

Superannuation in the post- retirement phase: the search for a comprehensive income product for retirement

July 2015

An independent report prepared for AIST by the Australian Centre for Financial Studies. This report was written by Professor Deborah Ralston and Eliana Maddock.

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Executive Summary

The Australian superannuation system will not reach maturity until the mid-2030s, when those on the point of retirement will have enjoyed the benefits of compulsory superannuation savings for their full working lives. Until very recently, the focus in superannuation has been on the accumulation phase, but with the maturing of the system and increased longevity across the population, concerns have shifted more directly to how the superannuation system might better provide for citizens in the post-retirement phase.

This is a particular issue within the primarily 'defined contribution' (DC) Australian system. For consumers, the DC system requires a number of decisions at the point of retirement, such as lump sum or income stream options, and in the case of the latter, investment and product choice, and draw down options. It is increasingly acknowledged that most retirees do not have an adequate level of financial literacy, or engagement to make an optimal decision about how to do this (Agnew, Bateman, and Thorp 2012).

Recognising the need to assist retirees in their product choices, the 2014 Financial System Inquiry (FSI) recommended that:

Government should require superannuation fund trustees to pre-select an option for members to receive their superannuation benefits in retirement. Details of the pre-selected option would be communicated to the member during their working life. At retirement, the member would either give their authority to commence the pre-selected option or elect to take their benefits in another way ... The pre-selected option should be a comprehensive income product for retirement (CIPR) that has minimum features determined by Government. These features should include a regular and stable income stream, longevity risk management and flexibility. (The Australian Government the Treasury 2014c, p 117)

For trustees, the first step in identifying such retirement income solutions lies in developing a detailed knowledge of fund members' financial profiles. These can be diverse and include not only different superannuation balances at retirement, but variations in life expectancy and Age Pension entitlements, including marital status, home ownership, and other assets. Retirees will also have different expectations concerning their standard of living in retirement, based around their lifestyle prior to retirement. There is obviously no 'one size fits all' solution.

Second, in designing an appropriate comprehensive income product for retirement (CIPR) for members, trustees should have in mind three key parameters. These include the need for an adequate level of retirement income, flexibility to draw down capital for unexpected needs, and the need to manage the main risks to retirement income streams, that is:

- longevity risk where a retiree can outlive retirement savings;
- market risk where variations in the value of retirement savings occur due to fluctuations in investment markets, and
- inflation risk which occurs when price increases reduce the purchasing power of retirement savings.

Accordingly, to assist trustees in understanding these issues, this report models likely retirement

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income solutions for six different cohorts: typical retirees with balances of \$100 000, \$250 000 and a couple with combined balance of \$350 000; a non-home owner retiree with a balance of \$100 000 at risk of financial hardship; a wealthier retiree with a balance of \$500 000; and a retiree who faces a significant health risk.

It examines the success of five different product combinations for each of these cohorts: 100 per cent of superannuation balance invested in either an account-based pension (ABP) or an immediate lifetime annuity (ILA); three combinations of these products; and a combination of ABP and a deferred lifetime annuity (DLA).

Income from ABPs is drawn down using either of two strategies: the minimum mandated withdrawal¹ as prescribed in the legislation only; or withdrawals made to meet the retiree's annual income target² (including income from annuities, the Age Pension and rent assistance), and satisfy legislated requirement. The latter drawdown method is included as minimum drawdown strategies have generally been shown to provide an inadequate level of retirement income, especially in the earlier, active stage of retirement (65 to 74 years) (Wu et al. 2015). While there are a number of higher drawdown strategies proposed at the current time, the method chosen comprises either a low threshold (ASFA modest income standard plus applicable rental costs) to cover 'essentials' or a target income level (ASFA modest income standard plus applicable rental costs, plus 5 per cent of super balance at retirement) to afford 'extras' (Mercer 2015b). This framework has an element of capital depletion, and implies that retirement income needs are subjective and will depend on the wealth of the retiree, particularly for non-essential items.

Detailed analysis of these cohorts and product solutions is contained in section 5 of this report. On the basis of this analysis there are a number of important points that can provide guidance to trustees on how to assist members to make better choices in retirement through the following:

1. Provision of information to members

Research shows that presenting superannuation in a consumption frame is more likely to move members to purchase retirement income products (Brown et al. 2008; Brown et al. 2013). This is consistent with recommendation 37 from the FSI which advises:

Publish retirement income projections on member statements from defined contribution superannuation schemes using Australian Securities and Investments Commission (ASIC) regulatory guidance.

Facilitate access to consolidated superannuation information from the Australian Taxation Office to use with ASIC's and superannuation funds' retirement income projection calculators. (The Australian Government the Treasury 2014c, p 267)

Given that around 70 per cent of retirees draw some income from the Age Pension, it is also important to provide members with a capacity to assess their potential eligibility for income from this source as well as retirement income products purchased from superannuation savings; directing members to calculators such as ASIC's Retirement planning tool can be especially valuable.

¹ A given percentage of the account balance, based on the retiree's age (Section 3.3 2).

² The ASFA modest income standard (based on marital status and age), rental costs and 5 per cent of superannuation balance at retirement.

2. Identifying a comprehensive income product for retirement as a default

For superannuation fund trustees, the forgoing analysis highlights key aspects in considering some form of default CIPR. Ideally, trustees would have a detailed knowledge of their fund's member demographic and offer a default CIPR based on this information. Where these details are unknown trustees will have to make assumptions based what they do know of their members. A summary of the modelling undertaken in section 5 is shown Appendix 1.

Typical retirees: This cohort includes retirees with 'average' characteristics. It comprises a man and woman with superannuation balances near the national average (\$197 000 for men and \$105 000 for women aged 60-64 in 2011-12)(ASFA 2014a). This cohort are homeowners, representing the majority of retirees (80 per cent of people aged 65-69)(ABS 2013b). As well as representing typical men and women individually this cohort includes a married couple with combined superannuation savings of \$350 000. As most retirees are married (64 per cent of people aged 65-69) this cohort represents the largest group of retirees (ABS 2015, 04). In this study the 'typical retiree' is represented by the following cohorts:

- Susan, a single woman retiring with \$100 000 superannuation who owns her own home
- Martin, a single man retiring with \$250 000 superannuation who owns his own home
- Anna and James, a couple with \$350 000 superannuation who own their own home.

For each of these cohorts income from superannuation is a supplement to the Age Pension (assuming the individuals have few assets outside their homes and superannuation balances). They achieve an optimal outcome by investing 100 per cent of their superannuation in an ABP, and drawing down sufficient funds to ensure their total income from Age Pension and ABP meets an adequate income level each year (defined as equivalent to the ASFA modest standard plus 5 per cent of their superannuation balance). For Susan this is \$28 489, Martin's target is \$35 989, and the couple Anna and James an adequate income is \$51 284 (2015 dollars). In the earlier years of retirement (until approximately age 75) this means drawing down more than the minimum required amount from their ABPs. By this means the 'typical' retirees are able to achieve an adequate level of income in all 25 years through to 90. This strategy also allows the retirees to maximise their flexible access to capital through their retirement years, with the Age Pension providing a measure of longevity risk protection. While Susan is on a full pension throughout, Martin will be eligible for the full pension by age 88, and Anna and James by age 84.

A retiree at risk of economic hardship: A key element of the retirement income system (incorporating superannuation, the Age Pension and private savings) is its ability to reduce the risk of economic hardship³ among older Australians. This cohort represents the demographic most at risk of financial hardship in retirement: a person living alone requires a higher income to achieve the same standard of living as a member of a cohabitating couple; women expect to live longer and thus need a higher total retirement income than men; retirees who do not own their homes require additional income to cover their housing costs. Further, this cohort has a relatively low superannuation balance

³Economic wellbeing is multi-faceted and incorporates income (including imputed rent and social transfers in kind), economic resources and consumption expenditure. Households facing economic hardship generally have low levels of income and/ or wealth, experience financial stress and are unable to afford common goods and services for an ongoing period of time (ABS 2013a).

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at retirement (\$100 000). This cohort represents an important minority of Australian retirees; approximately 15 per cent of people aged 65-74 rent their homes and 32 per cent aged 65-69 are unmarried (ABS 2013b; ABS 2015, 04). It is likely, however, that the stated superannuation balance is overly generous. In 2011-12, 59 per cent of women aged 60-64 had superannuation balances of \$100 000 or less (ASFA 2014a). Retirees at risk of economic hardship are represented by:

- Denise, a single woman retiring with \$100 000 superannuation who does not own her own home but is renting her accommodation.

For Denise, her superannuation balance will provide a very welcome supplement to the full Age Pension, especially with respect to the cost of accommodation. It is unlikely that the government's Rent Assistance for a non-home owner of \$3338 per annum will cover market rent, and indeed, the average rental cost for a single person in 2015, is likely to be closer to \$8 946 per annum, based on ABS estimates (ABS 2013). Consequently, an adequate income for Denise was defined as the ASFA modest income standard plus \$8 946, a total of \$32 435 per annum (2015 dollars). This was drawn annual from a combination of the Age Pension, Rent Assistance and her ABP. Investing 100 per cent of her superannuation balance into an ABP and drawing down at this rate to age 74 (then reverting to the minimum drawdown rate) will allow Denise to achieve an adequate income level for all 25 years through to the age of 90. This strategy also allows Denise to maximise her flexible access to capital as she will have a balance of \$48 101 available to her at age 90. Should she live beyond 90, as over half of her cohort is expected to do, this balance on her ABP will provide an income stream to supplement her Age Pension if she continues to live independently, or assist with costs of age care or ill health. As she remains on an Age Pension throughout, this also provides a measure of longevity risk protection.

A wealthier retiree: The next cohort represents relatively wealthy retirees. Currently, around 9 per cent of people aged 60-64 have superannuation balances of \$500 000 or higher. Men are significantly more likely to have high superannuation balances than women, however, one in eight men aged 60-64 had at least \$500 000 in superannuation, compared to one in twenty women in 2011-12 (ASFA 2015b). As the superannuation system matures and retiring workers have made superannuation contributions throughout their entire working lives average superannuation balances are expected to increase and this cohort is expected to become more representative. This cohort typically owns their own homes, resulting in relatively low income needs in retirement. In this study wealthier retirees are represented by:

- Terry, a single man retiring with \$500 000 superannuation who owns his own home

Terry's target annual income in 2015 dollars is \$48 489 (ASFA modest income standard plus 5 per cent of his superannuation balance at retirement). This should be sufficient to cover both his 'essentials' and desired 'extras'. Terry is unable to achieve his income target every year under any investment combination if he relies on the minimum drawdown rates each year. If he draws down a higher level of income from his ABP he can achieve his income target each year from a number of product combinations. In the modelling Terry is assumed to be eligible for a part Age Pension, as he has no assets outside of his superannuation and home (as there are no reliable figures in this regard). Given that income from the Age Pension is likely the lesser part of his income, investing 25 percent of his superannuation balance on retirement in an ILA and 75 per cent in an ABP will ensure

he has longevity risk protection. This will guaranteed an income of \$6504 per annum from the ILA, although it will reduce the capital he has available at age 90 to \$ 67 639 (2015 dollars).

A retiree who experiences a major, unexpected health event: A minority of retirees will have a significant health or accommodation cost in retirement. Of Australians aged 65 years, one in three men and one in two women will require residential care at some point (CEPAR 2014a, p 10). This can come at a significant personal expense. This cohort is represented by a well-off retiree who experiences a large, unexpected health cost at age 80.

- Mario, a single man retiring with \$500 000 superannuation who owns his own home and suffers ill health.

Mario's situation is very similar to that of Terry, retiring with a superannuation balance of \$500 000, and also owning his own home. Mario's target income is \$48 489 each year (ASFA modest income standard plus 5 per cent of his superannuation balance at retirement). Unlike the other cohorts who have relatively constant income needs through retirement Mario incurs an unexpected health expense at age 80. This cost is estimated at \$80 000 based on the average cost of a bed in a high-care aged facility (Drew, Walk, and Wes 2014, p 5).

Provided that Mario has few assets outside his superannuation and home he is likely to receive a part pension, but may wish to annuitise some of his balance on retirement to provide for longevity risk protection. He therefore invests \$375 000 in an ABP which returns 6.5 per cent annually and \$125 000 in an ILA which pays \$6 504 annually (2015 dollars). At age 80 has an additional, one-off health or aged-care expense of \$80 000. Assuming he makes withdrawals at the higher rate he can afford this health expense and meet his income target (\$48 489) until age 86 through a combination of the Age Pension and his ABP. After this point his savings are exhausted, however he will still receive income from the Age Pension and his ILA.

3. Advice on drawing down income

The third opportunity for trustees to improve retirement outcomes for their members is by advising them on how to draw down income. Currently, fears of outliving their savings seem to cause retirees to withdraw income very conservatively. Although exact figures on drawdown rates are not known, the majority of retirees appear to withdraw income from their ABP at the minimum rate (Australian Government Actuary 2014a). This rate was designed to provide a reasonably level income pattern with no risk of outliving savings. On average a man retiring at 65, investing in an ABP and using the minimum withdrawal rates will use on 69 per cent of his savings over his lifetime (Australian Government Actuary 2014a). A recent study by Wu et al (2015) found a median retiree had, at death, wealth equivalent to 90 per cent of their wealth at retirement (that is, they consumed only 10 per cent of their assets through retirement). The study further noted none of the couples observed had an annual income above the ASFA comfortable standard and only the top two quintiles had an income level above even the modest standard.

When trustees shift from publishing a projected lump sum to retirement consumption on member statement they will publish the income that can be withdrawn so that the account lasts until a given

date.⁴ Further guidance showing the expected level of income that can be achieved (and therefore the withdrawals a retiree may choose to make) each year may encourage retirees to increase their level of retirement income and improve their quality of life.

From the ensuing modelling it would appear that a higher drawdown rate is necessary, at least in the early years of retirement, to provide an adequate income for those cohorts retiring on lower superannuation balances.

Summary

As this discussion demonstrates, the financial position and experience of retirees is diverse. Developing a default CIPR is therefore a challenging task.

Income streams from superannuation balances cannot be considered in isolation. Typical retirees with superannuation balances of \$250 000 or less are likely to be either full or part recipients of the Age Pension, which to a large extent provides a form of longevity insurance. These cohorts are more likely to invest 100 per cent of their balance in an ABP to ensure an adequate income and maximise flexible access to capital. Retirees on higher balances of \$500 000, are more likely to need to annuitise part of their retirement balance, to protect against, market, inflation and longevity risk.

It should be noted that while the modelling of cohorts takes into account income from the Age Pension and various product combinations, it is assumed that retirees have no significant assets outside their superannuation and home. As mentioned earlier, there is a diverse range of experience in the financial profile of retirees, and trustees need to recognise that it may be in the interests of such retirees to opt out of any recommended default.

The modelling also assumes returns on retirement income products at existing market rates, that is 6.5 per cent (nominal) return on ABP and annuities priced at 2015 rates. Given these existing market rates, and the adverse impact of a one off purchase of an annuity in a low interest rate environment, there is an inherent bias towards ABP. This is of particular concern given the expectation of lower superannuation returns over the foreseeable future.

⁴ For example, the ASIC Retirement Planner shows the level of annual income that can be achieved from the Age Pension and superannuation, assuming superannuation savings are depleted by age 90. After this point the retiree will rely on income from the Age Pension alone (ASIC 2015).

In brief ...

1. Trustees of superannuation funds can't think of superannuation and income in retirement without taking the Age Pension into account

Both trustees of superannuation funds and the average retiree cannot think about retirement income without taking the age pension into account.

2. A Comprehensive Income Product for Retirement (CIPR) is a good idea but difficult to implement – guidance is needed

The *Financial System Inquiry Final Report* recommended that superannuation trustees pre-select a CIPR. More recently, the Productivity Commission report *Superannuation Policy for Post-Retirement* noted that 'given the diversity of retirees, preparation for soft defaults would be a significant undertaking. Designing appropriate defaults when there is such diversity necessitates a thorough understanding of people's superannuation balances, other assets, debts, as well as their personal needs in retirement.'

In this report, we examine that while there is diversity amongst retirees, there is also some commonality which would enable a post retirement default to be developed.

3. Trustees need to know the demographic of their membership – flexibility for funds is important

There is a wide diversity of memberships and their retirement needs. This means that trustees would need to take into account the demographics of their membership in setting any default for post retirees. It may be that there is more than one default for post retirees within a superannuation fund. Given that the choice of post retirement investment default and product is so dependent on each fund's membership, trustees need flexibility to determine what best suits as a default.

4. Account-Based Pensions appear to be most appropriate for members on lower balances

Generally, those with lower account balances suit an account-based pension style of retirement income product. This report also demonstrates that even those with low account balances have a better standard of living in retirement through their superannuation savings.

5. Those with higher superannuation balances could benefit from taking a part annuity

In examining various cohorts of members, those with higher account balances might benefit from taking part of their benefit as an annuity to manage longevity risk.

6. An easy transition into the pension phase is needed

Those members in the superannuation accumulation phase need an easy transition into the retirement phase. Trustees of superannuation funds can assist with this transition through:

- providing information to members using a 'consumption frame'
- identifying a CIPR, taking into account the demographics of the fund
- advising members on how to draw down retirement income.

1. Introduction

The Australian superannuation system will not reach maturity until the mid-2030s, at which time those on the point of retirement will have enjoyed the benefits of compulsory superannuation savings for the full length of their working life. Until very recently, the focus in superannuation has been on the accumulation phase, and specifically on investment choices, fees and rates of return.

However, as the recent *Intergenerational Report* indicated, longevity in Australia has increased substantially over recent decades (The Commonwealth of Australia 2015, p 65). As a consequence, concerns have shifted more directly to how the superannuation system might better provide for citizens in the post-retirement phase. Not only would retirees benefit from a better standard of living, but a system which supports more self-reliant retirees will also reduce pressure on the public purse from the Age Pension and the health and accommodation costs of older Australians.

This issue was recently examined at some length in the Financial System Inquiry (FSI), and the final report recommended that superannuation trustees should:

... pre-select an option for members to receive their superannuation benefits in retirement. Details of the pre-selected option would be communicated to the member during their working life. At retirement, the member would either give their authority to commence the pre-selected option or elect to take their benefits in another way ... The pre-selected option should be a comprehensive income product for retirement (CIPR) that has minimum features determined by Government. These features should include a regular and stable income stream, longevity risk management and flexibility .(The Australian Government the Treasury 2014c, p 117)

For trustees of superannuation funds this presents a significant challenge, and requires a detailed knowledge of the demographics and needs of fund members, and a good understanding of how all three pillars of the retirement system interact: that is the Age Pension, superannuation and private savings.

Trustees also need to factor in other potential public policy changes that may occur as a result of the forthcoming Tax Review, and the Welfare Review which will be undertaken at the Federal level over the coming year.

This project assesses the current state of the post-retirement phase of superannuation including which products are available for retirees, how current products on the market service the needs of retirees, the risks to which many retirees are exposed, and possible gaps in the market for post-retirement products. To explore the real impact for individual retirees, modelling is undertaken for different cohorts of retirees to determine how effectively the current product range services their needs and assists Australians to enjoy a comfortable retirement.

The project examines policy options raised in the FSI's final report and assess what these mean for superannuation funds in terms of threats and opportunities.

Strategies trustees can use to assist members in achieving better superannuation outcomes are also discussed, including an exploration of behavioural biases and the potential for 'nudging'. The trade-offs associated with annuitisation are also explored.

2. Superannuation in the post-retirement phase

In 1992 the Superannuation Guarantee mandated compulsory superannuation for all employees (The Australian Government 2009). While there is some ambiguity about the objectives of the Australian superannuation system its primary goal is broadly understood to be providing a retirement income to supplement or replace the Age Pension (box 1). As superannuation coverage and the size of superannuation assets have grown over the past twenty years, focus on the superannuation system had been largely on the accumulation phase, particularly on investment choices, fees and rates of return. Increasingly however, attention is shifting to the post-retirement phase of superannuation.

Box 1: Goals of superannuation system

A common criticism of Australia's superannuation system is that it lacks a common objective and that this absence leads to ad hoc policy making – adding complexity, increasing costs for funds and members, and undermining confidence in the system. Some of the suggested goals of the system follow.

In 1992 then Treasurer, the Hon John Dawkins MP outlined the aims of the Superannuation Guarantee:

- to provide a genuine retirement savings vehicle for most Australians
- to increase the level of superannuation savings per individual, in order to maintain a satisfactory living standard in retirement
- to provide a major extension of overall superannuation coverage in the workforce
- to provide an efficient means of encouraging employers to comply with award superannuation obligations
- to provide an orderly way to increase the level of superannuation support over time, consistent with the economy's capacity to pay
- to increase the overall national savings so as to reduce Australian reliance on the savings of foreigners to fund development.

In 2013 the Charter Group, tasked with recommending a Charter of Superannuation Adequacy and Sustainability concluded the aims of the system were to:

- provide an adequate level of retirement income
- relieve pressure on the Age Pension
- increase national savings, creating a pool of patient capital to be invested as decided by fiduciary trustees.

In 2014 the Financial System Inquiry recommended the Government 'seek broad agreement' on the primary objective of the superannuation system:

- to provide income in retirement to substitute or supplement the Age Pension.

Source: Parliament of the Commonwealth of Australia 1995, pp.3–4; The Australian Government the Treasury 2013, p 21; The Australian Government the Treasury 2014c, p 95.

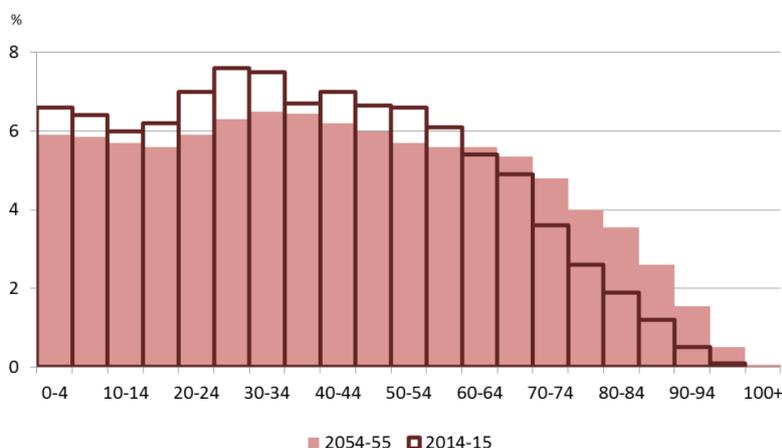
The increased focus on the post-retirement phase of superannuation has primarily been driven by changing demographics of Australian society. Although the Australian system is still acknowledged as immature, an ageing population and the retirement of the baby boomer generation means that a growing number of people are shifting from the accumulation to decumulation phase of superannuation (figure 1). This has led to increased discussion about the adequacy of superannuation to provide retirement income.

With increasing average life expectancy, older Australians will form an growing proportion of the population. A higher dependency ratio, that is a greater proportion of retirees to taxpayers, will

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make the Age Pension increasingly unsustainable and emphasize the need for greater financial self-reliance in retirement, through superannuation and private savings.

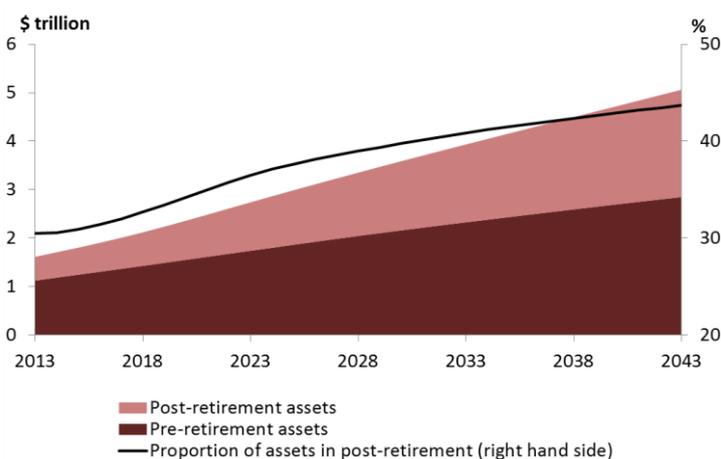
Figure 1: Proportion of the Australian population in different age groups in 2014-15 and 2054-55 as a percentage of the total population



Source: *The Commonwealth of Australia 2015*, p 14.

The scale of the post-retirement superannuation sector is large and is expected to increase dramatically over the next thirty years. In 2013 there were 1.9 million members in the retirement phase of superannuation, accounting for approximately 30 per cent of all superannuation assets. By 2043 it is predicted that 5.4 million Australians will be in retirement, with assets totalling \$2.2 trillion – over 40 per cent of total superannuation assets (Rice Warner 2014). The growth of superannuation assets is shown in figure 2.

Figure 2: Superannuation assets in the retirement phase (2013 dollars)



Source: *The Australian Government the Treasury 2014a*, p 4:6.

With the wave of individuals moving from accumulation to the retirement phase of superannuation, attention is focusing on the way savings are being converted to incomes in retirement.

This is a particular issue within the Australian system, as it is now primarily a defined contributions (DC), rather than a defined benefits (DB) system. Consequently, superannuation savings do not

automatically transition into an income stream on retirement as they would under a DB scheme. Research from the Centre of Excellence in Population Ageing Research found that DC systems are much more complex for retirees, requiring a large number of decisions to be made including investment and product choice and draw down options. It concluded 'most retirees do not have an adequate level of financial literacy, or engagement to make an optimal decision about how to do this' (Agnew, Bateman, and Thorp 2012). Box 2 explains the key differences between the two systems.

Box 2: Defined benefits versus defined contributions

Defined benefit plans are pension benefits provided by an employer or sponsor. The employer or sponsor promises a regular income on retirement that is calculated using a combination of the employee's salary, tenure, and age. Defined Benefit levels are not directly related to investment returns. In the OECD, 18 countries have DB plans provided by the government and private occupational schemes are mandatory in the Netherlands, Switzerland and Iceland.

Defined contribution plans are those where contributions are paid into an individual account for each member. The contributions are invested and the returns on the investment are credited to the individual's account. On retirement, the balance of the account is used to support the member in retirement, sometimes through the purchase of an annuity that then provides a regular income. Defined Contributions plans are compulsory in 10 OECD countries.

Source: ASFA 2014b, p 11.

2.1 The Financial System Inquiry

Acknowledging that many retirees do not make optimal decisions when converting their superannuation savings to a retirement income, the FSI recommended all superannuation funds offer a default income product (or group of products) to their members:

Recommendation 11: Require superannuation trustees to pre-select a comprehensive income product for members' retirement. The product would commence on the member's instruction, or the member may choose to take their benefits in another way. Impediments to product development should be removed. (The Australian Government the Treasury 2014c, p 117)

The requirement for funds to offer a 'default' comprehensive income product for retirement (CIPR) is consistent with the policy approach to the accumulation phase. Around 70 per cent of employees are members of the default fund selected by their employer in the accumulation phase (Productivity Commission 2012). The requirement to offer a default product is based on the growing evidence that complex decision making at critical junctures, such as at retirement, can lead to poor outcomes for individuals (Speelman, Clark-Murphy, and Gerrans 2013; Society of Actuaries 2014). This in turn leads to poor outcomes for the community, through increased reliance on the Age Pension. Instead, the proposed default option exploits consumers' passive behavioural bias – encouraging them to choose retirement income products which manage their risk – without limiting their personal choice.

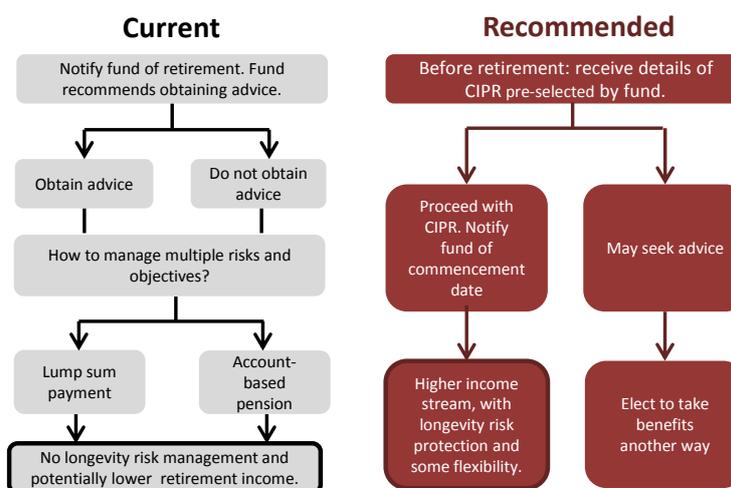
Under the proposal funds would be required to preselect a CIPR for members and, at retirement, members would have the opportunity to opt-out of this product if they desire. While Government response to the FSI Recommendation 11 has yet to be received, some features of the default CIPR may be mandated such as requirements to include an income stream, longevity risk management

and some flexibility. The FSI also recommended that the design of ‘default’ income products should vary to reflect the characteristics of each funds’ members. The report acknowledged that regulatory changes would be required to facilitate the development and uptake of certain products (for example deferred annuities).

The large-scale uptake of CIPRs could be expected to increase the level of private incomes and ensure they last through retirement, while giving retirees some flexibility to deal with unexpected expenses. Knowing they will have an enduring income stream should encourage retirees to spend more in their retirement and reduce reliance on the Age Pension. Better funded retirees would also assist GDP.

As can be seen in figure 3, the FSI proposal for a default CIPR will greatly reduce the complexity of decision-making for the majority of retirees. While under the existing system the retiree needs to seek advice at retirement, elect either a lump sum or account-based pension (ABP), and in the case of the latter, select an investment strategy, under the new proposal the retiree wishing to take advantage of the default option would simply need to advise their fund of the date of their retirement. In addition, under the FSI proposal the retiree would also be protected against longevity risk.

Figure 3: Financial System Inquiry’s stylised example of decision making for superannuation benefits



Source: *The Australian Government the Treasury 2014c, p 118.*

2.2 The Review of Retirement Income Stream Regulation

Prior to completion of the FSI, the Federal Treasury commenced a *Review of Retirement Income Stream Regulation*, which focusses on the regulatory arrangements for superannuation retirement income streams (including annuity and pension rules). An Issues Paper was published in July 2014 and a number of subsequent targeted consultation papers have since been circulated to industry for comment.

This Review is relevant to this report – the key issues examined include:

- annuity and pension rules
- rules concerning the minimum drawdown

- rules concerning Deferred Lifetime Annuities (DLAs).

Annuity and pension rules: Where annuity and pension rules are concerned, current legislation requires income streams to drawdown on the capital underpinning the product over time, so that the superannuation balance is gradually depleted. Further, payments should be at least annual and be a fixed amount, or varied only in line with a benchmark such as CPI or average wages.

These rules can be a barrier to innovation as they preclude products that may involve a deferred income stream such as longevity insurance products or have variable payments such as may arise from pooling mortality risk. At the same time there are some concerns that such products may be open to exploitation of tax concessions if made too liberal. The discussion papers canvass a number of options to increase the flexibility of these rules.

Rules concerning the minimum drawdown in superannuation balances: As outlined in section 3.2, currently retirement income products are subject to age-based minimum withdrawal rates to ensure that superannuation savings are used in retirement, that retirees have access to a steady stream of income and that funds with superannuation tax concessions are withdrawn over time.

While the current system has the advantage of simplicity, and ensures that balances are maintained over the period of retirement, a number of submissions noted that many retirees, in adhering to the minimum drawdown are not achieving an adequate level of income in earlier retirement, but are accumulating large balances which effectively become bequests. Various options have been canvassed to vary the drawdown rules.

Rules concerning Deferred Lifetime Annuities: under existing rules, a pension or annuity can only be purchased from a capital used by way of a contribution or rollover. These rules do not allow the purchase of a DLA via multiple premiums, including premiums made during the accumulation phase. This restricts the take up of products aimed to reduce longevity risk, and is the type of restriction referred to in both the Henry Tax Review and the Financial System Inquiry and impediments to such products that need to be removed.

At the time of writing the Review is ongoing.

3. Financial needs of retirees

As a number of studies have identified, the financial needs of retirees are multiple and to some extent, have some competing objectives (for example Mercer 2013). Most specifically retirees want:

- an adequate and stable level of retirement income
- the ability to manage investment, longevity and inflation risk in accordance with the individuals risk tolerance
- the flexibility to access capital, particularly in response to unexpected expenses (such as health care).

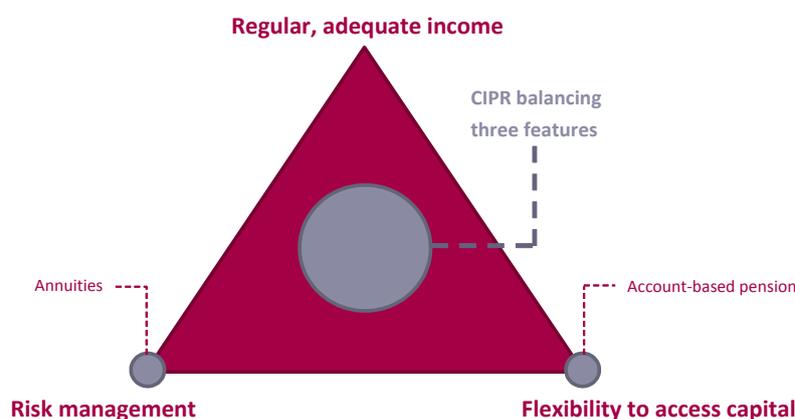
It is also contended that retirees require growth in capital to ensure earning capacity into the future and combat longevity risk, and easy to understand products with low fees (Mercer 2013). Further, and to a lesser extent, many retirees express a motivation to ensure a bequest.

A number of these objectives conflict and the right product or combination of products will balance the primary goals of an adequate income, risk management and flexibility according to the individual retiree's circumstances.

3.1 Finding the right retirement income solution

In discussing the need for trustees to identify a CIPR, the FSI argued that it may take a combination of retirement income products to satisfy retirees primary financial goals of adequacy (or “high” income), risk management and flexibility as indicated in Figure 4.

Figure 4: Desired features of retirement income products



Source: Based on *The Australian Government the Treasury 2014c*, p 122.

Finding the right income retirement solution which balances the three desired features is not a trivial problem. To some extent these are competing objects. For example, investing the entire superannuation balance into an annuity may ensure a regular income and minimise risk, however it will not provide flexible access to capital. On the other hand, investing all funds into a high growth ABP may maximise income and allow flexible access to capital, but it will be open to market, inflation and longevity risk.

3.1.1 Adequacy of retirement income

The adequacy of any retirement income level can be assessed relative to an absolute measure based on the cost of living (such as the Association of Superannuation Funds of Australia (ASFA) standards), or in relation to the retirees expectations – often set in terms of previous income level whilst in the workforce, expressed as a replacement rate (section 3.3).

Factors that have a major impact on the adequacy of post-retirement income streams are eligibility for the Age Pension, the rate at which the retiree draws down on any superannuation balance, and access to private savings. Where the draw down rate is concerned, a minimum drawdown rate will assist in preserving capital and thereby guarding against longevity risk, but it may not achieve an adequate level of income earlier in retirement. In this study we use two different drawdown strategies: the minimum prescribed rate only, and a ‘higher’ draw down rate based on meeting an annual ‘target income’.⁵

⁵ Target income includes the ASFA modest income standard plus 5 per cent of superannuation balance at retirement. This is designed to cover the cost of essentials and extras, acknowledging that different retirees can reasonably expect different levels of retirement income (Mercer 2015b).

3.1.2 Risk management of retirement income

Retirees are not an homogenous group, given the variability in wealth profiles, expectations with respect to longevity, and tolerance for risk. These factors will impact on the choice of retirement income products. The primary risks that a retiree takes into account when selecting such products are:

- longevity risk – the risk of outliving their savings
- market risk – risk of variations in the value of their retirement savings due to fluctuations in investment markets
- inflation risk – the risk that price increases reduce the purchasing power of their retirement savings.

3.1.3 Flexibility of retirement income

In addition to a regular income stream, retirees may require access to additional capital for major purchases such as upgrading a motor vehicle, replacing white goods, home modifications, holidays or unexpected health costs. Access to aged care or health costs may also be of concern as retirees age. For some retirees, there is also a strong desire to preserve some part of their retirement savings as a bequest.

The desire to ensure flexible access capital in retirement for these precautionary and bequest motives has been shown to minimise the amount retirees drawdown, resulting in an inadequate level of retirement income (Wu 2015).

In the following sections we examine the range of retirement income products available to retirees, and methods of evaluating the outcomes for retirees in terms of adequacy, risk management and flexibility.

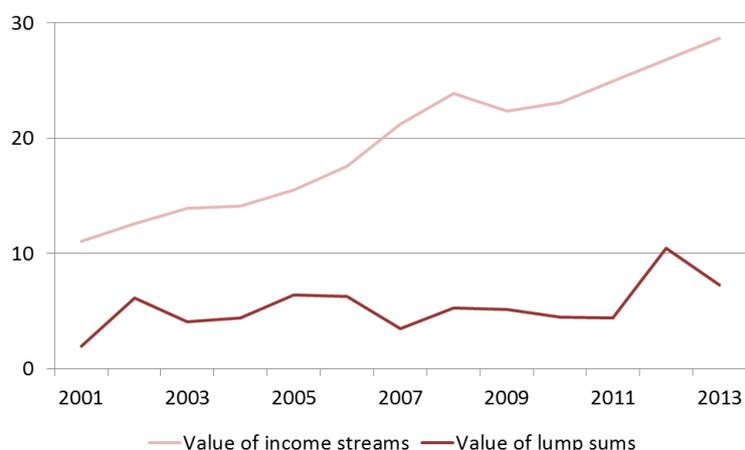
3.2 Retirement income products

Retirement income in Australia can be taken as a lump sum, or as an income stream – either as an ABP or as some form of annuity.

3.2.1 Lump sums

It has been claimed that Australia has a lump-sum culture, in which retirees withdraw their superannuation savings at retirement and spend them frivolously, in the knowledge that they can rely on income from the Age Pension. Recent research from the Productivity Commission and Rice Warner refutes this, showing the majority of superannuation benefits are withdrawn as income stream products (generally ABPs). Based on ABS data the Productivity Commission estimated around 70 per cent of benefits are taken as income streams, while analysis by Rice Warner using more recent data suggests the figure is above 80 per cent (Productivity Commission 2015; Rice Warner 2015). Figure 5 shows the payment of superannuation benefits as income streams has increased far more quickly than lump sums over the past decade.

Figure 5: Superannuation benefit payment – lump sums and income streams



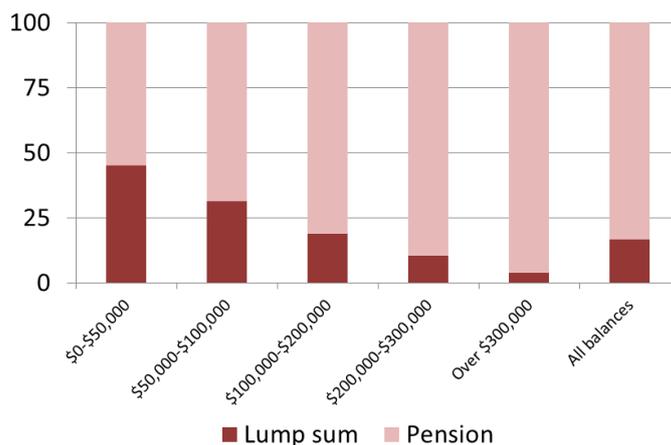
Source: Productivity Commission 2015, p 82.

The Productivity Commission found lump sum use was highest among the following groups:

- women, particularly if they are single
- people from low net wealth households
- non-homeowners (Productivity Commission 2015, p 85).

These cohorts are all likely to have low superannuation balances, which is consistent with Rice Warner’s finding that smaller accounts were more likely to be withdrawn as lump sums (figure 6). The FSI noted that taking a lump sum may be the optimal choice for retirees with low account balances as they avoid the relatively high costs associated with income streams (The Australian Government the Treasury 2014a, p 4:12).

Figure 6: Proportion of superannuation benefits taken as lump sum, by account balance (%)

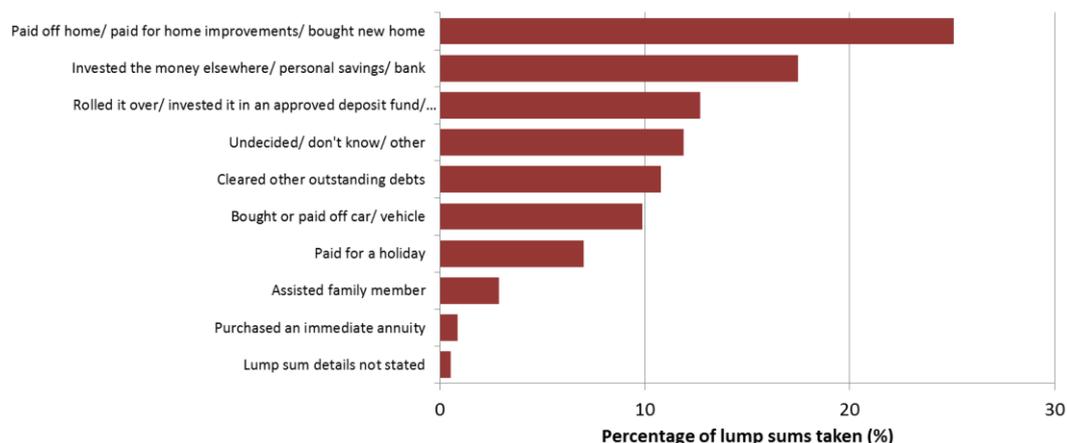


Source: Rice Warner 2015, p 5.

Far from squandering their lump sums, most retirees use their savings taken on goods and service that improve their quality of life in retirement (figure 7). Around one quarter of lump sums are used to pay off mortgages or make home improvements, while another 20 per cent are used to clear debts or buy or pay off a car. Given the groups most likely to take lump sums have low levels of

wealth this may be one of their only opportunities to make purchases and repayments of this size. (Productivity Commission 2015, pp 87–88)

Figure 7: Use of lump sums

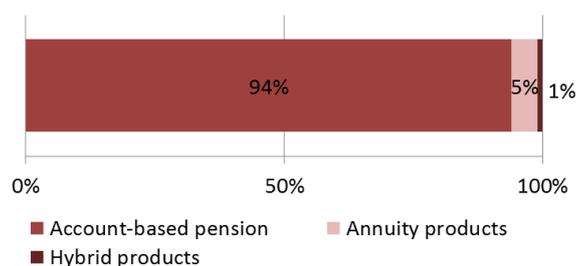


Source: Productivity Commission 2015, p 88.

3.2.2 Account-based pensions

The overwhelming majority of Australian retirees – 94 per cent – who purchase a retirement income product choose an ABP (figure 8).

Figure 8: Allocation of retirement savings in Australia



Source: Mercer 2014.

According to *Super Guide* an ABP is defined as ‘a flexible retirement income stream that gives you unlimited access to your capital but no guarantees on how long the money will last’ (Power 2015). An ABP is purchased with a lump sum of superannuation savings – generally by transferring savings from an accumulation account to an ABP at the point of retirement. Account-based pensions act like a tax-advantage at call investment account – invested earnings are tax-exempted and minimum withdrawals are mandated by Schedule 7 of the *SIS Regulations*⁶ (table 1). Any balance remaining at death is payable to the retiree’s estate.

⁶ *Superannuation Industry (Supervision) Regulations 1994* (Cth) sch 7 cls1-5.

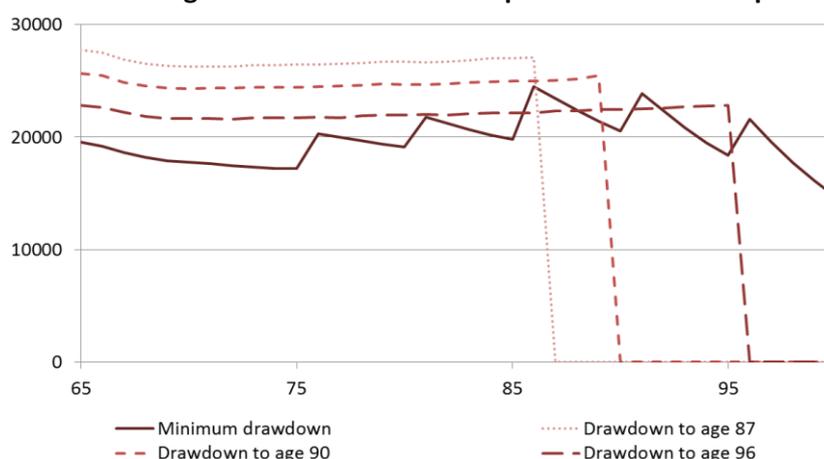
Table 1: Drawdown rates for account-based pensions

Age	Minimum drawdown (%)
65-74	5
75-79	6
80-84	7
85-89	9
90-94	11
95+	14

Source: Australian Government Actuary 2014a.

Withdrawals can be made monthly, quarterly, half-yearly or yearly and continue until the account is exhausted. Account-based pensions provide flexibility with access to capital at any time, no tax on income payments, investment choice and relatively low fees. The major drawbacks of ABPs are that they expose retirees to market risk and longevity risk. To minimise the risk of outliving their savings the majority of retirees draw down their ABP at the minimum rate (even when these rates were lowered during the GFC) (Australian Government Actuary 2014a). While this minimises their longevity risk it reduces the quality of life retirees can expect, particularly in the most active years of retirement when minimum draw-down rates are lowest. Analysis in the FSI found that ABPs are more income efficient when drawn down faster than the mandatory minimum rate⁷ (The Australian Government the Treasury 2014a, p 4:26).

Figure 9 shows different drawdown patterns for a retiree who purchases an ABP with \$400 000 and commences drawdown at age 65. If the account is drawn-down at the minimum rate the retiree will have a relatively low income which lasts beyond 100 year of age (and will likely leave a sizeable bequest). In order to achieve a higher income, the retiree may choose to withdraw above the minimum rate, although this will hasten the account's ruin.

Figure 9: Annual income using different account-based pension draw down patterns (\$)

Source: Australian Government Actuary 2014a.

On average, default ABPs have 57 per cent exposure to growth assets (with some difference across superannuation fund sectors). Around half of funds change their asset allocation between their

⁷ Income efficiency refers to the expected present value of income in retirement.

default accumulation products and default ABP, with those which do change their asset allocation generally reducing their exposure to growth assets as members enter retirement (Mercer 2014).

3.2.3 Annuities

Annuity products accounted for approximately 5 per cent of the market in 2012 (figure 8). Unlike ABPs which are exposed to fluctuation in the market, lifetime annuity returns are primarily locked in at the time of purchase (with some capacity for CPI indexation). This means lifetime annuities have the greatest sequencing risk of any retirement income product and, thus, their take-up of annuities will largely depend on market condition at the point of retirement. Annuities are relatively less attractive when interest rates are low.

Lifetime annuities (immediate and deferred) do not return the capital investment. Retirees may be hesitant to invest the bulk of their income into these products as many want to retain some capital to deal with unexpected expenses (for example health or aged care needs) or for a bequest.

IMMEDIATE LIFETIME ANNUITIES:

Lifetime annuities are available in Australia with many options (for example guaranteed payment periods, death benefits, nominal or inflation linked payments, and some liquidity options). Lifetime annuities provide a stable income for retirees without the danger of longevity risk and are relatively easy to understand. Modern variations of annuities also overcome two of the perceived disadvantages of earlier products. First, whereas traditionally an annuity pools mortality risk and retains the balance on the death, it is now possible for a death benefit to be paid to a beneficiary (although this reduced the rate paid). Second, while traditionally lifetime annuities do not provide retirees with investment choice, more recent products with liquidity options offer increased flexibility. The number of companies selling lifetime annuities in Australia has dropped over the past decade, with only two remaining. This reflects a change in 2005 to the treatment of lifetime annuities when assessing Age Pension eligibility, thereby making them less attractive to retirees. Recent changes to the social security treatment of ABPs have improved the relative attractiveness of annuities, however low interest rates have kept demand for annuities low.

DEFERRED LIFETIME ANNUITIES:

Deferred lifetime annuities are purchased around the time of retirement. Annuity income, however, begins at a later date (for example, at age 85) and then is payable for life. The deferred payment can generate a relatively high income from a relatively modest investment. For example, modelling for the FSI in 2014 showed a 20 year DLA purchased by a 65 year old man would pay \$2390 per \$10 000 invested compared to \$570 for \$10 000 invested in an ILA (Australian Government Actuary 2014a, p 55). In 2013 the Government indicated DLA would receive the same concessional tax treatment given to superannuation assets invested income streams. This reform aims to encourage the development of deferred annuity products. The tax and social security treatment of DLAs are currently being explored in the Commonwealth Government's *Review of retirement income stream regulation* (The Australian Government the Treasury 2014b).

TERM ANNUITIES:

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Term annuities pay an income over a predetermined period with or without a return of the initial capital investment. There are a number of options for term annuities including varying payout frequencies, residual capital values and terms. Term annuities can be thought of as an investment choice (similar to a term deposit) rather than a traditional retirement income product. Term annuities provide flexibility as policy holders can access their capital if needed (with a surrender value). Term annuities are generally bought as short term annuities with return of capital, and rolled over when they mature. The income paid varies with interest rates, but the capital returned is unaffected. Reinvestment and longevity risks are borne by the policyholder.

VARIABLE ANNUITIES:

Variable annuities provide some choice over the asset allocation of their investment. This choice may be limited or use index tracking, and the investment comes with a rider protecting the investor from downside risk. Variable annuities tend to have higher fees which incorporate the cost of any riders and the investment management and administration fees. Variable annuities provide flexibility with access to capital and a degree of investment choice (generally a subset of that available for an allocated pension). They make up a very small proportion of the market and are considered expensive and complicated.

POOLED ANNUITIES:

Pooled annuities are also known as 'with-profit annuities' and are offered in some defined benefit schemes. The initial payment on pooled annuities is determined using an assumed interest rate and an estimate of mortality rates. The amount actually paid varies depending on investment returns and mortality experience. A deviation in investment returns from the assumed interest rate leads to a proportional change to amount being paid. Deviations from mortality experience, similarly, alter the income paid.

3.2.4 Other income products

- Term deposits: deposits made to Authorised Deposit-taking Institutions with a fixed term and interest rate. These deposits are guaranteed by the Government up to \$250 000. Term deposits offer some liquidity, however access to capital before maturity generally incurs a penalty.
- Share investments and dividends: recently, dividend yield has exceeded 5 per cent (with franking credits), outperforming Government guaranteed index-linked stocks. In these conditions investing in a stock portfolio that regularly pays dividends is attractive. Capital is retained, although there is a risk of capital loss when the shares are eventually sold. Furthermore, there is no guarantee on the level and frequency of dividends (although historically Australian dividends have kept pace with inflation over the long term).

3.2.5 Income from the Age Pension

The Age Pension provides an income for the majority of retirees. Around 70 per cent of retirees receive the Age Pension, with 60 per cent of those receiving the maximum rate (The Commonwealth

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of Australia 2015, p 65). As the superannuation system matures and balances increase it is likely that these proportions will decrease.

The Age Pension has a number of eligibility requirements including:

- Residency – the Age Pension is available only to Australian residents who have lived in Australia for over 10 years and are in Australia when they apply for the payment (with some exceptions for refugees, widows and residents of countries with reciprocal arrangements).
- Age – the qualifying age for the Age Pension depends on the year of birth and has increased over the past decade in order to reduce budget pressure and encourage later retirement.

Table 2 shows the current eligibility ages which are expected increase in the future.

Table 2: Age requirement for the Age Pension

Time of birth	Years of age (women)	Years of age (men)
1 July 1947 – 31 December 1948	64.5	65
1 January 1949 – 30 June 1952	65	65
1 July 1952 – 31 December 1953	65.5	65.5
1 January 1954 – 30 June 1955	66	66
1 July 1955 – 31 December 1956	66.5	66.5
After 1 January 1957	67	67

Source: The Australian Government the Department of Human Services 2015.

- Assets and income – the Age Pension is subject to ‘means’ tests aimed at directing the Age Pension to retirees with greatest need. These tests determine eligibility for the Age Pension and the level of payments received. Increases in income or assets will reduce the Age Pension level available and the lower of the two figures (which may be \$0) applies. (The Australian Government the Department of Human Services 2015)

‘Income’ includes money from employment annuities and investments. From 2014 deemed income is included from superannuation accounts (table 4). For every \$1 of income earned above \$160 per fortnight (or \$284 for a couple) pension payment decreases by 50c. When income reaches \$1 868.80 per fortnight (or \$2 860 for a couple) payments reduce to \$0.

‘Assets’ include cash, gifts, real estate (apart from the primary residence), businesses, farms, vehicles and life insurance policies. For every \$1000 of assets over the threshold Age Pension payments reduces by \$1.50 per fortnight. The asset limit depends on the retiree’s circumstances including marital status and home ownership. Table 3 summarises the Age Pension payment rates and means test arrangements (The Australian Government the Department of Human Services 2015).

Table 3: Age Pension rates (homeowner)

	Singles	Couples (combined)
<i>Payment rates</i>		
Maximum rate	\$22,212 p.a.	\$33,488 p.a.
<i>Assets test</i>		
Lower threshold	\$202,000	\$286,500
Upper threshold	\$771,750	\$1,145,500
Taper rate	3.9%	3.9%
<i>Income test</i>		

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Lower threshold	\$4,160 p.a.	\$7,384 p.a.
Upper threshold	\$48,589 p.a.	\$74,360 p.a.
Taper rate	50%	50%
<i>Deeming rates</i>		
Threshold	\$48,000	\$79,600
Rate below threshold	1.75%	1.75%
Rate above threshold	3.25%	3.25%

Note: Rates accurate at April 2015.

Source: based on Australian Government Actuary 2014a.

3.2.6 Interaction between income stream products and the Age Pension

The two most common retirement income streams – ABPs and annuities – are both assessable under the means test provision of the Age Pension.

For ABPs purchased before 2015 only part of Age Pension income is assessed under the income test. Account-based pensions purchased after 1 January 2015 are assessed the same way as other financial investments such as cash, shares and managed funds. That is, the entire balance of ABPs is now subject to deeming rules for the assets test of the Age Pension. Under the deeming provisions financial investments are assumed to earn a certain rates of income regardless of the level of income actually generated. The deeming rates and thresholds are summarised in table 4.

Table 4: Deeming rates for pensioners

	Threshold	Deeming rate
Single	Up to \$48,000	1.75%
	Above \$48,000	3.25%
Member of a couple ^a	Up to \$79,600 (combined)	1.75%
	Above \$79,600 (combined)	3.25%

Note: ^a at least one member of the couple is receiving the Age Pension.

Source: Financial Planning Magazine 2015.

3.3 Assessing the adequacy of retirement income

The level of income needed in retirement is contested, and will depend on the desired lifestyle and non-monetary resources or retirees.

3.3.1 ASFA standard

The ASFA Retirement Standard benchmarks the annual budget needed by Australians to fund either a 'comfortable' or 'modest' standard of living in retirement. It is updated quarterly to reflect inflation, and provides detailed budgets of what singles and couples need to spend to support their chosen lifestyle. Both budgets assume retirees own their own home outright and are relatively healthy.

A comfortable retirement lifestyle enables an older, healthy retiree to be involved in a range of leisure and recreational activities and to have a good standard of living. It includes the purchase of household goods, private health insurance, a reasonable car, good clothes, a range of electronic equipment, and some domestic and occasionally international holiday travel. A modest income will

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allow for only a few domestic holidays, rare meals from restaurants, minor home maintenance and an older, less reliable car.

The modest income standard is almost entirely met by the full Age Pension and supplementary payments. ASFA estimates retirees with only \$35 000 (couple) or \$50 000 (single) superannuation will be able to maintain a modest income throughout their retirement. (ASFA 2015a)

Table 5 shows the income needs of a retiree aged 65-89.

Table 5: ASFA retirement standard – ages 65 to 89

	Modest lifestyle- single	Modest lifestyle - couple	Comfortable lifestyle - single	Comfortable lifestyle - couple
Housing – ongoing only	68.3	65.56	79.16	91.77
Energy	41.07	54.55	41.68	56.53
Food	77.05	159.61	110.07	198.13
Clothing	17.67	28.68	38.25	57.37
Household goods and services	26.57	36.03	74.75	87.57
Health	40.64	78.43	80.63	142.30
Transport	96.05	98.78	143.14	145.86
Leisure	73.78	109.93	223.60	306.41
Communications	9.33	16.33	25.64	32.64
Total per week	450.48	647.91	816.92	1,118.58
Total per year	23,489.00	33,784.00	42,597.00	58,326.00

Note: Single calculations are based on female figures. Calculations are weekly unless otherwise stated.

Source: ASFA 2014c.

Reflecting the differing needs of retirees as they age, ASFA has recently released a Retirement Standard for people aged in their 90s. It includes the increased cost of home assistance and out-of-pocket medical expenses. The Standard also assumes that the cost of leisure activities reduces as people age, reflecting their reduced capacity for activity (table 6).

Table 6: ASFA retirement standard – age 90 and over

	Modest lifestyle- single	Modest lifestyle - couple	Comfortable lifestyle - single	Comfortable lifestyle - couple
Housing – ongoing only	68.30	65.56	79.16	91.77
Energy	41.07	54.55	41.68	56.53
Food	77.05	159.61	110.07	198.13
Clothing	17.67	28.69	38.25	57.37
Household goods and services	46.65	66.14	145.03	167.87
Health	87.78	136.27	120.21	191.78
Transport	39.96	49.95	44.96	54.95
Leisure	47.01	70.13	121.50	167.96
Communications	9.27	16.24	25.49	32.44
Total per week	434.77	647.14	726.36	1,018.79
Total per year	22,670.00	33,744.00	37,875.00	53,123.00

Note: Single calculations are based on female figures. Calculations are weekly unless otherwise stated.

Source: ASFA 2014d.

The ASFA Standard is widely used for financial planning in retirement however it has some limitations. Income 'needs' are subjective, and retirees who experienced different levels of income throughout their working lives will have considerably different views on what constitutes an acceptable retirement income. As the ASFA standard is universal it does not allow for these differences. People with large superannuation balances will likely achieve the 'comfortable' income standard in retirement but may perceive it as insufficient, while low-income earners retiring with low superannuation balances may find the 'modest' income standard sufficient. Furthermore, it does not account for some of the biggest expenses retirees may face – housing and aged care.

3.2.2 Mercer framework

In the earlier active stage of retirement (65 to 74 years), the minimum withdrawal rate may not provide an adequate level of retirement income. To address this Mercer has proposed a drawdown strategy where retirement income comprises either a minimum threshold (ASFA modest income standard plus 2 per cent of super balance at retirement) to cover 'essentials' or a target income level (ASFA modest income standard plus 5 per cent of super balance at retirement) to afford 'extras' (Mercer 2015b). This framework implies that retirement income needs are subjective and will depend on the wealth of the retiree, particularly for non-essential items. Table 7 shows the annual income threshold and target for a range of superannuation balances under the Mercer framework.

Table 7: Mercer retirement income framework – annual retirement income

Income level	Balance at retirement				
	\$100,000	\$250,000	\$500,000	\$750,000	\$1,000,000
Minimum threshold - ASFA modest + 2% super balance	\$25,489	\$28,489	\$33,489	\$38,489	\$43,489
Target income - ASFA modest + 5% super balance	\$28,489	\$35,489	\$48,489	\$60,489	\$73,489

Note: For a single retiree.

Source: Based on Mercer 2015b, p 8.

A growing number of retirement income models use a similar approach. These assume retirement income funds expenses with differing level of importance and this balance may change depending on life stage. A new model created by Schneider, Newfield and Chee uses a related framework. Under their model retirees' annual level of spending 'needs' and desirable 'discretionary' expenditure is based on their health status. As health deteriorates, for example, a retiree may indulge in fewer leisure activities and thus their 'discretionary' expenditure declines. Should the retiree become disabled their spending 'needs' would likely increase to cover health costs and necessary home improvements. (David Schneider, Paul Newfield, and Jeffrey Chee 2015)

3.3.3 Replacement ratios

A common approach to measuring requirement income adequacy is replacement ratios. These measure the income a person receives in retirement relative to the income they earned during their working life. This has the benefit of acknowledging people with different levels of wealth are likely

expect different levels of income in retirement. There is some variance in the way replacement ratios are calculated, for example whether income is measured pre-tax, after taxes and transfers, or only disposable income is included; whether it compares income in the final working year and first retirement year or an average across all working years and retirement years.

Further there is not a consensus on what an appropriate ratio is. While it is agreed that income needs vary through life, and a lower level of income in retirement can generate the same quality of life as a higher income during the working years, it is not clear how marked this difference is.

Finally, as replacement ratios are completely subjective they do not assume any income *requirements* in retirement. Replacement ratios for retirees receiving the full Age Pension (designed to cover necessities) will differ depending on the retirees' previous income. For example, for someone who was unable to work and relied on welfare payments, the Age Pension will likely maintain their income and provide them a replacement ratio of around 100 per cent. Alternatively, for a man who earned the average wage, the full Age Pension would represent a replacement ratio of around 30 per cent.⁸

The World Bank suggests target replacement rates for middle income earners should be:

- 78 per cent of net average lifetime wage
- 60 per cent of gross average lifetime wage
- 53 per cent of the net final year wage
- 42 per cent of the gross final year wage (The World Bank 1994, p 295).

The OECD suggests the target replacement rate for a median income earner is 70 per cent of final earnings (OECD 2009, p 121).

4. Evaluating retirement income products

Retired Australians are a large and diverse group. In 2011 there were 3 million people aged 65 or over (14 per cent of the total population), 400 000 aged 85 or over, and around 28 000 aged 95 or over (CEPAR 2014b, p 1). This large group has heterogeneous characteristics and correspondingly heterogeneous needs. Their income in retirement will depend on a range of personal characteristics such as their superannuation balance on retirement, life expectancy, eligibility for the Age Pension, home ownership and marital status.

4.1 Identifying cohorts of retirees

Across the range of experience at retirement it is possible to identify some representative cohorts based on the above criteria. The primary factors which will determine a retiree's income level are:

- superannuation balance at retirement
- life expectancy.

⁸ Age Pension combined couple rate is currently benchmarked to 41.76 per cent of Male Total Average Weekly Earnings; the single rate of pension is set at 66.33 per cent of the combined couple rate (around 27.7 per cent of MTAW) (Michael Klapdor 2014).

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As the majority of retirees receive at least a part Age Pension, factors which influence Age Pension eligibility are also important to consider. These include:

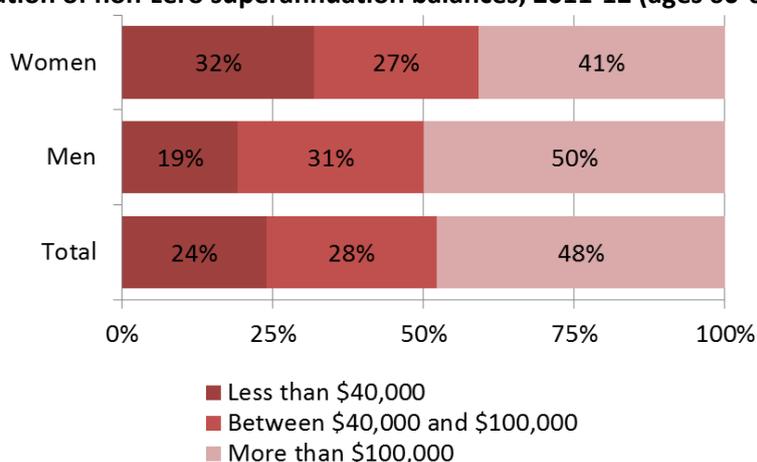
- marital status
- assets owned.

4.1.1 Superannuation balance at retirement

In estimating the level of income an Australian retiree may expect, an important factor is the balance of their superannuation assets at retirement. In 2011-12 the average superannuation balance at retirement was \$197 000 for men and \$105 000 for women, a significant increase on corresponding balances in 2005-06 of \$136 000 and \$63 000 respectively (ASFA 2014a). Thus superannuation balances are growing as the system matures and are expected to rise even more rapidly with increases in the Compulsory Superannuation Guarantee. Average balances, however, are unlikely to generate sufficient retirement income to replace the Age Pension for some years to come.

While the traditional tendency for women to spend extended periods out of the workforce for child care purposes has contributed to the gender gap in superannuation outcomes, the gap is reducing slightly. In 2011-12 women owned 36 per cent of superannuation assets, a vast improvement from 1994 when women owned just 23 per cent (ASFA 2014a, p13). Recent data indicate that while a half of all men have average superannuation balances of \$100 000 or more, just over 40 per cent of women have balances of that amount. Women are far more likely to have balances of less than \$40 000, than men (32 to 24 per cent respectively) (figure 10).

Figure 10: Distribution of non-zero superannuation balances, 2011-12 (ages 60-64)



Source: ASFA 2014a, pp 11-12.

4.1.2 Life expectancy

Life expectancy has a major bearing on the adequacy of an individual's superannuation savings. Gender has an important role to play in this regard, as it does in superannuation balances. Indeed, given differences in the average longevity of men and women, gender can be considered as a proxy for life expectancy. In 2014 a woman aged 65 could expect to live to 90 (with 10 per cent living to 96), while a man aged 65 could expect to live to 87 (with 10 per cent living to 93) (Actuaries Institute

2014). Life expectancy is a key element for an individual in planning a retirement income, yet life expectancies are often underestimated. The Actuaries Institute argues that this is because people often refer to average life expectancy from birth and do not consider factors such as: the increased average life expectancy of those who have survived until retirement; improvements in life expectancies that occur over time (such as from scientific and medical advances); and the distribution of age at death – that is, a majority of people will outlive the average life expectancy (Actuaries Institute 2014).

Although the age at which individuals retire varies considerably with personal circumstance, the current official retirement age of 65 years at which one becomes eligible for the Age Pension provides a point of reference. Longevity beyond that point is for most people a measure of the years without income received from labour. As figure 11 indicates, average life expectancy for a man at aged 65 has increased by 11 years since 1900 and, as a consequence, he may now expect to enjoy 22 years in retirement.

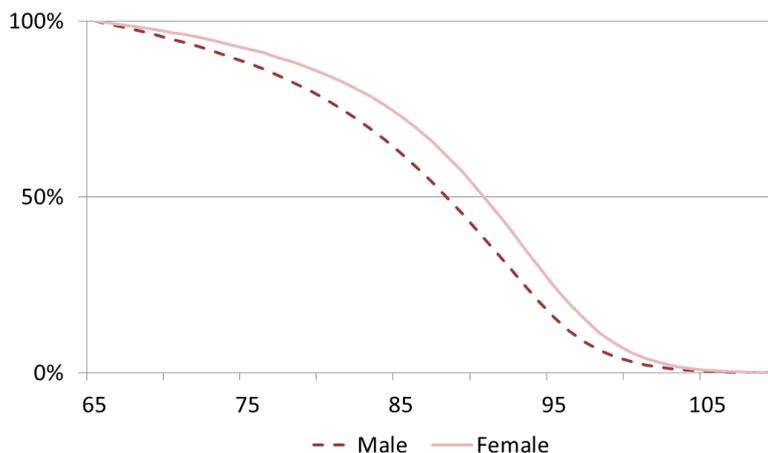
Figure 11: Life expectancy from age 65 in 2014 and 2050 (projected)



Source: Actuaries Institute 2014.

With a median life expectancy of 90 years at the official retirement age, women may expect to have 25 years in retirement, although for the one in ten who lives past 100 years, retirement may be for more than 30 years (figure 12). When combined with the gender gap in retirement balances, it is not difficult to see that the financial plight of retired women with longer longevity may be particularly severe.

Figure 12: Cumulative probability of survival for a 65 year old



Note: Using 25 year mortality improvement factors.

Source: ACFS calculations based on Australian Government Actuary 2014b.

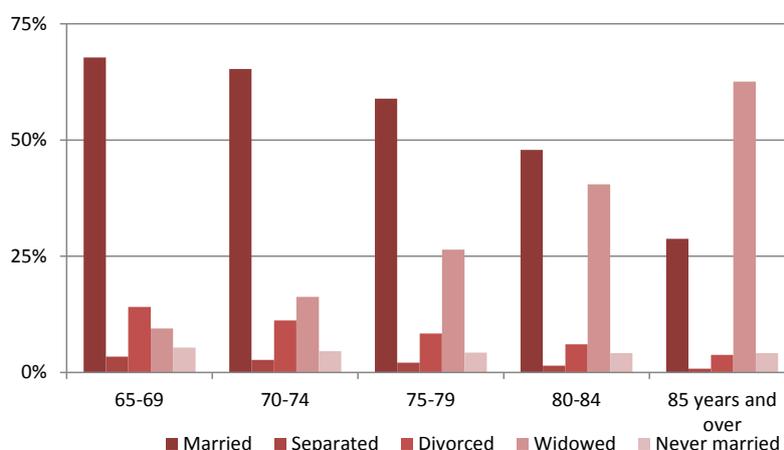
4.1.3 Eligibility for the Age Pension

Around 70 per cent of retirees receive the Age Pension, with approximately 60 per cent of recipients receiving the maximum rate (The Commonwealth of Australia 2015, p 65). It is therefore imperative to consider a retiree's eligibility for their Age Pension when calculating retirement income. Payment rates for the Age Pension depend on family situation (that is, marital status and dependants) and means (income and assets). This reflects the impact that these differences will have on the level of income required to enjoy an equivalent lifestyle. It is also designed to encourage retirees to draw down their assets before obtaining the Age Pension.

MARITAL STATUS

Marital status will have a significant impact on income needs in retirement. Living expenses are, generally, lower per person as the size of a household grows. The level of Age Pension a retiree is entitled to is therefore assessed in terms of their marital status. Marriage, and the pooling of income in retirement, can also alleviate some of the differences in superannuation balances between men and women. Figure 13 shows the marital status of retirees.

Figure 13: Marital status by age



Source: ABS 2015.

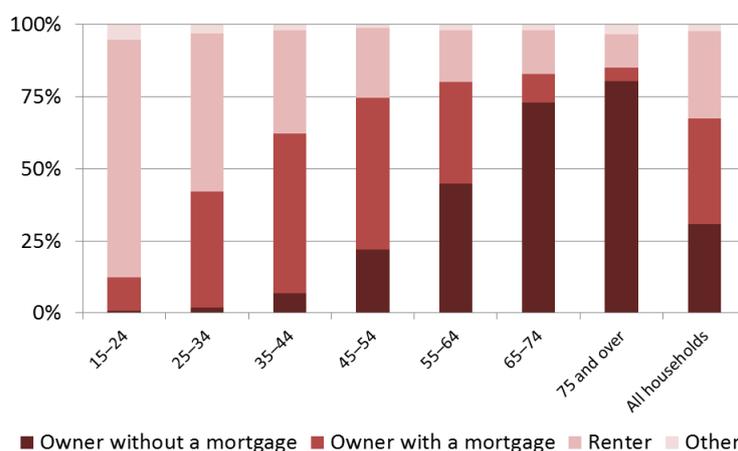
Most retirees are married and living in households made up of more than one person, but a significant minority of retirees are single, divorced or widowed. While over two thirds of people aged 65-69 are married, for those aged 85 and above only 30 per cent are married, while almost two thirds are widowed (ABS 2011). Although the rate of divorce has increased, many people who divorce remarry and, with the life expectancy of men increasing, there are fewer widows.

HOME OWNERSHIP

Home ownership and housing wealth are both heavily weighted towards the elderly in Australia. Over 70 per cent of retirees own their own home outright and around another 10 per cent have a mortgage (ABS 2013b). While the family home is exempt from the Age Pension means test there is

some suggestion this will change in future (Cowan and Taylor 2015). Furthermore, there are schemes available to enable retirees to access the wealth stored in their property.⁹ Figure 14 shows the proportion of households by housing tenure across different age cohorts. In 2011-12 households with members aged 65 or over were far more likely to own their homes outright than younger households.

Figure 14: Proportion of households by housing tenure (2011-12)

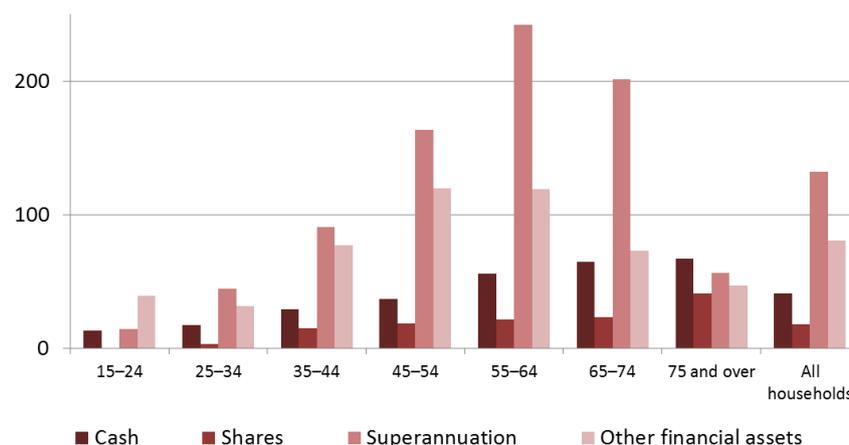


Source: ABS 2013b.

OTHER ASSETS AT RETIREMENT

Australian Bureau of Statistics data indicate superannuation is the main financial asset held by Australian households (ABS 2014). Superannuation balances are much higher, on average, than bank account balances or direct shareholdings. Some individuals have investment properties, but they form only a small minority of workers. Figure 15 shows that superannuation balances peak at in households aged 55 to 64 (reflecting the point of retirement). Other financial assets including cash and shares continue to increase as households age.

⁹ Retirees can access the wealth stored in their homes through debt products such as reverse mortgages (the Government's *Pension Loans Scheme* or private sector products) or equity products such as home reversion schemes (Brownfield 2014).

Figure 15: Household financial assets

Source: ABS 2014.

4.2 Modelling retirement incomes

As previously discussed, the key factors which determine how much income a retiree can expect are their superannuation balance at retirement, life expectancy and Age Pension eligibility. This modelling, therefore, considers cohorts of retirees with the following characteristics:

- Typical retirees

This cohort includes retirees with 'average' characteristics. It comprises a man and woman with superannuation balances near the national average (\$197 000 for men and \$105 000 for women aged 60-64 in 2011-12)(ASFA 2014a). This cohort are homeowners, representing the majority of retirees (80 per cent of people aged 65-69)(ABS 2013b). As well as representing typical men and women individually this cohort includes a married couple with combined superannuation savings of \$350 000. As most retirees are married (64 per cent of people aged 65-69) this cohort represents the largest group of retirees (ABS 2015, 04).

- A retiree at risk of economic hardship

A key element of the retirement income system (incorporating superannuation, the Age Pension and private savings) is its ability to reduce the risk of economic hardship¹⁰ among older Australians. This cohort represents the demographic most at risk of financial hardship in retirement: a person living alone requires a higher income to achieve the same standard of living as a member of a cohabitating couple; women expect to live longer and thus need a higher total retirement income than men; retirees who do not own their homes require additional income to cover their housing costs. Further, this cohort has a relatively low superannuation balance at retirement (\$100 000). This cohort represents an important minority of Australian retirees; approximately 15 per cent of people aged 75-74 rent their homes and 32 per cent aged 65-69 are unmarried (ABS 2013b; ABS 2015, 04).

¹⁰Economic wellbeing is multi-faceted and incorporates income (including imputed rent and social transfers in kind), economic resources and consumption expenditure. Households facing economic hardship generally have low levels of income and/ or wealth, experience financial stress and are unable to afford common goods and services for an ongoing period of time (ABS 2013a).

AIST-ACFS Superannuation in the post-retirement phase

It is likely, however, that the stated superannuation balance is overly generous – in 2011-12 59 per cent of women aged 60-64 had superannuation balances of \$100 000 or less (ASFA 2014a).

- A wealthier retiree

The next cohort represents relatively wealthy retirees. Currently, around 9 per cent of people aged 60-64 have superannuation balances of \$500 000 or higher. As the superannuation system matures and retiring workers have made superannuation contributions throughout their entire working lives average superannuation balances are expected to increase and this cohort is expected to become more representative. This cohort typically owns their own homes, resulting in relatively low income needs in retirement.

- A retiree who experiences a major, unexpected health event

A minority of retirees will have a significant health or accommodation cost in retirement. Of Australians aged over 65 years, one in three men and one in two women will require residential care at some point (CEPAR 2014a, p 10). This can come at a significant personal expense. This cohort is represented by a well-off retiree who experiences a large, unexpected health cost at age 80.

5. Results

As discussed in section 4.1 Australian retirees are a large and diverse group of people. In order to assess the merit of various retirement income products the following cohorts are considered:

- typical retirees
- a retiree at risk of financial hardship
- a wealthy retiree
- a retiree who experiences a major, unexpected health event.

For each cohort the following is assumed:

- men and women retire at age 65
- individual superannuation balances at retirement are \$100 000, \$250 000 or \$500 000
- couples pool their savings and income
- no wealth is stored outside superannuation (except the primary residence) and retirees have no debt.

At retirement individuals invest their entire superannuation balance:

- in one of five retirement income options – 100 per cent in ABP, 75 per cent in ABP and 25 per cent in ILA, 50 per cent in APB and 50 per cent in ILA, 100 per cent in ILA, or 65 per cent in ABP and 35 per cent in DLA
- annuity rates are set at March 2015, are CPI linked, pay no withdrawal or death benefit and DLAs¹¹ have a 20 year deferral period

¹¹ Deferred lifetime annuities are not currently available in Australia. Here, we assume DLAs are defined as a

AIST-ACFS Superannuation in the post-retirement phase

- ABP asset allocation is fixed.

Income from ABPs is drawn down using either of two strategies:

- ‘minimum drawdown’ – the minimum mandated withdrawal;¹² or
- ‘higher drawdown’ – income is drawn down to meet the retiree’s income target¹³ (after income from the Age Pension, rent assistance and annuities).¹⁴

Age Pension receipt is subject to eligibility requirements, indexation and payment rates at 1 June 2015.

A complete list of assumptions and methodology are available in Appendix 1.

For each retiree we model a mixture of income products using two draw down strategies to age 90. The outcomes are assessed against the three criteria outlined in section 3.1:

1. adequacy (measured by the number of years the retiree’s income target is met)
2. flexibility to access capital
3. risk-management features.

5.1 Typical retirees

The ‘typical retiree’ is represented by the following cohorts:

- Susan, a single woman retiring with \$100 000 superannuation who owns her own home
- Martin, a single man retiring with \$250 000 superannuation who owns his own home
- Anna and James, a couple with \$350 000 superannuation who own their own home.

‘SUSAN’ – A TYPICAL FEMALE RETIREE

Susan is a single woman with \$100 000 superannuation at retirement, which is close to the national average of \$105 000 for a woman aged 60-64 (ASFA 2014a). Along with around 80 per cent of people aged 65-69 Susan owns her home (ABS 2013b). Susan’s target income of \$28 489 each year (ASFA modest income plus 5 per cent of her superannuation balance at retirement) should be sufficient to cover both her ‘essentials’ and desired ‘extras’. How she invests and draws on her superannuation will be dependent on achieving an adequate income, managing longevity, inflation and investment risk, and maintaining some flexibility to access capital.

Table 8 shows Susan is unable to achieve her income target every year under any investment combination if she relies on the minimum drawdown rates each year. If she draws down a higher level of income from her ABP she can achieve her income target each year from a number of product

SIS pension from payment of the premium and thus are exempt from Earnings Tax and Benefits Tax. Further, they are non-commutable and are therefore exempt from minimum drawdown rates during the deferral period. During the deferral period the asset price (for the Age Pension means test) is equal to the purchase price. After the deferral period asset price and assessable income are calculated using the deduction amounts as defined for ILAs.

¹² A given percentage of the account balance, based on the retiree’s age (Section 3.3 2).

¹³ The ASFA modest income standard (based on marital status and age), rental costs and 5 per cent of superannuation balance at retirement.

¹⁴ The minimum mandated withdrawal may be sufficient to meet the income target.

combinations. Drawing down her ABP at a higher rate, however, reduces her flexibility to access capital.

Table 8: Susan's retirement income adequacy and flexibility

	Minimum drawdown	Higher drawdown
	Years income target achieved (max 25)	
100% ABP	18	25
75% ABP; 25% ILA	17	25
50% ABP; 50% ILA	17	25
100% ILA	16	16
65% ABP; 35% DLA	13	25
	Available balance at age 90 (2015 dollars)	
100% ABP	55,148	52,220
75% ABP; 25% ILA	41,361	37,398
50% ABP; 50% ILA	27,574	22,454
100% ILA	0	0
65% ABP; 35% DLA	35,846	14,245

Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

Table 9 shows Susan's total retirement income (from age 65 to 90). Because of her financial position Susan is eligible for a full Age Pension from age 65. Her superannuation savings supplement this income. As the majority of Susan's income comes from the Age Pension her investment choice makes little difference to her total income (investing her entire savings in an ILA produced around 3 per cent less income over 25 years than investing her savings in an ABP, using the higher drawdown). Instead the choice of income product depends on Susan's trade off between flexibility and risk management.

Table 9: Susan's retirement income by source (2015 dollars)

	Minimum drawdown			Higher drawdown		
	Age pension	Income products	Total income	Age pension	Income products	Total income
100% ABP	629,759	130,044	759,803	629,759	129,291	759,051
75% ABP; 25% ILA	629,759	123,346	753,105	629,759	122,433	752,192
50% ABP; 50% ILA	629,759	116,647	746,406	629,759	115,595	745,354
100% ILA	629,759	103,250	733,009	629,759	103,250	733,009
65% ABP; 35% DLA	629,749	105,091	734,840	629,759	106,517	736,276

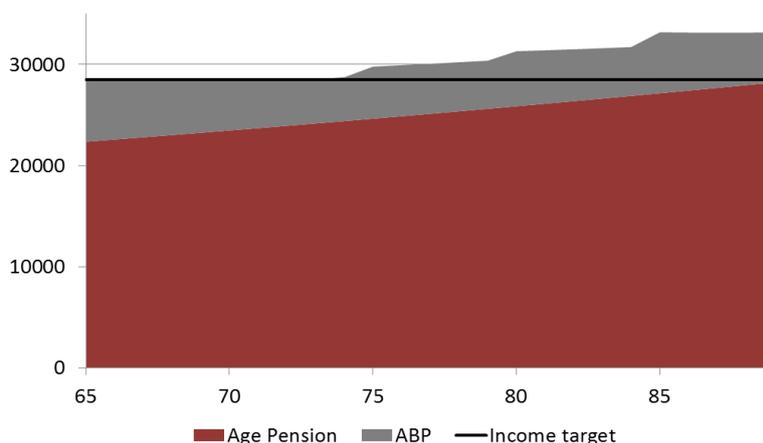
Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

For Susan, the Age Pension acts as an annuity, providing a guaranteed, inflation-protected income for life. With the majority of her income coming from a low-risk source Susan should invest her superannuation into an ABP. This maximises her flexibility to access capital.

In the example shown in figure 16 Susan invests \$100 000 in an ABP which returns 6.5 per cent annually. Assuming she makes withdrawals at the higher rate she meets her income target (\$28 489) each year from a combination of the Age Pension and her ABP, and has access to \$52 220 (2015 dollars) at age 90. Should Susan live beyond age 90, as 52 per cent of her age group are expected to, this would continue to supplement her income from the Age Pension; alternatively it may form a bequest.

Figure 16: Susan’s retirement income (2015 dollars)



Source: ACFS calculations.

‘MARTIN’ – A TYPICAL MALE RETIREE

Martin is a single man with \$250 000 superannuation at retirement, which is slightly higher than the national average of \$197 000 for a man aged 60-64 in 2011-12 (ASFA 2014a). In common with around 80 per cent of people aged 65-69 Martin owns his own home (ABS 2013b). Martin’s target income of \$35 989 each year (ASFA modest income plus 5 per cent of his superannuation balance at retirement), should be sufficient to cover both his ‘essentials’ and desired ‘extras’. How he invests and draws on his superannuation will be dependent on achieving an adequate income, managing longevity, inflation and investment risk, and maintaining some flexibility to access capital.

Table 10 shows Martin is unable to achieve his income target every year under any investment combination if he relies on the minimum drawdown rates each year. If he draws down a higher level of income from his ABP he can achieve his income target each year from a number of product combinations. Drawing down his ABP at a higher rate, however, reduces his flexibility to access capital.

Table 10: Martin’s retirement income adequacy and flexibility

	Minimum drawdown	Higher drawdown
	Years income target achieved (max 25)	
100% ABP	15	25
75% ABP; 25% ILA	15	25
50% ABP; 50% ILA	15	25
100% ILA	15	15
65% ABP; 35% DLA	5	25

AIST-ACFS Superannuation in the post-retirement phase

	Available balance at age 90 (2015 dollars)	
100% ABP	137871	123243
75% ABP; 25% ILA	103403	91920
50% ABP; 50% ILA	68935	58252
100% ILA	0	0
65% ABP; 35% DLA	89616	1681

Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

Table 11 shows Martin's total retirement income (from age 65 to 90). Because of his financial position Martin is eligible for a partial Age Pension from age 65, and will become eligible for the full Age Pension once his assets are sufficiently depleted. His superannuation savings supplement this income. As the majority of Martin's income comes from the Age Pension his investment choice makes little difference to his total income (investing his entire savings in an ILA produced around 2 per cent less income over 25 years than investing his savings in an ABP, using the higher drawdown). Instead the choice of income product depends on Martin's trade off between flexibility and risk management.

Table 11: Martin's retirement income by source (2015 dollars)

	Minimum drawdown			Higher drawdown		
	Age pension	Income products	Total income	Age pension	Income products	Total income
100% ABP	602,558	325,110	927,668	609,368	323,346	932,714
75% ABP; 25% ILA	614,843	314,770	929,613	620,808	312,837	933,645
50% ABP; 50% ILA	624,387	304,430	928,817	625,423	302,430	927,852
100% ILA	626,311	283,750	910,061	626,311	283,750	910,061
65% ABP; 35% DLA	593,381	276,072	869,453	609,077	299,355	908,432

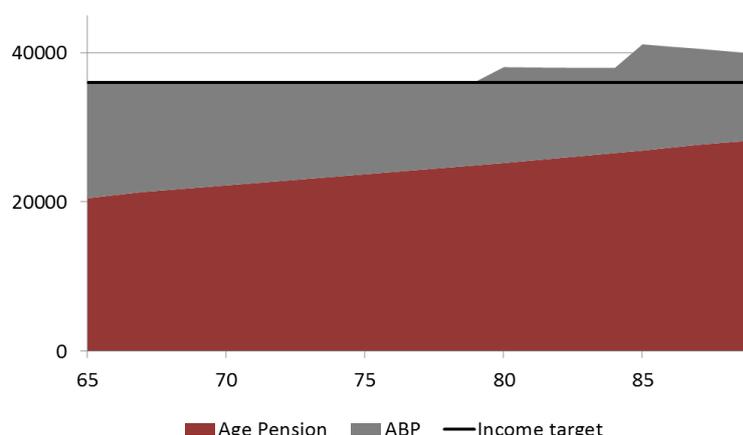
Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

For Martin, the Age Pension acts as an annuity, providing a guaranteed, inflation-protected income for life. With the majority of his income coming from a low-risk source Martin should invest his superannuation into an ABP. This maximises his flexibility to access capital.

In the example shown in figure 17 Martin invests \$250 000 in an ABP which returns 6.5 per cent annually. Assuming he makes withdrawals at the higher rate he meets his income target (\$35 989) each year from a combination of the Age Pension and his ABP, and has access to \$123 234 (2015 dollars) at age 90. Should Martin live beyond age 90, as 40 per cent of his age group are expected to, this would continue to supplement his income from the Age Pension; alternatively it may form a bequest.

Figure 17: Martin’s retirement income (2015 dollars)



Source: ACFS calculations.

‘ANNA AND JAMES’ – A TYPICAL RETIREE COUPLE

Anna and James are a married couple with a total of \$350 000 superannuation at retirement. Their balance is slightly higher than the sum of the average 60-64 year man and woman’s accounts (\$301 000 in 2011-12)(ASFA 2014a). Along with around 80 per cent of people aged 65-69 Anna and James own their home (ABS 2013b). The majority of retirees – 64 per cent of people aged 65-69 – are married making Anna and James the most representative cohort modelled (ABS 2015, 04).

Their target combined income is \$51 284 each year (ASFA modest income plus 5 per cent of their superannuation balance at retirement). This should be sufficient to cover both their ‘essentials’ and desired ‘extras’. How they invests and draw on their superannuation will be dependent on achieving an adequate income, managing longevity, inflation and investment risk, and maintaining some flexibility to access capital.

Table 12 shows Anna and James are unable to achieve their income target every year under any investment combination if they rely on the minimum drawdown rates each year. If they draw down a higher level of income from their ABP they can achieve their income target each year from a number of product combinations. Drawing down their ABP at a higher rate, however, reduces their flexibility to access capital.

Table 12: Anna and James’ retirement income adequacy and flexibility

	Minimum drawdown	Higher drawdown
Years income target achieved (max 25)		
100% ABP	16	25
75% ABP; 25% ILA	17	25
50% ABP; 50% ILA	15	25
100% ILA	10	10
65% ABP; 35% DLA	10	25
Available balance at age 90 (2015 dollars)		
100% ABP	193019	185870
75% ABP; 25% ILA	144764	135359

AIST-ACFS Superannuation in the post-retirement phase

50% ABP; 50% ILA	96510	81569
100% ILA	0	0
65% ABP; 35% DLA	125463	40813

Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

Table 13 shows Anna and James' total retirement income (from age 65 to 90). Because of their financial position Anna and James are eligible for a partial Age Pension from age 65, and will become eligible for the full Age Pension once their assets are sufficiently depleted. Their superannuation savings supplement this income. As the majority of Anna and James' income comes from the Age Pension their investment choice makes relatively little difference to their total income (investing their entire savings in an ILA produced around 9 per cent less income over 25 years than investing his savings in an ABP, using the higher drawdown). Instead the choice of income product depends on Anna and James' trade off between flexibility and risk management.

Table 13: Anna and James' retirement income by source (2015 dollars)

	Minimum drawdown			Higher drawdown		
	Age pension	Income products	Total income	Age pension	Income products	Total income
100% ABP	924,294	455,154	1,379,449	929,174	453,465	1,382,639
75% ABP; 25% ILA	938,402	420,116	1,358,518	941,091	417,749	1,358,840
50% ABP; 50% ILA	942,231	385,077	1,327,308	943,681	382,250	1,325,931
100% ILA	944,776	315,000	1,259,776	944,776	315,000	1,259,776
65% ABP; 35% DLA	922,449	348,403	1,270,852	940,330	366,226	1,306,556

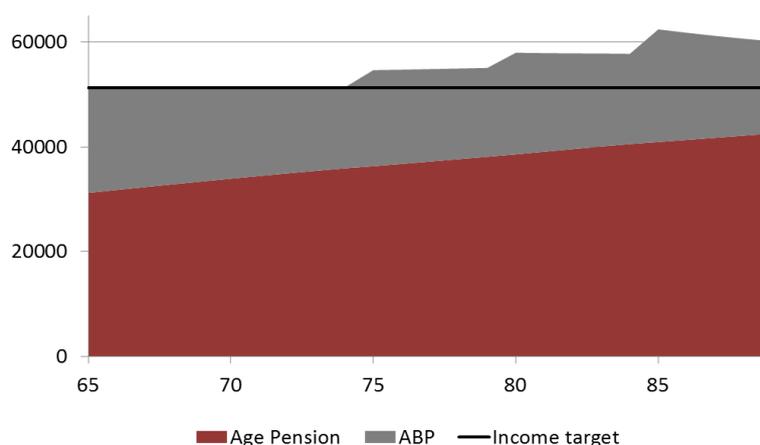
Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

For Anna and James, the Age Pension acts as an annuity, providing a guaranteed, inflation-protected income for life. With the majority of their income coming from a low-risk source Anna and James should invest their superannuation into an ABP. This maximises their flexibility to access capital.

In the example shown in figure 18 Anna and James invest \$250 000 in an ABP which returns 6.5 per cent annually. Assuming they makes withdrawals at the higher rate they meets their income target (\$51 284) each year from a combination of the Age Pension and their ABP, and have access to \$185 870 (2015 dollars) at age 90. Should Anna or James live beyond age 90 this would continue to supplement their income from the Age Pension; alternatively it may form a bequest.

Figure 18: Anna and James' retirement income (2015 dollars)



Source: ACFS calculations.

5.2 A retiree at risk of financial hardship

Denise is a single woman with of \$100 000 superannuation at retirement. She, like around 20 percent of retirees aged 65-74, does not own her own home (ABS 2013b).

Denise represents single people aged 65 and over – identified by the Australian Council Of Social Services as the group most experiencing income poverty (ACOSS 2008, p 6). Financial hardship is exacerbated when the retiree does not own her own home. As the Age Pension means test excludes the primary residence a retiree who owns her home receives the same payment as one who is renting (all other things being equal). Although the Government provides Rent Assistance it pays a maximum rate of \$3338 per year, well below the average yearly rent.¹⁵ The shortfall between Rent Assistance and actual rental costs increases the risk of financial hardship.

The Mercer framework gives Denise's target income at \$28 489 per year (based on the ASFA modest income standard for a single retiree, plus 5 per cent of her superannuation balance at retirement). This figure, however assumes the retiree owns her own home. If the rental cost is added, Denise's target income becomes \$37 435 annually. This should allow for essentials including rent and desired extras. How she invests and draws on her superannuation will be dependent on achieving an adequate income, managing longevity, inflation and investment risk, and maintaining some flexibility to access capital.

Table 14 shows Denise is unable to achieve her income target every year under any investment combination or drawdown strategy. If she draws down income from her ABP at higher than the minimum rate she increases the number of years she attains her income target, however she depletes her savings more quickly reducing her available capital.

¹⁵ Average weekly rental cost for a single person aged 65 or over was \$161 in 2011-12 (ABS 2013). Based on this figure average yearly rent for a single retiree in 2015 is assumed to be \$8946.

Table 14: Denise's retirement income adequacy and flexibility

	Minimum drawdown	Higher drawdown
	Minimum drawdown	
100% ABP	0	12
75% ABP; 25% ILA	0	9
50% ABP; 50% ILA	0	6
100% ILA	0	0
65% ABP; 35% DLA	5	6
	Available balance at age 90 (2015 dollars)	
100% ABP	55,148	0
75% ABP; 25% ILA	41,361	0
50% ABP; 50% ILA	27,574	0
100% ILA	0	0
65% ABP; 35% DLA	35,846	0

Source: ACFS calculations.

Table 15 shows Denise's total retirement income (from age 65 to 90). Because of her financial position Susan is eligible for a full Age Pension and Rent Assistance from age 65. Her superannuation savings supplement this income. As the majority of Susan's income comes from the Age Pension her investment choice makes little difference to her total income (investing her entire savings in an ILA produced around 3 per cent less income over 25 years than investing her savings in an ABP, using the higher drawdown). Instead the choice of income product depends on Denise's trade off between flexibility and risk management.

Table 15: Denise's retirement income by source (2015 dollars)

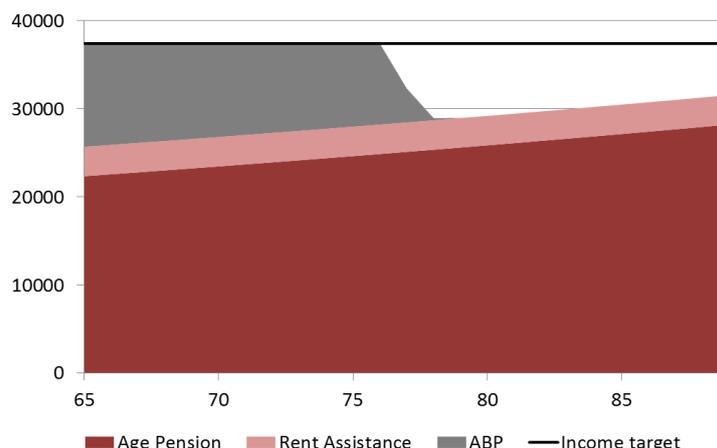
	Minimum drawdown			Higher drawdown		
	Age pension and Rent Assistance	Income products	Total income	Age pension and Rent Assistance	Income products	Total income
100% ABP	629,759	130,044	759,803	629,759	129,291	759,051
75% ABP; 25% ILA	629,759	123,346	753,105	629,759	122,433	752,192
50% ABP; 50% ILA	629,759	116,647	746,406	629,759	115,595	745,354
100% ILA	629,759	103,250	733,009	629,759	103,250	733,009
65% ABP; 35% DLA	629,749	105,091	734,840	629,759	106,517	736,276

Source: ACFS calculations.

For Denise, the Age Pension acts as an annuity, providing a guaranteed, inflation-protected income for life. With the majority of her income coming from a low-risk source Denise should invest her superannuation into an ABP. This maximises her flexibility to access capital.

In the example shown in figure 19 Denise invests \$100 000 in an ABP which returns 6.5 per cent annually. Assuming she makes withdrawals at the higher rate she meets her income target (\$37 435) in the first 12 years of retirement after which her savings are depleted. From this point Denise continues to receive an income from the Age Pension and Rent Assistance, however it is insufficient to meet the cost of rent, essentials and her desired extras.

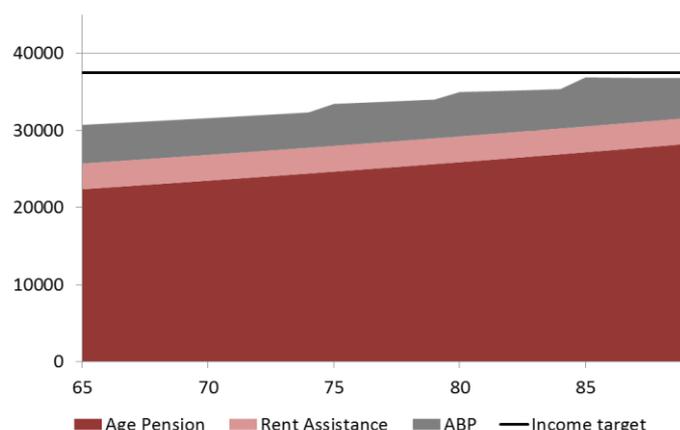
Figure 19: Denise’s retirement income – higher drawdown (2015 dollars)



Source: ACFS calculations.

Figure 20 shows Denise’s retirement income if she makes the same investment as above but opts for the minimum drawdown rate each year. Under this strategy Denise does not meet her income target in any year, however she has \$55 000 capital available at age 90 (2015 dollars).

Figure 20: Denise’s retirement income – minimum drawdown (2015 dollars)



Source: ACFS calculations.

Neither of the strategies above provides a comfortable income for Denise through her retirement. With a relatively low superannuation balance and relatively large income needs Denise is unlikely to be able to meet the established income target regardless of her investment choice.

Denise’s superannuation does, however, significantly improve her quality of life in retirement. If Denise retires with no superannuation savings she can expect to receive \$25 704 in her first year of retirement from the Age Pension and Rent Assistance. As Denise does not own a home her income need each year is the ASFA modest income standard plus her rental cost (\$32 435). Without superannuation Denise would be unable to meet this need and would be forced to forgo ‘fairly basic activities’. Alternatively, if Denise retires with \$100 000 superannuation and invests it in an ABP she is able to cover this income need each year, boost her total income to age 90 by 18 per cent and

retain the flexibility to access some capital to cover unexpected expenses. Table 16 shows the benefit \$100 000 superannuation has on Denise’s retirement income.

Table 16: Denise’s retirement income – by superannuation balance (2015 dollars)

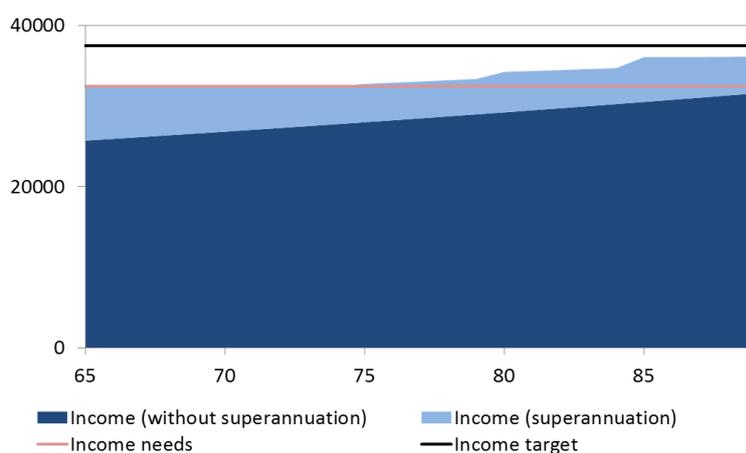
	\$0 superannuation	\$100,000 superannuation
Number of years income needs are met (maximum 25 years)	0	25
Total retirement income to age 90 (\$)	713,219	842,130
Available balance at 90 (\$)	0	48,101

Note: ABP is drawn down so that annual income is equal to at least \$32 435 (after Age Pension and Rent Assistance payments), and the legislated minimum requirement are met.

Source: ACFS calculations.

In figure 21 Denise invests \$100 000 in an ABP which returns 6.5 per cent annually. She falls short of her income target but is able to meet her income *need* (\$32 435) each year from a combination of the Age Pension, Rent Assistance and her ABP, and has access to \$48 101 (2015 dollars) at age 90. Should Denise live beyond age 90, as 52 per cent of her age group are expected to, this would continue to supplement her income from the Age Pension; alternatively it may form a bequest.

Figure 21: Denise’s retirement income from \$100 000 superannuation balance (2015 dollars)



Notes: Income need is the ASFA modest standard plus rental cost. Income target is ASFA modest standard, plus rental cost, plus 5 per cent of Denise’s superannuation balance at retirement.

Source: ACFS calculations.

5.3 A wealthier retiree

Terry is a single man with \$500 000 of superannuation at retirement. Men are significantly more likely to have high superannuation balances than women – in 2011-12 one in eight men aged 60-64 had at least \$500 000 in superannuation, compared to one in twenty women (ASFA 2015b) . Along with around 80 per cent of people aged 65-69 Terry is a home owner (ABS 2013b) . Terry’s target annual income is \$48 489 each year (ASFA modest income standard plus 5 per cent of his superannuation balance at retirement). This should be sufficient to cover both his ‘essentials’ and desired ‘extras’. How he invests and draws on his superannuation will be dependent on achieving an adequate income, managing longevity, inflation and investment risk, and maintaining some flexibility to access capital.

AIST-ACFS Superannuation in the post-retirement phase

Table 17 shows Terry is unable to achieve his income target every year under any investment combination if he relies on the minimum drawdown rates each year. If he draws down a higher level of income from his ABP he can achieve his income target each year from a number of product combinations. Drawing down his ABP at a higher rate, however, reduces his flexibility to access capital.

Table 17: Terry's retirement income adequacy and flexibility

	Minimum drawdown	Higher drawdown
	Number of years income target met (max 25)	
100% ABP	5	25
75% ABP; 25% ILA	8	25
50% ABP; 50% ILA	10	25
100% ILA	5	5
65% ABP; 35% DLA	5	14
	Available balance at age 90 (2015 dollars)	
100% ABP	275,742	120,633
75% ABP; 25% ILA	206,806	67,639
50% ABP; 50% ILA	137,871	9,821
100% ILA	0	0
65% ABP; 35% DLA	179,232	0

Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

Table 18 shows Terry's total retirement income (from age 65 to 90). Because he has no assets outside his superannuation Terry is eligible for a partial Age Pension from age 65. His superannuation savings supplement this income. Even though around half of Terry's income comes from income products his investment choice makes a relatively small difference to his total income (investing his entire savings in an ILA produced around 7 per cent less income over 25 years than investing his savings in an ABP, using the higher drawdown). This is because increased income from the Age Pension partially offsets forgone by lost from increased investment in annuities. Instead his choice of income product depends on Terry's trade off between flexibility and risk management.

Table 18: Terry's retirement income by source (2015 dollars)

	Minimum drawdown			Higher drawdown		
	Age Pension	Income products	Total income	Age Pension	Income products	Total income
100% ABP	416,862	650,220	1,067,083	512,873	699,352	1,212,225
75% ABP; 25% ILA	471,217	629,540	1,100,757	539,414	672,811	1,212,225
50% ABP; 50% ILA	508,239	608,860	1,117,100	562,807	649,418	1,212,225
100% ILA	560,516	567,500	1,128,016	560,516	567,500	1,128,016
65% ABP; 35% DLA	395,536	552,143	947,679	518,466	562,505	1,080,971

Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

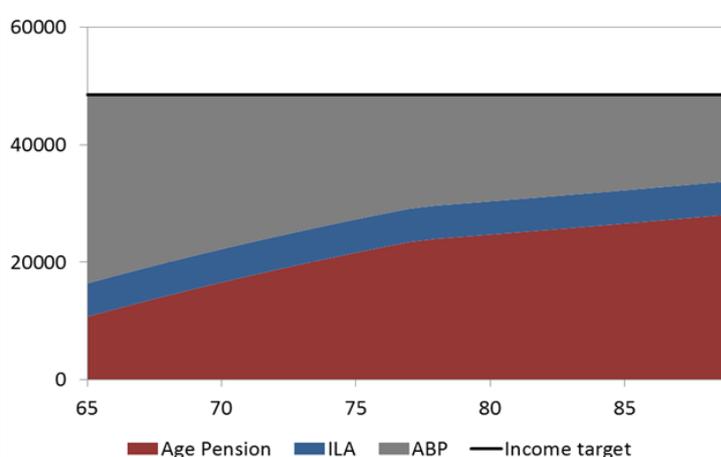
Source: ACFS calculations.

AIST-ACFS Superannuation in the post-retirement phase

For Terry, the Age Pension acts as an annuity, providing a guaranteed, inflation-protected income for life. As Terry receives less than half of his income from the Age Pension he may choose to limit his risk and invest a proportion of his superannuation as an annuity. He should invest more than 50 per cent of his superannuation into an ABP to maintain the flexibility to access capital.

In the example shown in figure 22 Terry invests \$375 000 in an ABP which returns 6.5 per cent annually and \$125 000 in an ILA which pays \$6 504 annually (2015 dollars). Assuming he makes withdrawals at the higher rate he meets his income target (\$48 489) each year from a combination of the Age Pension and his ABP, and has access to \$67 639 (2015 dollars) at age 90. Should Terry live beyond age 90, as 40 per cent of his age group are expected to, this would continue to supplement his income from the Age Pension; alternatively it may form a bequest.

Figure 22: Terry's retirement income (2015 dollars)



Source: ACFS calculations.

CHANGES TO THE AGE PENSION ASSETS TEST

2015 Federal Budget amendments to the Age Pension assets test were passed through the Senate in June 2015. Under the legislation which takes effect from January 2017 the assets test threshold will be lowered and the taper rate raised. (Social Services Legislation Amendment (Fair and Sustainable Pensions) Bill 2015 (Cth))

The threshold, that is the amount of assets a retiree can hold and still be eligible for the full Age Pension, will increase from \$286 500 to \$375 000 for a homeowner couple (with similar rises for non-homeowners and single retirees). Simultaneously, the taper rate, which determines how quickly assets above the threshold reduce the rate of Age Pension paid, will be doubled. The amount of assets a married couple can own (excluding the family home) and still receive a partial Age Pension will decrease from \$1.15 million to \$823 000. The result of the change will be that some retirees currently eligible for only a part Age Pension will become eligible for the full Age Pension, and some who are currently eligible for a part pension will become ineligible for any Age Pension income.

While "typical retiree" cohorts with average superannuation balances are unlikely to be affected by these changes, those on higher balances will. With \$500 000 in superannuation at retirement Terry is eligible for a part Age Pension only. Table 19 shows that the new assets test rules generally do not affect the adequacy of Terry's retirement income. In order to meet his income target under the

new test, however, Terry has less flexibility to access capital at age 90. If he uses the minimum drawdown rates Terry is slightly better off under the new assets test than the current test.

Table 19: Terry's retirement income adequacy and flexibility under the new Age Pension assets test

	Current assets test		New assets test	
	Minimum drawdown	Higher drawdown	Minimum drawdown	Higher drawdown
	Number of years income target met (max 25)			
100% ABP	5	25	5	25
75% ABP; 25% ILA	8	25	8	25
50% ABP; 50% ILA	10	25	10	22
100% ILA	5	5	5	5
65% ABP; 35% DLA	5	14	5	13
Available balance at age 90 (\$2015 dollars)				
100% ABP	275,742	120,633	289,882	87,864
75% ABP; 25% ILA	206,806	67,639	217,412	41,467
50% ABP; 50% ILA	137,871	9,821	144,941	25
100% ILA	0	0	0	0
65% ABP; 35% DLA	179,232	0	188,424	0

Notes: Shaded areas refer to investment and drawdown combinations which provide adequate income each year. The new assets test is applied for Terry's entire retirement.

Source: ACFS calculations.

If he uses the higher drawdown rate the new assets test has little impact on Terry's retirement income adequacy. It does, however, limit the financial assets he has available at age 90. This is because as Terry's Age Pension eligibility reduces (due to the higher taper rate) he draws down an increasing proportion of his income each year from his ABP or annuities in order to meet his income target. Table 20 shows Terry's income from each source under the current and new assets tests.

Table 20: Terry's retirement income by source under the new Age Pension assets test (2015 dollars)

	Age Pension	Income products	Total income	Age Pension	Income products	Total income
100% ABP	512,873	699,352	1,212,225	496,709	715,516	1,212,225
75% ABP; 25% ILA	539,414	672,811	1,212,225	526,988	685,237	1,212,225
50% ABP; 50% ILA	562,807	649,418	1,212,225	553,074	638,324	1,191,398
100% ILA	560,516	567,500	1,128,016	537,200	567,500	1,104,700
65% ABP; 35% DLA	518,466	562,505	1,080,971	503,243	550,100	1,053,343

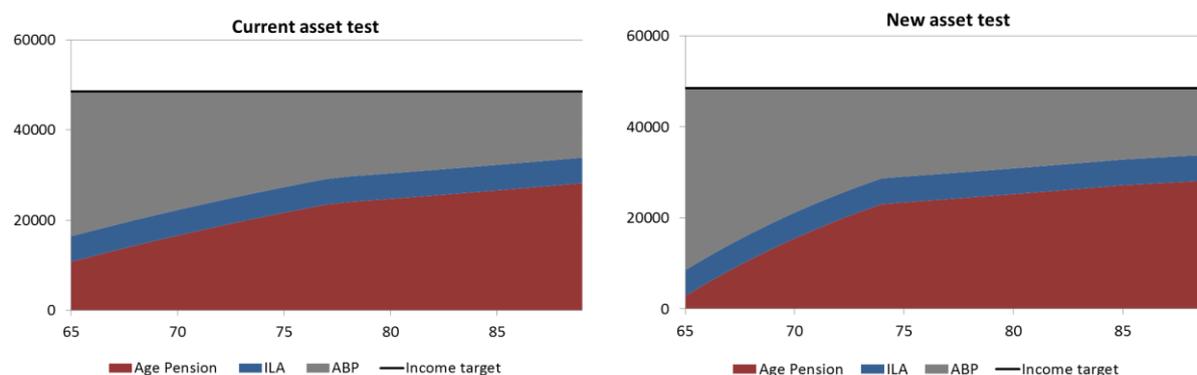
Notes: Shaded areas refer to investment and drawdown combinations which provide adequate income each year. The new assets is applied for Terry's entire retirement.

Source: ACFS calculations.

Figure 23 shows Terry's retirement income under the two assets tests. In both instances he invests \$375 000 in an ABP which returns 6.5 per cent annually and \$125 000 in an ILA which pays \$6 504 annually (2015 dollars). Assuming he makes withdrawals at the higher rate he meets his income

target (\$48 489) each year under either assets test. Under the current assets test Terry has access to \$67 639 (2015 dollars) at age 90, while under the new test he would only have access to \$41 467.

Figure 23: Terry’s retirement income (2015 dollars)



Source: ACFS calculations.

5.4 A retiree who faces a major health event

Mario is a single man with \$500 000 of superannuation at retirement. Around 12 per cent of men aged 60-64 had at least \$500 000 in superannuation in 2011-12 (ASFA 2015b). Along with 80 per cent of people aged 65-69 Mario owns his home (ABS 2013b). Mario’s target income is \$48 489 each year (ASFA modest plus 5 per cent of his superannuation balance at retirement). This should be sufficient to cover both his ‘essentials’ and desired ‘extras’. How he invests and draws on his superannuation will be dependent on achieving an adequate income, managing longevity, inflation and investment risk, and maintaining some flexibility to access capital.

Unlike the other cohorts who have relatively constant income needs through retirement Mario incurs an unexpected health expense at age 80. We estimate this cost at \$80 000 based on the average cost of a bed in a high-care aged facility (Drew, Walk, and Wes 2014, p 5). The chance of needing residential care at some point in retirement is one in three for men and one in two for men aged over 65 (CEPAR 2014a, p 10).

Table 21 shows that if he follows the minimum withdrawal rates Mario will be able to cover his health cost (unless he invests his entire savings into an ILA), however he will fail to meet his income target in most years. Alternatively, if he uses the higher drawdown strategy he will meet his income target most years (unless he invests his entire savings into an ILA) but he reduces his flexibility to access capital and can only afford the health expense if he invests no more that 25 per cent of his superannuation into an annuity.

Table 21: Mario’s retirement income adequacy and flexibility

	Minimum drawdown	Higher drawdown
	Able to afford full health/ aged care cost?	
100% ABP	Yes	Yes
75% ABP; 25% ILA	Yes	Yes
50% ABP; 50% ILA	Yes	No

AIST-ACFS Superannuation in the post-retirement phase

100% ILA	No	No
65% ABP; 35% DLA	Yes	No
Years income target achieved (max 25)		
100% ABP	3	25
75% ABP; 25% ILA	1	21
50% ABP; 50% ILA	1	15
100% ILA	5	5
65% ABP; 35% DLA	5	14
Available balance at age 90 (2015 dollars)		
100% ABP	213,309	2,068
75% ABP; 25% ILA	144,373	0
50% ABP; 50% ILA	75,438	0
100% ILA	0	0
65% ABP; 35% DLA	163,960	4

Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

Source: ACFS calculations.

Table 22 shows Mario's total retirement income (from age 65 to 90). Because he has no assets outside his superannuation Mario is eligible for a partial Age Pension from age 65. His superannuation savings supplement this income. Compared with Terry, Mario receives a similar income from the Age Pension, but draws down significantly more from his income products (table 18). This increases his total retirement income, but exhausts his available capital by age 90.

Table 22: Mario's retirement income by source (2015 dollars)

	Minimum drawdown			Higher drawdown		
	Age pension	Income products	Total income	Age pension	Income products	Total income
100% ABP	443,793	685,846	1,129,639	520,149	784,618	1,304,767
75% ABP; 25% ILA	484,896	665,166	1,150,062	544,339	708,011	1,252,350
50% ABP; 50% ILA	519,764	644,486	1,164,250	564,772	641,728	1,206,500
100% ILA	560,516	567,500	1,128,016	560,516	567,500	1,128,016
65% ABP; 35% DLA	414,923	587,769	1,002,692	518,466	562,505	1,080,971

Note: Shaded areas refer to investment and drawdown combinations which provide adequate income each year.

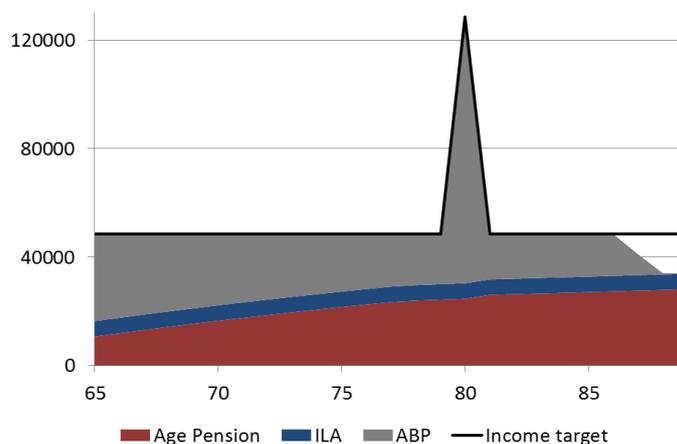
Source: ACFS calculations.

For Mario, the Age Pension acts as an annuity, providing a guaranteed, inflation-protected income for life. As Mario's health cost was unexpected he would likely have attempted to limit his risk and invest a proportion of his superannuation as an annuity, and drawn down his ABP at the higher rate. Had he anticipated this health cost he might have invested his entire savings into an ABP and made smaller withdrawals in an attempt to maximise his available capital.

In the example shown in figure 24 Mario invests \$375 000 in an ABP which returns 6.5 per cent annually and \$125 000 in an ILA which pays \$6504 annually (2015 dollars). At age 80 he has an additional, one-off health or aged-care expense of \$80 000. Assuming he makes withdrawals at the higher rate he can afford this health expense and meet his income target (\$48 489) until age 86

through a combination of the Age Pension and his ABP. After this point his savings are exhausted, however he will still receive an income from the Age Pension and his ILA.

Figure 24: Mario's retirement income (2015 dollars)



Source: ACFS calculations.

6 Conclusions for retirement income solutions

From the forgoing a number of general observations can be made about the selection of an appropriate retirement income solutions, and the best ways for trustees to influence member behaviour.

6.1 Observations

Discussion of retirement income often considers either income from superannuation or the Age Pension individually (National Seniors Australia 2015; Cooper 2015). Our analysis (and modelling from the *National Commission of Audit*) shows that the majority of retirees will continue to receive a part pension, even as superannuation balances grow (The Australian Government 2014, p 81). Changes to the Age Pension and assessment of income stream products under the means test will likely change the interplay between these two income sources. To gain an accurate picture of retirement income superannuation and the Age Pension must be considered side by side. A reduction to Age Pension eligibility may not necessarily reduce retirement income if the shortfall can be made up from superannuation income. The Age Pension can be seen as a form of longevity insurance, crowding out the market for lifetime annuities, especially for retirees with relatively low savings.

The Age Pension forms a large component of retirement income for the cohorts modelled – even those with high superannuation balances. This is partly because the model does not include financial assets stored outside superannuation (which will reduce pension eligibility under the means test) and because the primary residence is exempt from the means test. In reality, many retirees will have significant assets outside their super which can contribute to their retirement income (and decrease their reliance on the Age Pension). Any future changes to include the primary residence in the Age Pensions means test could significantly reduce eligibility for the pension.

AIST-ACFS Superannuation in the post-retirement phase

The analysis presented found an income target¹⁶ could be achieved (on average) each year for most cohorts by investing their superannuation balance either fully in an ABP, or by investing in a combination of an ABP and a lifetime annuity¹⁷. For retirees with lower balances the highest NPV income was generated by investing solely in an ABP. For investors with moderate balances, highest NPV income came from a combination of ABP and annuities (usually a 25 per cent investment in ILA), while those with relatively high balances investing in an ABP or combination of ABP and ILA (up to 50 per cent ILA) generated the same total income through retirement.

Investment in ABPs generated larger returns than investment in annuities (on average). This, teamed with the flexibility of an ABP meant larger investment in ABPs offered retirees the greatest pool of available capital. Savings invested in annuities, alternatively, could not be withdrawn, providing little flexibility if access to capital was required. Investing a larger portion of their savings into an annuity, however, offered retirees the ability to manage risk, inflation and longevity risk. Without this, the retiree would be reliant on the Age Pension should they deplete their ABP. Assuming income needs can be met throughout retirement, the choice between income products will depend on the retiree's preference between risk management and flexibility.

The scenarios modelled showed drawing down income from an ABP at the minimum rate was insufficient to attain an adequate income each year. The minimum drawdown rate was designed to provide longevity protection by ensuring accounts were not depleted throughout the retiree's life. Making withdrawals at this rate therefore provided relatively little income in the early years of retirement, accumulating a large balance to be used in later years or form a bequest. Drawing down a higher rate¹⁸, increased the number of years an adequate income was achieved and significantly boosted income in the first 10 years of retirement. This depleted the account more quickly however, reducing available capital.

Investing in a DLA allowed relatively high draw down (and account depletion) through the deferral period, while guaranteeing longevity protection. The full benefit of investing in DLAs was not seen in modelling as income was only modelled to age 90 (and DLAs began paying income at age 85). A retiree with a longer life expectancy would benefit more from investment in a lifetime annuity.

An ABP drawdown rate based on achieving a target income level each year is appropriate for most cohorts. For a retiree who did not own her home and therefore had high income needs and a relatively low superannuation balance, this drawdown rate was too generous and resulted in her depleting her savings well before age 90 (under any investment combination). For this cohort it was more appropriate to draw down income to cover only essentials each year¹⁹. This income level was achievable each year and retained a pool of capital on which she could draw on to cover any extra expenses.

¹⁶ The 'income target' comprises the ASFA modest income standard of \$23 489 for a single or \$33 784 for a couple, plus 5 per cent of the starting superannuation balance each year. Based on (Mercer 2015b).

¹⁷ The exceptions were a retiree at risk of economic hardship, who could only attain a lower income level, and a retiree who faced a large, unexpected health cost and needed the flexibility of an ABP to access a large amount of capital.

¹⁸ The 'higher' drawdown rate is used such that total annual income equals the Mercer income target, and ABP drawdown satisfies the minimum legislated requirement.

¹⁹ 'Essentials' comprise the ASFA modest income standard \$xx plus rental costs.

6.2 Retirement income decision-making

Retirees face three key decisions regarding their retirement income:

1. Should they take their superannuation savings as a lump sum or roll them over into an income stream?
2. Which income products should they invest in?
3. How should they draw down income from their ABP?

As discussed, these questions are complex and many retirees will require assistance in choosing the best options to suit their circumstances. In order to provide useful advice and offer a suitable CIPR trustees need to know a great deal about their members' financial position, revolving around four key aspects.

First, *what sources of retirement income are available?* Primarily, trustees have been concerned with a member's superannuation balance at retirement. This, however, provides an incomplete picture as most retirees will receive a partial Age Pension. Calculating the amount of Age Pension (and Rent Assistance) a retiree is entitled to will depend on their marital status and asset holdings. Knowledge of other assets is also required as these may provide retirement income and limit eligibility for the pension.

Second, *how much income is required?* This figure will fluctuate significantly across member cohorts. Some factors which influence income needs include life expectancy and health. Household composition – whether the retiree lives alone, with a partner or has dependant children are also important. This modelling shows the impact of housing costs for non-homeowners on income needs is substantial and is largely unmet by welfare payments. The modelling assumed retirees had no debt, but in reality around 10 per cent of retirees have a home mortgage (ABS 2013b). Repayments on mortgages and other loans should be included in calculations of retirement income needs. Finally, retirees will have differing expectations of lifestyle in retirement and correspondingly different income requirements to cover the cost of 'extras'. Using a framework comprising of a base level to cover necessities and a variable component to afford extras may be a more useful starting point for estimating income needs than relying on one of ASFA's standard income levels.

Third, *what is their risk tolerance?* As discussed, on average, retirees should be able to achieve their income target (on average) from a number of retirement income product combinations. In choosing between these options trustees, therefore, have to understand retiree's risk tolerance and trade off the desire for risk management with the desire for flexibility (and a bequest motive).

Fourth, *what are the current and expected market conditions?* Annuity rates are locked in at the time of purchase, while ABP returns fluctuate with the market. Thus, if interest rates are strong at the point of retirement annuities will be a more attractive investment. Alternatively, if interest rates are relatively low and market conditions seem strong, a greater proportion of the investment should be allocated to an ABP.

Ideally, trustees would have a detailed knowledge of their fund's member demographic and offer a default CIPR based on this information. Where these details are unknown trustees will have to make

assumptions based what they do know of their members. Trustees may offer the following defaults based on their members' account balances:

- Balances below \$100 000 – this cohort should be encouraged to use superannuation to pay off any outstanding debts. If significant funds remain they could be invested into an ABP or withdrawn and invested outside the superannuation system. The majority of income will be delivered by the Age Pension.
- Balances between \$100 000 and \$250 000 – this cohort should be encouraged to invest their superannuation into an ABP. These members are unlikely to have significant savings outside the superannuation system and a large proportion of their income will come from the Age Pension. The Age Pension will provide some longevity management and savings should instead seek to augment income.
- Balances between \$250 000 and \$500 000 – this cohort should be encouraged to invest the majority of their superannuation in an ABP with some annuitisation to manage longevity risk. While this level of superannuation alone will not preclude members from receiving the Age Pension, this cohort is likely to have assets outside the superannuation system. As such they may not receive much income from the Age Pension, and changes to the means test will likely further limit their eligibility.
- Balances above \$500 000 – this cohort should be encouraged to invest the majority of their superannuation in an ABP with some annuitisation to manage longevity risk. This level of superannuation alone does not prevent eligibility for a partial Age Pension, however this cohort is expected to have significant assets outside the superannuation system. As such they may not receive any Age Pension until they have spent down some of their assets.

6.3 Influencing decision making

The FSI's recommendation that trustees should offer their members a 'default' CIPR is based on two observations. First, that a number of complex financial decisions must be undertaken at the point of retirement which many retirees are ill-equipped for, leading to negative outcomes for individuals and society. Second, that a passive behavioural bias can be exploited to encourage people to make better financial decisions without limiting their personal choice. Research has found that defaults are most effective when people don't have clear preferences or are confused about the choices offered. Where people have clear preferences defaults have little impact on behaviour – thus a default does not limit personal choice (Sunstein 2013).

The use of defaults in the accumulation phase has been very successful at manipulating member behaviour – research suggests only 10 per cent of workers choose their own superannuation fund (Ernst & Young 2008). There is some evidence that fund members become more engaged as they approach retirement and defaults used in the decumulation phase may therefore be less effective than those in accumulation. There are, however, a large number of retirees who rely on quasi-defaults for guidance. For example, the majority of retirees drawdown their ABP at the minimum withdrawal rate only despite this limiting their quality of life in the early years of retirement.

Section 6.2 established that the first decision many people make regarding their superannuation at retirement is whether to withdraw their savings as a lump sum or an income stream. Evidence

suggests that people with low account balances generally opt for a lump sum, while those with higher balances choose an income stream product (Rice Warner 2015). Taking a low balance as a lump sum may be appropriate (particularly if it is used to pay off any remaining debts at retirement). Currently, the Government's tax break on superannuation earnings offers some incentive for people to keep their savings in a superannuation product post-retirement.

The first opportunity for trustees to influence retirees' decision making is through their provision of information to members. Research shows that presenting superannuation in a consumption frame is more likely to move members to purchase retirement income products (Brown et al. 2008; Brown et al. 2013). This is consistent with recommendation 37 from the FSI which advises:

Publish retirement income projections on member statements from defined contribution superannuation schemes using Australian Securities and Investments Commission (ASIC) regulatory guidance.

Facilitate access to consolidated superannuation information from the Australian Taxation Office to use with ASIC's and superannuation funds' retirement income projection calculators. (The Australian Government the Treasury 2014c)

The second stage for trustees is to assist members in selecting an income product, or combination of products. Recent figures show almost 95 per cent of savings are invested into an ABP and only 5 per cent in annuities. The modelling in this report and research by Ishkakov, Thorp and Bateman (Ishkakov, Thorp, and Bateman 2014) suggest that retirees with higher account balances will be better off with some investment in annuities. If trustees are going to offer some members a default CIPR which contains an annuity they first need to explain what this is. Research has found that most Australian workers do not understand annuities (Agnew, Bateman, and Thorp 2012). Yet over 60 per cent of workers aged 50 or over are 'worried' or 'extremely worried' about outliving their savings (National Seniors Australia 2013). Explaining to members that a lifetime annuity will supplement their income from the Age Pension until their death could go a long way to alleviating this fear. Further, international research has found that most retirees will invest in annuities if they are offered as the default product, whereas the majority take a lump sum in the absence of a default (Butler and Teppa 2007).

The third opportunity for trustees to improve retirement outcomes for their members is by advising them on how to draw down income. Currently, fears of outliving their savings seem to cause retirees to withdraw income very conservatively. Although exact figures on drawdown rates are not known, the majority of retirees appear to withdraw income from their ABP at the minimum rate (Australian Government Actuary 2014a). This rate was designed to provide a reasonably level income pattern with no risk of outliving savings. On average a man retiring at 65, investing in an ABP and using the minimum withdrawal rates will use on 69 per cent of his savings over his lifetime (Australian Government Actuary 2014a). A recent study by Wu et al (2015) found a median retiree had, at death, wealth equivalent to 90 per cent of their wealth at retirement (that is, they consumed only 10 per cent of their assets through retirement). The study further noted none of the couples observed had an annual income above the ASFA comfortable standard and only the top two quintiles had an income level above even the modest standard. When trustees shift from publishing a projected lump sum to retirement consumption on member statement they will publish the income that can be

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withdrawn so that the account lasts until a given date.²⁰ Further guidance showing the expected level of income that can be achieved (and therefore the withdrawals a retiree may choose to make) each year may encourage retirees to increase their level of retirement income and improve their quality of life.

²⁰ For example, the ASIC Retirement Planner shows the level of annual income that can be achieved from the Age Pension and superannuation, assuming superannuation savings are depleted by age 90. After this point the retiree will rely on income from the Age Pension alone. (ASIC 2015).

References

- ABS (Australian Bureau of Statistics). 2013a. *Household Economic Wellbeing Fact Sheets*. <http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/6523.0Main%20Features62011-12>.
- . 2013b. *Housing Occupancy and Costs, 2011-12*.
- . 2014. *Household Wealth and Wealth Distribution, 2011-12*.
- . 2015. *T04 Registered Marital Status by Age by Sex*. *ABS.Stat (BETA)*. http://stat.abs.gov.au/Index.aspx?DataSetCode=ABS_CENSUS2011_T04#.
- ACOSS (Australian Council of Social Service). 2008. *Who Is Missing out? Hardship among Low Income Australians*.
- Actuaries Institute. 2014. *Submission to the Financial System Inquiry*. <http://www.actuaries.asn.au/Library/Submissions/FinancialServicesReform/2014/140325FinancialSystemInquiry.pdf>.
- AFTS (Australia's Future Tax System) Secretariat. 2009. *Australia's Future Tax System: The Retirement Income System : Report on Strategic Issues*. The Australian Government The Treasury. http://taxreview.treasury.gov.au/content/downloads/retirement_income_report_strategic_issues/retirement_income_report_20090515.pdf.
- Agnew, Julie, Hazel Bateman, and Susan Thorp. 2012. *Financial Literacy and Retirement Planning in Australia*. http://www.cepar.edu.au/media/102504/wp1220_financial_literacy_and_retirement_planning_in_australia_dec12.pdf.
- ASFA (Association of Superannuation Funds of Australia). 2014a. *An Update on the Level and Distribution of Retirement Savings*.
- . 2014b. *Financial System Inquiry Submission*.
- . 2014c. *ASFA Retirement Standard September Quarter 2014*.
- . 2015a. *ASFA Retirement Standard*.
- . 2015b. *Superannuation and High Account Balances*.
- ASIC. 2015. *Retirement Planner*. *Money Smart*. June. <https://www.moneysmart.gov.au/tools-and-resources/calculators-and-apps/retirement-planner>.
- Australian Government Actuary. 2014a. *Towards More Efficient Retirement Income Products*. <http://fsi.gov.au/files/2014/12/Towards-more-efficient-retirement-income-products.pdf>.
- . 2014b. *Australian Life Tables 2010-12*.
- Brownfield, Christine. 2014. *The Fourth Pillar – The Role of Home Equity Release in Retirement Funding*. <http://actuaries.asn.au/Library/Events/FSF/2014/BrownfieldFourthPillarPaper140505.pdf>.
- Brown, Jeffrey R, Jeffrey R Kling, Sendhill Mullainathan, and Marian V Wrobel. 2008. *Why Don't People Insure Late Life Consumption: A Framing Explanation of the under-Annuitization Puzzle*. *American Economic Review* 98(2): 304–9.
- Brown, Jeffrey R, Jeffrey R Kling, Sendhil Mullainathan, and Marian V Wrobel. 2013. *Framing Lifetime Income*.

- Burnett, John, Kevin Davis, Carsten Murawski, Roger Wilkins, and Nicholas Wilkinson, eds. 2014. *Measuring Adequacy of Retirement Savings. 5/14*, Melbourne Institute working paper series, .
https://www.melbourneinstitute.com/downloads/working_paper_series/wp2014n05.pdf.
- Butler, Monica, and Federica Teppa. 2007. *The Choice between an Annuity and a Lump Sum: Results from Swiss Pension Funds*.
- CEPAR (Centre for Excellence in Population Ageing Research). 2014a. *Aged Care in Australia: Part I – Policy, Demand and Funding*.
http://www.cepar.edu.au/media/127442/aged_care_in_australia_-_part_i_-_web_version_fin.pdf.
- . 2014b. *A statistical portrait of the older Australian*. OLDER AUSTRALIAN FACT SHEET.
http://cepar.edu.au/media/136772/statistical_portrait_average_older_australian.pdf.
- Challenger. 2015. *Correspondence*.
- Cooper, Jeremy. 2015. *Before Super Tax Changes, Remember the Pension Is Worth \$1 Million*. *Australian Financial Review*, April 19.
- Cowan, Simon, and Matthew Taylor. 2015. *The Age Old Problem of Old Age: Fixing the Pension*. CIS. <http://cis.org.au/images/stories/research-reports/rr3.pdf>.
- David Schneider, Paul Newfield, and Jeffrey Chee. 2015. *Customisation of Post-Retirement*. presented at the Actuaries Institute, June 1.
- Drew, Michael E., Adam N. Walk, and Jason M. Wes. 2014. *Withdrawal Capacity in the Face of Expected and Unexpected Health and Aged-Care Expenses during Retirement*.
- Ernst & Young. 2008. *The Super Iceberg: What's Beneath the Surface of Choice?*
- Financial Planning Magazine. 2015. *Deeming of Account Based Pensions Post 1 January 2015*.
- Iskhakov, Fedor, Susan Thorp, and Hazel Bateman. 2014. *Optimal Annuity Purchases for Australian Retirees*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2489737.
- Klapdor, Michael. 2014. *Changed Indexation of Pensions and Tightened Eligibility for All Benefits – Parliament of Australia*. *Parliament of Australia, Parliamentary Library of Australia*. May.
http://www.aph.gov.au/about_parliament/parliamentary_departments/parliamentary_library/pubs/rp/budgetreview201415/indexation.
- Mercer. 2013. *Meeting the Retirement Income Challenge*.
<http://www.mercer.com.au/content/dam/mercer/attachments/asia-pacific/australia/SRI-Retirement-Incomes-0413.pdf>.
- . 2014. *Post-Retirement Market Trends in Australia*.
http://www.mercer.com.au/content/dam/mercer/attachments/asia-pacific/australia/investment/Mercer_Post-Retirement-Market-Trends-In-Australia-June2014.pdf.
- . 2015a. *AIST Mercer Super Tracker*. March.
<http://www.mercer.com.au/content/dam/mercer/attachments/asia-pacific/australia/insights/AIST-Mercer-Super-Tracker.pdf/Aist-Mercer-Super-tracker.pdf>.
- . 2015b. *Retirement Income - A Framework for a Complex Problem*.

- <http://www.mercer.com.au/content/dam/mercer/attachments/asia-pacific/australia/insights/financial-system-inquiry/retirement-income-paper-mercer-2015.pdf>.
- National Seniors Australia. 2013. *Retirees' Needs and Their (In)Tolerance for Risk*. https://www.nationalseniors.com.au/sites/default/files/Retirees_Needs_Tolerance_For_Risk.pdf.
- . 2015. *2015 Pension Cuts Campaign*. National Seniors Australia. June. <http://nationalseniors.com.au/be-heard/retirement-income/2015-pension-cuts-campaign>.
- OECD (Organisation for Economic Co-operation and Development). 2009. *OECD Private Pension Outlook 2008*.
- Parliament of the Commonwealth of Australia. 1995. *Super Guarantee: Its Track Record*. http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Significant_Reports/supercctte/suprep15/~/_media/wopapub/senate/committee/history/super_ctte/suprep15/report.ashx.
- Phil Gallagher. 2011. *Treasury Measurement of Retirement Income Adequacy*. presented at the FEAL Pre-Forum discussion, February. http://www.feal.asn.au/multiattachments/3282/DocumentName/Forum11_Phil_Gallagher.pdf.
- Power, Trish. 2015. *Super for Beginners, Part 22: How Do You Speak 'superannuation' (... in 20 Words)? - SuperGuide*. *Super Guide*. Accessed June 23. <http://www.superguide.com.au/how-super-works/how-do-you-speak-superannuation>.
- Productivity Commission. 2012. *Default Superannuation Funds in Modern Awards*.
———. 2015. *Superannuation Policy for Post-Retirement*. <http://www.pc.gov.au/research/completed/superannuation-post-retirement/super-post-retirement-volume1.pdf>.
- Rice Warner. 2014. *Ageing and Capital Flows*. <http://www.actuaries.asn.au/Library/Reports/2014/AgeingandCapitalFlows.pdf>.
- . 2015. *Colonial First State Income Stream Index 2014*.
- Society of Actuaries. 2014. *Employees' Retirement Choices, Perceptions and Understanding: A Review of Selected Survey and Empirical Behavioral Decision-Making Research*.
- Speelman, Craig P, Marilyn Clark-Murphy, and Paul Gerrans. 2013. *Decision Making Clusters in Retirement Savings: Preliminary Findings*. <https://www.business.unsw.edu.au/research-site/cps-site/Documents/C.P.%20Speelman,%20M.%20Clark-Murphy%20and%20P.%20Gerrans%20-%20Decision%20Making%20Clusters%20in%20Retirement%20Savings.pdf>.
- Sunstein, Cass R. 2013. *Deciding by Default*. *University of Pennsylvania Law Review* 162 (1): 1–57.
- The Australian Government. 2009. *Australia's Future Tax System*. Canberra. http://taxreview.treasury.gov.au/content/downloads/final_report_part_2/afts_final_report_part_2_vol_2_consolidated.pdf.
- . 2014. *Towards Responsible Government: The Report of the National Commission of Audit- Phase 1*.
- The Australian Government the Department of Human Services. 2015. *Age Pension*. Australian Government Department of Human Services. February. <http://www.humanservices.gov.au/customer/services/centrelink/age-pension>.

- The Australian Government the Treasury. 2010. *Australia to 2050: Future Challenges : The 2010 Intergenerational Report*.
http://archive.treasury.gov.au/igr/igr2010/report/pdf/IGR_2010.pdf.
- . 2013. *A Super Charter: Fewer Changes, Better Outcomes, Charter of Superannuation Adequacy and Sustainability*.
http://www.treasury.gov.au/Policy-Topics/SuperannuationAndRetirement/supercharter/~media/Treasury/Policy%20Topics/Superannuation/supercharter/Downloads/PDF/super_charter_report.ashx.
- . 2014a. *Financial System Inquiry Interim Report*.
http://fsi.gov.au/files/2014/07/FSI_Report_Final_Reduced20140715.pdf.
- . 2014b. *Review of Retirement Income Stream Regulation*.
<http://www.treasury.gov.au/~media/Treasury/Consultations%20and%20Reviews/Consultations/2014/Review%20of%20retirement%20income%20stream%20regulation/Key%20Documents/PDF/Dicussion-paper.ashx>.
- . 2014c. *Financial System Inquiry Final Report*.
http://fsi.gov.au/files/2014/11/FSI_Final_Report.pdf.
- The Commonwealth of Australia. 2015. *2015 Intergenerational Report Australia in 2055*.
http://www.treasury.gov.au/~media/Treasury/Publications%20and%20Media/Publications/2015/2015%20Intergenerational%20Report/Downloads/PDF/2015_IGR.ashx.
- The World Bank. 1994. *Averting the Old Age Crisis*.
- Wu, Shang, Anthony Asher, Ramona Meyricke, and Susan Thorp. 2015. *Age Pensioner Profiles: A Longitudinal Study of Income, Assets and Decumulation*.

Appendix 1: Methodology and assumptions

1. About retirees

All workers retire at age 65.

Incomes for the following cohorts of retirees are modelled:

1. single, homeowner, \$100 000 superannuation
2. single, homeowner, \$250 000 superannuation
3. married, homeowners, \$350 000 superannuation balance
4. single, non-homeowner, \$100 000 superannuation balance
5. single, homeowner, \$500 000 superannuation balance.

Retirees' only assets are their superannuation and primary residence.

Retirees have no debts.

At retirement all superannuation savings are immediately invested in one of the following investment combinations:

1. 100% invested in an account-based pension (ABP)
2. 75% invested in an ABP and 25% in an immediate lifetime annuity (ILA)
3. 50% invested in an ABP and 50% in an ILA
4. 100% invested in an ILA
5. 65% invested in an ABP and 35% in a deferred lifetime annuity (DLA).

No superannuation is left in an accumulation account or invested elsewhere.

All income is consumed each year (that is, no money is saved or reinvested).

2. Income levels

A retiree's annual income *target* is given by the Association of Superannuation Funds of Australia (ASFA) modest income standard (\$23 489 for a single, \$33 784 for a couple in 2015)²¹, plus 5 per cent of their superannuation balance at retirement, plus rental cost (if applicable). This is based on Mercer's *Retirement Income Framework* – designed to cover the cost of essentials and extras²² – as well as including housing costs. The income target level increases annually in line with the consumer price index (CPI).

A retiree's annual income *need* is given by ASFA modest standard plus rental cost (if applicable). This income level is designed to only cover the cost of essentials. The level of income need increases annually in line with CPI. Table 1 shows the income target and income need for the five cohorts modelled.

²¹ (ASFA 2014c)

²² (Mercer 2015b)

Table 1: Income targets (2015 dollars)

Cohort	Income target	Income need
Single, homeowner, \$100 000 superannuation	\$28,489	\$23,489
Single, homeowner, \$250 000 superannuation	\$35,989	\$23,489
Married, homeowners, \$350 000 superannuation balance	\$51,284	\$33,784
Single, non-homeowner, \$100 000 superannuation balance	\$37,435	\$32,435
Single, homeowner, \$500 000 superannuation balance	\$48,489	\$23,489

Source: ACFS calculations

Additional expenses

Some of the cohorts modelled face additional expenses. We assume retirees who do not own their homes rent at a cost of \$8 946 (in 2015)²³. The rental cost increases annually in line with CPI.

The cost of a one-off health or aged care expense is assumed to be \$80 000 (in 2015 dollars). This is based on the average cost of a bed in a high-care facility (Drew, Walk, and Wes 2014).

3. Income sources

Retirement income may come from five sources:

1. Age Pension
2. Rent Assistance
3. ILA
4. DLA
5. ABP

3.1 Age Pension

The amount of income received under the Age Pension each year is dependent on two means tests – the assets test and the income test. The actual payment received each year is the lower of the two. The payment is also bounded – it cannot be negative or exceed the maximum Age Pension rate. Pension payment, $P(t)$, is given by the function:

$$P(t) = f(D_t, W_t) = \max(0, \min(P_m, \min(P_a, P_i))),$$

where P_m is the annual maximum pension rate, P_a is the pension payment determined by the assets test, and P_i is the pension payment determined by the income test.

The payments are subject to the following rules:

$$P_a(t) = P_{m(t)} - (W_{(t)} - L_{a(t)})\Theta_a,$$

$$P_i(t) = P_{m(t)} - (D_{(t)} - L_{i(t)})\Theta_i,$$

²³ Average weekly rental cost for a single person age 65 or over was \$161 in 2011-12 (ABS 2013b).

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where W_t denotes the pensioner's assessable assets at year t . $L_{a(t)}$ denotes the assets test lower threshold at the year t and Θ_a is the taper rate. Hence under the assets test, for every dollar of wealth above L_a , the maximum pension will be reduced by Θ_a dollars.

Similar rules apply to the income test where $D_{(t)}$ denotes the pensioner's deemed income at that time t , $L_{i(t)}$ the income test lower threshold at time t , and Θ_i the taper rate. Hence under the income test, for every dollar of deemed income above L_i , the maximum pension will be reduced by Θ_i dollars.

As we assume pensioners' only assets are their superannuation and a primary residence their assessable assets, $W(t)$, can be expressed:

$$W(t) = W_{ILA(t)} + W_{DLA(t)} + W_{ABP(t)},$$

where W_{ILA} is the ILA asset value, W_{DLA} is the DLA asset value and W_{ABP} is the ABP account balance. The asset value of annuities (for social security purposes) decreases by a constant amount each year (the deduction amount), representing the annual return of capital. The asset value of annuities cannot be negative and is given by:

$$W_{ILA}(t) = W_{ILA(0)} - t(W_{ILA(0)} / RN),$$

$$W_{DLA}(t) = W_{ILA(0)}, t \leq 20$$

$$W_{DLA}(t) = W_{ILA(0)} - ((t - 20)(W_{ILA(0)} / RN)), t \geq 20$$

where $W_{ILA(0)}$ is the initial investment in ILA and RN is the life expectancy at the time the investment was made.²⁴ Thus the asset value of an ILA decreases by the deduction amount each year.

Deferred annuities are not currently offered and, as such, their treatment under the means test is unknown. We assume that their asset value is constant during the deferral period, before declining by the deduction amount each year.

The ABP balance, $W_{ABP}(t)$, is described by:

$$W_{ABP}(t) = W_{ABP(t-1)} + 0.065W_{ABP(t-1)} - Y_{ABP(t-1)},$$

where the return on ABP investment is 6.5% and $Y_{ABP}(t-1)$ is the income drawn down from the account in the previous year. That is, each year the account produces returns of 6.5% (nominal) and income is withdrawn at the level Y .

Retirement income products are also subject to the income test component of the Age Pension means test. As the pensioner is retired, deemed income, $D(t)$, is given by:

$$D(t) = D_{ILA} + D_{DLA} + D_{ABP},$$

where D_{ILA} is the deemed income from an ILA, D_{DLA} is the deemed income from a DLA and D_{ABP} is the deemed income from an ABP. The deemed income cannot be negative, and for an annuity is given by:

$$D_{ILA}(t) = Y_{ILA(t)} - (W_{ILA(0)} / RN),$$

²⁴ From *Australian Life Tables 2010-12* the relevant number for a 65 year old man is 19.2, and for a 65 year old woman is 21.6. Joint accounts use the higher (female) life expectancy. (Australian Government Actuary 2014b).

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$$D_{DLA}(t) = Y_{DLA}(t) - (W_{DLA(0)} / RN),$$

where $Y_{ILA}(t)$ is the income from an ILA and $Y_{DLA}(t)$ is the income from a DLA in year t . Account-based pensions (and other financial assets) are deemed to produce income regardless of the actual income generated. The deemed income from an ABP, $D_{ABP}(t)$, is given by:

$$D_{ABP}(t) = W_{ABP}(t) \times 0.0175, \text{ ABP} \leq L_{d(t)}$$

$$D_{ABP}(t) = (0.0175 \times L_{d(t)}) + 0.0325 \times (W_{ABP}(t) - L_{d(t)}), \text{ ABP} > L_{d(t)},$$

where $L_{d(t)}$ is the deeming threshold in year t . That is, financial assets up to the deeming threshold are deemed to earn 1.75% income, and any financial above that amount are deemed to earn 3.25% income.

Except where otherwise stated, Age Pension eligibility is given by the conditions at 1 June 2015 and summarised in table 2.

Table 2: Age Pension rates and eligibility

	Couple; homeowner	Couple; non-homeowner	Single; homeowner	Single; non-homeowner
Maximum rate	\$33,716.80	\$33,716.80	\$22,365.20	\$22,365.20
Asset test -Threshold	\$286,500	\$433,000	\$202,000	\$286,500
-Taper rate	3.9%	3.9%	3.9%	3.9%
Income test -Threshold	\$7,384	\$7,384	\$4,160	\$4,160
-Taper rate	50%	50%	50%	50%
-Deeming threshold (ABP)	\$79,600	\$79,600	\$48,000	\$48,000
-Rate below threshold	1.75%	1.75%	1.75%	1.75%
-Rate above threshold	3.25%	3.25%	3.25%	3.25%

Source: The Australian Government the Department of Human Services 2015.

All means test thresholds increase annually in line with CPI.

The maximum Age Pension rate increases annually in line with Male Total Average Weekly Earnings (MTAWE).

3.2 Rent Assistance

We assume that all retirees who are not homeowners rent their homes and receive the maximum Rent Assistance (\$3 338.40 for a single retiree in 2015). Rent Assistance increases annually in line with CPI.

3.3 Immediate lifetime annuity

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The real payout per \$10 000 invested in an ILA is:

Male: \$ 454 p.a.

Female: \$ 413 p.a.

Joint: \$ 360 p.a.

These rates are for a 65 year old and the annuities do not offer any death or withdrawal benefit. Rates are accurate at 23 March 2015, are fully inflation protected, and indexed to CPI. (Challenger 2015)

3.4 Deferred lifetime annuity

The real payout per \$10 000 invested in a DLA is:

Male: \$1480 p.a.

Female: \$1175 p.a.

Joint: \$ 858 p.a.

These rates are for a 65 year old and have a 20 year deferral period (that is, the annuities do not pay income until the investor is 85 years old). The annuity does not offer any death or withdrawal benefit and is fully inflation protected, with the annual payment rate indexed to CPI. Rate accurate at 23 March 2015 (Challenger 2015)

3.5 Account-based pension

The ABP is assumed to generate asset returns of 6.5 per cent per annum. This figure is in line with the default investment strategy for most superannuation accounts, and is used by Treasury's Retirement and Income Modelling unit whose work underpins the analysis of the Australia's Future Tax System Review and Intergenerational Reports (Phil Gallagher 2011; AFTS Secretariat 2009; The Australian Government the Treasury 2010). This figure is also widely used in industry and academic research (for example Mercer 2015a; Burnett et al. 2014) and is slightly lower than the average return (6.6 per cent) used in the Financial System Inquiry (The Australian Government the Treasury 2014c; Australian Government Actuary 2014a).

Income is withdrawn from the ABP using either the 'minimum' or 'higher' drawdown strategy.

Minimum drawdown strategy

Under the '*minimum*' strategy, retirees withdraw only the legislated minimum amount from their ABP each year. Thus, income from an ABP can be expressed:

$$Y_{ABP(t)} = mf_{(t)} \times W_{ABP(t-1)} ,$$

where mf is the minimum drawdown factor based on the retiree's age. The minimum drawdown factors are shown in table 3.

Table 3: Account-based pension minimum drawdown factors

Age	Minimum drawdown factor
65-74	5%
75-79	6%
80-84	7%
85-89	9%
90-95	11%

Source: *Superannuation Industry (Supervision) Regulations 1994 (Cth) sch 7 cls1-5.*

Thus, the income withdrawn from an ABP each year is equal to the account balance at the end of the previous financial year multiplied by the relevant minimum drawdown factor.

Higher drawdown strategy

Under the 'higher' drawdown strategy retirees withdraw income from their ABP to meet their income target. As discussed above the income target is equal to the ASFA minimum income standard, plus 5 per cent of superannuation balance at retirement, plus rental costs (if applicable). The income target increases each year in line with CPI. Table 3 shows the income target for the five cohorts modelled.

Table 4: Income targets (2015 dollars)

Cohort	Income target	Income need
Single, homeowner, \$100 000 superannuation	\$28,489	\$23,489
Single, homeowner, \$250 000 superannuation	\$35,989	\$23,489
Couple, homeowner, \$350 000 superannuation balance	\$51,284	\$33,784
Single, non-homeowner, \$100 000 superannuation balance	\$37,435	\$32,435
Single, homeowner, \$500 000 superannuation balance	\$48,489	\$23,489

Source: *ACFS calculations.*

Income is withdrawn from the ABP to make up any shortfall between the income target and any income already received from the Age Pension, Rent Assistance, ILA and DLA. Withdrawal must also satisfy the minimum drawdown factors. Finally, the balance of the ABP cannot be negative. Income from ABP can be expressed:

$$Y_{ABP}(t) = \min(W_{ABP(t)}, \max((YT(t) - (P(t) + Y_{ILA(t)} + Y_{DLA(t)})), (mf_{(t)} \times W_{ABP(t-1)}))) ,$$

where $YT(t)$ is the income target in year t . Thus, in order to meet the income target, income from the ABP should equal the difference between the income target and income from other sources. Income withdrawn must also satisfy the minimum drawdown factors, and thus may exceed the income target. If there is insufficient wealth in the ABP to meet the income target the balance of the ABP will be withdrawn.

4. Economic assumptions

Table 4 summarises the economic assumptions which underpin the model.

Table 5: Assumptions about rates of growth and returns

Parameter	Parameter value (per cent per year, nominal)
Earnings rate on ABP	6.5
Price inflation (CPI)	2.5
Wage inflation (MTAWE)	3.5
Deflator	Price inflation rate

Results are shown in 2015 dollars. All dollar amounts are deflated by CPI to reflect increases in the cost of living. This is consistent with the approach used by the Treasury. Some argue that wage deflation should be used (primarily to facilitate comparisons between groups which enter retirement at different points in time) however as our analysis considers retirees in the same period CPI-linked deflation was chosen.

Appendix 2: Summary of outcomes for each of the cohorts modelled

Cohort	Balance on retirement	Home ownership	Optimal default portfolio	Years of Adequate income	Drawdown strategy	Capital Balance at age 90
Retiree at risk of financial hardship: Single - Denise	\$100 000	No	100% ABP to supplement full Age Pension	25 ASFA modest plus rental allowance of \$8946 (\$32 435)	65-74 Higher drawdown 75 -90 years min drawdown	\$48 101
Typical Retiree: Single -Susan	\$100 000	Yes	100% ABP to supplement full Age Pension	25 ASFA modest plus \$5000 (\$28 489)	65-72 Higher drawdown 73 -90 years min drawdown	\$52 220
Typical Retiree: Single - Martin	\$250 000	Yes	100% ABP to supplement part Age Pension (full pension from age 88)	25 ASFA modest plus \$12 500 (\$35 989)	65-76 Higher drawdown 77 -90 years min drawdown	\$123 243
Typical Retiree: Couple – Anna & James	\$350 000	Yes	100% ABP to supplement part Age Pension (full pension from age 84)	25 ASFA modest plus \$17 500 (\$51 284)	65-73 Higher drawdown 74-90 years min drawdown	\$185 870
Wealthier retiree: Single - Terry	\$500 000	Yes	75% ABP and 25% ILA to supplement part Age Pension	25 ASFA modest plus \$25 000 (\$48 489)	65 – 90 Higher drawdown	\$67 639
Retiree with adverse health: Single - Mario	\$500 000	Yes	75% ABP and 25% ILA to supplement part Age Pension (full pension from age 82)	21 ASFA modest plus \$25 000 (\$48 489)	65 – 90 Higher drawdown \$80k health event at 80 years	\$0

Source: ACFS calculations.