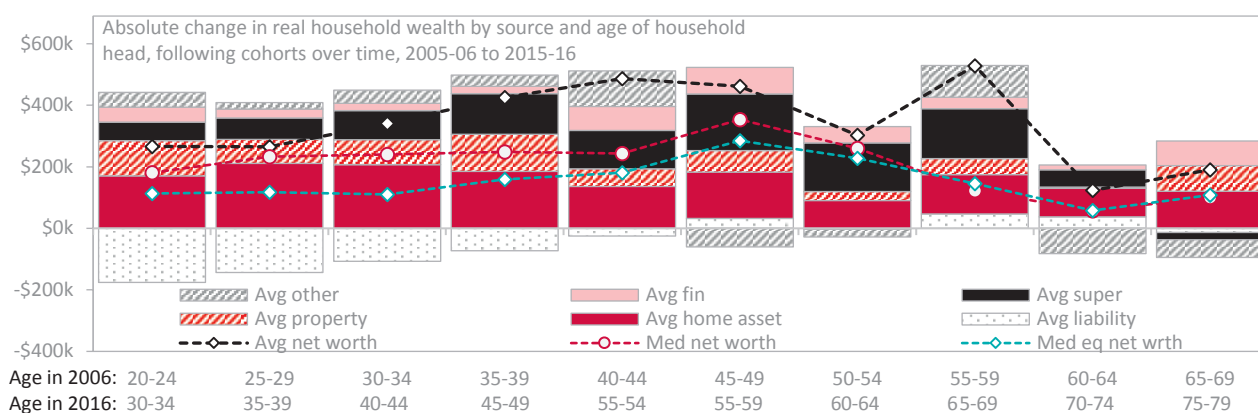
15A Wealth in 2016: Wealth typically peaks in late 50s, with home as main asset. Median is lower, indicating wealth inequality



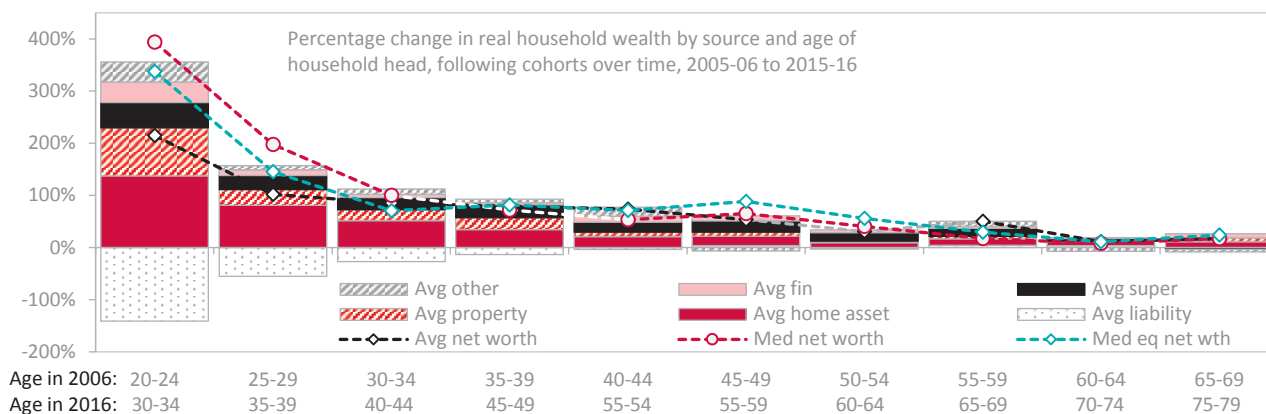
15B Change by age group (%): In the last decade, super increased for all groups; it was the main source of asset growth for older groups



15C Change by cohort (\$): Changes in wealth are more equal. Lower for older cohorts that spend assets to fund retirement



15D Change by cohort (%): Younger age cohorts have gained proportionally more over last decade since they started from a low base



Note: Unit of analysis is household; figures in real 2016 dollars. Source: ABS (2018).

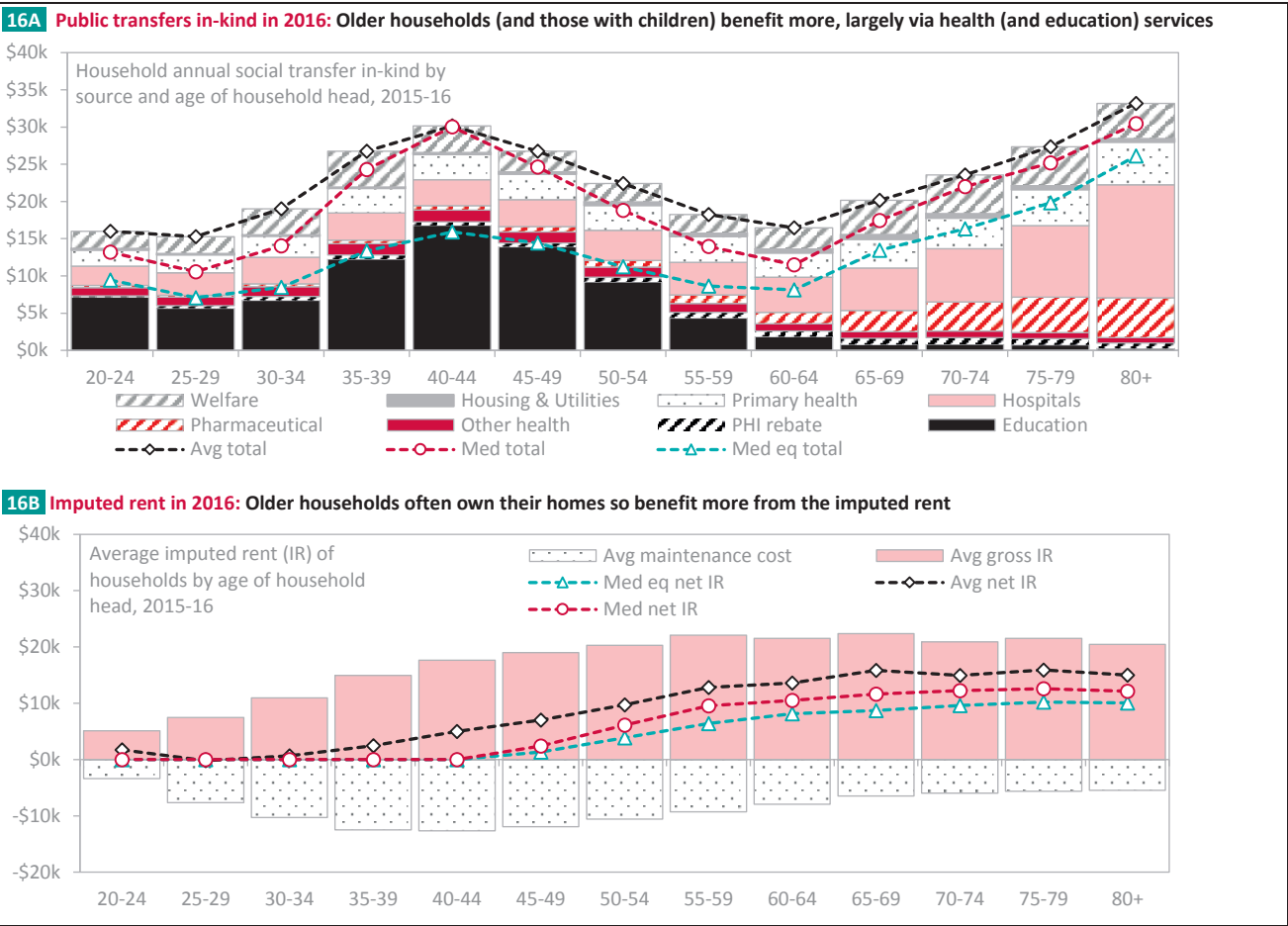
Public transfers in-kind

In addition to cash payments, many households receive in-kind support. For example, considerable public resources are targeted at education, with a high level of in-kind support provided to families of child-rearing age. Unsurprisingly, this hump in middle-age is less pronounced if we take account of these households being made up of more people (i.e., see equivalised line). At later ages, Australians benefit from subsidised primary health and pharmaceuticals, with per capita hospital benefits increasing substantially among the oldest old.

Imputed rent

Another benefit not directly captured in income statistics, particularly for older households, is the value of living in one’s own house. Household imputed rent – the rent a home owner would pay to live in their own house – tends to increase with age, gradually levelling out after about age 50.

RESOURCES OVER THE LIFECYCLE – MORE THAN JUST CASH



Note: PHI denotes Private Health Insurance. Source: ABS (2018).

Consumption

How much one spends and consumes is often a better measure of living standards than income or wealth since it captures how all resources over the long term, including any informal family transfers or the spending of capital, contribute to standards of living (see Box 5). Trends in consumption expenditure show that it peaks on average around age 50 then declines throughout retirement (Figure 17A).

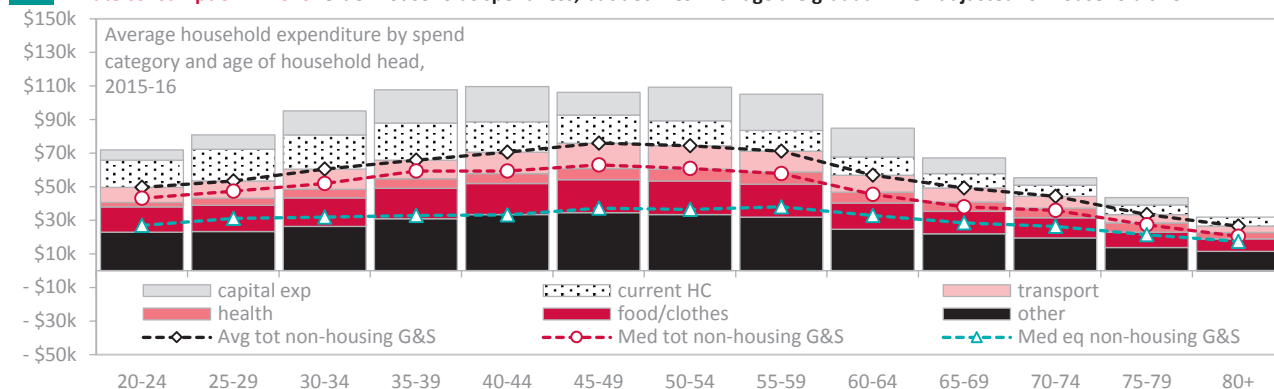
Comparing changes over the decade shows that on average all age groups have seen higher consumption in real terms, though some had small increases when adjusted for household size. Age groups between 55 and 70 saved more (shown as capital spend) than people in those age groups that came before them, while health expenditure increased considerably in the age group 70-74, compared to the previous cohort of that age. As a proportion of

household consumption, spending on health increases with age. Figure 17B shows that older people today tend to spend more and save more than the generations before them. It is therefore important to look at changes by following pseudo-cohorts over time.

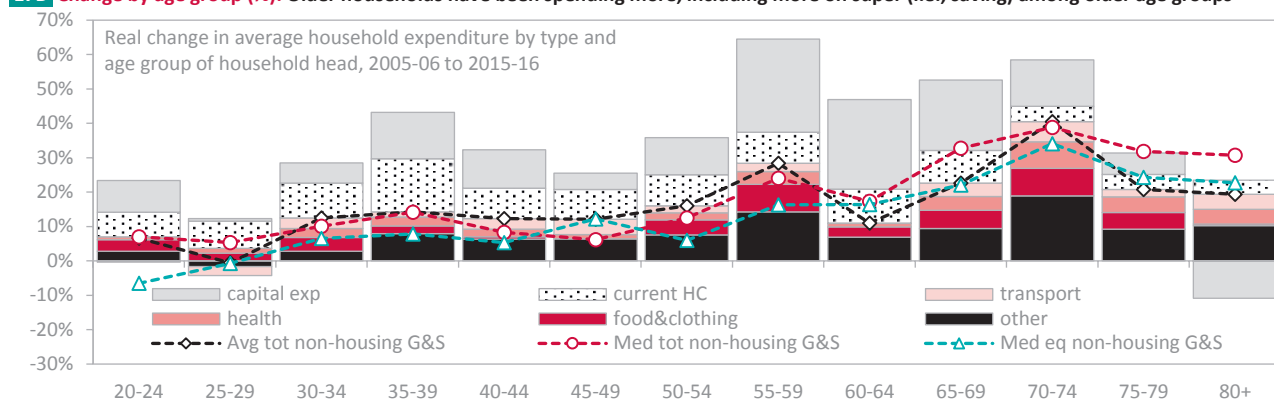
Figures 17C and 17D show changes in consumption patterns of cohorts over the decade. Consumption tends to increase for younger cohorts and declines for older ones after age 60. For example, households headed by someone who was in their early 50s in 2006 and early 60s in 2016 saw real declines in consumption of about 4%, adjusted for household size. Those with household heads that crossed the age threshold of 65 over that period, saw a real drop in consumption of 13%. Much of that decline was due to lower spending on transport, food, and clothing. Notably, average households during the period have continued to save in old age.

CONSUMPTION OVER THE LIFECYCLE

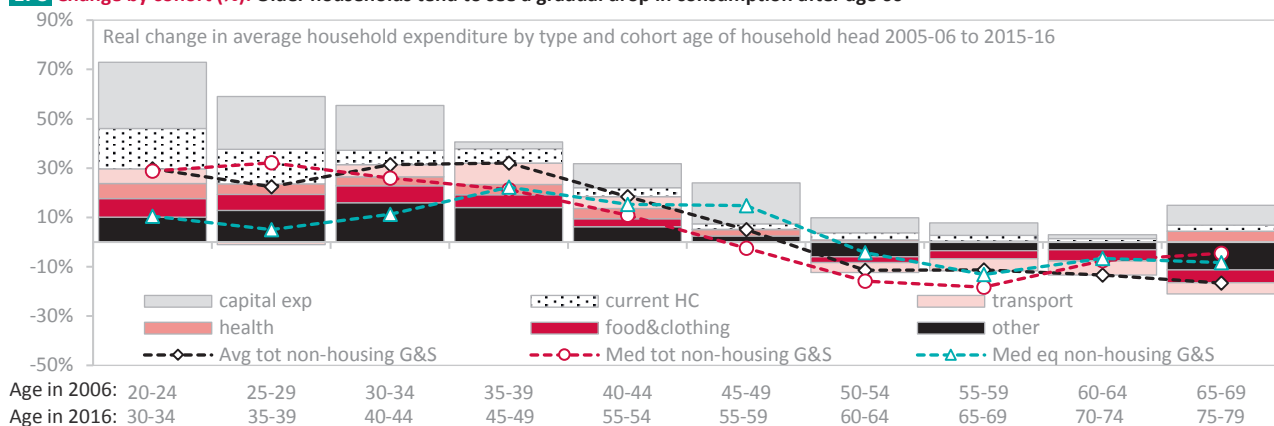
17A Private consumption in 2016: Older households spend less, but declines with age are gradual when adjusted for household size



17B Change by age group (%): Older households have been spending more, including more on super (i.e., saving) among older age groups



17C Change by cohort (%): Older households tend to see a gradual drop in consumption after age 60



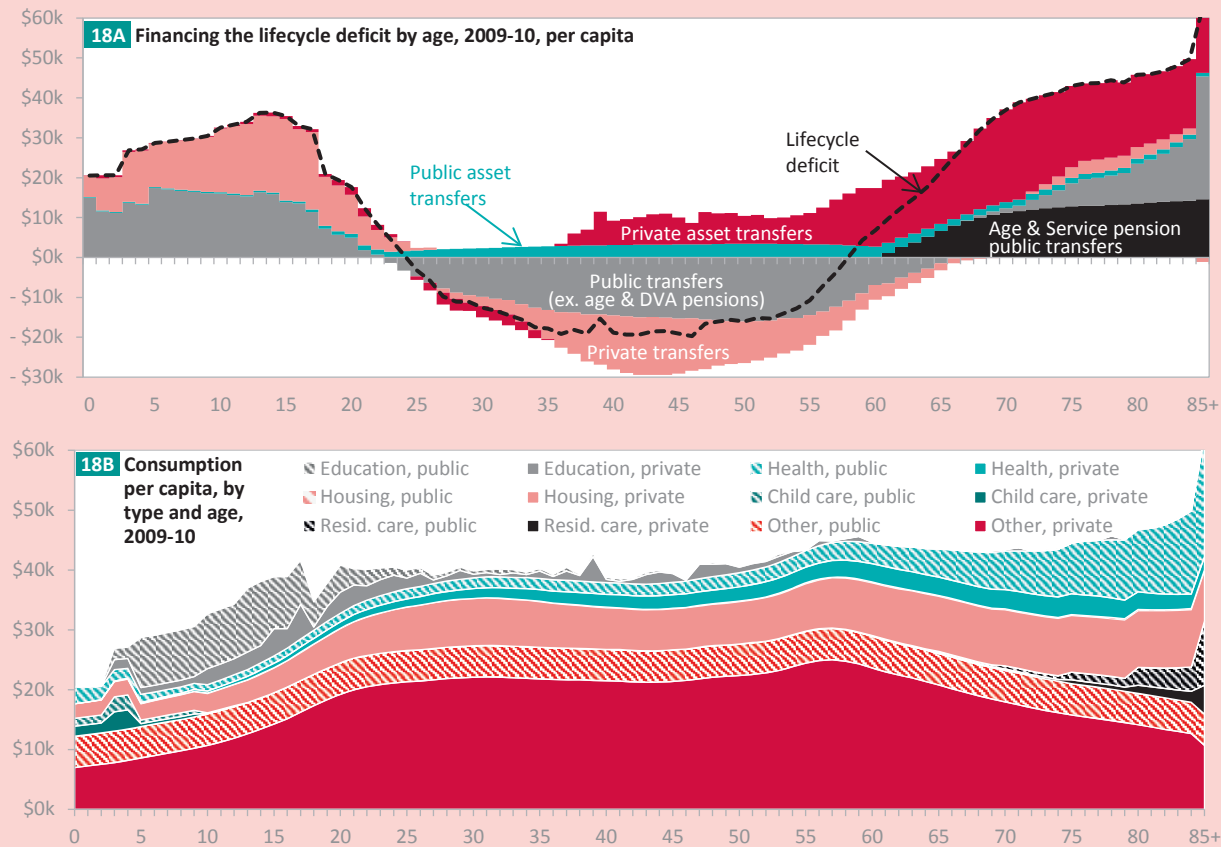
Note: HC denotes housing costs (i.e., principal mortgage repayments, super and life insurance, and other capital housing costs); G&S denotes goods & services; Unit of analysis is household; figures in real 2016 dollars. Source: ABS (2018).

These aggregate figures give an indication of the levels and changes in resources of people coming into retirement, but some items remain excluded from analysis. For example, even though we highlight in-kind transfers and imputed rent, other unmonetised transfers are missing. Many retirees provide care for and/or receive care from their family. A study of intergenerational transfer of money and time in 10 European countries by Albertini, Kohli and Vogel (2007) concluded that the downward flow of support (retired parents to their adult children) tends to be greater than the upward flow (adults to their retired parents). Future CEPAR research will look at this in Australia.

The figures also don't capture what is sometimes known as the 'retirement satisfaction puzzle'. Income and wealth trend downward in retirement, but studies such as that by Bradbury and Mendolia (2012) show that retirees become more, not less, satisfied with their finances as they get older. They often report a higher standard of living and less hardship perhaps because of changes in outlook, needs, and greater home production. The causes of these perception shifts are unknown, but it has been proposed to be largely a result of adapting to new circumstances, and the effects of their peer group experiencing the same shifts. It's unclear if baby boomers will be as satisfied with declining consumption as previous generations were.

Box 5 CEPAR research spotlight How different resources fund consumption by age

How much do people earn, save and share resources at each age? And what do these flows of resources mean for consumption over the lifecycle? CEPAR PhD student James Mahmud Rice, Associate Professor Jeromey Temple, and Chief Investigator Peter McDonald (2017), used National Transfer Accounts (NTA) methodology to answer these questions for Australia. They demonstrate that consumption is most commonly funded by one's own labour income. But in youth and in old age, consumption exceeds labour income, creating what NTA methodology defines as a *lifecycle deficit*. The NTA methodology allows for per-capita comparisons by age and also aggregate analyses to gauge the impact of population ageing (i.e., holding per-capita cross-sectional profiles constant but projecting increases in older age groups versus younger ones).



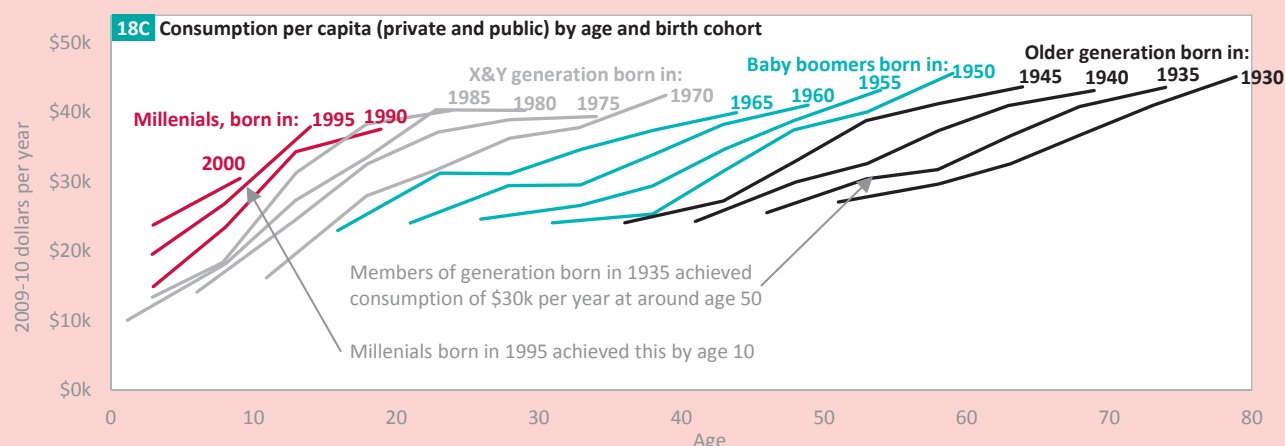
Note: DVA denotes Department of Veteran Affairs. Source: Adapted from Rice et al. (2014).

Box 5 continued...

Per capita results are shown in Figure 18A. The lifecycle surplus turns into a deficit at age 58 (up from 57 in 2004). Beyond this point, the deficit is mostly made up by government transfers and private investment and dissaving. Net private transfers in old age are small, unlike transfers from working-age adults to children. It is not until age 71 that older people receive more from their family than they give (down from 75 in 2004). Public asset transfers represent a government budget surplus in 2010, shown as an inflow.

Consumption is analysed by type (e.g., education, health, housing, child care and aged care) and sector (i.e., private or public, depending who funds it). The most remarkable change as people age is the increase in public health and public and private aged care expenditure. Consumption of residential aged care starts increasing after age 60 and ramps up significantly after 75. The analysis fosters a broader understanding of resources and consumption over the lifecycle and can be extended to look at aggregate changes.

Rice, Temple, and McDonald (2017) extend this analysis to different years, which allows for a better understanding of cohort trends (in contrast to a cross-sectional view). For example, looking at both private spending and public spending by age by cohort reveals constantly rising trajectories of total consumption, where each generation of Australians has benefited from economic growth. For example, the generation born in 1935 achieved consumption of \$30,000 (in 2009-10 dollars) at around age 50, Millennials born in 1995 achieved this level by age 10 (Figure 18C).



Source: Adapted from Rice et al. (2017).

8. Labour market context

To help contextualise retirement incomes it's helpful to touch briefly on the labour market environment in which people accumulate savings and from which they retire (Brief 2 covers labour force participation as it interacts with pension eligibility). So, what do mature-age labour market trends look like?

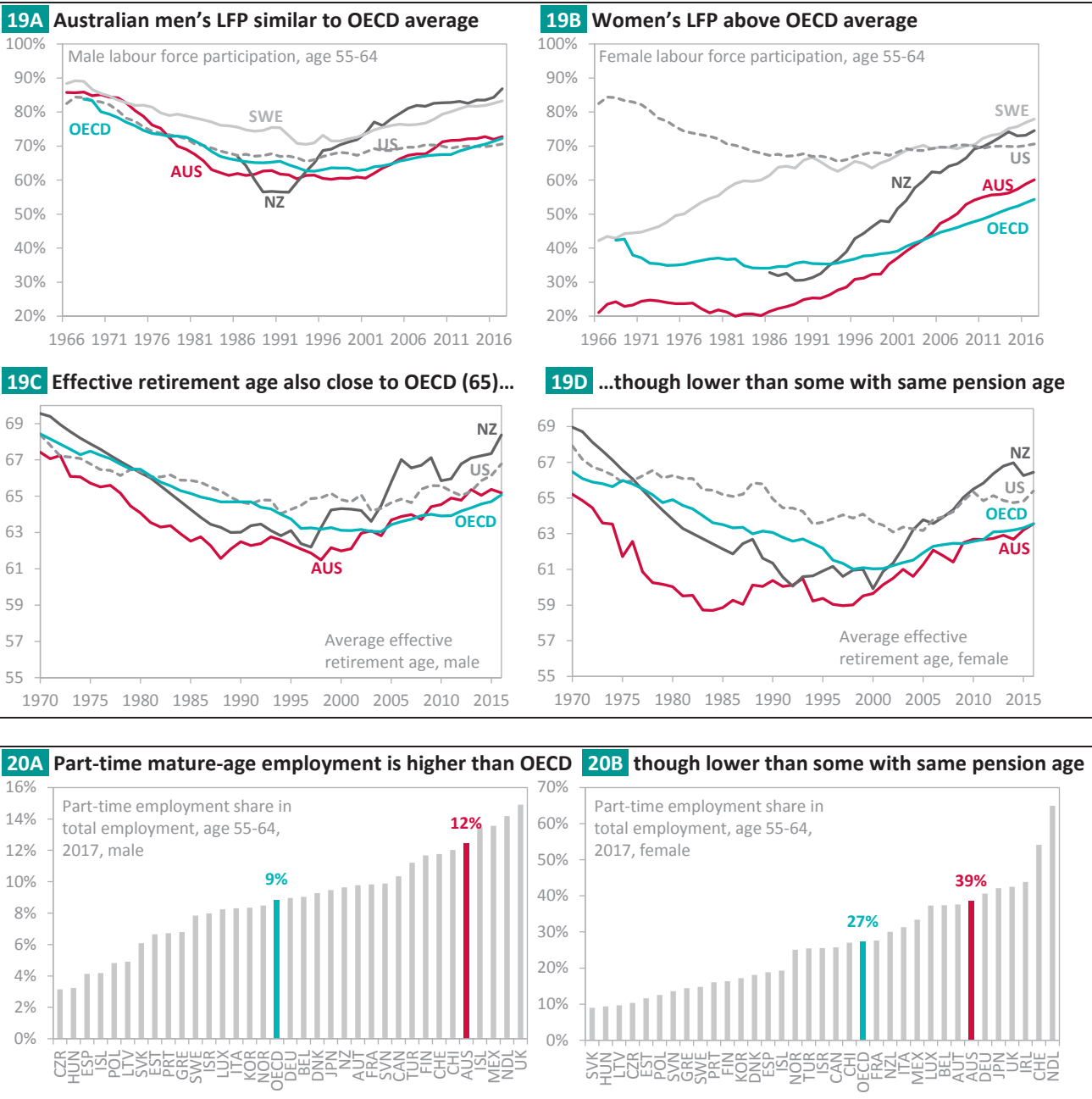
The mature age labour force participation of Australians (aged 55-64) is close to the OECD average. The rates trail nations like Sweden and New Zealand by over 10 percentage points but have increased in Australia faster than the OECD average (Figures 19A-19B). The drivers of declines and increases include: (1) structural / economic (e.g., fewer manufacturing and economic shocks); (2) social / human capital (e.g., role of women, higher education); (3) demographic (e.g., healthy life expectancy increases); and (4) policy factors (e.g., pension age; Chomik and Piggott 2012).

Similarly, Australian effective retirement ages are also in line with the OECD average (63.6 for women and 65.1 for men, Figures 19C and 19D). But again, these are lower than countries such as New Zealand – which has a pension that creates few disincentives to employment (Chomik and Piggott 2012).

Recent measures to support older people at work include the *Pension Work Bonus* that disregards earnings in the Age Pension means test (see Brief 2, Section 3) and an expanded access to the \$10,000 *Restart* program, which subsidises businesses to hire mature age workers (the program has seen low take up in the past).

Older Australians who stay in work are more likely to work part time than the OECD average (Figures 20A and 20B). Surveys on retirement intentions suggest this is likely to continue: 37% of those planning to retire intend to work part-time before retiring entirely (ABS 2017b). Qu and de Vaus (2015) found that, while those who were unemployed saw large gains in life satisfaction after retiring, those working part-time had higher overall life satisfaction both prior to and after retirement.

LABOUR MARKET TRENDS



Note: Effective retirement ages are the average labour market exit age. Source: OECD (2018).

Box 6 CEPAR research spotlight Work and retirement

Why, how, and when people retire has implications for retirement income policies. CEPAR research into the psychology, sociology and economics of retirement highlights that many policy options exist to increase labour force participation quite aside from setting a higher pension eligibility age (see Brief 2).

Associate Investigator Kate O'Loughlin and the late Chief Investigator Hal Kendig found age discrimination to be persistent in Australia, reducing opportunities and creating barriers to individuals working longer (O'Loughlin et al. 2017).

There is a high association between health issues and labour market exits. Deputy Director Kaarin Anstey and colleagues (2006) found that early retirement was highly associated with mental health conditions. And Associate Investigator Julie Byles and colleagues (Majeed et al. 2017) found that the odds of women doing paid work in later life increased with a higher education level and decreased with poorer health and physical function. They also found that partnered women were less likely to work than unpartnered women in later life. Targeting work incentives for partnered women also has an additional spillover effect: the decision of women to work causally impacts their mature aged male partners' own work habits (Mavromaras and Zhu 2013).

Hal Kendig highlighted that voluntary retirement is important for late life happiness. Those who leave paid work of their own volition do not experience the distress and drop in satisfaction those forced to leave do, even in the presence of increased welfare dependency and declining health (Gong and Kendig 2017). This finding suggests efforts to encourage older age labour force participation from the demand side (the employers) will be positive, both for the economy and the workers. The value of demand side policies is reinforced by work from Associate Investigators Fedor Iskhakov and Erik Hernaes (2006), who explored whether individuals who are eligible to retire early are pushed out of the workplace or retire voluntarily due to the economic incentives. Using a Norwegian data set they found that the 'push' factors are important determinants of retirement, especially for women, and especially in the years when the pension eligibility age was reduced in Norway.

Partner Investigator Olivia S. Mitchell and her colleagues explored how the design of the Social Security system in the US could better incentivise continued work. They find that people would voluntarily work for longer if they were offered an actuarially fair lump sum instead of a delayed retirement annuity under Social Security (Maurer et al. 2017). This implies that some workers would pay payroll taxes for more years. Meanwhile, the additional work might add little to the lifetime earnings on which their Social Security benefits are based. Hence the overall solvency of the system could be enhanced.

Another study Mitchell was involved in (Brown, Kapteyn and Mitchell 2013) shows that the impact of framing on financial decisions (see Brief 3), also applies to decisions regarding retirement and Social Security. Their research suggests the traditional emphasis on *breakeven analysis* in the US may have encouraged workers to claim benefits earlier than they otherwise would have, given information presented in a different frame.

Back in an Australian context, Senior Research Fellow George Kudrna, and Chief Investigator Alan Woodland, examined the effects of labour earnings exemptions on labour supply and retirement through general equilibrium analysis of the Australian Age Pension means test (Kudrna and Woodland 2011, Kudrna 2015). They found that exemptions lead to positive impacts in terms of labour supply at older ages, without costing much in terms of increased pension expenditure (though tax incentives for older workers had only a small effect in the past; Breunig and Carter 2018).

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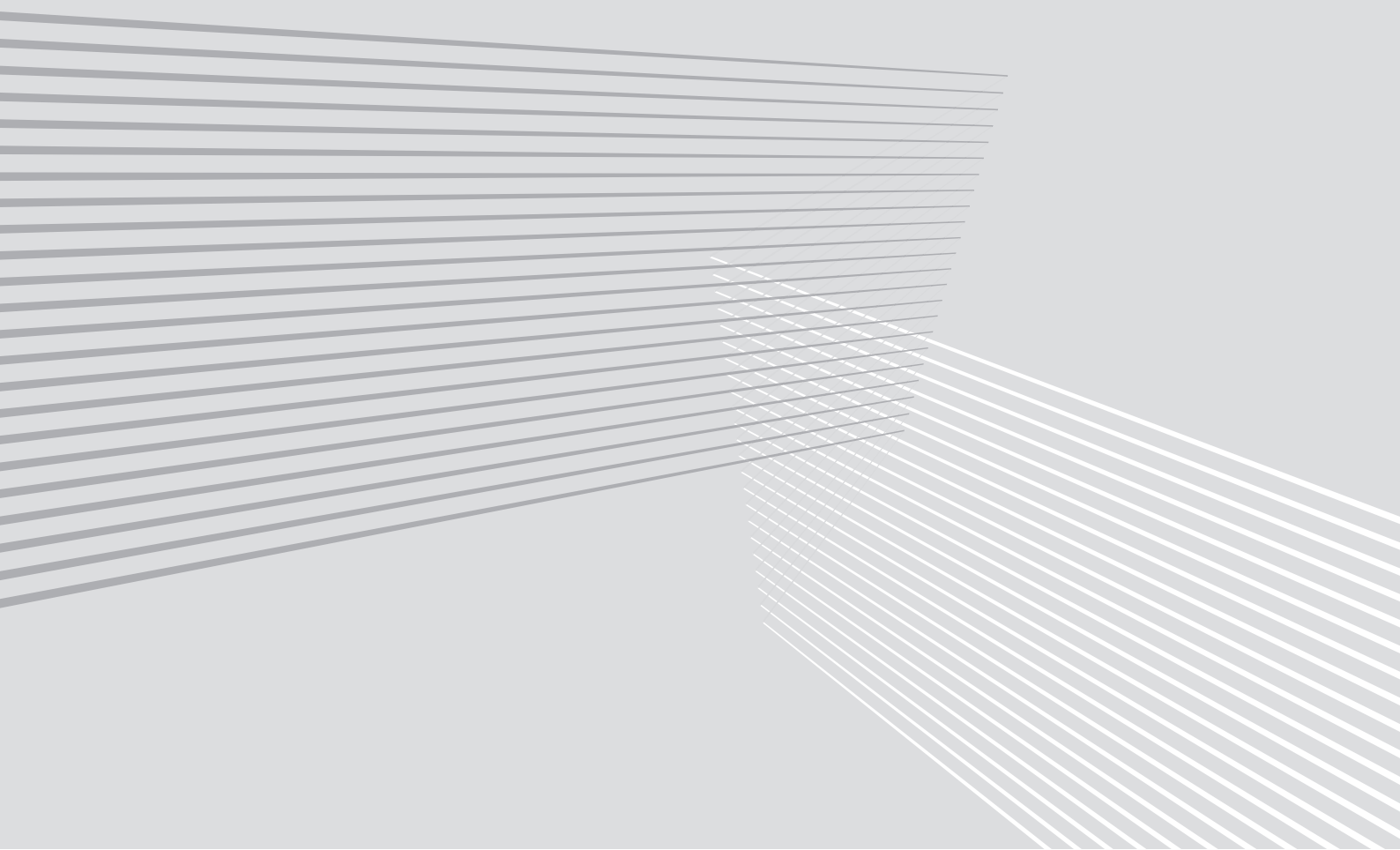
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About CEPAR

The ARC Centre of Excellence in Population Ageing Research (CEPAR) is a unique collaboration between academia, government and industry, committed to delivering solutions to one of the major economic and social challenges of the 21st century.

Funded primarily by an initial seven-year grant from the Australian Research Council (ARC), with generous support from the collaborating universities and partner organisations, the Centre was established in March 2011 to undertake high impact independent multidisciplinary research and build research capacity in the field of population ageing.

Renewed funding awarded for an additional seven-year term from 2017-2023 supports an exciting new research program which will deliver comprehensive outcomes with the potential to secure Australia's future as a well-informed nation with world-best policy and practice for an ageing demographic.

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