APPENDIX F - DELOITTE ACCESS ECONOMICS FISCAL IMPLICATIONS OF POSSIBLE TAX TREATMENTS FOR DEFERRED LIFETIME ANNUITIES 20 SEPTEMBER 2011

(Refer following pages)

Deloitte Access Economics

Fiscal implications of possible tax treatments for deferred lifetime annuities

Challenger Limited
20 September 2011

Deloitte.

Deloitte Access Economics Pty Ltd
ACN: 149 633 116

Level 1, 9 Sydney Ave
Barton ACT 2600
PO Box 6334
Kingston ACT 2604

Tel: +61 2 6175 2000
Fax: +61 2 6175 2001
www.deloitte.com.au

David Cox
Head of Government Relations
Challenger Limited
Level 15, 255 Pitt Street
SYDNEY NSW 2000

20 September 2011

Dear David

Tax treatment of deferred lifetime annuities scenario analysis

I am pleased to attach our report detailing the results and implications of a range of tax treatment scenarios for deferred lifetime annuities.

The analysis outlines the current market environment for retirement and aged care funding mechanisms, focusing on the policy implications of the existing barriers to market growth in innovative and affordable longevity risk products.

This report adds insight into the fiscal impacts of alternative tax treatments for deferred lifetime annuities, and the potential role for annuities in supporting private contributions to the funding of retirement and aged care within the community.

Yours sincerely,

Chris Richardson
Partner
Deloitte Access Economics Pty Ltd

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Glossary

ABS	Australian Bureau of Statistics
ACAT	Aged Care Assessment Team
AIHW	Australia Institute of Health and Welfare
APH	Parliament of Australia
CACP	Community Aged Care Package
COAG	Council of Australian Governments
DAE	Deloitte Access Economics
DOHA	Department of Health and Ageing
DVA	Department of Veteran Affairs
EACH	Extended Aged Care at Home
EACH-D	Extended Aged Care at Home – Dementia
GDP	Gross Domestic Product
HACC	Home and Community Care
IGR	Intergenerational Report
MTAWE	Male Total Average Weekly Earnings
NHHRC	National Health and Hospitals Reform Commission
PC	Productivity Commission
PHI	Private Health Insurance
PHIAC	Private Health Insurance Administration Council
SDAC	Survey of Disability, Ageing and Care
SG	Superannuation Guarantee
SIS	Superannuation Industry Supervision (SIS) Act

Executive Summary

The Commonwealth Budget is our social compact with ourselves. As is well documented in the *Intergenerational Reports*, that compact will be challenged in coming decades by the impact of an ageing population, rising longevity, and the rising relative cost of health care.

A key public policy response to those challenges has been to encourage greater private provision for retirement. Although that comes at an upfront cost to the Budget, it achieves eventual savings to the public purse in areas such as the age pension and the costs of aged care (where increased capacity to pay can reduce public subsidies).

However, there is an important issue for public policy in this area. The Henry Review noted the importance of improving "the ability of people to use their superannuation to manage longevity risk", and identified "the role that deferred annuities can play in an ageing society." The Review also noted that "the lack of products that guarantee an income over a person's retired life represents a structural weakness in the system."

That is important because:

- The likelihood of eventually drawing on the public purse via the age pension and public subsidies in aged care is closely correlated with longevity, but
- The concessions which encourage greater private provision for retirement through superannuation (and compensating investors for 'locking up' savings until retirement[1]) do not apply in the same manner to products which specifically address longevity risk.

Or, in other words, although the case for policy support is greater, current support for the likes of deferred annuities is actually less than for competing products, with many of the constraints on the provision of deferred annuities yet to be addressed.

These products act to pass a degree of longevity risk from the public sector (in terms of pensions and aged care funding) to private sector providers who are adequately equipped and structured to take on this risk.

Challenger has separately identified what it sees as the impediments to the provision of deferred lifetime annuities, as well as the structural changes required to promote their development and innovation. Challenger commissioned Deloitte Access Economics to model the implications of a range of tax treatment scenarios for deferred lifetime annuities.

Savings to the public purse from addressing longevity risk accrue not just through age pension costs, but also via the impact on public subsidies for aged care[2].

[1] Even voluntary super savings are subject to an element of compulsion – they are unable to be withdrawn until preservation age. Given a simple choice, investors would prefer to retain control over their capital, so after-tax returns to super are higher to balance out this concern (as well as to encourage private retirement savings).

[2] Aged care costs are relevant to retirement income policy for the same reason that the age pension is relevant – as a potential saving to the Government from boosting the adequacy and efficiency of retirement savings.

Indeed, government funding for aged care services is directly linked to the private capacity of residents to contribute to the cost of their own care – through similar means testing arrangements to those applying to the age pension.

Deloitte Access Economics has therefore extended its model to also account for these interactions between retirement incomes and aged care subsidies.

Links between private and public funding in the aged care sector are also likely to strengthen in the future. A recent Productivity Commission report, *Caring for Older Australians,* recommended further reforms to aged care funding aimed at providing greater sustainability, competition, flexibility and choice.

Increased private income and assets among older Australians will be an important driver for the development of competition, innovation and choice in aged care. The average recipient of residential aged care is 84 years old, while the average recipient of subsidised community care is 81 years old – an age some 25 years above the preservation age of superannuation benefits, and 15 years after the availability of the age pension.

That delay highlights that the level of retirement savings available to retirees is only one aspect of supporting private aged care funding. The way in which those savings are used to provide long term income security may be just as important.

While savings on pensions and age care subsidies are likely to be a notable advantage for taxpayers, there are also benefits to the efficiency and effectiveness of retirement income policy more generally.

After all, governments offer considerable policy support to private retirement savings in the hope of countering key market failures. As with all policy proposals, there are four key performance criteria to consider when assessing the policy response:

- **Effectiveness** – How well does the policy achieve its goals?
- **Efficiency** – Does the policy achieve those goals at the lowest economic cost?
- **Equity** – Are the benefits of the policy fairly spread across the community?
- **Complexity** – Does the policy impose extra compliance costs on the system?

Chronic under-insurance of longevity risk among Australian retirees is a key concern for the effectiveness and efficiency of retirement incomes policy. Addressing this concern through policies aimed at removing the impediments to provision of deferred annuities therefore offers an opportunity to make better use of the retirement savings Australians already enjoy from our world class 'three pillars' retirement income system.

After all, if policymakers in Australia have long accepted that guaranteed retirement savings are a good thing, why are there no guarantees that those savings will be used to deliver appropriate retirement incomes?

The results

The results from the modelling undertaken for this report suggest that **promoting more appropriate longevity insurance for private retirement savings will be a crucial and cost**

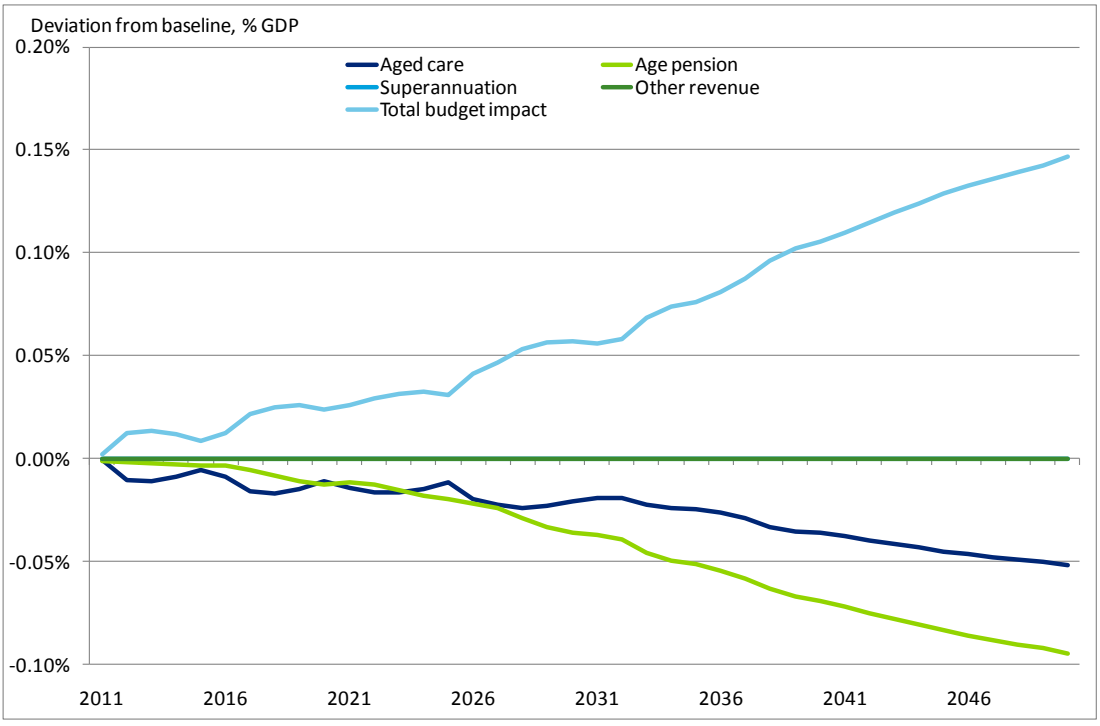
effective approach to meeting the fiscal challenges posed by an ageing population and supporting the development of a vibrant aged care sector in coming decades.

The analysis outlines the current market environment for retirement and aged care funding mechanisms, focusing on the policy implications of the existing barriers to market growth in innovative and affordable longevity risk products.

This report therefore adds insight into the potential role for annuities in supporting private contributions to the funding of retirement and aged care within the community.

Annuities do not currently play a large role in Australia's retirement landscape, and nor are they likely to play a dominant role in the future; indeed, even with a complete removal of impediments our modelling assumes that the market share of lifetime annuities will remain less than 10% of total retirement assets. That said, the benefits to government of removing the tax and regulatory impediments to annuities are clear, as seen in Chart i below.

Chart i: Effect on government finances of completely removing taxes on annuities



By 2050 the annual rate of government savings on age pension and aged care spending amount to 0.15 percentage points of GDP, or $1.9 billion in today's dollars.

The costs: No behavioural change

The above covers the savings accruing from the policy changes considered here.

What of the costs?

Reducing taxes on annuities presents a direct cost to government revenue. But the existing market for lifetime annuities is very small, meaning the lost revenue from removing taxes on these products would also be very small.

Indeed, even if changes to the taxation of annuities were to encourage greater take up by retirees, the key alternatives are already largely tax free – again, limiting the potential revenue costs of such a policy change.

Modelling presented in this report does not directly quantify these impacts based on today's market for lifetime annuities. Instead, Deloitte Access Economics has constructed a baseline scenario in which a small market for deferred lifetime annuities exists, and is subject to existing tax arrangements.[3]

Relative to this hypothetical baseline scenario, and in the absence of behavioural change, Deloitte Access Economics estimates the direct cost to government of foregone revenue from removing earnings taxes on annuities would be 0.009% of GDP in 2050.

However, the matching saving to the Budget bottom line through reduced pension payments and aged care subsidies would be 0.006% of GDP (see the discussion at Section 6.2.2).

In other words, in this simple example the direct and indirect savings to government as a result of the change would offset around 65 cents in every dollar of revenue forgone as a result of removing taxes on lifetime annuity products.

That said, and as noted above, the 'foregone revenue' estimated here is hypothetical – it is revenue 'lost' compared with a world in which (1) a small market for deferred lifetime annuities exists and (2) taxes are collected on those products.

The costs: Allowing for behavioural change

To the extent that behaviour changes as a result of the policy changes (and the level of annuity take up is increased), the Government savings would be larger still – possibly substantially so in some cases.

If earnings taxes on deferred lifetime annuities were to be removed, and retirees purchase an additional $10,000 each in deferred lifetime annuities, the resulting government savings would be around 0.15% of GDP (compared with the 0.006% of GDP indicated above).

That is, the savings to the Government would increase by more than twenty-fold for a ten-fold increase in deferred lifetime annuities.

This arises due to timing: in effect, more annuities shifts 'income sooner' to 'income later', and the latter has an impact through the operation of income and assets tests applying to pensions and aged care subsidies.

[3] Noting that, other things equal, choosing such a starting point for the analysis presented here tends to overstate the revenue costs of reducing taxes on lifetime annuities.

As a result, the long run impact on government finances would be positive, with savings to Government (through cost reductions in age pensions and aged care) exceeding lost revenue to the Government by a ratio of at least 5 to 3.

That is an excellent outcome compared with most policy proposals.

It occurs in the main because the losses to revenue are less than the savings via age pensions and aged care.

Moreover, as noted above, these revenue losses are essentially hypothetical anyway. There is little revenue collected from the alternatives to deferred lifetime annuities – in essence, a 'levelling of the playing field' across competing products where one was previously harder hit by tax than its competitors will, not surprisingly, have little impact on revenue as there wasn't much there in the first place.

Impacts on retirees

Table i shows that, in inflation adjusted terms, the average impact of the changes under this scenario on retirement incomes for retirees of each age in 2020 and 2050.

Table i: Effect on government finances under tax scenarios

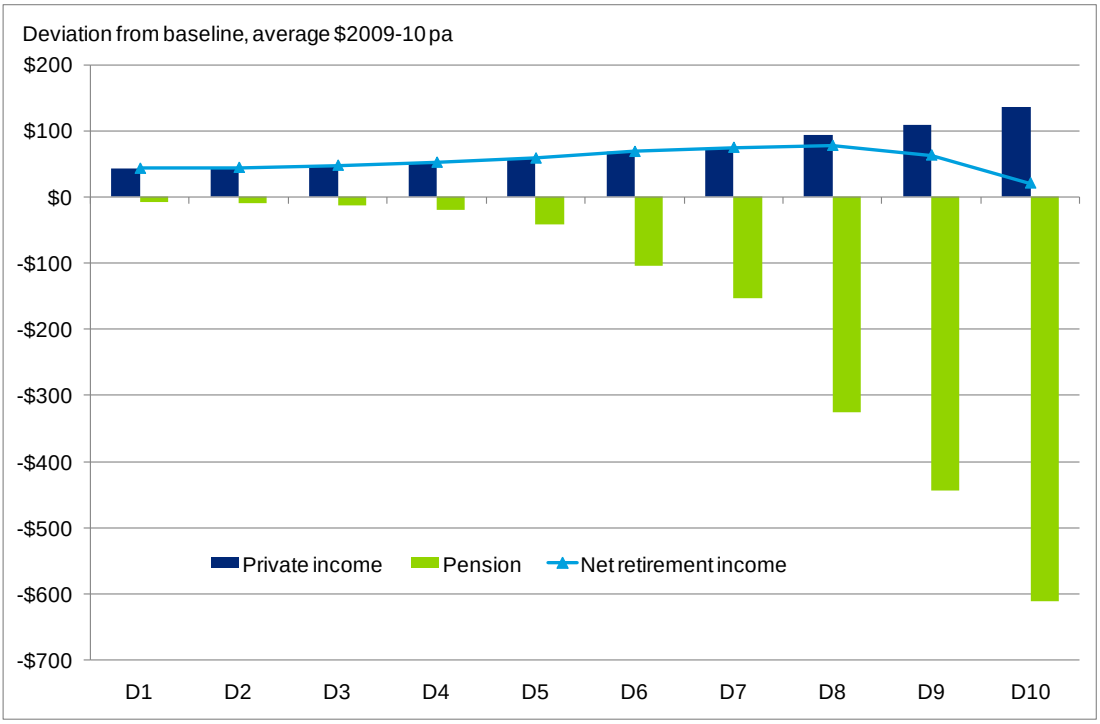
	60-64	65-69	70-74	75-79	80-84
	Deviation from baseline, average $2009-10 pa				
2020					
Private income	$202	$254	$335	$601	$810
Age pension	-$112	-$130	-$179	-$327	-$475
Net retirement income	$90	$124	$156	$275	$314
2050					
Private income	$401	$389	$542	$1,406	$1,894
Age pension	-$202	-$143	-$269	-$921	-$1,339
Net retirement income	$199	$246	$273	$486	$555
	Deviation from 'real life', average $2009-10 pa				
2020					
Private income	$359	$444	$577	$1,016	$1,397
Age pension	-$123	-$145	-$209	-$426	-$631
Net retirement income	$236	$299	$368	$590	$750
2050					
Private income	$698	$683	$947	$2,417	$3,326
Age pension	-$220	-$155	-$315	-$1,201	-$1,779
Net retirement income	$478	$529	$632	$1,216	$1,546

On average, people who retire in 2020 between the age of 60 and 64 could expect to be about $90 better off in each year of their retirement. Older cohorts of retirees receive higher average gains in retirement income, but over a shorter average period in retirement.

Relative to the 'real life' scenario, those gains are larger still, reflecting the greater increase in deferred lifetime annuity provision as a result of the policy change.

As the chart below shows, the bulk of the government age pension savings identified in the aggregate results come from individuals with higher levels of existing retirement income.

Chart ii: Effect on individual income for 2020 retirees, tax scenario 2b, by income decile



Individuals with retirement savings in the lower income deciles face little reduction in their age pension entitlements under the scenario examined here, while those in the top three deciles see the largest falls.

That pattern arises because:

- Individuals with the lowest retirement incomes are largely below the key thresholds in the age pension means test – meaning higher private incomes do not result in reduced age pension payments.
- Among those on upper middle incomes, reductions in age pension payments are smaller, reflecting the fact that many individuals in these deciles will only be part-pensioners during the early years of their retirement, before becoming full-pensioners once their retirement savings are exhausted in later retirement years.
- Those on the highest retirement incomes are more likely to be part-pensioners for a substantial period in retirement, making them the key source of savings for the government as a result of the removal of earnings taxes on deferred lifetime annuities.

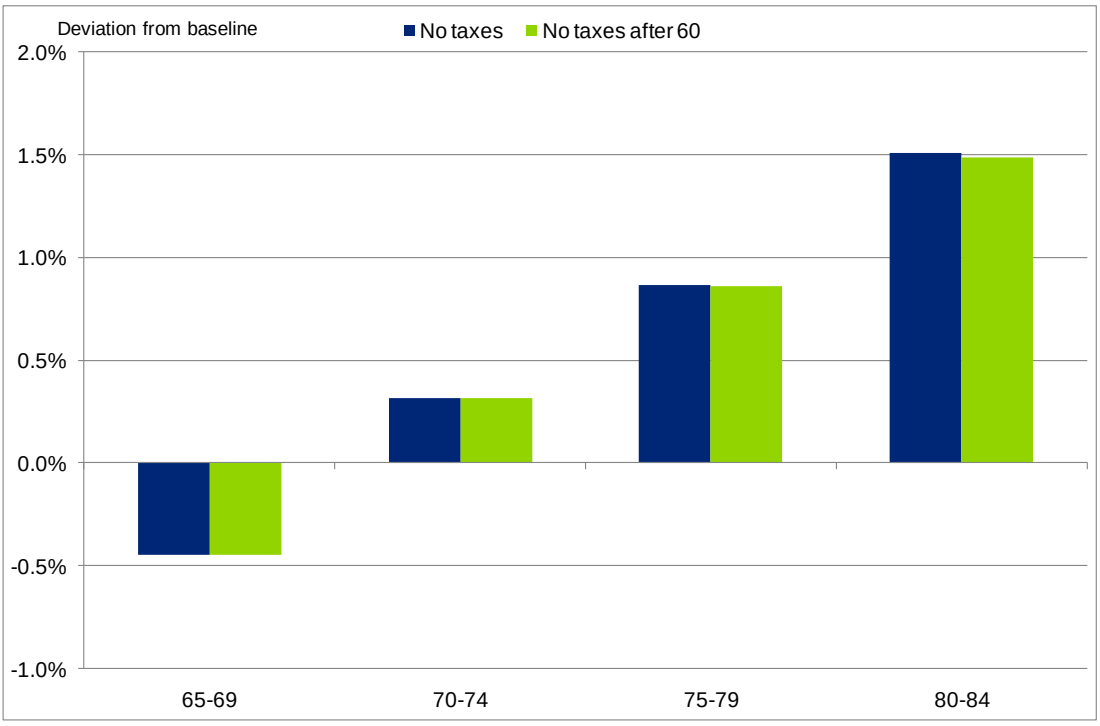
These results highlight an important issue for Australia's maturing retirement income system – that it is possible to (1) increase retirement incomes, (2) reduce reliance on the age pension, and (3) improve the targeting of government assistance by improving the way retirement savings are used to fund retirement incomes.

The wider policy benefits

Moreover, and in addition to the savings available via age pension and aged care spending, there are also key policy benefits to encouraging higher take up of deferred annuity products.

Chart iii below demonstrates one of these benefits – the redistribution of income to better account for longevity risk.

Chart iii: Average super income, tax scenarios (% change relative to baseline)



Indeed, this result across age groups is a vital one – and worthy of close attention. The realignment of retirement incomes towards the later years of retirement should be a key priority for governments, both because it serves to reduce age pension expenditures, and because it increases the welfare of future retirees by countering the key market failures in the provision of longevity risk insurance in the Australian retirement income system.

It is also worth noting that we quantify savings to the Government from pensions and aged care, but there is also good news afoot outside of those Government savings. As there are many people whose incomes are so low that the increased reliance on annuities doesn't change their eligibility for aged pensions or aged care subsidies, then these shifts imply higher private income for that group even if they don't directly imply lower costs for Government.

To the extent that this transfers money from those who die early to those who don't, there are therefore some positive impacts on poverty profiles in Australia. In addition, there is also an associated indirect benefit to Government by reducing political pressure on it to raise the base rate of the pension over time.

After all, those retirees who will outlive their peers can also expect to outlive their retirement savings – meaning many will rely solely on the age pension to support them in their later retirement years.

These individuals should be a key concern for policymakers, as they have much to gain from addressing the chronic under-insurance of longevity risk insurance in Australia. They are also the key beneficiaries of increased provision of deferred lifetime annuities.

Deloitte Access Economics

20 September 2011

1 Introduction

The Commonwealth Budget – our social compact with ourselves – will struggle in coming decades with the impact of an ageing population and rising longevity, as well as the rising relative cost of health care.

Recognising that, the Henry Review noted the importance of improving "the ability of people to use their superannuation to manage longevity risk", and identified "the role that deferred annuities can play in an ageing society."

The Review also noted that "the lack of products that guarantee an income over a person's retired life represents a structural weakness in the system."

These are potentially important products in this area of policymaking, particularly deferred lifetime annuities, which have a number of key benefits to government and to retirees.

Only those retirees who outlive the deferral period receive income from a deferred lifetime annuity. As a result, these products provide an additional return to compensate retirees for the possibility that they may not benefit from their annuity purchase.

This mortality risk premium sees retirees earn a substantial return on their investment – and is larger than the premium available in riskier asset classes such as shares.

If such products do not allow retirees to withdraw or sell the underlying assets after the purchase of the annuity they also allow (1) providers to offer attractive prices to retirees, making the products more efficient at insuring longevity risk and (2) Governments to ensure policies are well targeted. By limiting commutations, any changes aimed at encouraging the use of deferred lifetime annuities would be targeted squarely at the relevant policy goals, and could not later be used for other purposes.

Yet many of the constraints on the provision of deferred annuities remain to be addressed.

Importantly, the up-front premiums paid by annuitants are not the relevant 'price' of the insurance component of an annuity. Life annuities are partly a reward for investment and partly a pooling of longevity risks. The profits accruing to an insurance company from creating the longevity risk insurance pool represents the industry's value add (not the return of an annuitant's principal or investment earnings).

Accordingly, it makes little sense for this insurance component of an annuity to be subject to taxes on earnings, which are better suited to investment and wealth management products such as allocated pensions (which are not subject to earnings tax at all). Indeed, in theory only the investment component of an annuity should be subject to earnings taxes.

Challenger has identified the impediments to the provision of deferred lifetime annuities, and the structural changes required to promote their development and innovation.

Deloitte Access Economics (DAE) was engaged by Challenger Limited (Challenger) to analyse the fiscal implications of various tax treatment scenarios for deferred lifetime annuities.

In 2008-09, the Australian Government called for a comprehensive 'root and branch' review of Australia's tax system (Commonwealth of Australia, 2009b (*The Henry Review*)). The aim was to create a tax structure that will position Australia to deal with its social, economic and environmental challenges and to enhance national wellbeing in the long term.

The review noted the increasing and significant challenges to the retirement income system over the medium to long term, including the ageing of the population, longer life expectancies and the growing population. These trends will put increasing pressure on the retirement income system; testing its sustainability and adequacy.

The Henry Review indicates that while the three pillar architecture of the current retirement income system – consisting of the age pension, compulsory superannuation savings and voluntary saving for retirement – is well suited for a balanced and flexible response to those challenges, some adaptive changes will be necessary over the coming years. One suggestion stemming from the Review was to improve "the ability of people to use their superannuation to manage longevity risk."

In addition, the Henry Review identified "the role that deferred annuities can play in an ageing society." While there is considerable flexibility in the options for use of superannuation benefits, the Review noted that "the lack of products that guarantee an income over a person's retired life represents a structural weakness in the system."

In its recommendations, the Henry Review supported government action to promote the development of this product market and to better facilitate the provision of deferred lifetime annuities by the private sector. The report made the following recommendations to remove the impediments to the provision of these products:

- The government should remove the prescriptive rules in the Superannuation Industry (Supervision) Regulations 1994 relating to income streams that restrict product innovation. This should be done in conjunction with the recommendation to have a uniform tax on earnings on all superannuation assets.
- The government should also consider removing other legislative constraints that may inhibit the development of longevity products. However, this should not be at the cost of necessary prudential or consumer protection. Given the nature of these products, they should only be provided by prudentially regulated entities. Products that provide a guaranteed income should follow consistent prudential requirements to reduce the risk that a provider is unable to meet their obligations as they fall due.
- An assets test exemption should apply during the deferral period of a guaranteed income stream product.

Despite these recommendations, many of the constraints on the provision of deferred annuities remain to be addressed.

Challenger, in a letter to the Assistant Treasurer and Minister for Superannuation, set out what it sees as the impediments to the provision of deferred lifetime annuities, and the structural changes required to promote development and innovation in this market:

- A product must comply with certain rules to be treated as a superannuation pension or annuity. The prescriptive nature of these rules, such as a requirement for specific annual payments and limits on indexation, has constrained product development. Challenger has argued that the Superannuation Industry Supervision (SIS) Act should treat deferred lifetime annuities as a superannuation pension.
- The earnings tax treatment on deferred lifetime annuities in the deferral period should be removed, consistent with other risk products.
- The ambiguity between the treatment of individuals and superannuation trustees on the accruals tax treatment of deferred lifetime annuities should be removed.
- The prudential standard on minimum surrender values should remove the requirement that deferred lifetime annuities be treated as an investment product during the deferral period making them subject to commutation arrangements which would have a material effect on pricing.

In light of these ongoing impediments to the development of improved options for retirees to cover their longevity risk, this analysis assesses the fiscal impact of various tax arrangements in the deferred lifetime annuities market.

The report is structured as follows:

- Section 2 provides background information about the current retirement funding and aged care systems.
- Section 3 discusses the need to manage longevity risk through the development of lifetime annuity products and their market environment.
- Section 4 outlines the modelling undertaken for this project, including the key inputs and output measures presented in this report.
- Section 5 discusses the policy implications for the outcomes of the scenario analysis.
- Section 6 details the findings of the scenario analysis for possible tax treatments for deferred lifetime annuities relative to the baseline scenario in which a small market for deferred lifetime annuities exists in Australia.
- Section 7 details the findings of the scenario analysis for possible tax treatments for deferred lifetime annuities relative to the 'real life' scenario in which no market for deferred lifetime annuities exists in Australia.
- Technical details of the scenario analysis and deferred lifetime annuity modelling (including full details of the *SuperSim* model, its inputs and methodology) are contained in the appendices to this report.

2 Background

Australia's retirement income policy is designed around **the 'three pillars'** – the age pension, compulsory superannuation and voluntary superannuation.

In line with that, public policy encourages greater private provision for retirement.

While much of the policy debate surrounding retirement incomes in Australia over recent decades has focused squarely on the size and role of the superannuation sector, a large part of the other side of the equation – retirees' funding requirements into old age – has received rather less attention.

These two market structures (retirement incomes and aged care funding) are central to investigating the contribution a deferred lifetime annuity market can make to managing longevity risk and its impact on the sustainability of Australia's retirement incomes policy.

Such products provide an opportunity to improve the balance of risks across public and private financing of retirement and aged care.

2.1 The public policy rationale

Public policy encourages greater private provision for retirement. Although that comes at an upfront cost to the Budget, it achieves eventual savings to the public purse in areas such as the age pension and the out-of-pocket costs of aged care (where increased capacity to pay can reduce public subsidies).

Australia's retirement income policy is currently designed around three key policies known as the 'three pillars'. In its strategic report on the retirement income system, the Henry Review (Commonwealth of Australia, 2009a) found that the system has strong community support and broadly addresses the five objectives of the system – adequacy, acceptability, robustness, simplicity, and sustainability.

The concessions available in this area also compensate investors for 'locking up' their savings until retirement. Even voluntary super savings are subject to an element of compulsion – they are unable to be withdrawn until preservation age. Given a simple choice, investors would prefer to retain control over their capital, so after-tax returns to super are higher to balance out this concern (as well as to encourage private provision of retirement incomes).

Indeed, so strong are the public policy imperatives in this area that the policy involves compulsion. That is because maximising the welfare of an individual will rarely involve compulsion, yet maximising the welfare of a population might.

Why is that so? Because there are important externalities to consider:

- **The Robin Hood externality:** The role of governments can be thought of as playing Robin Hood – they tax 'the rich' to spend on 'the poor'. But the rich typically save more

from a given dollar than the poor. So the taxing and spending of governments can lower household saving below where it would otherwise be. In that light, there may be more of a case for policy to promote private saving through compulsion.

- **The informational asymmetry externality:** Governments can be better informed about the future than households. The coming impact of (1) ageing and (2) relatively rapid health cost inflation is a good case in point. Governments have been well aware of the coming squeeze on their finances for decades, but households haven't. The latter have therefore not saved with the thought in mind that (a) pensions and (b) public subsidies to health care may be smaller (relative to the average income of workers) in the future. Again, that aids a case for compulsory saving.
- **Short-sightedness:** Life expectancies have risen more than most recognise. The average man can expect to live about 9.4 years longer than his Dad, and the average woman some 7.8 years longer than her Mum, yet average retirement ages have only been inching up. Many people may not realise the extra years in retirement that they will enjoy and the income they will therefore need to receive later in retirement.
- **The public surplus externality:** Governments are not as good at saving as they should be – politics makes it hard for governments to run surpluses. In that light there is a case for the private sector to be saving more to make up for potential shortfalls in public sector saving brought about by political pressures. This factor, for example, means that it makes sense for governments to pay for 'co-contributions' to the super of low income earners so as to effectively re-label public savings as private savings (locked up until preservation age is reached).
- **The moral hazard externality:** Some people (predominantly low income earners) make little or no effort to privately provide for their retirement because of the ease of accessing the public pension (known as 'moral hazard'). Restraining public pension entitlements is regarded as 'politically difficult' (even reforms with their main impacts some decades out). Increased taxes to fund unrestrained public pension entitlements is also regarded as 'politically difficult'. Compulsory savings – to the extent that they raise national saving – operate by forcing predominantly low income people to privately prepare for their retirement. Only to the extent that this increased private provision reduces this group's call on the public pension does national savings increase. The same effect as compulsory saving could have been achieved by restraining access to public pension entitlements or by increasing taxes on low income earners. But these are rather less politically palatable than the alternative of compulsory super.

Importantly, some of these externalities remain a concern once individuals begin to draw down on their accumulated savings in retirement.

- **Information asymmetry** is a significant issue for many retirees. Given the complex array of choices available to fund retirement incomes, retirees may struggle to plan appropriately to meet their own retirement goals. Without considering a range of possible longevity and market outcomes it can be difficult for individual retirees to properly plan for their long term future during the early years of retirement.
- **Short-sightedness** can lead retirees to draw down on their assets too quickly, just as individuals are likely to save less than they need during working life to adequately support themselves in retirement,. That is because the benefits of that spending come now, while the potential costs are often felt many years later.

- **Moral hazard** is also a concern for policymakers, as individuals are aware that after exhausting their private savings, they are able to rely on the age pension to cover a significant degree of their longevity risk.

These considerations are equally important in considering the potential role to be played by products that guarantee an income over a person's retired life. That is, just as externalities provide a justification for compulsory savings during working life, similar arguments support policymakers encouraging retirees to use those savings to fund retirement incomes which improve the welfare of both themselves and society more broadly.

2.2 Retirement income structure

The Henry Review found that Australia's retirement income system provides the flexibility and sharing of risk (between the public and private sectors) required to face the challenges ahead.

In terms of a deferred lifetime annuity product market, it is this fundamental structure of retirement income funding that will provide the leverage that retirees need to have the option of investing in a deferred lifetime annuity – essentially passing a degree of their longevity risk from the public sector (in terms of pensions and aged care funding) to private sector providers who are adequately equipped and structured to take on this risk.

This section provides a brief overview of the three funding mechanisms that make up the retirement income system and the financial position of current and future retirees.

2.2.1 The three pillars

Much of the discussion and data presented below is sourced from Deloitte Access Economics' (DAE) report for AMP, *The AMP Retirement Adequacy Index.* The *Index* compares the retirement savings of Australians with a target for an adequate income in retirement – set at 65% of an individual's pre-retirement living standard. The *Index* uses data from more than 328,000 AMP members, along with estimates of the age pension (for those who qualify) and 'other investments' (excluding the family home), to estimate whether Australians are on track for an adequately funded retirement.

Pillar one: Providing a safety net through the Commonwealth age pension

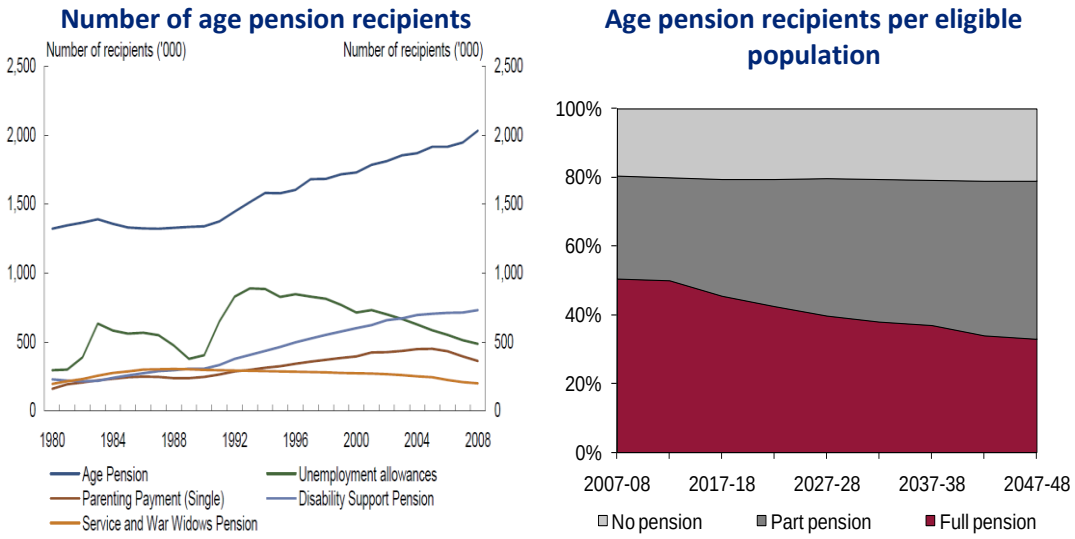
The age pension is designed to provide a safety net for Australians who are unable to support themselves in retirement.

The rate of the age pension is adjusted every March and September in line with movements in inflation, with the maximum single rate of the age pension maintained at (at least) 27.7% of Male Total Average Weekly Earnings (MTAWE). As a result, the real value of the age pension has grown over time, as pensioners share in improvements in general living standards.

The relationship between private savings and the government safety net is a complex one, aiming to strike a balance between incentives to save through super and individual responsibility.

Official projections contained in the second *Intergenerational Report* released in 2007 show that, even after the Superannuation Guarantee system is mature, around three quarters of retirees will continue to receive government support through the age pension (see Chart 2.1). The total number of recipients of the age pension has increased steadily from 1.3 million in 1980 to 2.0 million in 2008 (Commonwealth of Australia, 2010), reflecting the ageing population (or growth in the eligible population). This is partly offset by an increase in the proportion of the population ineligible for pension payments due to changes in means testing and an increase in the eligible pension age for women.

Chart 2.1: Treasury IGR projections of age pension spending



Sources: Commonwealth of Australia, *Intergenerational Report 2010* and *Intergenerational Report 2007*.

Pillar two: Increasing private provision for retirement through the compulsory Superannuation Guarantee (SG)

Australia's superannuation system lies at the heart of private saving for retirement. Savings in superannuation enjoy significant tax advantages over other investments, and are preserved solely for retirement. For most workers, super represents both the largest and the most tax-effective pool of retirement savings.

The *Index* showed that in December 2010 the average super balance for active members was $47,369.

Moreover, the accumulation of superannuation savings is set to receive a further boost in coming years, as the 2010-11 Federal Budget committed to a gradual increase the SG rate from the current 9% to 12%, commencing in 2013-14.

The latter change represents a significant shift in the retirement income landscape, and one which will take some time to work through the superannuation system.

After all, the super system is still far from mature after the introduction of the 9% SG, and the new changes will take many decades to work through the system. Indeed, given the long term nature of the super system, the greatest benefits from the increase to a 12% SG will flow to workers who are yet to begin school.

Pillar three: Encouraging voluntary contributions to super by offering tax concessions and co-contributions to those who choose to save more for their retirement

Contribution rates are a key measure of the savings behaviour of Australian workers, and their capacity to fund retirement. The Index showed that the average contribution rates of all ages including after-tax contributions, salary sacrificing, and the SG was 12.4%. The average contribution rates were higher on average for those aged 55 and over, and were significantly higher than the average for those aged over 60 years.

Importantly, current levels of superannuation savings indicate that:

- **A degree of 'soft compulsion' may already be a feature of the super system**. Many workers appear to be receiving contributions from their employer through award arrangements above the minimum 9% mandated by the SG. Indeed, the average value of employer contributions over and above the 9% SG is 0.5% – close to the average level of voluntary after-tax contributions made by members themselves.
- **Older members are making significant voluntary contributions to super**, helping to boost their own retirement income prospects. Indeed, contribution rates among workers over 50 are significantly higher than the minimum 9%, revealing a widespread 'catch-up' among those who were working before the introduction of compulsory super. This also serves as a reminder of the response to super tax incentives, which continue to attract the interest of those nearing retirement.

While the tax concessions available in super are generous, concessional and non-concessional contributions 'caps' limit the extent to which individuals can access these incentives.

Recent evidence from the AMP Superannuation Adequacy Index indicates that these contribution limits are a binding constraint for many members. In particular, changes to the concessional contribution caps introduced in 2009 forced some older members on higher incomes to switch from salary sacrifice contributions to after-tax contributions to avoid breaching the new limits.

Over the coming years, the retirement income market will need to adapt and evolve to ensure the needs of retirees are being met adequately. Creative and flexible products that cater specifically to this market will allow the older population to use their private savings more effectively to ensure ongoing income support for the duration of their life. At a time when government finances are tight, any move by the private sector to develop and deepen the market for retirement income products will create a more sustainable balance of public and private retirement funding system.

2.2.2 Other funding mechanisms

Other assets

While super is the main vehicle for private retirement savings, assets outside of super are an important source of retirement income for future retirees. This is especially true for the 'baby boomers', who until recently have been riding a surge in capital gains, and have fewer savings within the super system.

Unlike super assets, which are aimed squarely at retirement, other savings and investments are made for many reasons and can take many forms. With the notable exception of the family home, savings outside the super system are not tax advantaged, and are not specifically reserved for the purpose of retirement.

In assessing the retirement income potential of non-super assets, it is important to identify:

- the extent to which non-super assets are available to fund retirement income, rather than short-term spending needs during working life; and
- the asset types which are of greatest importance to workers' retirement prospects.

In the projections presented in this report, two types of non-super assets are considered:

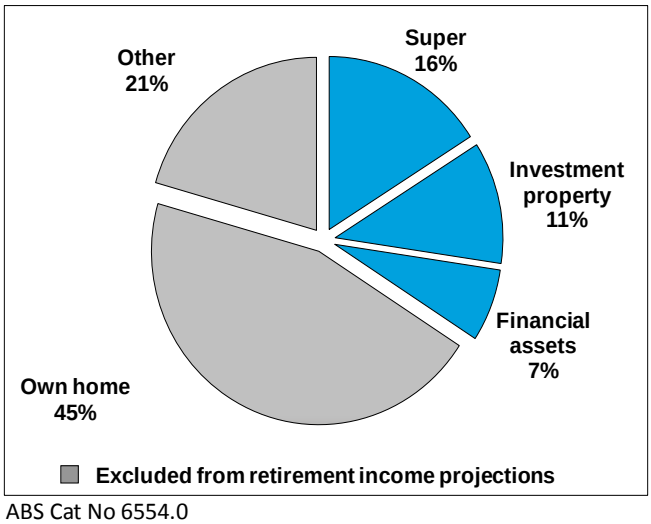
- Investment property, which includes all property other than the family home.
- Financial assets outside super, including saving accounts, shares, bonds and trusts.

Specifically excluded from projections of retirement incomes are the remaining asset types:

- Owner-occupied housing assets and liabilities. With the focus on salary income, this project excludes income and saving from and to the family home.
- Other wealth, including:
  - Own enterprise assets and liabilities. Although AMP members are a good proxy for the wider workforce, they are more likely to be wage and salary earners, who are less likely than other members of the community (such as small business owners) to have significant holdings of such assets and liabilities.
  - Consumer durables, such as cars, furniture and whitegoods. These assets provide for basic household needs, rather than long term saving for retirement.

In estimating asset holdings outside of super, the value of any outstanding liabilities is subtracted to create a measure of net wealth.

Chart 2.2: Allocation of household wealth, 2009-10



Source: ABS Cat No 6554.0

Chart 2.2 above shows the average wealth estimates underlying Deloitte Access Economics' retirement income modelling. These estimates are based on the latest ABS data for 2009-10, and are adjusted on the basis of long-run investment returns.[4]

The chart shows that non-super assets make up a significant part of retirees funding options when assessing future income needs.

2.2.3 Retirement income expectations

Given the increasing pressures of rising health costs, increasing life expectancies, and a tight government budget, just how much money can retirees expect into their old age?

While superannuation is the primary vehicle for retirement savings, each of the components of retirement income is important in ensuring adequate levels of funding for retirees. Estimates of future retirement incomes are crucial to assessing the depth of the retirement income market and the policy options that will help to sustain the income support required to fund older Australians for the duration of their life.

Unfortunately, most Australians are unaware of the incomes they are likely to face in retirement.

DAE's AMP Superannuation Adequacy Index presents a 'no change' picture of the future for retirees based on unchanged retirement ages and current contribution

The Index shows that the average value of assets (in today's dollars) of Australian workers at retirement if current savings trends continue is $656,734. This amount is greater for younger workers, with those aged 20-24 expected to amass $972,902, and falls progressively as age increases, with those aged 65-69 achieving an average of $335,980 in assets at retirement. A majority (75.2%) of assets at the time of retirement are projected to be held in super.

Together with the age pension (for those who qualify) and other investments, in today's dollars workers will, on average, achieve average retirement incomes of $47,345 per year, or $910 per week. This result is based on average outcomes for workers across their time in retirement. Almost half of the income that today's worker will receive in their retirement years comes from Super income; the Aged pension makes up less than one third of retirement income.

Data from a 2007 ABS survey suggest that the super guarantee has achieved some success in raising retirees' self sufficiency levels.

> *The longer people had been retired, the more likely they were to have government pensions as their principal source of income. Government pensions and allowances were the main source of income for 45% of people who had retired less than five years ago, 62% of people who had retired five to nine years ago, and 73% of people who retired 20 or more years ago. (ABS 2007)*

[4] Long-run returns in the modelling are related to nominal economic growth, and therefore exclude the effects of short-term market fluctuations, such as those that occurred during the global financial crisis.

However, government pensions and allowances were the predominant source of income for most retirees; 65% of retired men and 67% of retired women. Further, super was the main source of retirement income for only about one fifth of recent retirees (23% of men and 16% of women).

The ABS survey also asked people aged 45 years and over who had not yet retired what they intended to be their primary source of retirement income. Government pensions still rated highly, with almost a quarter (24%) indicating this would be their main source of income. 43% expected superannuation to be their main source of retirement income.

As the superannuation system matures, retirees are expected to become increasingly self-sufficient and less reliant on government pensions and allowances. That said, many of today's workers are likely to fall short of their own retirement expectations.

Indeed, as the Federal Treasury projections in Chart 2.1 above show, close to half of these workers will rely on the age pension as their primary source of retirement income – meaning around one quarter of workers will ultimately be disappointed by their level of retirement savings.

2.3 Aged care market

While much of the policy debate surrounding retirement incomes in Australia over recent decades has focused squarely on the size and role of the superannuation sector, a large part of the other side of the equation – retirees' funding requirements into old age – has tended to receive less attention.

Aged care costs represent a major financial burden on those retirees who require assistance with health and personal care.

Australia's aged care sector is heavily regulated, and despite significant government funding, requires a contribution from most recipients toward the cost of the care.

These two market structures (retirement incomes and aged care funding) are central to investigating the contribution a deferred lifetime annuity market can make to managing longevity risk and its impact on the sustainability of Australia's retirement incomes policy.

Such products provide an opportunity to improve the balance of risks across public and private financing of retirement and aged care.

2.3.1 Current aged care options

Government subsidised aged care is heavily regulated – with each of demand, supply and prices all subject to varying degrees of government control.

Strict place limits apply to most programs, and approval from an Aged Care Assessment Team (ACAT) is required before government-subsidised services can be accessed.

Residential care

Residential care is provided by paid formal carers at an approved aged care facility. It is most commonly used where community care is neither desirable nor feasible, often because health care requirements are too high or access to informal care is limited. Residential care provides accommodation, living services (e.g. cleaning, laundry, meals) and assistance with personal tasks (dressing, eating and bathing). Residents usually have access to allied health and nursing care as required.

Under existing funding arrangements, there are two major classes of residential care:

- **Low-level care** focuses on personal care services such as help with daily activities, accommodation, support services such as cleaning, laundry and meals, and some allied health services such as physiotherapy and occupational therapy. There is limited access to nursing staff.
- **High-level care** is available for those who require full-time supervised health care under the supervision of registered nurses. These services are in addition to those available under low-level care.

The number of residential aged care places in Australia is allocated using a planning ratio. The Australia-wide ratio in 2010 was 86.8 operational places per 1,000 people over the age of 70 years, although this varies considerably by jurisdiction and care type (Table 2.1).

Table 2.1: Ratio of operational residential care places, at 30 June 2010[(a)]

	Low care	High care	Total
ACT	45.9	34.5	80.3
NSW	42.5	45.0	87.5
NT	40.4	50.7	91.1
QLD	44.6	40.2	84.8
SA	43.4	49.0	92.4
TAS	39.6	45.0	84.5
VIC	46.3	41.6	87.9
WA	43.4	37.6	81.1
Australia	44.0	42.8	86.8

Note: (a) Ratio represents the number of care places per 1,000 people aged 70 years and over as at 30 June 2009.

Source: DoHA, 2009c.

The demand for residential care places is driven by need, which is determined by the prevalence of disability and the availability of substitute care, such as community care, respite care, informal care and any available private care. The supply of operational residential care places will be driven by the perceived demand, the incentive to invest, and decisions made by the Commonwealth Government on how residential care places are to be distributed across regions.

Over recent years there has been a move away from residential care, in line with the preferences of older people and increasing government financial support for home-based care.

Community care

Community aged care refers to formal services usually provided in the care recipient's home. In many cases, people living in the community and receiving community aged care also rely on an informal carer. There are a number of government programs that provide formal care for people living in the community.

- **Home and Community Care (HACC)** is the largest program, and is jointly funded by the Australian Government and States and Territory governments. Services provided include transport, nursing, home maintenance, counselling and personal care. Existing to support both younger people with a disability and older Australians with aged care needs, the HACC program services a range of clients with a range of disabilities, including those with an acquired condition or injury. HACC clients may also receive packaged care assistance through EACH or CACP.
- **Community Aged Care Packages (CACP)** are funded by the Australian Government, and target older people living in the community with care needs equivalent to low-level residential care. A range of support services are provided such as personal care, domestic assistance and social support, transport to appointments, food services and gardening.
- **Extended Aged Care at Home (EACH)** targets older people living at home with care needs equivalent to high-level residential care. In addition to the services available under CACP, an EACH client may be able to receive nursing care, allied health care and rehabilitation services.
- **Extended Aged Care at Home – Dementia (EACH-D)** extends the services offered in an EACH package with services and strategies to meet the specific needs of care recipients with dementia.

It is estimated that there were around 966,710 people accessing HACC services throughout 2009-10 (DAE, 2010). The average client age was 72 years, although there were 193,951 clients under the age of 65 years. Access to HACC services is at the discretion of providers and funding is allocated largely based on demand.

Table 2.2 shows the number of operational community care packages by jurisdiction and level of care. The CACP program provides the greatest number of operational packages, estimated at around 40,195 in 2009, while the EACH and EACH-D programs provided 4,478 and 2,036 operational packages, respectively (DoHA, 2009c).

Table 2.2: Ratio of operational community care packages, 2009[(a)]

	CACP[(b)]	EACH/EACH-D	Total
ACT	24.0	7.8	31.8
NSW	20.0	3.5	23.5
NT	104.2	20.3	124.5
QLD	20.6	3.9	24.5
SA	19.8	3.2	23.0
TAS	21.2	4.3	25.5
VIC	19.8	3.6	23.4
WA	22.1	5.4	27.5
Australia	20.6	3.9	24.5

Note: (a) Ratio represents the number of packages per 1,000 people aged 70 years and over as at 30 June 2009; (b) this is included in the DOHA report as 'low level community care' which includes a few programs other than CACP.
Source: DoHA, 2010.

Private aged care services

At present, there is evidence that providers of public subsidised aged care, particularly community care providers, also offer 'full fee' services to private clients who have the private means to support the full cost of their care.

Little is known about the scale of these private service offerings, and no reliable data exist on usage patterns or overall market supply. That said, given the large and heavily subsidised public provision that exists in Australia, this sector is likely to be small.

As the incomes of retirees rise, and the structure and size of the industry shift in response to an ageing population, these services are likely to play a more important role in the Australian aged care sector.

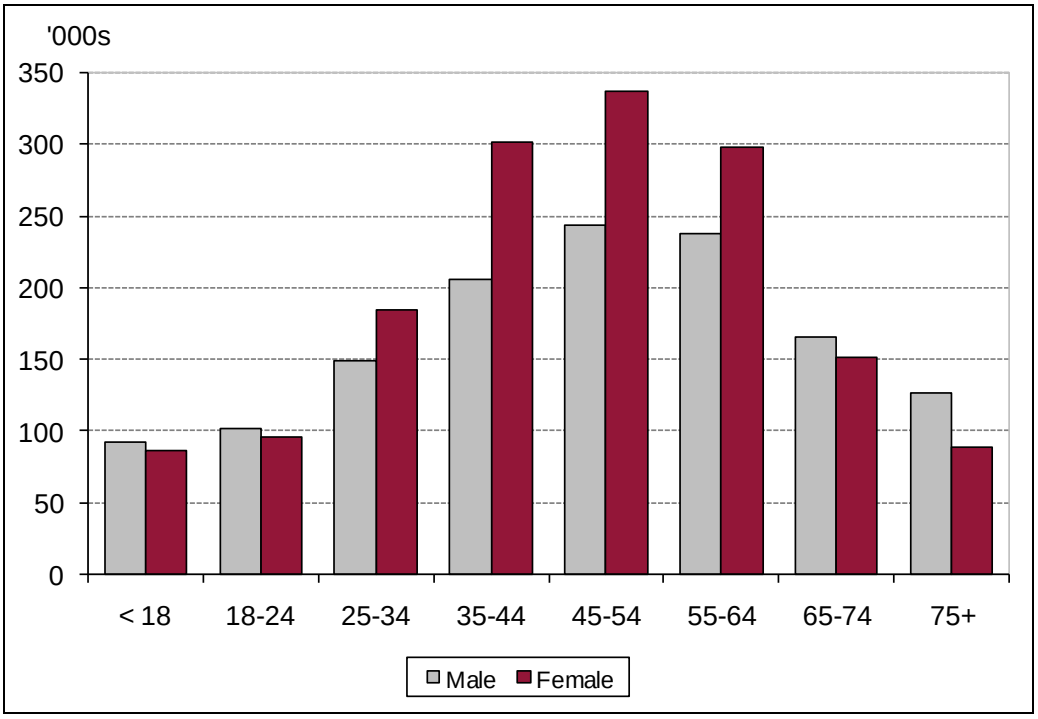
Informal care

Informal care is unpaid assistance or support provided to people whose health restricts their ability to undertake daily activities. Most informal carers are family or friends of the person receiving care.

The Survey of Disability, Ageing and Care (SDAC) (ABS, 2004) found there were around 2.6 million Australians providing informal care, of whom 475,000 were primary carers and 2.1 million were non-primary carers. Deloitte Access Economics estimates that around 2.9 million Australians (Chart 2.3) will provide 1.3 billion hours of informal care in 2010.

Carers provide valuable support to vulnerable older Australians, providing support to both the sustainability of the formal aged care sector and the cost of formal care to governments and individuals as a result.

Chart 2.3: Estimated number of informal carers in Australia, 2010



Source: Deloitte Access Economics calculations and ABS, 2004.

But that provision of informal care is not without costs.

In particular, where informal care is provided as a substitute to formal care, it may result in:

- **Costs to the carer themselves**, which can include reduced income, financial costs, social isolation and emotional strain. An inquiry by the Parliament of Australia (APH 2008) into balancing work and family found that: '…Informal caring is an isolating task that increases the carer's risk of depression and the physical effects of depression. They are more likely to become disabled themselves, due to the stress of caring and physical demands, such as lifting…'
- **Costs to the care recipient**, who may prefer to receive support from qualified health professionals, but be forced to rely on family and friends due to a lack of available, affordable care.
- **Costs to the Australian Government**, through the income support system as Carer Payment and Carer Allowance, and via carer specific support programs such as the National Respite for Carers program.
- **Costs to the broader economy**. Informal carers are more likely to be unemployed or not participating in the paid workforce than those who are not carers. In 2003, only 19.2% of primary carers were in full-time employment compared with an Australian average of 42.0% (ABS, 2004).

Expected higher demand for labour in future years will increase the opportunity cost of providing unpaid care in times of constrained workforce supply. Consequently the supply of informal carers may be under pressure in the future.

This effect may be amplified by a change in social attitudes towards caring for the elderly. Examples of such cultural shifts include the weakening of family and community ties, the more individualistic attitude of Generations X and Y, and the negative effects of informal care on the health and wellbeing of the carers themselves.

2.3.2 Government aged care expenditure

The cost of residential and community aged care in Australia is predominantly met through government subsidies but is supplemented to some extent by contributions from aged care recipients or their families.

The bulk of aged care expenditure is funded by the Commonwealth Government, which provides around 68%. Jurisdictional governments contribute 5.4% and individuals 26.2% (Hogan, 2004).

It is important to note however, that most aged care recipients are themselves dependent on government welfare – for instance, in 2008-09 89% of residential care recipients received a government pension (AIHW 2010). Hence, the government gives with one hand and takes with the other. As a result, much of the current private contribution to aged care funding is indirectly provided by taxpayers.

Recurrent expenditure on HACC clients, community care packages and residential care for 2009-10 is shown in Table 2.3, Table 2.4, and Table 2.5, respectively.

Table 2.3: Recurrent expenditure on the HACC program, 2009-10

	Expenditure ($m)	Clients (No.)	$/client
State/Territory	757	n.a.	n.a.
Commonwealth	1,187	n.a.	n.a.
Total	1,944	893,200	2,176

Source: DoHA, 2010 and Deloitte Access Economics calculations.

Table 2.4: Recurrent Commonwealth expenditure on community aged care, 2009-10

	Expenditure ($m)	Clients (No.)	$/package
CACP	508.7	40,123	12,679
EACH	206	5,248	39,253
EACH-D	99.6	2,291	43,474
Total – Packages	814.3	47,662	17,085
Aged care assessment[(a)]	76.4	n.a.	n.a
Total – community care[(b)]	890.7	n.a.	n.a.

Note: (a) Includes ACATs and ACAT training, community care assessments, the Dementia Support for Assessment Program and the COAG reform initiative projects. (b) Does not include other community care costs such as community care grants, assistance with care and housing for the aged, National Respite for Carers, or Department of Veterans Affairs expenditure on community nursing or Veterans' Home Care.
Source: PC, 2010b, DoHA, 2009c and Deloitte Access Economics calculations.

Table 2.5: Recurrent Commonwealth expenditure on residential aged care, 2009-10

	Expenditure ($m)	Clients (No.)[(c)]	$/client
Low care[(a)]	983.5	48,808	20,150
High care[(a)]	5,866.5	113,803	51,550
Total[(b)]	7,097.1	162,611	43,645

Note: (a) The relative cost per resident for low and high care was used to estimate the expenditure for low and high care operational places (b) Includes jurisdiction expenditure on residential care services. Also includes DoHA expenditure and Department of Veterans Affairs (DVA) expenditure. (c) The client numbers here reflect the number of people actually receiving care. The number of high care recipients is higher than the number of allocated places, and the number of low care recipients lower, due to ageing in place. See Appendix D for a discussion of ageing in place.
Source: PC, 2010b, DoHA, 2009c and Deloitte Access Economics calculations.

The Commonwealth Government spent around $2 billion in 2009-10 on HACC, CACP, EACH and EACH programs (including aged care assessment associated with these programs); and around $7.1 billion on residential care. This comes to a total of roughly $9.1 billion for formal care services in 2009-10. Jurisdictional governments spent $757 million on HACC services over the same period.

2.3.3 Private contributions to aged care costs

While the cost of aged care is predominantly met by government subsidies, aged care residents are asked to contribute to the cost of their care and accommodation.

Private contributions are heavily regulated, and in most cases are dependent of the means tested incomes and assets of recipients.

Community care recipients can be asked to contribute to the cost of care through fees:

- All recipients can be asked to pay up to 17.5% of the basic single aged pension, and
- Recipients on higher incomes may also be asked to contribute an additional fee limited to 50% of any income above the basic rate of single pension.

Note that these fees are entirely voluntary, and government subsidies are not affected by the incomes or assets of clients. In practice, it appears that many providers do not charge the maximum fee for community care, and very few charge additional income based fees for clients on higher incomes.

The variable nature of community care fees was identified by the Productivity Commission, who note that:

> *Information about co-contributions for formal community care services is not collected by governments, it is not known how many formal package recipients are contributing more than the basic age pension contribution.*
>
> *The recently released 2008 Community Care Census reports that the average private contribution for CACPs is around 10 per cent of the cost of supply and around 4 per cent for EACH and EACH-D packages. The majority of care recipients (90 per cent) paid a fee for a packaged care service. There are small variations in the overall proportion paying fees across ... programs:*

Residential care recipients are asked to contribute to the cost of their care and accommodation, through a number of mechanisms:

- **Basic daily fees** – all residents in aged care facilities can be asked to pay a basic daily fee as a contribution towards accommodation costs and living expenses such as meals, cleaning, laundry, heating, and cooling.

> The maximum basic daily fee for permanent residents entering an aged care home on or after 20 September 2009 is 84 per cent of the annual single basic age pension (PC 2010a).

- **Income tested fees** – residents in permanent aged care with total assessable income above the maximum income of a full pensioner may be asked to pay an income tested fee (in addition to the basic daily fee) as a contribution to the costs of care. The amount they pay depends on their income, and is limited to the total cost of the care they require.
- **Asset tested accommodation charges** – residents with assets in excess of $38,500 who enter high care may be asked to pay an accommodation charge. The charge increases to a maximum of $28.72 per day for residents with assets of just over $98,000 (PC 2010a). Individual residents' accommodation charges are fixed at the rate applied upon their entry to care.

> In 2009-10 the average accommodation charge for new residents was $22.51 per day (PC 2010a).

- **Asset tested accommodation bonds –** residents with sufficient assets who enter low level care may be asked to pay a bond, either as a lump sum payment to the facility or as an equivalent period payment. The exact amount of the bond is negotiable, but residents cannot be charged a bond which would leave them with less than $38,500 in assets (PC 2010a). Providers can deduct a monthly 'retention amount' from the bond for up to five years. The Australian Government sets the maximum retention amount, currently $307.50 a month (fixed at the rate applying at the date of entry). Income from accommodation bonds and retention amounts is used to meet capital costs, retire debt related to residential care, or to improve the quality and range of aged care services. Bond amounts are subject to strict prudential requirements, and the balance of the bond is refunded to the resident or their estate on leaving the facility.

> The average bond agreed with a new resident was $232,276 in 2009-10 (PC 2010a); more than three and a half times that seen in 1998.

Providers of publicly subsidised aged care are not permitted to charge any further fees for the basic care and accommodation of residents.

The balance between public and private contributions to aged care has changed significantly over the past decade, with a rise in user contributions and private funding for services. Implicitly, there has been a growing acceptance of a higher level of user responsibility in the funding of aged care requirements.

While residential care fees are voluntary, there are a number of factors which have contributed to widespread standardisation in fee and charge structures across the industry:

- Providers are able to request income and asset assessments from Centrelink for individual residents – improving information and compliance costs in the sector.
- Government payments are designed to account for the maximum level of fees assessed, rather than the actual level charged. For example:
  - Basic subsidies are reduced by the amount of the assessed income tested fee, whether or not it is charged in full.
  - Government accommodation funding through the accommodation supplement is reduced by the assessed value of the accommodation charge.

Interactions between aged care funding and retirement incomes

Why are aged care costs relevant when considering retirement income policies?

In one sense, aged care costs are a driver of the requirement for long term savings to support living standards in retirement, and long term fiscal planning to meet the challenges of an ageing population.

However, more specifically, **aged care costs are relevant to retirement incomes policy for the same reason that the age pension is relevant – as a potential saving to the government from boosting the adequacy and efficiency of retirement savings.**

Ideally, aged care funding and age pension outlays should be considered together when assessing retirement outcomes. This reflects some important linkages between these two means tested systems, which include:

- Age pension amounts are used to set basic fees in aged care, and account for much of the 'private' funding in the sector.
- Accommodation bonds paid by residents in aged care homes are exempt from the age pension assets test, as are any housing assets supporting periodic payments.

The introduction of a deferred lifetime annuity market would provide additional guaranteed income as older Australian's transition into the aged care system.

As a result, the additional income and asset tested fees in permanent aged care facilities would further reduce the strain of aged care funding on government budgets.

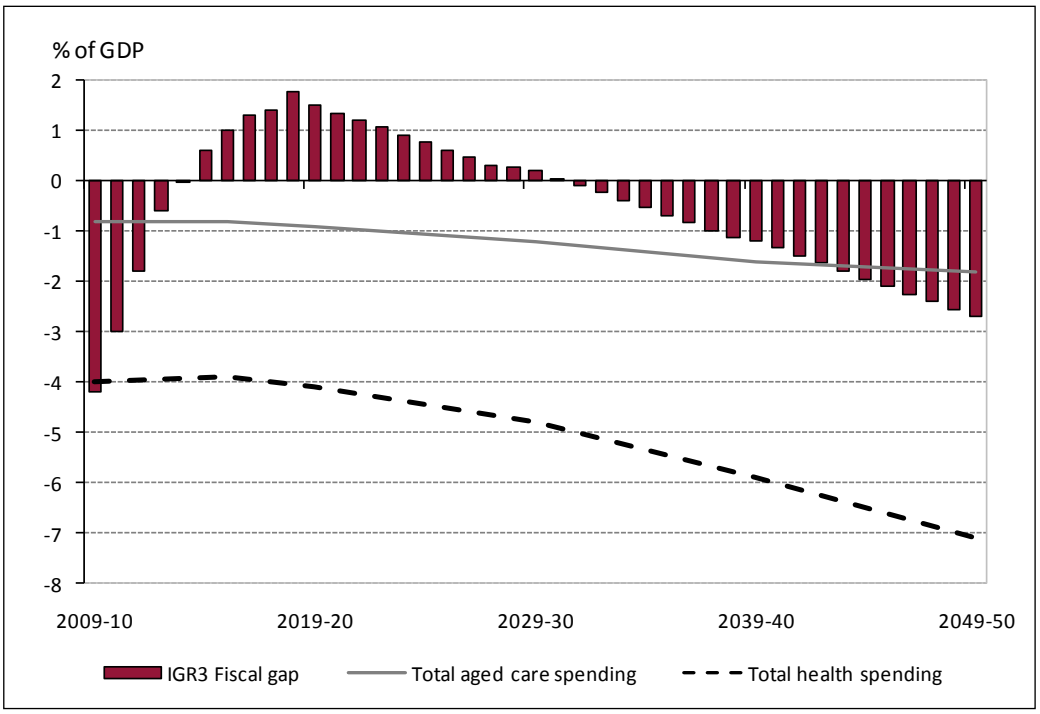
2.3.4 Funding future aged care costs

Population ageing pressures will reduce fiscal sustainability. Although the Commonwealth Budget is projected to have a cash surplus from 2012-13, expenditure on health and aged care is expected to gradually reduce net government revenue, until a fiscal gap once again opens from 2031-32.

By 2049-50 this gap is expected to be 2.75% of gross domestic product (GDP) (Commonwealth of Australia, 2010). The projected Commonwealth Government fiscal

balance along with projected health care spending and projected aged care spending is shown in Chart 2.4.

Chart 2.4: Projected Commonwealth Government fiscal balance



Source: Commonwealth of Australia, 2010

Around one third of increased expenditure related to ageing is due to the expected demand for aged care services and aged related pensions. Spending by the Commonwealth Government on aged care is projected to increase from 0.8% of GDP in 2009-10 to around 1.8% in 2049-50, driven mainly by an increase in spending on residential aged care.

In 2049-50, Commonwealth Government spending on aged care (1.8% of GDP) is expected to be equal to defence spending and only slightly less than expenditure on education (Commonwealth of Australia, 2010).

The National Health and Hospital Reform Commission's (NHHRC, 2009) final report observes that growth in private as well as public sector financial provisioning will be needed for a sustainable health and aged care funding platform. While Australia has "an envied mix of public and private financing", now "major reforms are needed to improve the outcomes from this spending and national productivity and to contain the upward pressure on health care costs".

The Commission did not specify a clear plan to stimulate private financing. All private funding mechanisms have their advantages and disadvantages, and there is no universal scheme that simultaneously increases efficiency and sustainability while maintaining equity. However, the current level of government support for community care services will come under considerable pressure as future needs continue to grow. It will be increasingly important for people who have the capacity to pay (through accumulated household savings) to contribute to the cost of their own care, allowing the government to fund a safety net for those without the financial means to cover their own care costs.

2.4 Structural drivers of longevity risk

Social and cultural trends in Australia and around the world are changing the traditional patterns of ageing and care requirements. In light of these significant structural developments, coming generations will see increasing rates of care-dependent older people, chronic illness and disability but also advances in medical support technology and increasing income levels available to fund care requirements.

2.4.1 Ageing population

Australia's ageing and growing population presents government with a fundamental challenge – how to fund the health and care requirements of older citizens. The long term projected increase in the number of Australians aged 65 years and over will significantly increase demand for aged care, in turn pressuring government finances.

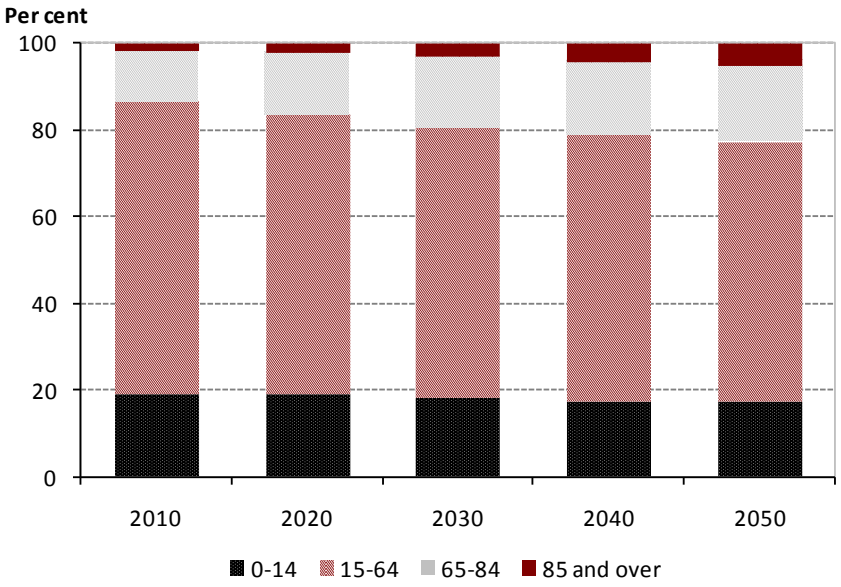
Australia's population will grow, although as seen in recent political debates, opinions vary widely as to the extent of the expansion. The Federal Government's *Intergenerational Report 2010* states that the population is projected to increase from about 22 million currently to 35.9 million in 2050 (by comparison, Deloitte Access Economics' in-house demographic model forecasts 35.0 million). However, annual rates of population growth are expected to decline from 2.1% in 2008-09 to 0.9% in 2049-50 (Commonwealth of Australia, 2010).

More significantly, however, Australia has an ageing population. In June 2009, there were close to three million Australians aged 65 years and older, making up 13.3% of the population.[5] By 2030 this is expected to reach 19%, and by 2050 approximately 23% of Australians are expected to be aged over 65 years (Chart 3.1). Between now and 2050, the number of older people (that is, aged 65 to 84 years) is projected to more than double and the number of very old people (that is, aged 85 years and over) is expected to more than quadruple (Commonwealth of Australia, 2010).

The 2010 *Intergenerational Report* noted mortality rates have fallen across all age groups, and this is expected to continue for the next four decades. More recent ABS and Productivity Commission projections have lifted the expectations of life expectancy even further. The male share of older age groups is increasing slowly. Although women have a higher life expectancy than men, men's mortality rates have fallen faster.

[5] ABS 3210.0, Table 9, Population by Age and Sex, Australia.

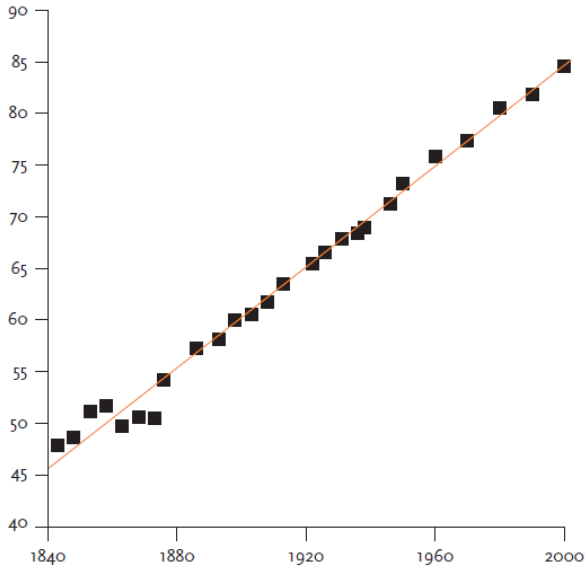
Chart 2.5: Proportion of Australia's population by age group



Source: Commonwealth of Australia, 2010

That issue is not unique to Australia. Indeed, many other countries are facing more serious ageing challenges than we are. Chart 2.6 shows how increases in longevity have been apparent for a long time, with little slowing evident to date.

Chart 2.6: Life expectancy of females in selected countries, 1840-2000

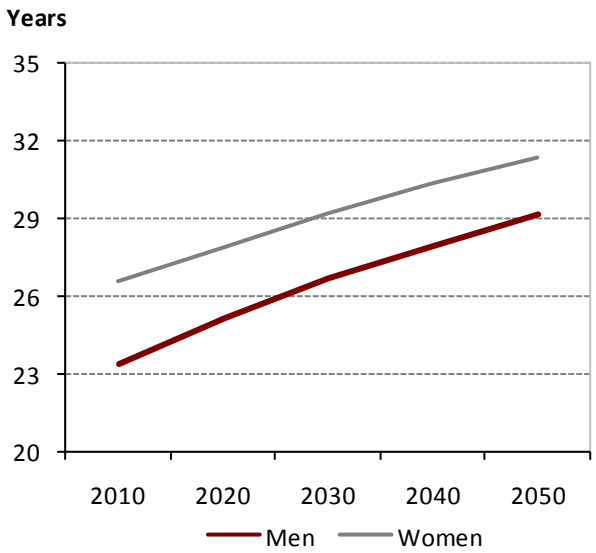


Data represented in the figure are taken from six countries: Australia, Iceland, Japan, New Zealand, Norway, and Sweden. Source: J. Oeppen and J.W. Vaupel, "Broken Limits to Life Expectancy," Science 296, no. 5570 (2002): 1029-31

The ageing population reflects a decline in fertility rates and increasing life expectancy. Australian's life expectancy is among the highest in the world, at 79.2 years for men and 83.7 years for women. In addition, men aged 60 in 2050 are projected to live an average of

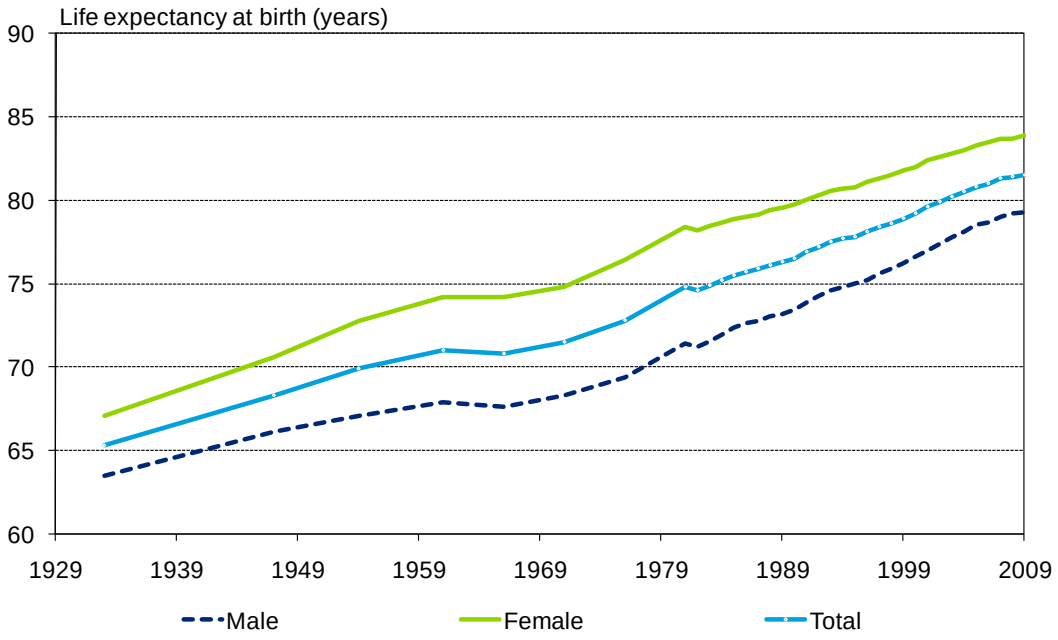
5.8 years longer than those aged 60 in 2010, and women an average of 4.8 years longer (Chart 2.7).

Chart 2.7: Australians' projected life expectancy at age 60



Source: Commonwealth of Australia, 2010

Chart 2.8: Australians' life expectancy at birth



Source: ABS, Deloitte Access Economics

The ageing population has significant implications for Australia's retirement income system. Government is confronted with the challenge of ensuring that Australians are able to maintain reasonable health and living standards for the duration of their lifetime, along with substantial projected increases in government spending on the age pension (and other age-related services) at a time when the taxpayer base will be narrowing in relative terms.

Chart 2.9: Rising life expectancy is now due to longer lives among older people

	1850-1900	1900-25	1925-50	1950-75	1975-90	1990-2007
0-14 years	62.13%	54.75%	30.99%	29.72%	11.20%	5.93%
15-49 years	29.09%	31.55%	37.64%	17.70%	6.47%	4.67%
50-64 years	5.34%	9.32%	18.67%	16.27%	24.29%	10.67%
65-79 years	3.17%	4.44%	12.72%	28.24%	40.57%	37.22%
>80 years	0.27%	-0.06%	-0.03%	8.07%	17.47%	41.51%

Source: AXA Papers No. 1-Longevity-June 2011, Human Mortality Database.

Data derived from reference 12 and the Human Mortality Database. Source: Christensen, Vaupel et al.

The ageing population will lead to substantial pressure on the first pillar of the retirement income system, that is, the taxpayer-funded age pension. Although the original aim of the age pension was to alleviate poverty among older Australians, it now plays a major role in providing income to the majority of Australia's retirees. As pressures on government finances grow in coming decades, such reliance on the age pension is likely to be a cause of concern for governments and taxpayers.

In the 2009-10 Budget the Federal Government announced a number of reforms to the age pension and superannuation payments. The reforms recognise the importance of increasing the long-term sustainability of the retirement income system, and were intended to improve retirement incomes while containing government costs over time.

In the 2010-11 Federal Budget the Government proposed to increase the compulsory superannuation contribution rate from its current level of 9% to 12% in 2019-20, although the rise is scheduled to occur incrementally, commencing in 2013-14.

2.4.2 Epidemiological trends

Expectations of future health and care requirements, as well as medical technology and treatment advancements, are largely driven by projections in causes of ill-health and population disease outcomes. Identifying the dominant causes of illness and morbidity helps to determine the progression and cost of treatment requirements.

Non-communicable diseases have been identified as the leading cause of chronic illness and disability in Australia and worldwide. More and more people are living with the consequences of chronic and potentially disabling diseases such as diabetes, heart disease, respiratory diseases, stroke and cancer. The primary driver of the rise in new cases is the ageing and growing population; however, lifestyle factors such as smoking, excessive drinking and physical inactivity are also influential. The obesity 'epidemic' is a concerning trend that has been strongly linked to many of these chronic diseases.

Diabetes is of particular concern. Australian Institute of Health and Welfare (AIHW) projections expect expenditure on diabetes to increase by 436% over the 20 years to 2033 (AIHW, 2008), driven by increases in prevalence rates (57.1% increase in age-standardised rates). By comparison, the prevalence rates of the other chronic diseases identified are

expected to decrease or remain relatively static – it is the growing and ageing population that is driving expected increases in the incidence of these diseases.

These diseases are often, but not exclusively, associated with ageing. Dementia disorders (the most common of which is Alzheimer's disease) are also becoming more prevalent in Australia's ageing population.

A report by the then Access Economics, *Keeping dementia front of mind*, (AE, 2009a) projects that on the basis of 2008 trends and policy settings there will be a shortage of 153,000 full time equivalent (FTE) carers for people with dementia in 2029, relative to 2008 levels. The report notes that, in particular, there are likely to be major supply shortages in family care and residential aged care facilities for people with dementia.

People with dementia have different needs, and access to quality services is paramount. This is a particular issue for Indigenous Australians and regional Australians. People with dementia and their families and carers require scope to choose between whether they receive care in the community or in a residential facility, with options so they have more flexibility in tailoring a consumer-directed service package to best meet their needs. Indeed, a system that encourages 'care choice and flexibility' and embraces the benefits that a healthy private sector financial product market offers would benefit all older Australians.

2.4.3 Social and cultural attitudes

Changes in social attitudes, values and behaviour are increasingly driving demand for more flexibility and options for meeting the care and standard of living needs that arise through longevity. The structural change is a product of rising expectations of consumer choice and quality of services, as well as a sense of entitlement to individualised care following years of dedicated participation in the national workforce.

It has also been suggested that high income elasticity of demand for health care goods and services has increased health care spending. For example, Newhouse (1977) estimated that income elasticity of demand for health care across thirteen developed countries ranged from 1.15 to 1.31. This suggests that, as national income grows the demand for health care goods and services will increase at a greater rate, thereby comprising a larger share of a nation's total consumption of goods and services.

In coming decades, rising incomes among retirees are likely to lead to a shift in the values of older Australians towards greater independence, and more flexible lifestyle choices.

These changes in needs and social structure require a different approach to health and aged sector policy, services and funding. The ability of people requiring care to continue to live an independent and flexible lifestyle depends on the availability of care in the community and their ability to pay for that care. In this context, expanding the market for a guaranteed income stream product provides a sustainable approach to private sector contributions to the cost of caring for Australia's older population.

3 Managing longevity

As Australians live longer and healthier lives, there are a number of related challenges confronting policymakers.

The fiscal challenges associated with the ageing of the population are fairly well known; successive Inter-Generational Reports have projected the fiscal gap as a result of the ageing of Australia's population. The latest (2010) IGR projections predict that spending on age pensions and aged care will increase from current levels of 3.5% of GDP to 5.7% by 2050.

Those pressures reflect an emerging issue in retirement funding – how to cater for the risk that a person may outlive their private savings.

That risk will continue as the population ages and life expectancies lengthen. The average man can expect to live about 9.4 years longer than his Dad, and the average woman some 7.8 years longer than her Mum, yet average retirement ages have only been inching up. Many people may not realise the extra years in retirement that they will enjoy and the income they will therefore need to receive later in retirement.

The Henry Review noted the importance of improving "the ability of people to use their superannuation to manage longevity risk", and identified "the role that deferred annuities can play in an ageing society." The Review also noted that "the lack of products that guarantee an income over a person's retired life represents a structural weakness in the system."

That is important because:

- The likelihood of eventually drawing on the public purse via the age pension and public subsidies in aged care is closely correlated with longevity, but
- The tax treatments which are designed to encourage greater private provision for retirement through superannuation (and compensate investors for 'locking up' savings until retirement) are not available for the specific products which would most efficiently address longevity risk.

While the policy case for support for the likes of deferred lifetime annuities is greater than for some current competing products, the constraints on the provision of deferred annuities remain to be addressed.

Australia's retirement incomes system grants considerable flexibility to individuals in their use of superannuation benefits. With the current lack of depth and market structure in the delivery of lifetime annuity products, retirees have an insufficient range of product choice.

Retirees with smaller superannuation benefits typically opt for either lump sum benefits or retirement income streams.

Those retirees who do opt for a retirement income stream product typically choose an allocated pension, which leaves them facing all longevity, investment and inflation risks.

Permitting and developing a more flexible market environment for lifetime annuities would allow an efficient pooling of longevity risk providing comfort that an individual will be supported for the duration of their lifetime.

3.1 Policy approach to meeting challenges posed by longevity and long term care

One consequence of an ageing population is the need for an aged care system that can respond to the needs of the older person, their families and carers. The current aged care system needs fundamental reform if the supply of community and residential care are to keep pace with the projected demand for care, while at the same time providing increased choice.

Given budgetary pressures facing the Australian government, health and aged care policy needs to address the challenges of projected increases in spending, and the distribution of limited public funds, while striving towards efficiency, equity and sustainability. There are many policy options that could be employed to alleviate health and aged care spending pressures on the budget, each with its own advantages and disadvantages. These include:

- raising taxation to fund rising spending (increasing public debt is not sustainable);
- reduced public funding to health care providers in less cost effective health care services;
- increased efficiency in service delivery;
- greater participation from private sector financing; and
- a combination of the above.

Higher taxation will only be feasible if society as a whole is willing to pay more for care for the older population. To date there has not been a debate on this issue. However, increasing taxes comes at a cost to social welfare through a further distortion of the market being taxed (such as the labour market through income tax) and the resulting inefficiencies known as 'deadweight losses'.

Further rationing of less cost effective health care services could occur by redefining the universal entitlement and service obligations met by the public sector; and, as a result, requiring greater contributions from the private sector. However, this option could be sub-optimal from a social perspective, due to the negative externalities imposed upon family, friends, and the health and aged care systems.

Increased efficiency will produce more health care for the same level of resources, thereby limiting the future increase in health care expenditure. However, even in a more efficient health care system, an increase in the demand for health care will increase total expenditure.

For example, the NHHRC estimated that even if their proposed recommendations were implemented, health care expenditure would still increase, albeit by a smaller amount – the

increase by 2033 would be 12.2% of GDP, compared to 12.4% of GDP in the absence of the reforms. (AIHW, 2009b).

Increasing the role of private financing through out-of-pocket expenditure, private insurance and privately financed care products is therefore likely to play an important role in alleviating pressure. This highlights the important role a guaranteed income stream product plays in increasing the capacity for consumers to contribute to the cost of their aged care requirements for the duration of their life.

The dual objectives of delivering quality and affordable access to health and aged care services universally, while ensuring that services are appropriate to an individual's demands, can be best met by a mixed system of public and private financing. As society ages, consumer expectations will increase, with greater scope, choice and speed of access demanded. Given that a mixed system of public and private financing and provision is preferred in Australia, the role of the private sector in addressing these objectives is likely to increase.

Importantly, supporting private financing of long term care costs is about more than simply increasing long term savings.

The average recipient of residential aged care is 84 years old, while the average recipient of subsidised community care is 81 years old – some 25 years after the preservation age of superannuation benefits, and 15 years after the availability of the age pension.

That delay highlights that without longevity insurance, for most people, the level of retirement savings available to provide for aged care will be limited.

3.2 Guaranteed lifetime income

Australia's ageing population presents government with two complementary challenges– how to fund the government's contribution to income support and aged care, and how to encourage individuals to fund themselves.

The projected increase in the number of Australians of retirement age over the coming decades will create significant fiscal pressures, largely through substantial increased government spending on the age pension and other age-related payments and services such as aged care and health services.

Recent policy changes such as the move to a 12% SG rate have aimed to lift future retirement incomes by increasing retirement savings during working life.

Yet while these policies increase the savings of future retirees, they do little to address key inefficiencies in the use of those savings to provide retirement incomes.

This issue was highlighted by the Henry Review in its *Final Report into Australia's Future Tax System* (Commonwealth of Australia, 2009b), which noted that increasing life expectancies mean that people will require more options to manage their assets over a longer period. It also stated the following principle:

The retirement income system should be flexible to allow for the development of products that allow people to better manage their retirement income.

These issues highlight the case for new and existing product markets to be developed and made available to allow people to insure against the risk of exhausting their assets before they die. While the age pension provides some support to individuals who exhaust their private assets, products that provide a guaranteed income stream over and above the age pension would advance the financial security of older individuals.

THE ROLE OF LIFETIME ANNUITIES

Why are annuities an important tool in meeting the coming challenges of an ageing population and increased longevity?

Unlike lump sum benefits or account based allocated pensions, lifetime annuities offer retirees a way to ensure that their savings produce retirement incomes for the remainder of their lifetime – regardless of how long that might be.

By guaranteeing an agreed level of income for life, lifetime annuities insure retirees against the risk of outliving their super savings and becoming reliant on the age pension.

Deferred lifetime annuities are a particularly useful form of longevity risk insurance, allowing retirees to put a small portion of their savings aside early in retirement in exchange for a substantial, reliable income stream when they are likely to need it most.

Importantly, such a strategy allows individuals to retain control over much of their life savings while targeting higher guaranteed private incomes to those years when other retirement income streams would be likely to have been exhausted and governments would therefore otherwise be required to provide greater support via higher health, age pension and aged care costs.

3.2.1 Current market environment

Demand side constraints

Currently the most popular income stream products in the Australian market are allocated pensions and annuities, accounting for over 85% of the total purchased income stream market (Commonwealth of Australia, 2009). Allocated pensions are account-based, with the length of time a person can draw an income from the product dependent on the individuals' chosen level of income and investment returns. An allocated pension does not ensure ongoing security of income as a stand-alone product.

In contrast, guaranteed lifetime annuities do ensure against longevity risk. However, Australians have traditionally shied away from retirement income streams which guarantee an income for life.

In part, that preference is likely to be due to a combination of:

- **Short-sightedness**, given that life expectancy has been rising more than is generally recognised. As a result many people are not aware of the extra income they will require to fund their longer retirement years.
- **The age pension**, which shifts some of the risks of running short later on in retirement back on to taxpayers by guaranteeing retirees a minimum income. The potential for the age pension to act as a backstop against longevity risk would be expected to form part of any rational retirement plan. Reliance on the age pension backstop shifts longevity risk onto other taxpayers, and onto younger generations.
- **Lack of choice**, with the range of products on offer in Australia less than that of some other countries. That lack of choice is a symptom of the small size of the domestic market, which has much to do with the rigidity of the Australian tax and regulatory rules for annuity providers.
- **Preference of providers to offer other products**, with the rise of defined contribution schemes, providers of superannuation have adapted their business models to funds management with much lower capital requirements (leading to their clients taking the longevity, market and inflation risk).
- **Control of capital**, as retirees have shown a preference for retaining control of their own capital to cover any large unexpected costs such as a home renovation or ill health. In many cases, control of capital is also important for estate planning, and so that retirees can maintain links with their children for as long as possible[6].

Of the five reasons given above for why Australians might avoid annuities, only the first – short-sighted expectations – is a pure 'market failure' or externality, though government intervention in retirement funding through the age pension does distort outcomes by altering the choices of individuals.

With life expectancies continuing to rise, there is a growing risk that individual retirees spend their super savings too quickly and that – more generally – Australians fail to plan effectively for their later retirement years, relying on the age pension to support them later in life when their superannuation savings have been exhausted.

If individuals systematically underestimate their retirement years, but providers offer lifetime annuities at a fair price based on an accurate (and higher) estimate of retirement years, then they will appear to retirees to offer a lower return than current competing products.

Evidence of such short sightedness / market failures would suggest that there is a case for freeing up the current constraints on market and product development.

As noted in Chapter 2 above, **these market failures mirror the matching concerns around contributions to super – concerns which have been addressed by government via requiring contributions from individuals.**

In contrast, not only is no direct intervention applied to the allocation of superannuation benefits across retirement, existing government taxes and regulations actively reinforce key market weaknesses in ensuring against longevity risk.

[6] B.D. Bernheim, R.J Lemke, J.K. Scholz, "Do Estate and Gift Taxes Affect the Timing of Private Transfers?" (p3), NBER 2003.

Government intervention to ensure adequate retirement savings is not currently matched by policies to encourage the provision of appropriate retirement incomes. Such policies are crucial to ensuring the retirement income system as a whole meets the goals of policymakers, and the expectations of retirees.

Supply side constraints

There is already a very small market for lifetime annuities in Australia. This indicates that suppliers are willing and able to take on and price the inherent risks – primarily the interest rate, adverse selection and longevity risk – involved in providing such a product. The size of the market is partly explained by the constraints imposed on the pricing of a lifetime annuity product in the current policy environment.

It also reflects a preference among providers to offer alternative products which are seen as easier to support and a more natural fit with the traditional role of the superannuation sector – which as pure funds management products have much lower capital requirements and involve no longevity, market or inflation risks to the provider.

Nonetheless, the market for lifetime annuities is growing strongly off a very small base.

Market factors also play a role, including the shortage of long term government fixed interest bonds (indexed bonds in particular). The availability of such assets would reduce prudential capital requirements for lifetime annuity providers and hence enable them to reduce prices for annuitants.

Challenger, in a letter to the Assistant Treasurer and Minister for Superannuation, set out what it sees as the policy-related impediments to the provision of deferred lifetime annuities, and the structural changes required to promote development in this market:

- A product must comply with certain rules to be treated as a superannuation pension or annuity. The prescriptive nature of these rules, such as a requirement for specific annual payments and limits on indexation, has constrained product development. The Superannuation Industry Supervision (SIS) Act should treat (tax and assess) deferred lifetime annuities as a superannuation pension.
- The earnings tax on non-commutable deferred lifetime annuities in the deferral period should be removed, consistent with other risk products.
- The ambiguity between the treatment of individuals and superannuation trustees on the accruals tax treatment of deferred lifetime annuities during the deferral period should be removed.
- The prudential standard on minimum surrender values should remove the requirement that deferred lifetime annuities be treated as an investment product during the deferral period making them subject to commutation requirements which would defeat the ability to offer attractive pricing.

These policy-related barriers limit the ability of suppliers to develop affordable guaranteed income stream products and hinder growth in the longevity insurance market. The resultant unnecessary strain on the pricing of these products, particularly in a deferral period, has seen consumers shy away from purchasing them even though the benefits of such a market have been clearly laid out by the Henry Review and others.

4 The modelling

That backdrop underscores the importance of exploring the effects of the full range of possible earnings tax treatments on deferred lifetime annuities as well as estimating the short term and long term revenue costs and benefits of each tax treatment on both an individual and system basis.

To ensure the full range of potential policy outcomes are captured in the simulations, four scenarios have been considered. These scenarios include a combination of three possible earnings tax treatments on non-commutable deferred lifetime annuities, two alternative means test treatments on non-commutable deferred lifetime annuities, two alternative views on the future of aged care policy and two alternative paths for retirement income stream market shares over time.

The logical possible earnings tax outcomes for non-commutable products are:

- Earnings tax until a condition of release is satisfied and the retiree survives to receive an income stream.
- Earnings tax until age 60 and a condition of release is satisfied.
- Earnings tax until age 60.
- Earnings tax until a condition of release is satisfied (that is, earnings tax ceases when the relevant superannuation interest goes into pension phase due to disability or a post preservation age decision to retire).
- No earnings tax on any non-commutable deferred lifetime annuity (that is, including in accumulation stage).

The scenario analysis presented here is focused on three of those potential outcomes, giving the following three scenarios for the tax treatment of non-commutable deferred lifetime annuities:

- The **baseline** scenario, which includes earnings tax on non-commutable products until a condition of release is satisfied and the retiree survives to receive an income stream.
- **Earnings tax to age 60** on non-commutable products, including during the deferral period.
- **No earnings tax** on non-commutable annuity products.

A further scenario examines the implications of exempting non-commutable products from the age pension means test.

In addition, there are two scenarios for aged care policy settings:

- The baseline scenario, in which aged care policy settings are unchanged.
- An alternative 'demand-driven' scenario, which implements the recommendations of the PC inquiry into *Caring for Older Australians*.

4.1 The model

Deloitte Access Economics' *SuperSim* model includes a wealth of detailed outputs relevant to each of the scenarios. *SuperSim* has been used as the modelling foundation for a range of projects. As a result, the model has been developed and enhanced over a prolonged period of time. Deloitte Access Economics is confident that the dynamic interactions of the model are robust and well-suited to the scenario analysis presented in this report.

The budgetary cost of any retirement income policy is influenced by a range of key policy parameters including (to name a handful):

- interactions with age pension means testing;
- the ages at which people can access their savings;
- the taxation and other concessions provided to superannuation contributions and retirement income products; and
- the taxation of superannuation earnings.

Policy changes to vary any of these key parameters affect the long term work, consumption and saving decisions that are made by individuals over their lifetime. The system of equations required to simulate the long term policy interactions and multi-dimensional forecasts in the *SuperSim* model are, by necessity, complex.

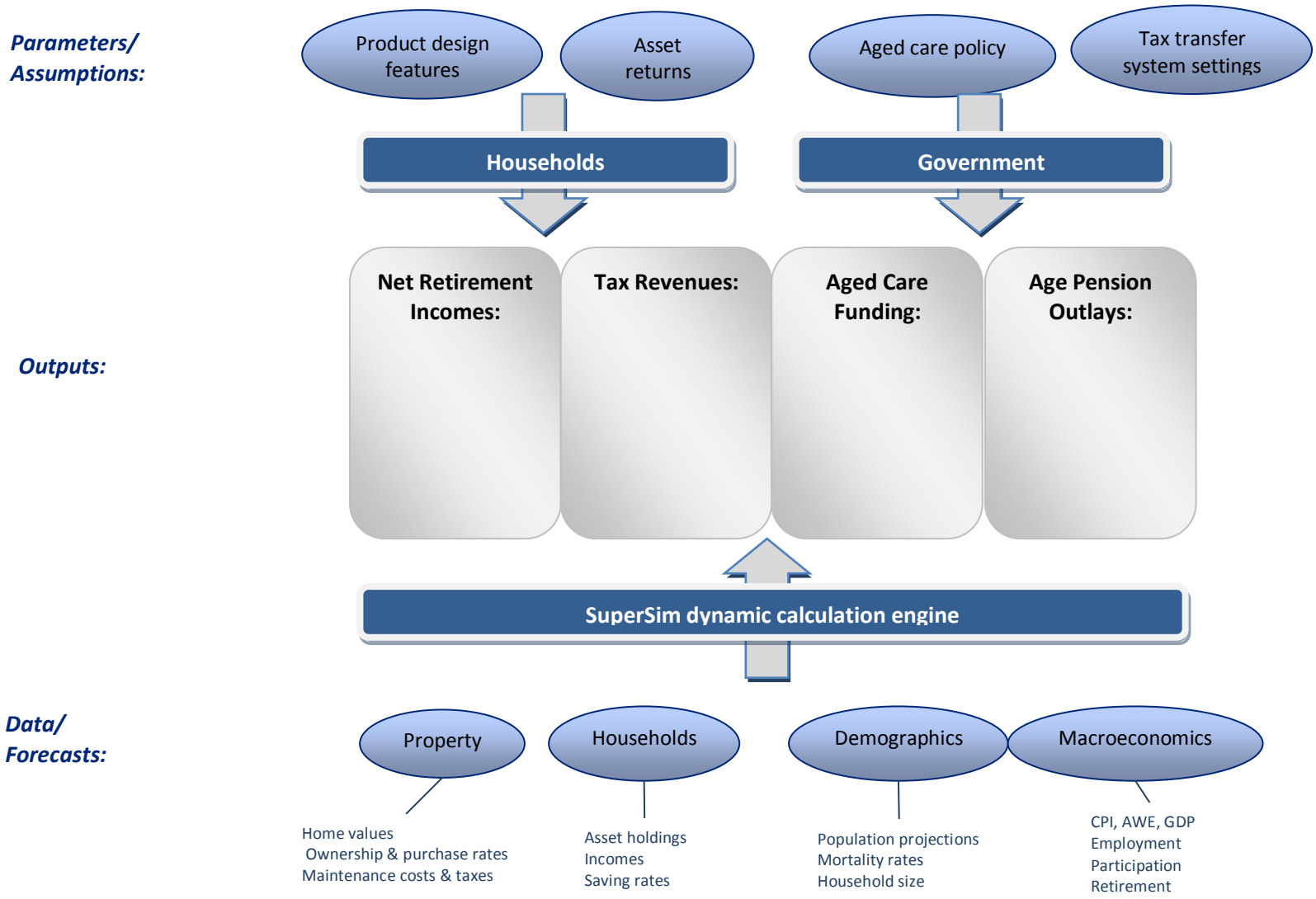
Due to the inter-related nature of the superannuation and aged care systems, a separate aged care component of the *SuperSim* model has been developed. The aged care module uses macroeconomic, demographic, and aged care specific variables to project the take up of aged care services, as well as the costs of providing those services. The results presented here represent aged care costs under two distinct scenarios:

- The baseline scenario in which current policy settings are assumed to be maintained.
- An alternative demand-driven scenario in which aged care services are assumed to be driven by the underlying demand for care, rather than pre-determined supply targets as is currently the case.

For simplicity and comparability purposes, the focus of this section is on aggregate outcomes. However, the outputs – aggregated and low level – provide the transparency and confidence needed to promote rigorous scenario design and, as a result, in-depth analysis and policy discussion.

Figure 4.1 is a high-level representation of the key interactions within the model, and indicates the relationships between the inputs and outputs involved in the following analysis.

Figure 4.1: Flowchart of model interactions



Appendix A provides further detail on the model, its inputs, and the methodology used for forecasting retiree and government cash flows. Appendix B provides further detail on the aged care module that has been incorporated into the *SuperSim* model.

4.2 Model inputs

While the appendices contain more detail surrounding the model assumptions, this section presents a shortlist of the fundamental economic assumptions and outlines the key deferred lifetime annuity design features.

In developing estimates of annuity income streams the model takes two aggregates as key, the stock of accumulated assets including superannuation and demographic profiles of retirees.

Coupled with predetermined product specifications the model develops estimates of lifetime and life expectancy annuity income flows.

ANNUITY PRODUCT ASSUMPTIONS

A number of assumptions are made around the purchase of deferred lifetime annuities by retirees within the model.

In particular, the model assumes that all annuities are purchased at the date of retirement, with income flows commencing twenty years from the date of retirement, or at age 80 (whichever is sooner).

Prices for deferred annuities are based on Deloitte Access Economics' own modelling methodology, with tax effects informed by detailed pricing assumptions provided to Deloitte Access Economics by Challenger specifically for this project.

Purchases of annuities under the baseline scenario draw on existing market data provided by Challenger, while increased purchases under the scenario outlined in this report are calculated based on Deloitte benefit projections and an assumed purchase price of $10,000 per retiree.

All increases in annuity purchases are assumed to come at the expense of account based allocated pension products.

Based on purchase weights allocated by the user, the model takes the population retiring in the current period and uses their super assets (taxed and untaxed) to buy into annuity and other products. Purchase prices for these assets reflect the initial funding available for purchasing each product type.

The model then takes these initial investments and determines product prices for the income stream calculations. Actuarially fair annuity prices are determined for both lifetime (refer to the appendices for details) and fixed term annuities.

In determining annuity pricing for each cohort of retirees, the model makes allowance for;

- the age of the retiring cohort at retirement (the purchase date);
- expected mortality rates for the cohort over the following 50 years;

- expected investment returns on assets underlying the annuity; and
- user defined parameters, such as agreed income stream indexation rates and exogenous 'discounts' to the purchase price (which are primarily included for use in scenario analysis).

With the purchase price and annuity price determined, the model then calculates income flows and age pension entitlements for each year in retirement.

By default, assessable assets for the age pension asset test are set equal to the purchase price for the entire term of the product (including during the deferral period). As the product is purchased with superannuation income, taxable income is zero for those over 60, and equal to the income flow for those under 60.

These basic product design assumptions are intended to provide a basis for comparison, rather than to reflect an accurate estimate of future consumer behaviour and pricing margins.

In addition the model requires high level assumptions relating to the state of the economy (relevant to all of the scenarios presented here). These are discussed in detail in Appendix A.

4.3 Model outputs

The model outputs are designed to reflect the net cost to government and net benefits to retirees in each scenario.

Accordingly, both individual (retiree) and government outcomes are included in the results presented below:

- Retiree outcomes:
  - Total net retirement income
  - Net benefits at retirement
- Government outcomes
  - Net revenue from superannuation (including government co-contributions)
  - Aged care outlays
  - Age pension outlays
  - Other revenue changes (including personal income tax)
  - Total net budget impact.

Outcomes are presented as percentages of Gross Domestic Product (GDP). This divisor is used to allow for the comparison of numbers over a very long time horizon. The common alternatives are 'real' or 'wage-adjusted' figures; however, these measures can tend to overstate costs and benefits relative to future incomes. Essentially, the percentage of GDP impact measure is meaningful as a reflection of 'affordability' at a national level, and useful from an illustrative and comparative standpoint.

These summary measures are not designed to reflect the complexities and interactions within such a product distribution and design system. For example, in each case there are a number of overlaps between the interests of the government and those of households.

The charts simply serve to indicate the basic characteristics of each scenario, and are intended to provide comparison between scenario outcomes and promote discussion regarding potential policy issues.

5 The baseline scenario

As with any modelling exercise, before we can assess the impact of scenario shocks, we need to establish a set of baseline forecasts for the key variables noted above, against which the scenario impacts can be compared. This chapter highlights the key assumptions under the baseline scenario, and presents baseline forecasts of key variables of interest.

5.1 Baseline assumptions

Generally a baseline scenario aims to present an extension of the current situation. Hence, the key assumption for the baseline is that current policy settings, with one important exception, are maintained. That is, we assume that key model inputs grow over item in accordance with existing policy settings.

The exception is that for the purposes of this project, **the baseline scenario assumes there is already a functioning market for deferred lifetime annuities (albeit a very small one).**

Yet in reality such annuities are not part of the income structures of current retirees.

So why this deviation from reality?

In economic modelling, especially when considering an extended time horizon, it is easy to become 'lost in the detail' and it is sometimes hard to determine the actual drivers behind any observed change. This is particularly the case when many (indeed, most) of the endogenous variables considered are in themselves related.

Hence, a key challenge for modellers is to construct a baseline scenario such that when conducting scenario analysis, **the observed change is due solely to the policy change under examination.**

If we were to compare our scenario results against a baseline in which annuities did not already exist, the implications of the tax changes considered here would be more difficult to isolate.

Consider the scenario discussed in section 6.2.2 below – a complete removal of taxes on deferred lifetime annuities. As discussed in more depth below, there are two mechanisms through which changes might be observed: an income effect and a substitution effect. We are able to isolate the income effect (and hence, by association, the substitution effect), by assuming the market share of annuities does not change under the scenario.

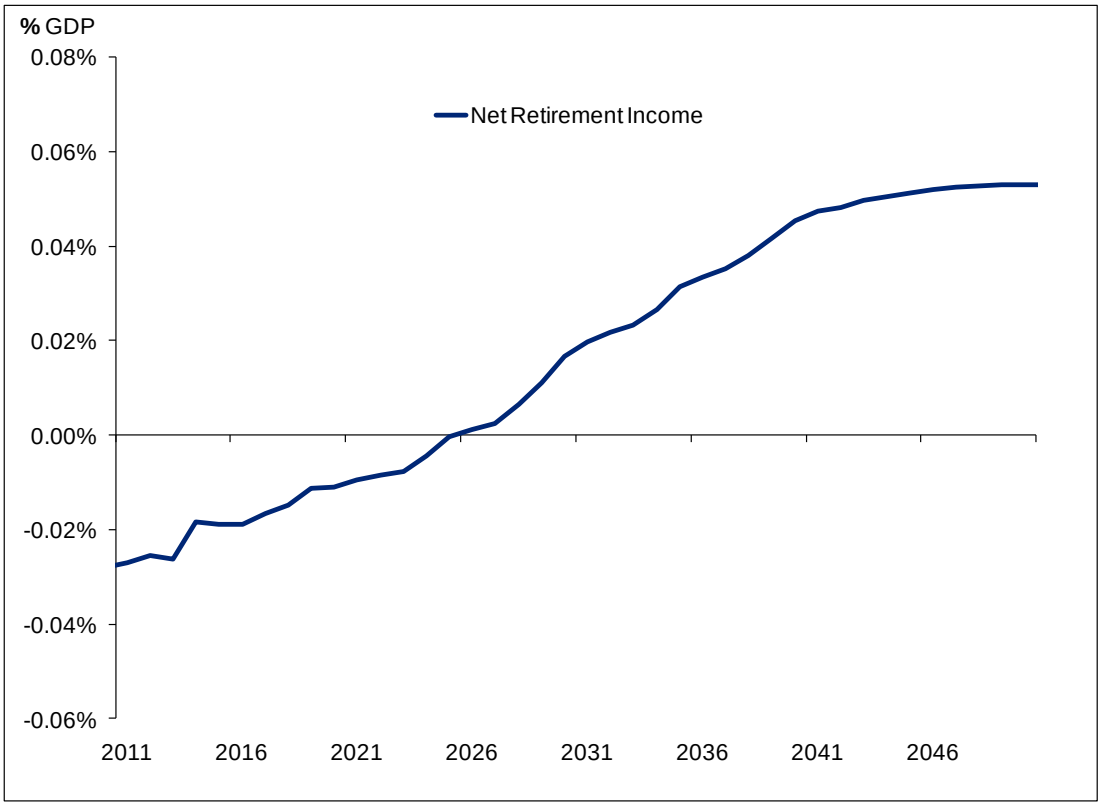
5.1.1 Comparing the baseline with 'real life'

Of course, the baseline forecasts presented here represent a hypothetical scenario, rather than the current case in which deferred lifetime annuities are not offered to retirees.

To quantify the differences between 'business as usual' and the baseline scenario presented here, an additional scenario has been developed to compare the baseline with a world more closely resembling 'real life' – that is, a world where annuities are assumed to have an almost zero market share both now and in the future.

Chart 5.1 shows net retirement income in the baseline compared to a world with no annuities.

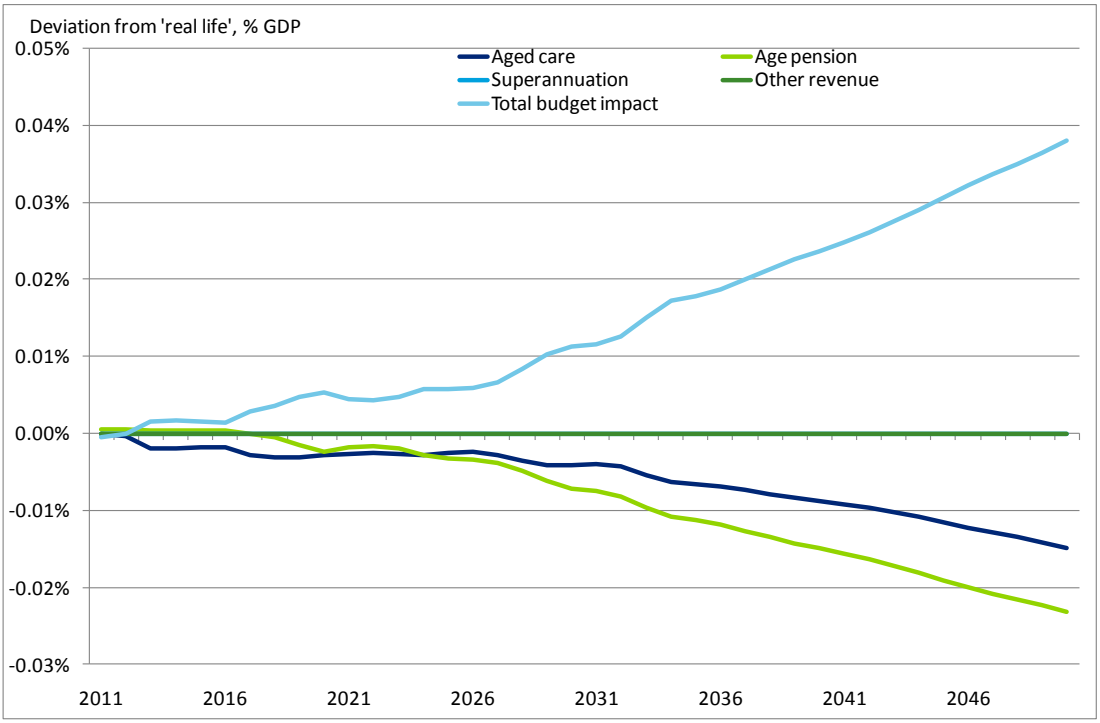
Chart 5.1: Retirement income in the baseline, deviation from 'real life'



Until about 2026, average net retirement income in the baseline is lower than in the 'real life' scenario, reflecting the deferral period of the annuities purchased under the baseline. As the annuities begin to pay their holders an income stream, income under the baseline gets progressively higher relative to the 'real life' scenario. As the chart above shows, by 2050 net retirement income under the baseline is projected to be higher than under the 'real life' scenario by around 0.05% of GDP.

Chart 5.2 shows the costs to government under a world with no annuities, relative to the baseline scenario.

Chart 5.2: Costs to government in the 'real life' scenario



Over the early decades of the projection period, government costs are broadly similar to the baseline. However, as the deferred annuities held under the baseline begin to pay their holders an income, the deviations in government costs between the two scenarios become more pronounced.

While it should be noted that under that baseline annuities continue to play a very minor role in Australia's retirement income system:

- By 2050, the cost of aged pensions to the government is lower under the baseline (because net retirement income is higher, and hence retirees are less dependent on social welfare) by more than 0.02% of GDP.
- Similarly, by 2050, the cost of aged care to the government is lower under the baseline (because net retirement income is higher, and hence retirees receive lower government aged care subsidies) by less than 0.02% of GDP.
- Finally, note that the baseline also collects more tax – because deferred lifetime annuities are taxed to an extent that their competitors are not. This latter channel raises taxes by less than 0.02% of GDP.

A summary of key results from the real life comparison is provided in Table 5.1 below.

Table 5.1: Summary of results, real life comparison

Year ending 30 June	2011	2020	2030	2040	2050
	Deviation from 'real life' % GDP				
Aged care	-0.0001%	-0.0029%	-0.0041%	-0.0088%	-0.0148%
Age pensions	0.0005%	-0.0024%	-0.0071%	-0.0149%	-0.0232%
Total budget impact	-0.0005%	0.0053%	0.0113%	0.0236%	0.0380%
Net retirement income					
60-64	-0.0096%	-0.0143%	-0.0165%	-0.0176%	-0.0184%
65-69	-0.0092%	-0.0148%	-0.0187%	-0.0221%	-0.0230%
70-74	-0.0073%	-0.0086%	-0.0116%	-0.0126%	-0.0128%
75-79	-0.0012%	0.0100%	0.0170%	0.0187%	0.0174%
80-84	0.0038%	0.0109%	0.0226%	0.0301%	0.0292%
85+	0.0005%	0.0096%	0.0313%	0.0571%	0.0660%

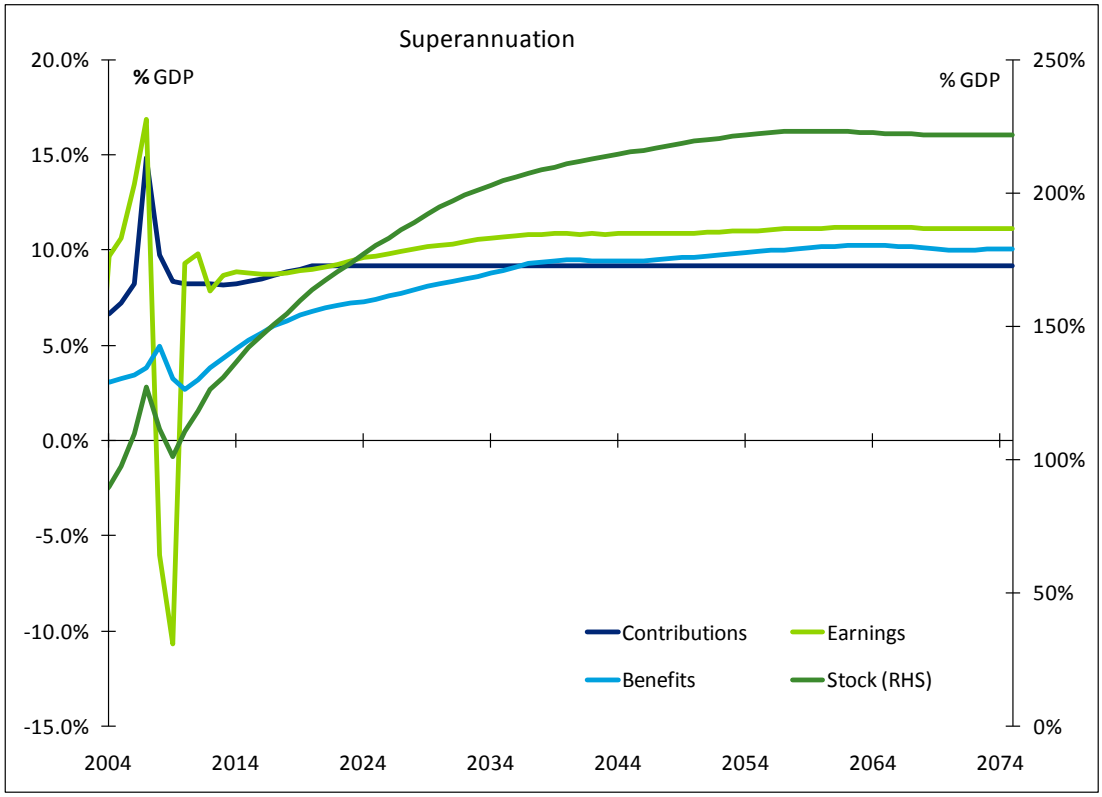
The net effect of the above is that the baseline – with deferred lifetime annuities – sees higher tax collections and lower spending on age pensions and aged care than the 'business as usual' scenario, with those savings to the government totalling some 0.05% of GDP by 2050.

5.2 Baseline results

Australia's compulsory superannuation system remains a relatively new feature of the retirement incomes landscape, and a relatively long way from 'system maturity'.

This maturing process is clearly evident in Chart 5.3 below. (Note that earnings in the chart move sharply in recent history because markets did the same.)

Chart 5.3: Superannuation system projections (accumulation phase)



Source: DAE estimates

While contributions can be expected to remain at current levels, **the stock of super assets will grow over time**. That is no surprise, since compulsory superannuation has only been in place since 1992, meaning that many of today's workers began their careers in the days prior to compulsory super (see discussion below).

A long run or 'steady state' level of super assets will take time to develop. Under the baseline, the stock of super assets continues to grow as a share of the economy for decades to come.

Note while *SuperSim* includes the superannuation holdings of both workers and retirees, Chart 4.1 shows super assets and flows built up during 'the accumulation phase' only.

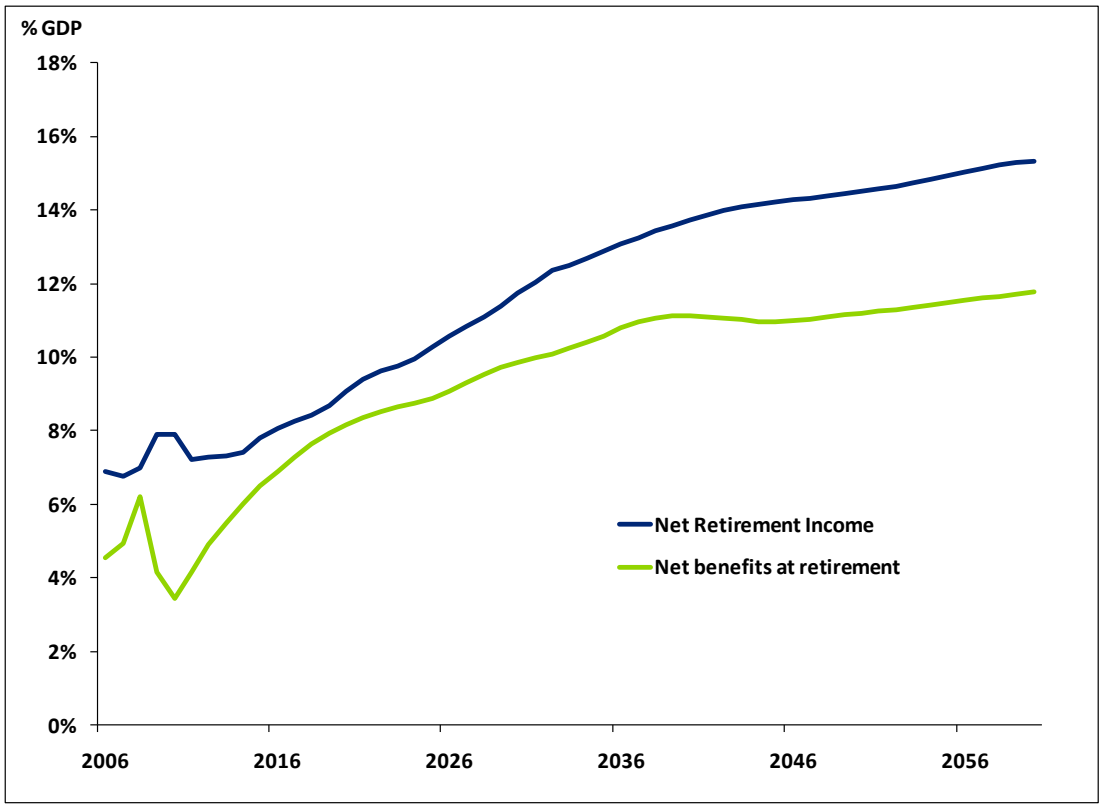
This latter feature of Deloitte Access Economics' modelling approach means that it takes longer for the stock of super assets to 'mature' as a multiple of national income, because that requires not merely that all workers have contributed through all their working lives (that is, a mature accumulation phase), but also that all retirees have access to the resulting retirement benefits (a mature pension phase).

Benefits from super also rise as the current arrangements mature, with **long run benefit levels expected to more than double their current share of output,** peaking at 10.2% of GDP by 2060.

As the super system matures, its importance in providing funds to support Australians in their retirement will grow. Looking forward, future retirees will have accumulated more benefits from super, and will have higher incomes as a result.

Chart 5.4 includes two series – the income actually received in retirement ('net retirement income' in the chart), and the income earning potential as at the date of retirement ('net benefits at retirement' in the chart).

Chart 5.4: Projections for new net retiree benefits (baseline)



Source: DAE estimates

In the mature system, capital drawdowns are being broadly offset by inflows of new capital. As a result, the difference in the two series in the chart above is driven by pensions and returns: the former series is higher than the latter due to the age pension, as well as because people are earning returns on their assets during their retirement.

Retirees can continue to rely on super benefits to provide income long after those benefits are removed from the accumulation phase of the super system.

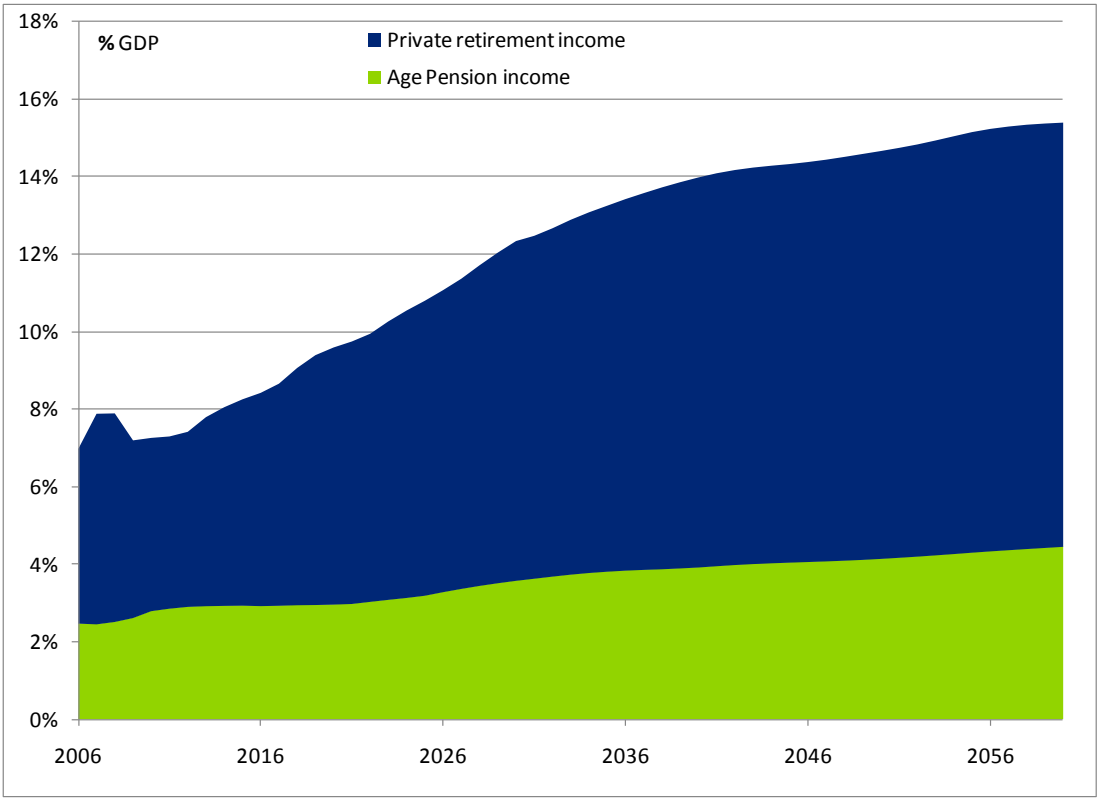
Because income from super assets is taxed at concessional rates, the measures presented here are in after-tax terms. In the case of new net benefits, the value of all future taxes payable on super assets is accounted for. By including the tax advantages of super relative to other assets in retirement, the model is able to better reflect the living standards of retirees.

Chart 5.5 shows retiree income as a share of GDP, and also the relative contributions of private income and age pension income to total retiree income. Currently, a little over half of all retirement income is from private sources, including super balances. This rather low share is because, as we have already noted, a number of workers from the days before compulsory superannuation came into play are still in the workforce.

As each year passes, new retirees will have spent a greater share of their working lives receiving guaranteed super contributions. Consequently, private retirement income is

projected to increase significantly, while income from the age pensions will increase more modestly over the projection period.

Chart 5.5: Sources of retiree income

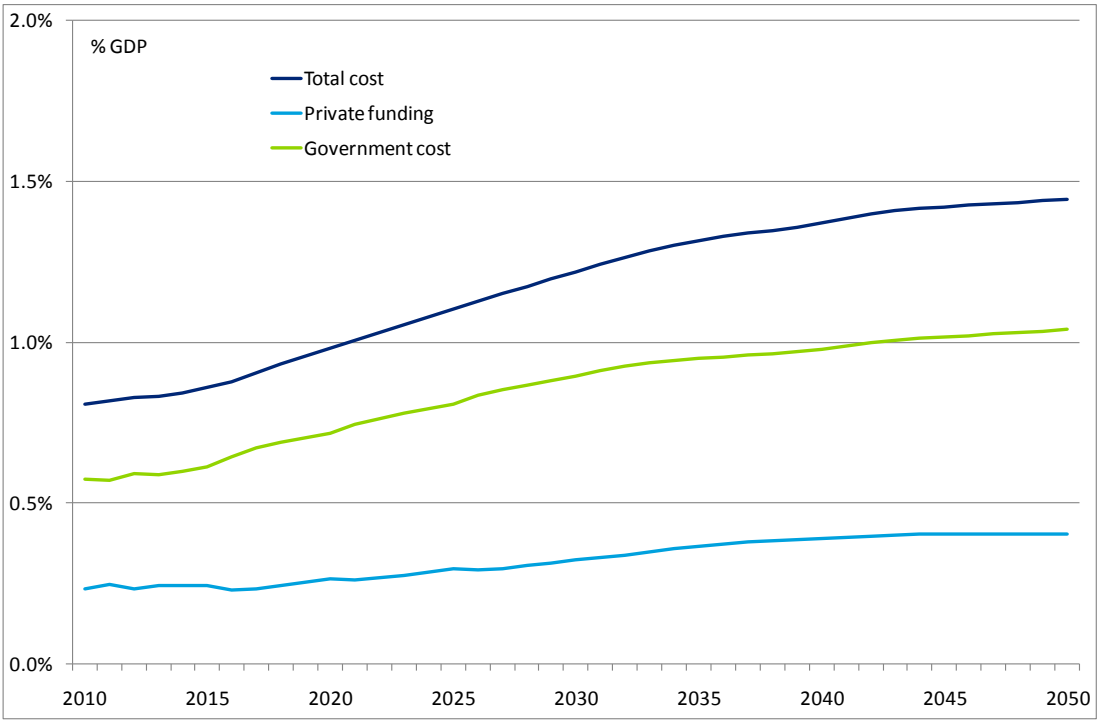


Source: DAE estimates

As the superannuation system matures and the stock of super assets grows as a share of GDP, the share of aged care costs funded by the private sector will also rise.

Currently it is estimated that approximately 70% of aged care costs are covered by the government, representing about 0.6% of GDP. However, as the super system matures and retirees become more self-sufficient, the government's share of aged care funding will fall – by 2050 the government is projected to cover only 36% of the total costs, or 0.5% of GDP. The projected costs of aged care under the baseline are presented in Chart 5.6.

Chart 5.6: Cost of aged care (baseline)



As the Productivity Commission notes in its report, the current system of government subsidies and co-contributions to aged care services may not reflect the true cost of providing such services. As the population ages, significant funding imbalances are projected. In other words, if current policy settings are maintained the cost of providing aged care services will grow faster than government funding for such services.

Also adding to the funding imbalances will be changing community expectations toward the standard of aged care. Average retirement incomes are projected to rise considerably as the super system matures and new retirees have spent more time covered by compulsory superannuation; as incomes rise, so too will expectations as to what constitutes an 'acceptable' standard of care. To put it another way, although shared rooms in high care facilities might be 'acceptable' by today's standards, they may well be considered unacceptable 20 years from now.

Under the current aged care system, government funding is determined by a system of defined daily subsidies and supplements, and associated indexation. Looking forward, the cost of aged care, for the reasons noted above, is likely to grow rapidly. Further, it is likely that current policy settings will not allow government and private sector contributions to grow fast enough to keep up.

In other words, a funding gap between the total cost of care and the total care contributions (i.e. private plus government contributions) is likely to develop.

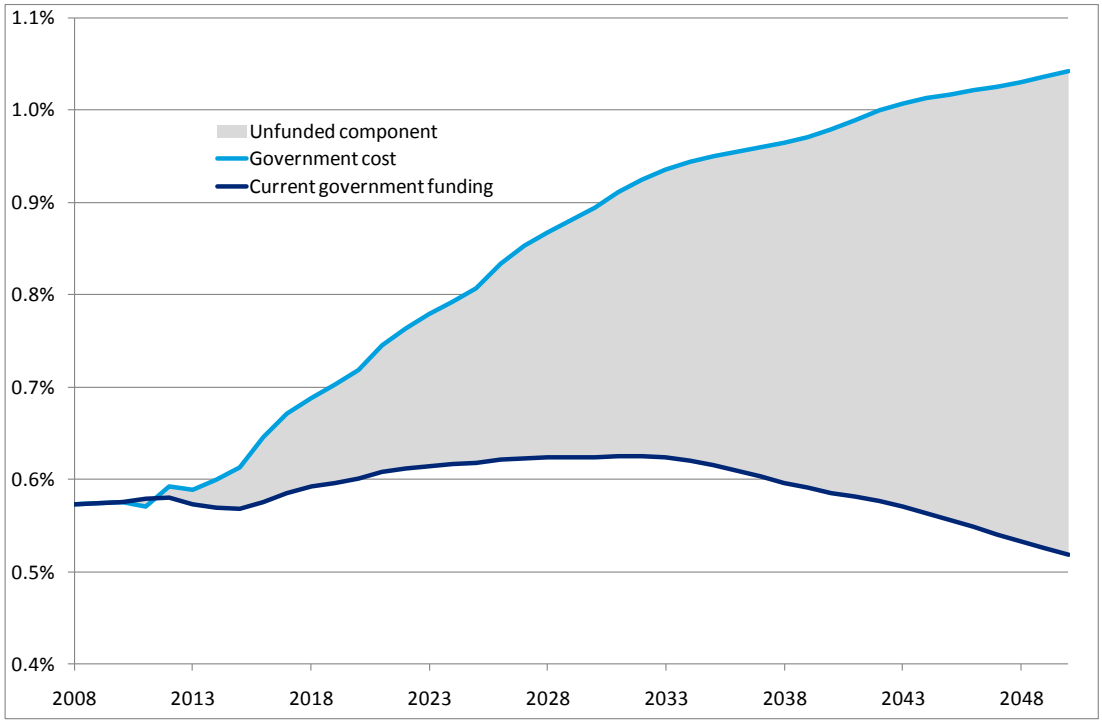
To highlight this, the model estimates an 'unfunded component' – the total cost of aged care minus the sum of private current government contributions (which grow in line with current policy arrangements). This difference is assumed to be zero at first, as the aged care system is currently able to cover the entire cost of care. However the difference begins to rise rapidly over time.

Chart 5.7 shows three series:

- The dark blue line shows the path of government aged care funding, based on current policy settings.
- The grey shaded area shows the 'unfunded component' – i.e. the total cost of aged care less existing funding contributions from the government and recipients.
- The light blue line represents the total funding requirement from government to ensure the sustainability of the aged care system. It is the sum of the blue line and the grey area.

Assuming that the government (that is, taxpayers) will be the one picking up the tab when the true cost of aged care outstrips current funding arrangements (which seems likely), the light blue line is the 'true' government cost.

Chart 5.7: Federal Budget gap (baseline)



The reduction in existing government funding over time is indicative of two key trends:

- First, current indexation of government subsidies is linked to a combination of CPI inflation and safety net wage increases which grows more slowly than GDP over time – thereby reducing the government contribution as a share of national income.
- Second, an increasingly self sufficient aged population, as discussed above, which reduces many subsidy and supplement amounts under the current means tests.

As a result, by 2020 we estimate that the 'unfunded component' of government aged care spending will have increased to 0.1% of GDP, and by 2050 to 0.6% of GDP.

6 Scenario results

The results of the modelled scenario analysis are set out here. For simplicity, the results are presented in groups (based on similarities in outcomes and implications), rather than on a scenario-by-scenario basis. Briefly, the groups are:

- **Tax treatment analysis**, on non-commutable and commutable products broken down by the deferral period and over the entire product term.
- **Means test treatment analysis**, of exempting non-commutable products from the age pension means test.
- **Demand-driven analysis**, which assumes that the current supply targets are removed and adopts the PC's costing recommendations.

Each scenario group contains a number of sub-scenarios with differing assumptions regarding the taxation and take up of annuities. A list of scenarios is provided in Table 6.1.

Table 6.1 Listing of scenarios

Scenario name	Description
Tax scenario 1	No annuity taxes after age 60
Tax scenario 2a	No annuity taxes at all (income effect only)
Tax scenario 2b	No annuity taxes at all (income and substitution effect)
Means test scenario 1	Means test exemption (income effect only)
Means test scenario 2	Means test exemption (income and substitution effects)
Demand scenario 1	Annuity prices same as in the baseline
Demand scenario 2	Annuity taxes removed as in tax scenario 2

The model outputs are similar to the baseline results above, and are designed to reflect the net cost to government and net benefits to retirees in each scenario.

Outcomes are presented as deviations from the baseline scenario, measured as percentages of Gross Domestic Product (GDP). As noted above, this measure is meaningful as a reflection of 'affordability' at a national level, and useful from an illustrative and comparative standpoint.

There may also be qualitative benefits (such as health outcomes, quality of life, reduction in support payments or carers' support from the younger generation, and the like) not included in the results seen here. Moreover, in cases where the government outcome is positive, an indirect effect in terms of reduced taxes or other forms of public benefit would flow on to households. (That is, if policy moves with respect to deferred annuities resulted in savings to government, that really means either lower taxes or higher government services could now be afforded.)

6.2 Tax treatment of deferred annuities

Under current policy arrangements (and under the baseline scenario presented above), taxes apply earnings tax on non-commutable products until a condition of release is satisfied and the retiree survives to receive an income stream.

The removal (or reduction) of taxes on annuities essentially corresponds to a price fall. We would therefore expect two separate effects: an income effect and a substitution effect.

In Appendix B we show that the income stream of an annuity is negatively related to the current price of an annuity; that is, if the current price of an annuity goes down, income goes up.[7] In other words, for a given level of retirement savings, those who purchase annuities will see their annuity income rise as a result of the price fall. This can be thought of as an **'income effect'.**

In response to the price fall, the market share of annuities is assumed to increase from 1.6% under the baseline to 9.1% in the scenarios. That increase is brought about by a reduction in the market share of allocated pensions from 45.9% to 38.8%. Hence, when the price of annuities falls, people substitute out of allocated pensions and into annuities. This can be thought of as a **'substitution effect'.**

6.2.1 Tax scenario 1 – earnings tax until age 60

Under this scenario it is assumed that earnings taxes on deferred annuities only apply until age 60, regardless of whether the annuity is in deferral or income payments have commenced.

Chart 6.1 shows the effects on government finances, as deviations from the baseline, of removing tax impediments on annuity products after age 60.

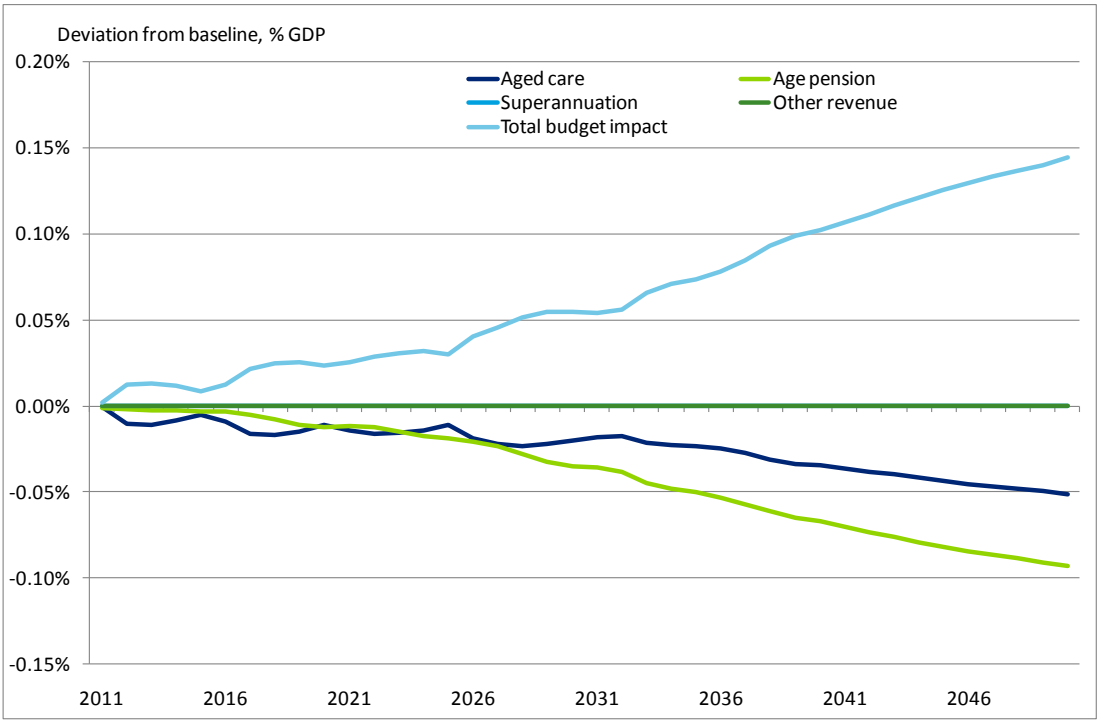
We quantify savings to the Government from pensions and aged care, but there is also good news afoot outside of those Government savings. As there are many people whose incomes are so low that the increased reliance on annuities doesn't change their eligibility for aged pensions or aged care subsidies, then these shifts imply higher private income for that group even if they don't directly imply lower costs for Government.

To the extent that this transfers money from those who die early to those who don't, there are therefore some positive impacts on poverty profiles in Australia.

There is also an associated indirect benefit to Government by reducing political pressure on it to raise the base rate of the pension over time.

[7] Assuming no residual capital value, _____ , where i is the indexation rate, and n is the number of years since purchase.

Chart 6.1: Effect on government finances, tax scenario 1



The first notable effect is a reduction in the government's age pension costs, relative to the baseline. This is because a combination of the income and substitution effects described above causes average incomes to rise, which in turn reduces reliance on the age pension.

By 2020 the government's age pension liability is expected to be lower than the baseline by 0.01 percentage points of GDP; by 2050 the saving is projected to be 0.1 percentage points of GDP.

In 2009-10 dollars, this equates to a saving of $159 million by 2020 and $1.2 billion by 2050.

Because none of the underlying policy variables surrounding the aged care system are changed, there is no change in the total cost of aged care or in the unfunded component of aged care.

However, as annuities become more prevalent and the incomes of older retirees begin to rise as a result of holding annuities, the private contributions to aged care costs increase, reducing the required contributions from government.

By assumption, total government and private costs for aged care reflect the projected cost of the aged care system as a whole. This results in a one-for-one shift as private funding rises; that is, one dollar more of private spending means one dollar less of required government spending.

It should be noted, however, that the small market share of annuity products means that these changes are also small. For example, by 2020 private funding is projected to increase, and government funding is projected to decrease, by 0.01 percentage points of GDP relative to what would otherwise have been the case.

By 2050 this latter gap has widened, with private funding being higher (and government funding lower) than the baseline by 0.05 percentage points of GDP.

6.2.2 Tax scenario 2 – no earnings tax

As noted earlier, there is currently a raft of taxes and charges imposed on deferred lifetime annuities which act as impediments to the development of the annuities market. This scenario assumes there are no taxes after purchase – in other words it represents a hypothetical world in which tax impediments to the provision and purchase of annuity products are removed.

Two 'sub-scenarios' are examined: one in which the market share of annuities is assumed to be the same as the baseline (income effect only), and one in which the market share of annuities is assumed to increase in response to the price fall (income and substitution effect).

Tax scenario 2a – income effect only

This scenario allows us to examine the changes to the superannuation market flowing solely from the price fall in annuities. In other words, this scenario isolates the income effect of the price fall.

When we say 'isolate the income effect' we mean that changes to key outputs, relative to the baseline, occur purely through a reduction in the price of annuities. Under this scenario people do not increase their holdings of annuities in response to the price fall. Therefore the only changes relative to the baseline will flow from the higher incomes of existing annuity holders.

With higher incomes, holders of annuities become more self sufficient in their care. That is, a higher income means less pension income, as well as less government subsidisation towards the cost of care. This explains why the cost (to government) of age pensions and aged care in general falls, and the overall budget position improves, relative to the baseline.

Note also that the magnitude of impacts begins to 'take off' after about the mid 2020s. This is explained by two factors: first, holders of deferred annuities will not benefit from higher incomes until the deferral period (commonly about 10 years) expires; and second, the income benefits increase exponentially with the age of the annuity, as noted earlier.

The numbers in this scenario are very small. That is because the impacts are felt only by those already purchasing annuities under the baseline scenario, and that number is relatively low. By 2050 the annual cost of aged pensions to the Government has fallen, relative to the baseline, by 0.004% of GDP, or about $6 million in today's dollars.

Even though the numbers are small, the policy implications of this scenario are clear. **Even if annuities continued to play a very small role in Australia's aged care architecture, the government would save itself money on age pensions if annuity products were more competitively priced relative to other retirement income products.**

Chart 6.2: Effect on government finances, tax scenario 2a

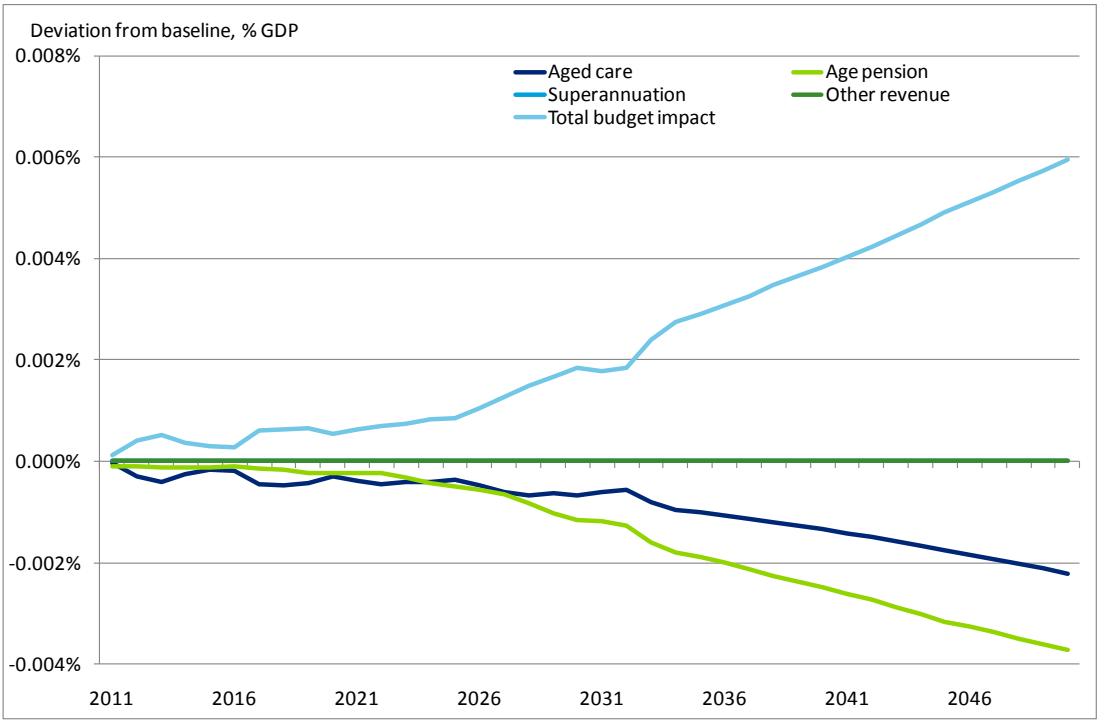
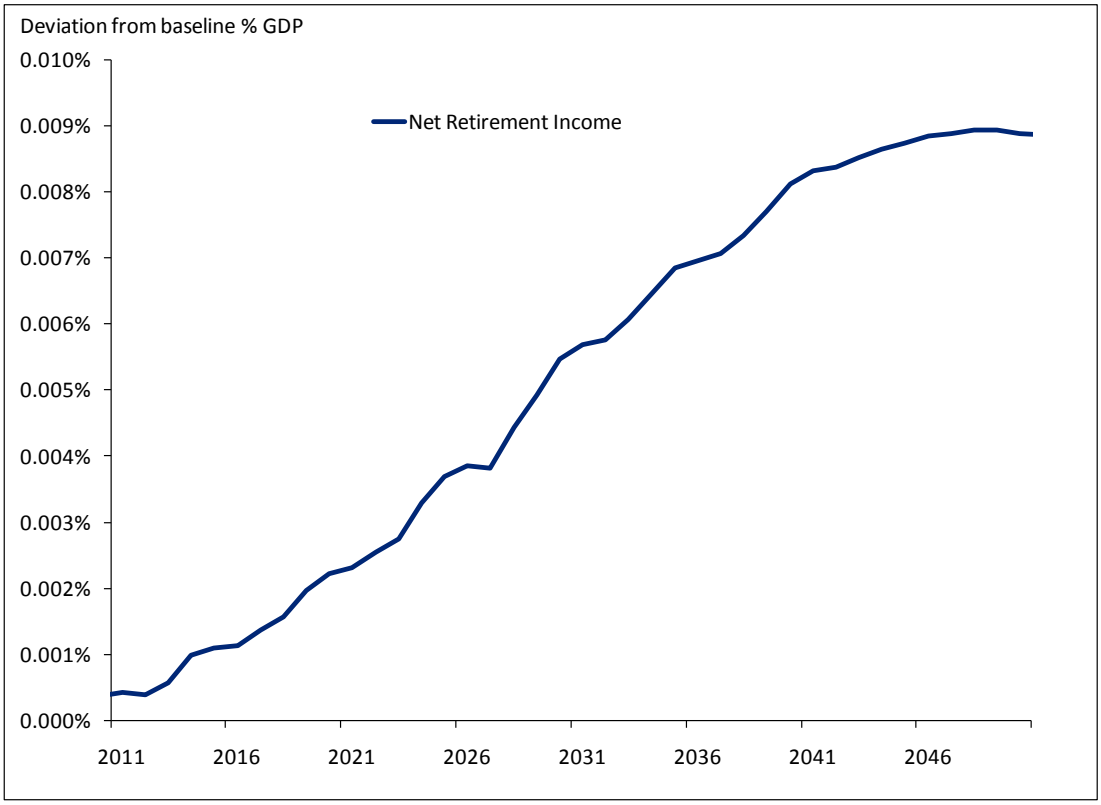


Chart 6.3 shows the effect of removing annuity taxes on overall net income for retirees. In this scenario an increase in net retirement income is brought about solely through the removal of taxes on annuities. In fact, because there is no change in behaviour (people do not buy any more or less annuities or other products in this scenario), the change in net retirement income is really just a transfer of wealth to retirees from the government. Hence, the chart below can equally be interpreted as the cost to government, in terms of tax revenue foregone, of abolishing annuity taxes.

Chart 6.3: Effect on net retirement income, tax scenario 2a



Comparing the results in Chart 6.2 and Chart 6.3, it may be seen that the cost to government by 2050 from lost tax revenue would be 0.009% of GDP (the flipside of the effect on net retirement income), which is roughly equal to the matching gain in the Budget bottom line through reduced pension payments and aged care subsidies.

This finding is important, and highlights the benefits of isolating the income effect: **without a corresponding increase in the market share of annuities, the costs to government in terms of foregone tax revenues from abolishing impediments to annuity provision would likely outweigh the overall gain in the Budget bottom line.**

Tax scenario 2b – income and substitution effect

The previous scenario assumed that people did not buy any more annuities in response to the price fall.

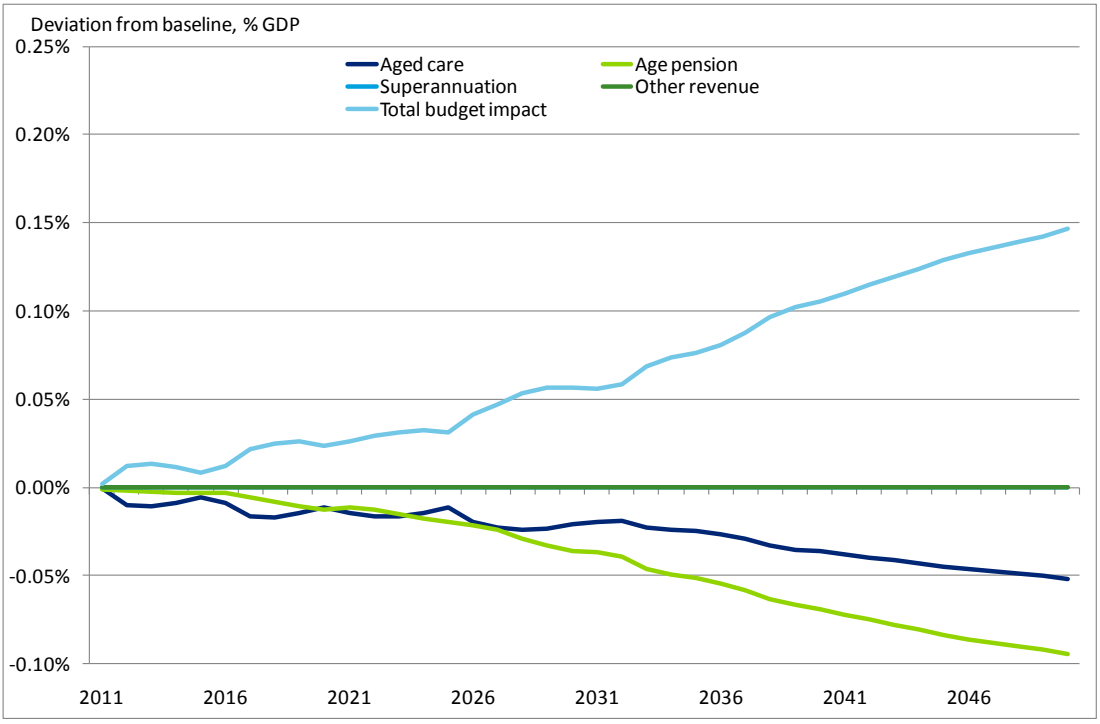
As with the first scenario (no taxes after 60), this scenario allows for the substitution effect; that is, the market share of annuities is projected to increase by the same amount as in the 'no taxes after 60' scenario.

There is an immediate reduction in age pension costs, relative to the baseline, as the reduced price of annuities causes people to substitute out of allocated pensions toward annuity products. As we look into the future, more and more annuities begin paying their holders an income. This raises their net retirement income and further reduces their reliance on the age pension.

By 2020, annual age pension costs are lower than the baseline by 0.01 percentage points of GDP, equivalent to $171 million in today's terms. By 2050 the annual savings are projected to be 0.09 percentage points of GDP, or $1.3 billion in today's terms.

The effects on the total cost of aged care from this scenario are, unsurprisingly, essentially identical to the 'no taxes after 60' scenario.

Chart 6.4: Effect on government finances, tax scenario 2b



In this scenario, we have assumed that retirees change their behaviour in response to annuities becoming cheaper – that is, they buy relatively more annuities and relatively fewer other products such as allocated pensions.

Table 6.2 compares the effect on government finances under the different annuity tax scenarios.

Table 6.2: Effect on government finances under tax scenarios

2020	Tax scenario 1	Tax scenario 2a	Tax scenario 2b
Deviation from baseline, % GDP			
Age pension costs	-0.0124%	-0.0002%	-0.0126%
Aged care costs	-0.0110%	-0.0003%	-0.0111%
Total budget impact	0.0234%	0.0005%	0.0237%
2050	**Tax scenario 1**	**Tax scenario 2a**	**Tax scenario 2b**
Deviation from baseline, % GDP			
Age pension costs	-0.0932%	-0.0037%	-0.0946%
Aged care costs	-0.0510%	-0.0022%	-0.0519%
Total budget impact	0.1443%	0.0060%	0.1465%

Impacts on individual cohorts of retirees

While the aggregate results above show the impact on total government expenditure on age pensions and aged care as a result of removing earnings taxes of deferred lifetime annuities, these aggregates are in fact the result of many different individual retirees' experiences.

Results presented in the previous section are aggregate results – they show the total change in government age pension and age care liabilities in each year of the projection period.

In this section we take an alternative approach to the analysis, focusing on individual cohorts of retirees and tracking them through time, highlighting the change to their individual income over their entire retirement.

Table 6.3 shows, in inflation adjusted terms, the average impact of the changes under this scenario on retirement incomes for retirees of each age in 2020 and 2050.

Table 6.3: Effect on government finances under tax scenarios

	60-64	65-69	70-74	75-79	80-84
	Deviation from baseline, average $2009-10 pa				
2020					
Private income	$202	$254	$335	$601	$810
Age pension	-$112	-$130	-$179	-$327	-$475
Net retirement income	$90	$124	$156	$275	$314
2050					
Private income	$401	$389	$542	$1,406	$1,894
Age pension	-$202	-$143	-$269	-$921	-$1,339
Net retirement income	$199	$246	$273	$486	$555
	Deviation from 'real life', average $2009-10 pa				
2020					
Private income	$359	$444	$577	$1,016	$1,397
Age pension	-$123	-$145	-$209	-$426	-$631
Net retirement income	$236	$299	$368	$590	$750
2050					
Private income	$698	$683	$947	$2,417	$3,326
Age pension	-$220	-$155	-$315	-$1,201	-$1,779
Net retirement income	$478	$529	$632	$1,216	$1,546

On average, people who retire in 2020 between the age of 60 and 64 can expect to be about $90 better off in each year of their retirement. Older cohorts of retirees receive higher average gains in retirement income, but over a shorter average period in retirement.

In 2050, retirees between the age of 60 and 64 are projected to be $202 better off in today's money in each year of retirement, relative to the baseline.

Relative to the 'real life' scenario, those gains are larger still, reflecting the greater increase in deferred lifetime annuity provision as a result of the policy change.

Chart 6.5 and Chart 6.8 show the effect on real average annual incomes for retirees who retire in each age cohort in 2020 and 2050.

Chart 6.5: Effect on average annual retirement income for 2020 retirees, tax scenario 2b

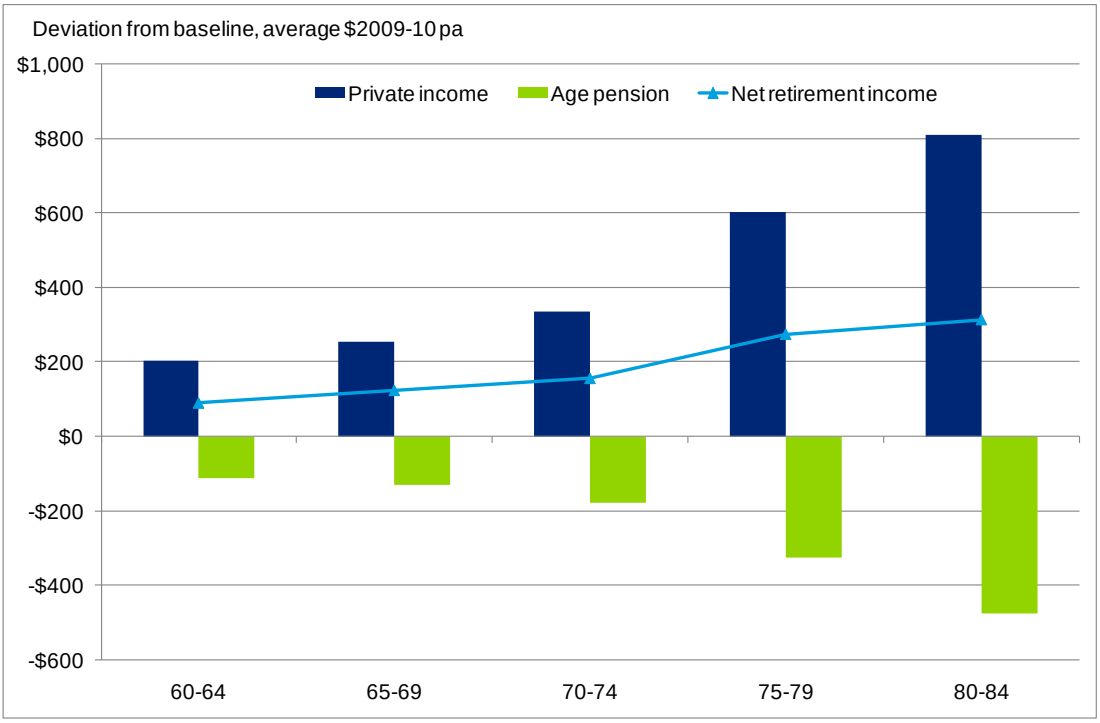
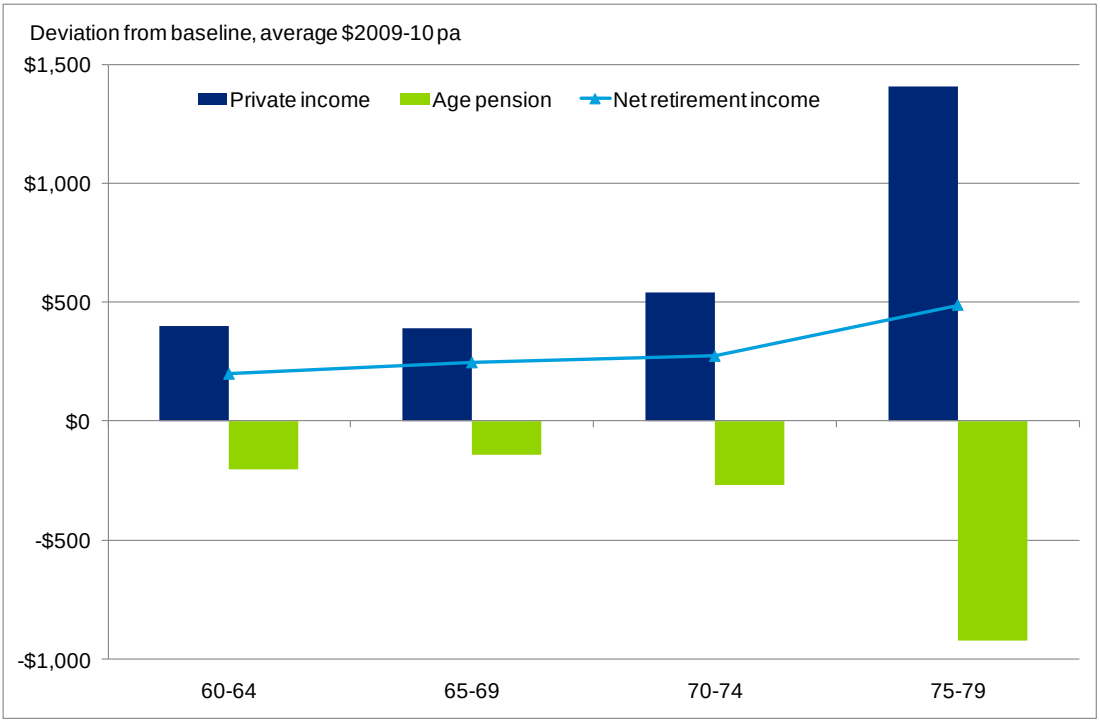
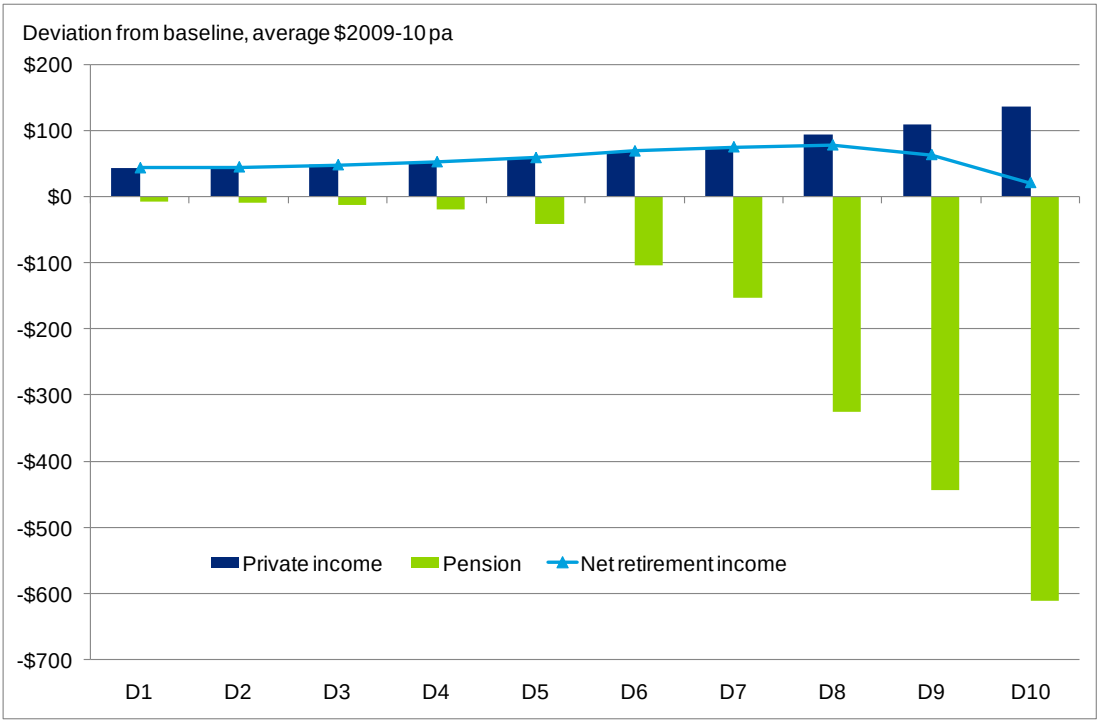


Chart 6.6: Effect on average annual retirement income for 2050 retirees, tax scenario 2b



As Chart 6.7 below shows, the bulk of the government age pension savings identified in the aggregate results come from individuals with higher levels of existing retirement income.

Chart 6.7:Effect on individual income for 2020 retirees, tax scenario 2b, by income decile



Individuals with retirement savings in the first through fifth deciles face little reduction in their age pension entitlements under the scenario examined here, while those in the top three deciles see the largest falls.

That pattern arises because:

- Individuals with the lowest retirement incomes are largely below the key thresholds in the age pension means test – meaning higher private incomes do not result in reduced age pension payments.
- Among those on upper middle incomes, reductions in age pension payments are smaller, reflecting the fact that many individuals in these deciles will only be part-pensioners during the early years of their retirement, before becoming full-pensioners once their retirement savings are exhausted in later retirement years.
- Those on the highest retirement incomes are more likely to be part-pensioners for a substantial period in retirement, making them the key source of savings for the government as a result of the removal of earnings taxes on deferred lifetime annuities.

These results highlight an important issue for Australia's maturing retirement income system – that it is possible to (1) increase retirement incomes, (2) reduce reliance on the age pension, and (3) improve the targeting of government assistance by improving the way retirement savings are used to fund retirement incomes.

6.3 Means test treatment of annuities

Under this set of scenarios, non-commutable lifetime annuities are exempt from the age pension assets test during the deferral period.

Note that the income and assets tests for the pension are also applied to determine the private contributions paid by aged care recipients. As a result, this scenario effectively removes these annuity products from both the age pension and aged care means tests until income payments commence.

6.3.1 Means test scenario 1: income effect only

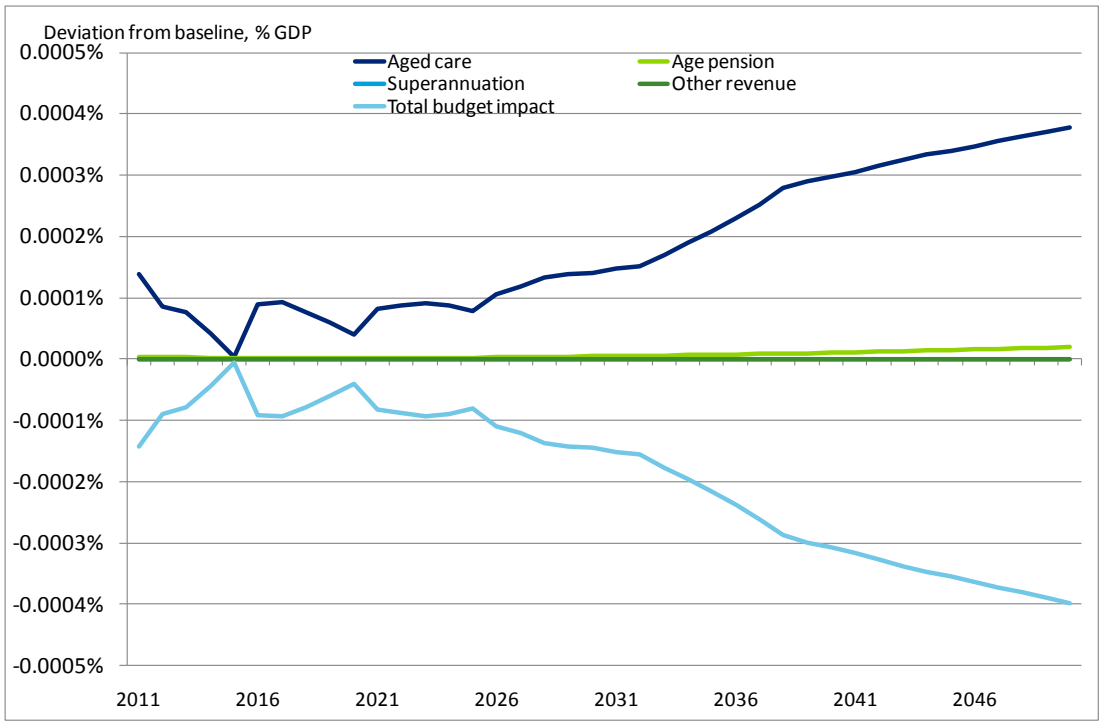
As Chart 6.8 below shows, one result of the change is a direct transfer from the government to retirees as, other things equal, removing annuities from the means test results in higher age pension payments.

At the same time, excluding annuity assets from the assets test decreases the private costs associated with aged care by reducing the level of assets available to pay accommodation bonds – a key funding mechanism in the current aged care system. That reduction in private contributions puts further pressure on government to fund additional aged care expenditure.

Or, in other words, government finances face small direct costs (via higher age pension payments) and greater indirect costs (through higher aged care costs) as a result of the change.

As Chart 6.8 below shows, assuming no change in the cost of annuities nor in their market share, by 2035 it is projected that the annual cost to the Government of such an exemption would rise to around 0.004% of GDP.

Chart 6.8: Effect on government finances, means test scenario 1



Note that the indirect costs via the aged care system are significantly larger than the increase in age pension entitlements under this scenario.

That may initially seem counter-intuitive, given that the cost of the age pension to the government is larger than the cost of aged care. However, the result arises due to

differences in the relative importance of the asset test under age pension and age care rules:

- For most retirees, the income test is the binding factor determining their age pension entitlement, meaning few retirees receive higher pensions as a result of the assets test exemption seen here.
- In contrast, aged care payments are more sensitive to assets than incomes, as accommodation bonds and charges are a major factor in the private price of care, and both are wholly asset tested.

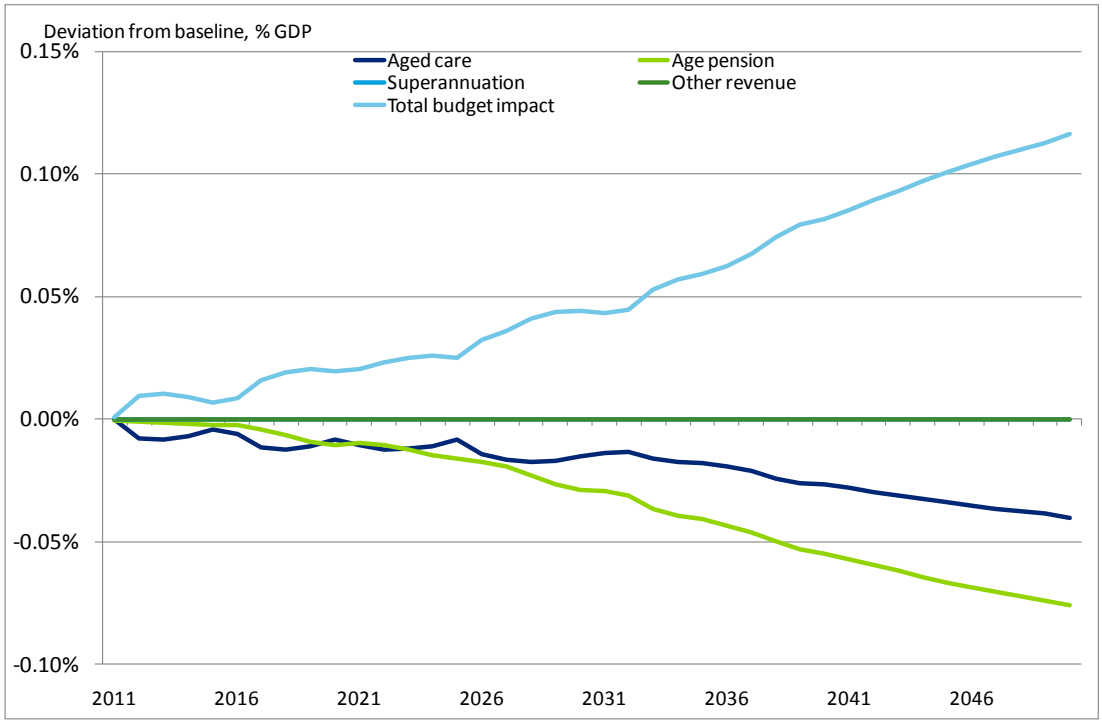
In addition, both accommodation bonds and charges are also determined on entry to care, and remain fixed for the duration of a residents stay. As a result changes to asset levels for those who enter care during the deferral period are 'locked in' for life.

6.3.2 Means test scenario 2: income and substitution effect

As annuities become more prevalent in the market, the beneficial features of annuities begin to outweigh the costs incurred by exempting assets from the means test.

Chart 6.9 shows that the government is still better off, relative to the baseline, under this scenario, albeit not to the same extent as the tax scenarios.

Chart 6.9: Effect on government finances, means test scenario 2



As these results highlight, means test exemptions would provide benefits to retirees, at a matching cost to government finances.

Providing an asset test exemption during the deferral period was a recommendation of the Final Report of the Review of Australia's Future Tax System.

As shown in these results, the main benefits of annuities – that is, lower government costs and higher retirement incomes for those whose annuities have already begun paying an income stream – are still present under this scenario, albeit to a lesser extent.

Table 6.4 compares the effect on government finances under the different means test scenarios.

Table 6.4: Effect on government finances under means test scenarios

2020	Means test scenario 1	Means test scenario 2
Deviation from baseline, % GDP		
Age pension costs	0.0000%	-0.0108%
Aged care costs	0.0001%	-0.0085%
Total budget impact	-0.0001%	0.0478%
2050	**Means test scenario 1**	**Means test scenario 2**
Deviation from baseline, % GDP		
Age pension costs	0.0000%	-0.0761%
Aged care costs	0.0004%	-0.0402%
Total budget impact	-0.0004%	0.1163%

6.4 Demand-driven scenarios

These scenarios assume that the current system of supply targets is completely removed, and that supply of aged care is instead determined by the demand for aged care.

These scenarios are intended to reflect the aged care system after substantial reforms based on the recommendations of the PC report on *Caring for Older Australians*.

If the supply targets were removed, the supply of aged care services would expand to meet the demand for such services. Hence, to develop this scenario we have estimated the level of unmet demand based on the level of unmet need identified in the ABS Survey of Disability Ageing and Carers – for more detail see Appendix D.

In addition to a removal of the supply targets, these scenarios assume that the cost of aged care (that is, comprising both government and private contributions) is in line with the PC's recommendations.

However there are some key differences between the scenarios presented here and those contained in the PC analysis:

- First, the PC modelled the total cost of aged care services, including the Home and Community Care program (HACC), whereas we focus on residential care, CACP, EACH and EACHD.
- Second, the PC assumed a phased transition to its recommendations whereas our modelling assumes a full and immediate implementation of the recommendations.
- Third, we have used a different methodology for calculating unmet need.

We have modelled two distinct demand-driven scenarios: one in which the price and market share of annuities is in line with current policy (that is, the same as the baseline), and one in which tax impediments to annuities are completely removed and their market share increases accordingly.

6.4.1 Demand scenario 1: annuity prices same as the baseline

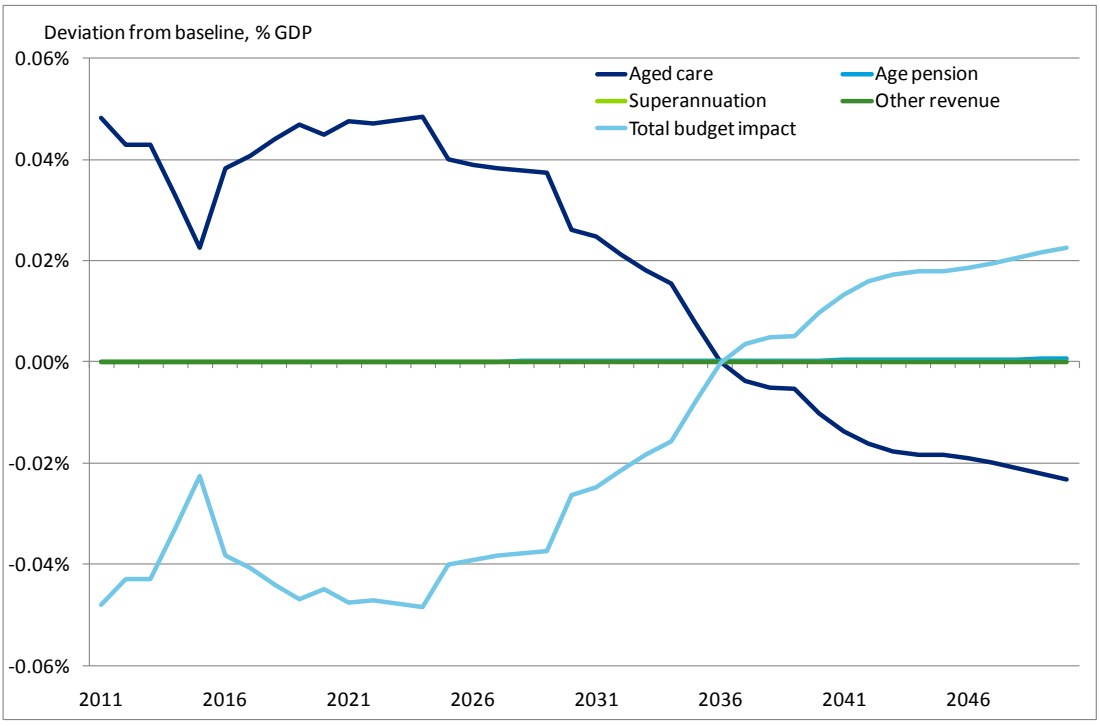
This sub-scenario assumes that supply targets are removed and costs are in line with the PC's recommendations, but it assumes that the price of annuities, and their market share, is unchanged.

Recall from Chapter 2 that many of the current subsidies and co-contributions do not accurately reflect the true costs of aged care services. To that end, one of the PC's main changes was to make government subsidies more reflective of cost; that means increasing them. Hence, the cost effect will tend to increase the Government's cost of aged care services relative to the baseline.

Counteracting this cost effect is the effect of higher levels of private contribution to care costs, particularly in community aged care. One of the PC's central recommendations was that wealthier patients should pay more toward the cost of their care. Hence, as wealthier patients begin to make higher co-contributions, the Government's cost of aged care provision falls relative to the baseline.

In the early years of the projection period, Chart 6.10 shows that increased aged care costs outweigh higher private contributions. This leads to an initial increase in annual government aged care spending, relative to the baseline, of around 0.05% of GDP.

Chart 6.10: Effect on government finances, demand scenario 1

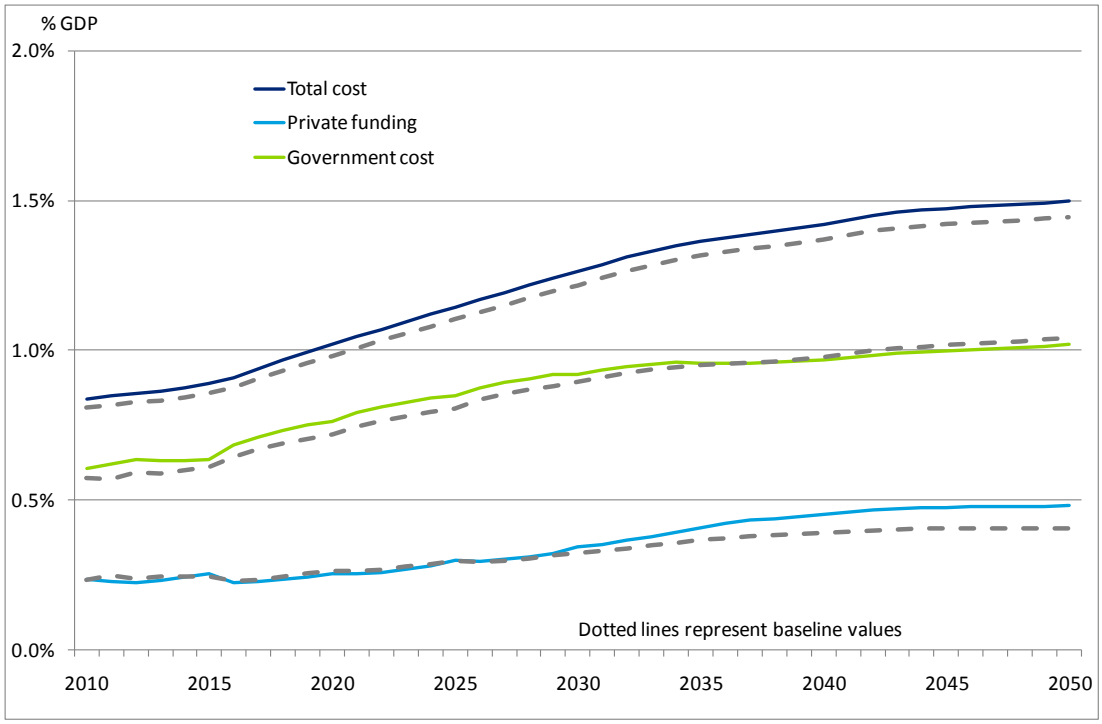


Over time however, as the retirement age population grows both in number and in wealth, increased private contributions begin to unwind this increase in government costs.

The total cost of aged care under the demand driven scenario is higher than under the baseline (Chart 6.11). However, beyond 2030, the higher co-contributions paid by those in aged care begin to rise relative to the baseline. By 2050, private provision of aged care services is projected to be higher than under the baseline by around 0.1% of GDP.

At about the same time, the government's cost of aged care is projected to begin falling relative to its baseline value. By 2050 the government's cost of providing aged care services is projected to be lower than the baseline by around 0.02% of GDP.

Chart 6.11: Cost of aged care, by sector, demand scenario 1



6.4.2 Demand scenario 2: no taxes on annuities

This sub-scenario assumes that supply targets are removed and costs are in line with the PC's recommendations, and that all earnings taxes on annuities are removed, and that the market share of annuities increases.

As before, an increase in total aged care costs initially outweighs higher private contributions. This leads to an initial increase in annual government aged care spending, relative to the baseline, of around 0.05% of GDP (Chart 6.12).

Chart 6.12: Effect on government finances, demand scenario 2

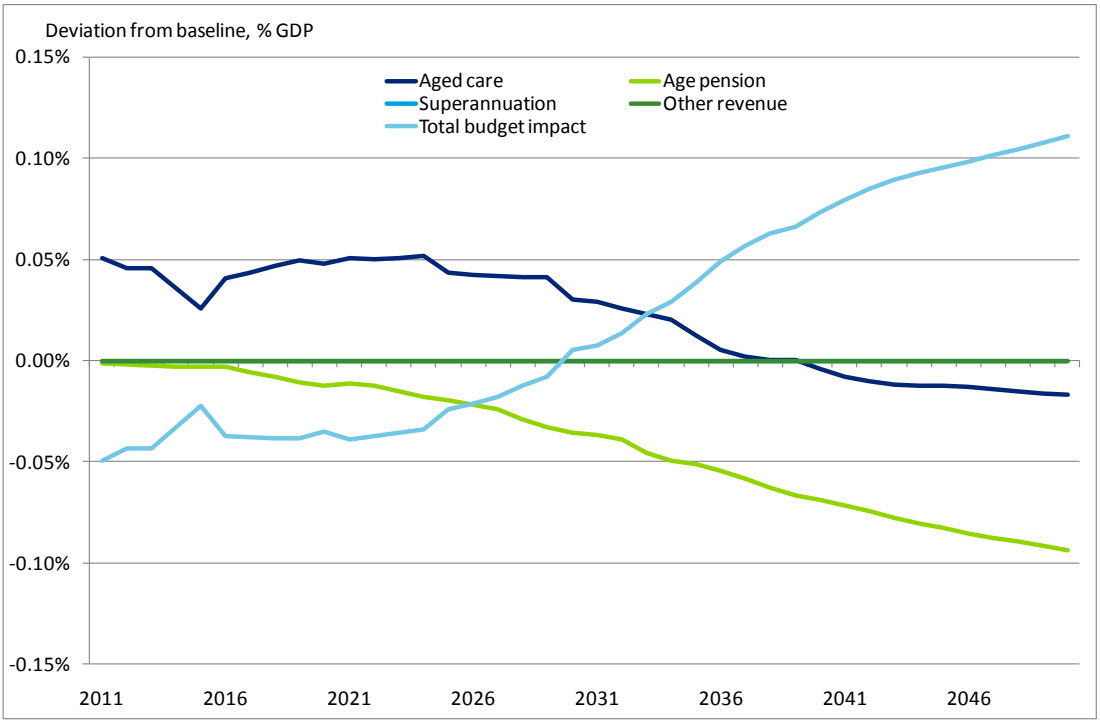


Table 6.5 compares the effect on government finances under the different demand driven scenarios.

Table 6.5: Effect on government finances under demand driven scenarios

2020	Demand scenario 1	Demand scenario 2
Deviation from baseline, % GDP		
Age pension costs	0.0000%	-0.0125%
Aged care costs	0.0448%	0.0478%
Total budget impact	-0.0449%	-0.0353%
2050	**Demand scenario 1**	**Demand scenario 2**
Deviation from baseline, % GDP		
Age pension costs	0.0006%	-0.0939%
Aged care costs	-0.0231%	-0.0170%
Total budget impact	0.0226%	0.1109%

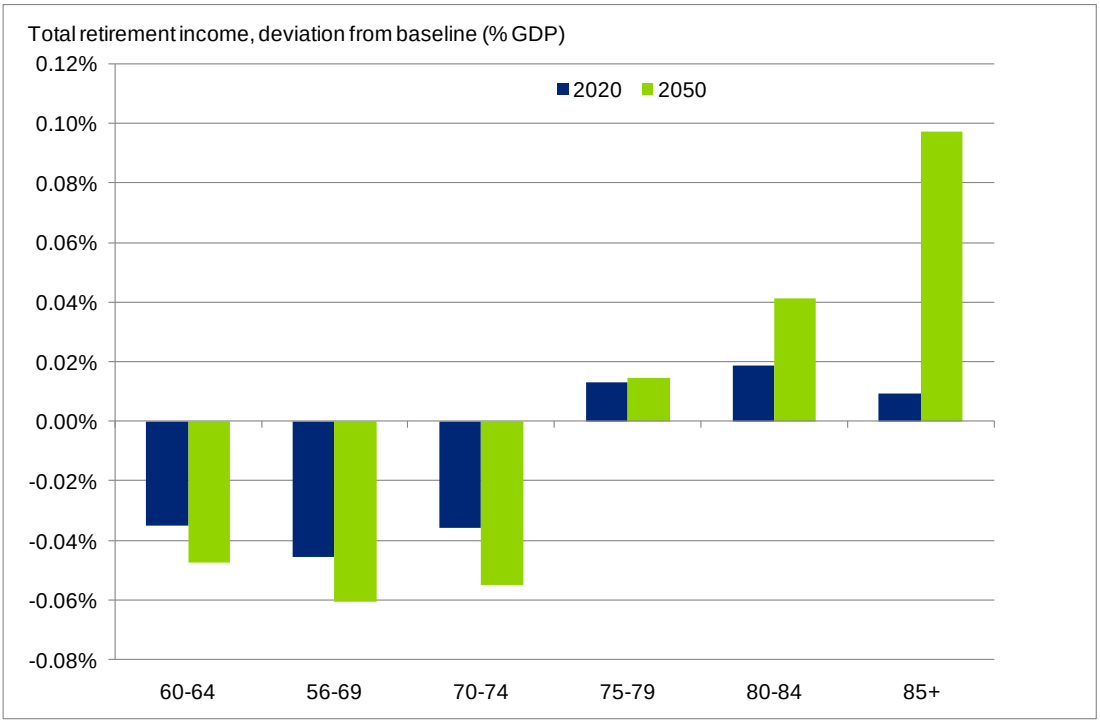
When compared with the 'no tax' scenario above, which also removes tax impediments to annuity provision, the potential savings to government are slightly smaller under the PC reforms.

Nonetheless, the results presented here are a reminder that policies aimed at supporting private incomes for older retirees are likely to remain effective at reducing government aged care costs if recent proposed reforms to the aged care funding system are implemented in coming decades.

That should come as no surprise, as one of the aims of the PC's recommended reforms is to ensure that recipients of government subsidised aged care make a reasonable contribution to the cost of that care which is in line with their capacity to pay.

Chart 6.13 shows that the effects on net retirement income under the demand driven world are essentially the same as before – that is, retirement income for over 75's is higher than in the baseline, because annuities held by these age groups have begun to pay their holders an income stream. By contrast, income for under 75's is lower than the baseline because annuities held by people in these age groups are still in the deferral period.

Chart 6.13: Effect on retirement incomes, by age group, demand scenario 2



6.5 Policy implications

Annuities currently play a limited role in Australia's post-retirement income landscape.

With complete removal of impediments our modelling assumes that the market share of lifetime annuities will remain less than 10% of total retiree superannuation assets.

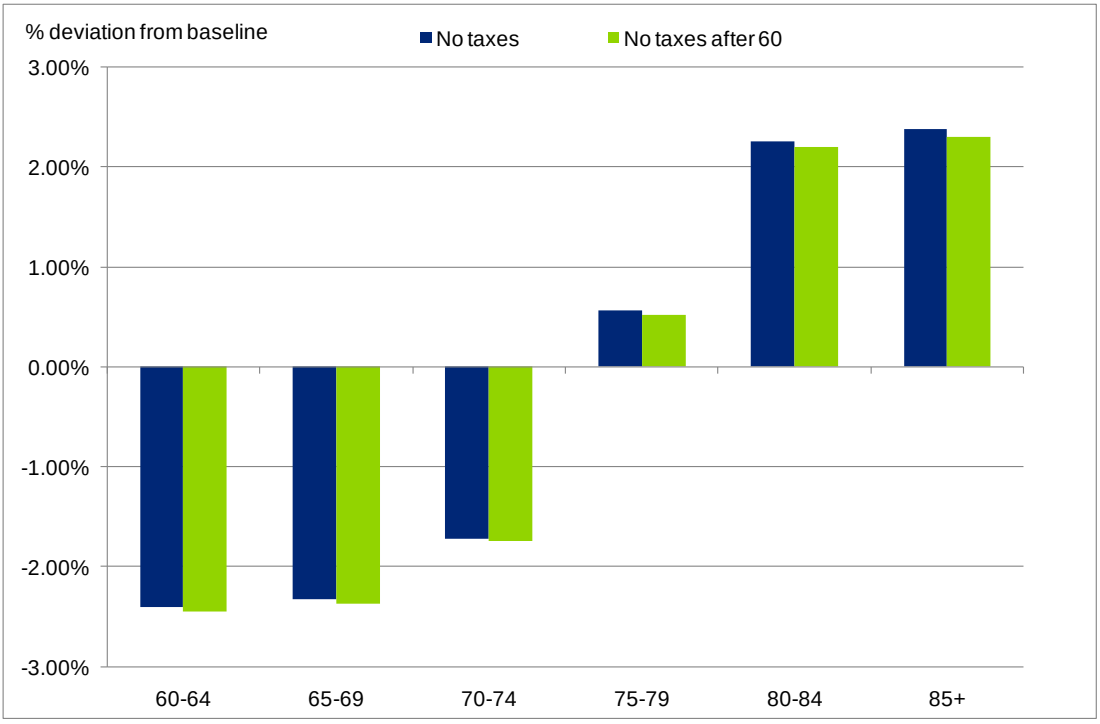
However, the benefits to government of removing the tax and regulatory impediments to annuities are clear. As we noted above, by 2050 government savings on age pension and aged care spending could amount to 0.09 percentage points of GDP, or $1.3 billion in today's dollars, if impediments to annuity purchase and supply were removed.

The essential feature of an annuity is that you sacrifice some amount of current income for a guaranteed income stream later on. This essential feature is highlighted in Chart 6.14.

Under both scenarios, people buy annuities around the age of 60, which begin to pay their holders an income stream around the age of 80. The average income for people aged between 60 and 74 is thus lower than under the baseline, because these people have opted to sacrifice some current income in order to shore up their future income.

The chart below also nicely demonstrates another key benefit of increased annuity provision – the redistribution of income to better account for longevity risk.

Chart 6.14: Average super income, baseline vs. tax scenarios



Indeed, this realignment of retirement incomes towards the later years of retirement should be a key priority for governments, both because it serves to reduce age pension expenditures, and because it increases the welfare of future retirees by countering the key market failures identified earlier in this report.

7 Comparison with 'real life'

The previous chapter presented the results of the scenario analysis relative to the baseline. However, as noted in Chapter 5, the baseline scenario presented in this report assumes some presence of deferred lifetime annuities in the retirement income market. As discussed earlier, this allows separate identification of the income and substitution effects – to determine whether scenario impacts are caused mainly by the lower price of annuities or by the greater uptake of annuities.

Section 5.1.1 presented the results of a separate sub analysis that compared the results under the baseline with the results under a 'real life' scenario. The 'real life' scenario is identical to the baseline in every respect except that it assumes no presence of annuities in the market for retirement incomes – consistent with current experience.

Results in section 5.1.1 showed that the presence of annuities in the baseline caused retirement incomes to be higher, and thus government age pension and aged care costs to be lower, than they are under the 'real life' scenario. As a result, the policy scenarios considered here produce higher levels of savings when compared with the 'real life' scenario, rather than measured relative to the baseline.

This chapter presents the scenario outputs of the tax, means test and demand driven scenarios relative to the 'real life' scenarios, whereas the previous chapter presented results relative to the baseline.

It is worth noting that while the results in the previous chapter represent a 'worst case' assessment of the costs and benefits of action to address the tax and means test impediments to the provision on deferred lifetime annuities, the results in this chapter represent the 'best case' for those costs and benefits.

Taken together, these two sets of results give upper bound and lower bound estimates – the lower bound being the results relative to the baseline, which assumes existing deferred lifetime annuities which are already subject to tax, and the upper bound being the results relative to the 'real life' scenario, which assumes no such annuities in the market.

That said, the results shown here relative to the 'real life' scenario are arguably a more accurate reflection of the likely impacts of the changes.

7.1 Tax scenarios

Recall from section 5.1.1 that the presence of annuities in the baseline makes the government generally better off relative to the 'real life' scenario – that is, the baseline has lower aged pension and aged care costs, and a favourable budget impact.

Consequently, the benefits to government of removing or reducing the tax impediments on annuities are more pronounced when comparing to the 'real life' scenario then when comparing to the baseline.

Table 7.1: Summary of results, tax scenarios relative to 'real life'

	2011	2020	2030	2040	2050
Tax scenario 1		*Deviation from 'real life', % GDP*			
Age pension	-0.0008%	-0.0148%	-0.0419%	-0.0822%	-0.1164%
Aged care	-0.0006%	-0.0139%	-0.0242%	-0.0434%	-0.0659%
Total budget impact	0.0014%	0.0287%	0.0662%	0.1256%	0.1823%
Tax scenario 2					
Age pension	-0.0009%	-0.0150%	-0.0429%	-0.0840%	-0.1177%
Aged care	-0.0006%	-0.0140%	-0.0251%	-0.0450%	-0.0667%
Total budget impact	0.0015%	0.0290%	0.0681%	0.1289%	0.1845%

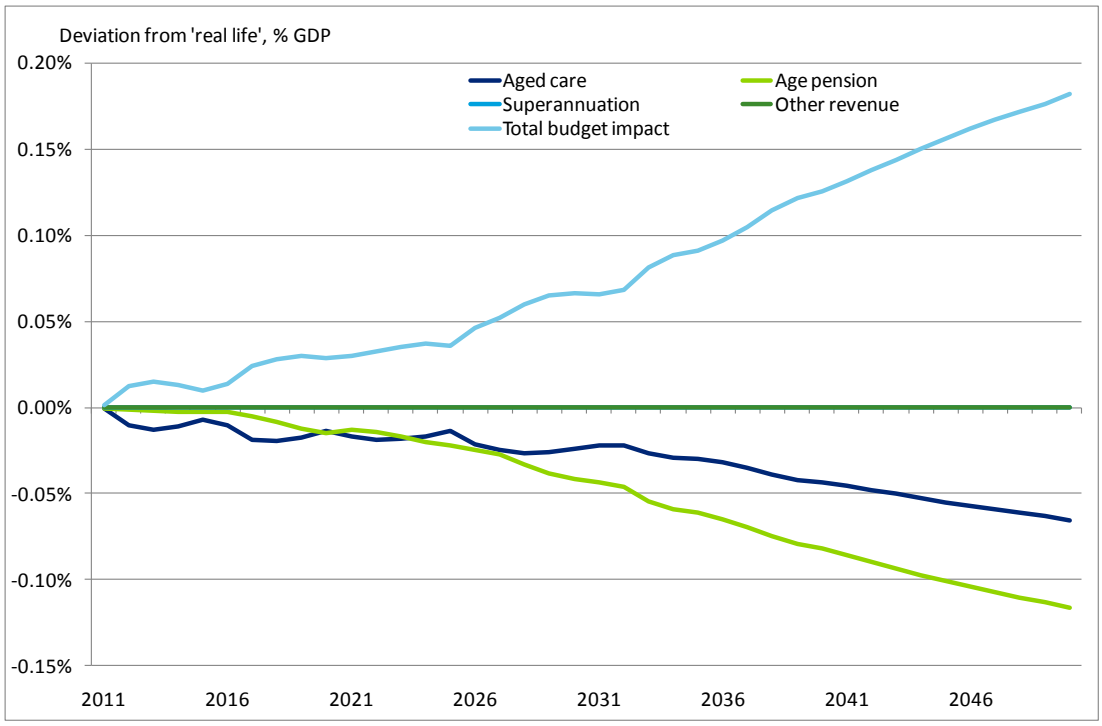
7.1.2 Tax scenario 1 – no taxes after 60

Under the baseline, age pension costs are initially slightly higher than in the 'real life' scenario, reflecting the fact that the annuities held in the baseline have not yet begun to pay their holders an income. As more deferred lifetime annuities enter the payment phase, age pension costs in the baseline fall relative to the 'real life' scenario.

This explains the results shown in Chart 7.1. Initially the benefits to government in terms of reduced age pension costs are smaller when compared against the 'real life' scenario. However this quickly begins to reverse.

Relative to the 'real life' scenario, the government's overall budget position is projected to improve, by 0.03% of GDP by 2020 and 0.18% of GDP by 2050. Relative to the baseline, the budgetary improvements are 0.02% of GDP by 2020 and 0.14% of GDP by 2050. The improvement in the overall budget position is brought about by savings both on age pensions and aged care costs.

Chart 7.1: Effect on government finances, tax scenario 1 vs. 'real life'



7.1.3 Tax scenario 2b – no taxes at all

As we showed in section 6.2.2, the income effect, i.e. the change in government finances brought about solely due to a reduction in the price of annuities, is fairly small. This is why the results shown in Chart 7.2, which assumes a complete removal of annuity taxes, appear virtually the same as those shown in Chart 7.1, which assumes a removal of annuity taxes after age 60.

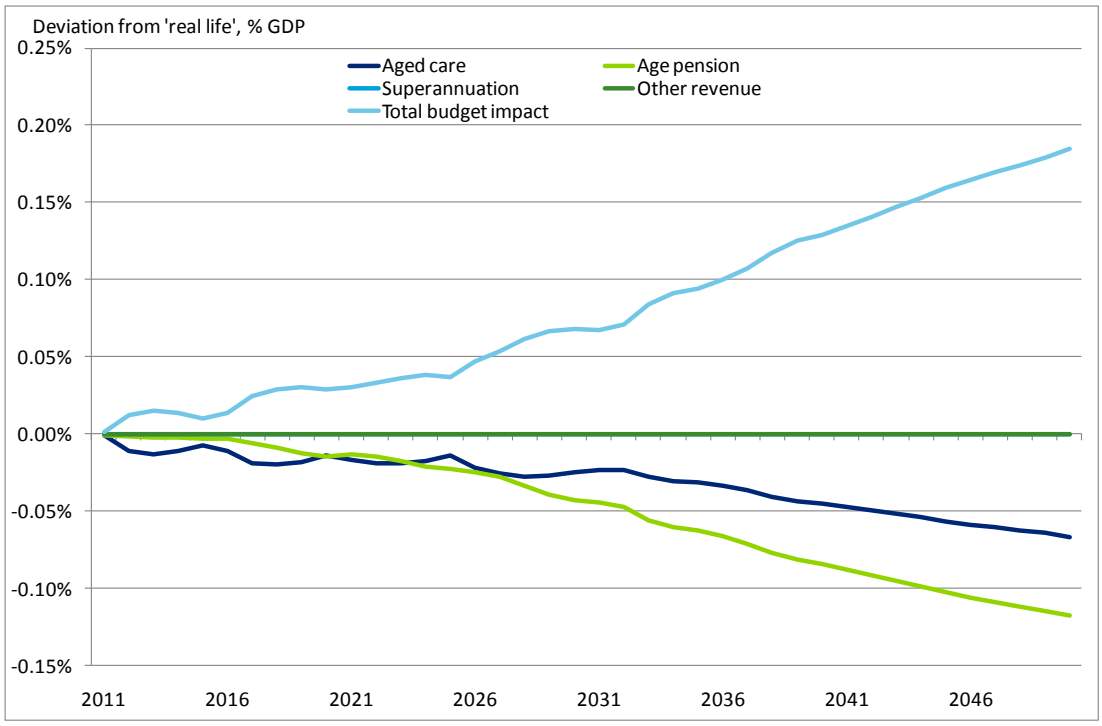
By 2020, the removal of all taxes on annuities is projected to improve the government's budget position relative to the 'real life' scenario by 0.03% of GDP. By 2050 the improvement is projected to be 0.18% of GDP.

Note that the results under either of the tax scenarios, regardless of whether we compare to the baseline or to the 'real life' scenario, are virtually the same. This makes an important point.

The mechanism through which the government derives benefits under these scenarios is via the substitution effect. In other words, the government benefits more from an increased take up of annuities than it will from simply removing the taxes on them. The more annuities there are in the market, the greater these benefits will be.

Government policy should therefore focus on removing the existing tax and regulatory impediments to annuity provision, allowing providers to increase the supply of deferred lifetime annuities in the market.

Chart 7.2: Effect on government finances, tax scenario 2b vs. 'real life'



7.2 Means test scenario

Under the means test scenario there are two offsetting effects at play. The first is the exemption of non commutable lifetime annuities from the age pension assets test, which makes government age pension outlays relatively higher than would otherwise be the case.

The second is the introduction of annuities, which, just like in the other scenarios, makes government age pension and aged care costs lower because of higher retirement incomes for annuity holders.

Clearly the latter effect is the dominant effect, which is why the government still benefits under this scenario. However the former effect has a strong offsetting role, with government age pension savings and the overall budget benefit less than under the tax scenarios.

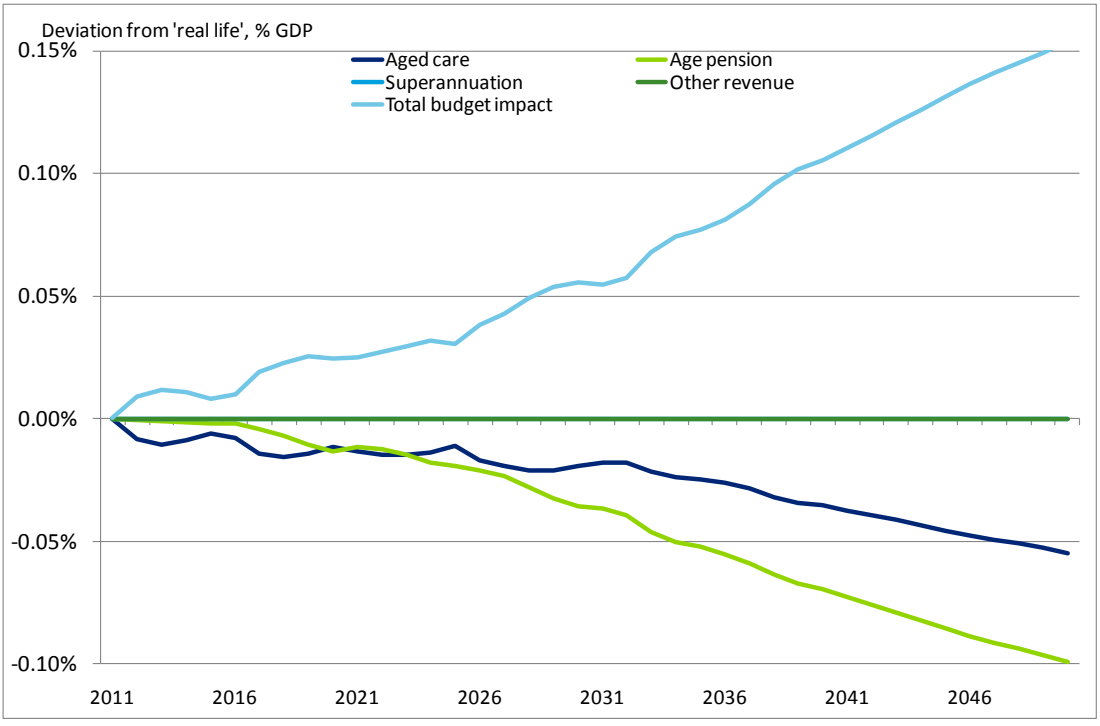
Recall from section 5.1.1 that government expenses on age pension and aged care were lower under the baseline than in the 'real life' scenario, and that the overall budgetary position in the baseline was higher than in the 'real life' scenario due to the presence of annuities.

Consequently the benefits shown in Table 7.2 and Chart 7.3 are more pronounced than those shown in the previous chapter, which compared results to the baseline scenario.

Table 7.2: Summary of results, means test scenario relative to 'real life'

	2011	2020	2030	2040	2050
	Deviation from 'real life', % GDP				
Age pension	-0.0003%	-0.0133%	-0.0358%	-0.0696%	-0.0992%
Aged care	-0.0001%	-0.0114%	-0.0196%	-0.0355%	-0.0550%
Total budget impact	0.0003%	0.0247%	0.0554%	0.1051%	0.1543%

Chart 7.3: Effect on government finances, means test scenario vs. 'real life'



7.3 Demand scenarios

The savings to government under the demand driven scenarios are slightly lower than under the tax scenarios described in Chapter 6 above. This is mainly due to the demand driven scenarios assuming greater aged care fees – one of the Productivity Commission's main findings in its recent review into aged care was that the current fees and charges do not accurately reflect the cost of providing aged care services.

Assuming annuity taxes and uptake are the same as in the baseline, the government is projected to save 0.04% of GDP in aged care costs and 0.02% of GDP in age pension costs by 2050 (relative to the 'real life' scenario), with the overall budget position projected to improve by 0.06% of GDP. Assuming an elimination of annuity taxes as in the no tax scenario, the savings in aged care and age pension by 2050 are 0.03% of GDP and 0.12% of GDP respectively, and the overall budget benefit is 0.15% of GDP.

Table 7.3: Summary of results, demand scenarios relative to 'real life'

	2011	2020	2030	2040	2050
Demand scenario 1		*Deviation from 'real life', % GDP*			
Aged pension	0.0005%	-0.0024%	-0.0070%	-0.0146%	-0.0226%
Aged care	0.0481%	0.0420%	0.0220%	-0.0189%	-0.0380%
Total budget impact	-0.0486%	-0.0396%	-0.0151%	0.0334%	0.0605%
Demand scenario 2					
Aged pension	-0.0009%	-0.0150%	-0.0428%	-0.0835%	-0.1170%
Aged care	0.0506%	0.0449%	0.0262%	-0.0131%	-0.0319%
Total budget impact	-0.0497%	-0.0300%	0.0165%	0.0967%	0.1489%

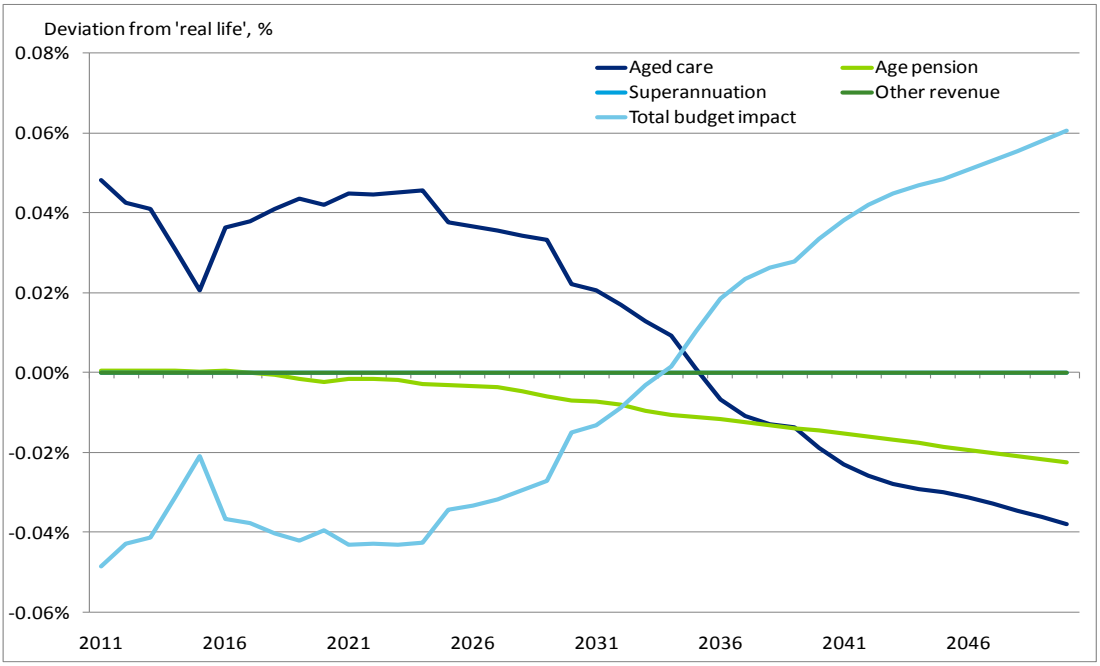
7.3.2 Demand scenario 1 – annuity prices same as baseline

The interpretation of the results shown in Chart 7.4 is essentially the same as with Chart 6.10, which compared demand scenario 1 with the baseline. The imposition of higher aged care fees and charges under the demand scenario initially causes the government's aged care costs to be higher than the baseline, and higher still than the 'real life' scenario (because aged care costs are lower in the baseline than in the 'real life' scenario).

Over time however the impact of higher incomes and greater private provision of aged care causes the government's costs to fall relative to both the baseline and the 'real life' scenario. By 2050 the government's aged care costs are projected to be 0.04% of GDP lower than the 'real life' scenario (0.02% of GDP lower than the baseline), and the overall budget position is projected to improve, relative to the 'real life' scenario, by 0.06% of GDP (0.02% of GDP relative to the baseline).

One difference between Chart 7.4 and Chart 6.10 is in the government's age pension costs. Relative to the baseline there was virtually no difference. However, because the presence of annuities in the baseline raises retirement incomes (and hence lowers reliance on social welfare) age pension costs relative to the 'real life' scenario are lower, by approximately 0.02% of GDP by 2050.

Chart 7.4: Effect on government finances, demand scenario 1 vs. 'real life'

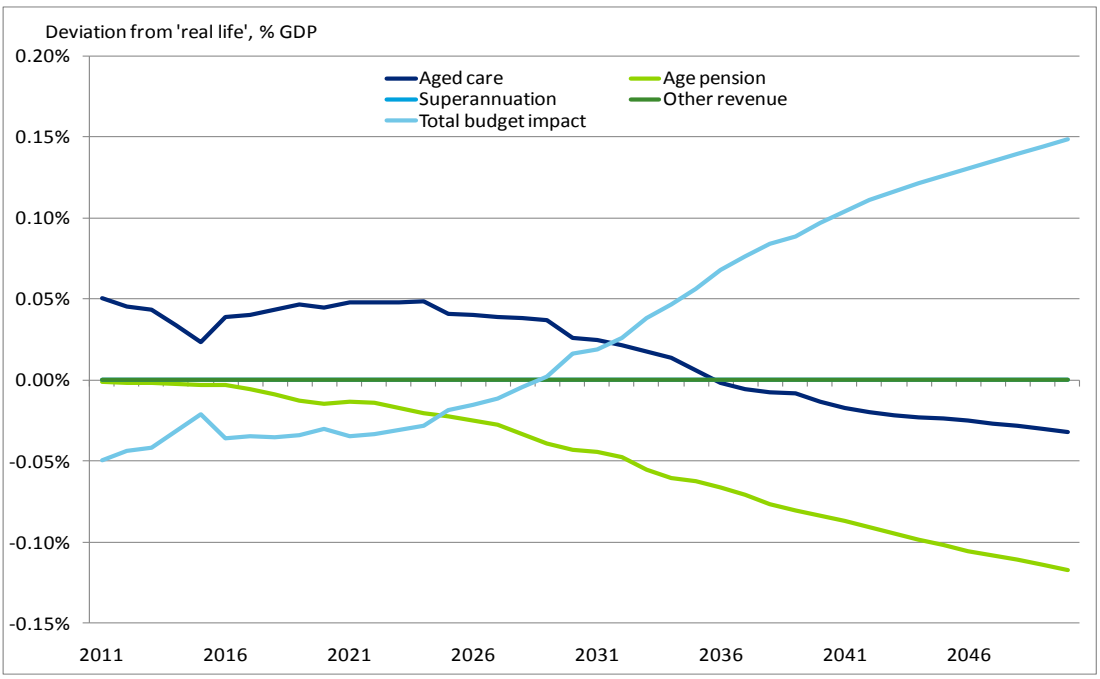


7.3.3 Demand scenario 2 – no taxes on annuities

The impacts on the government purse under demand scenario 2, which removes annuity taxes as in the no tax scenario discussed above, are of the same directions as above, albeit with greater magnitude.

By 2050 the government is projected to save 0.12% of GDP and 0.03% of GDP on age pension and aged care expenses respectively (relative to the 'real life' scenario, and the overall budget position is projected to be higher than the 'real life' scenario by approximately 0.15% of GDP (Chart 7.5).

Chart 7.5: Effect on government finances, demand scenario 2 vs. 'real life'



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Appendix A: Scenario results

Table A.1: Effect on government finances, all scenarios

Year ending 30 June	2011	2020	2030	2040	2050
Age pension costs		*Deviation from baseline, % GDP*			
Tax scenarios					
Tax scenario 1	-0.0013%	-0.0124%	-0.0348%	-0.0673%	-0.0932%
Tax scenario 2a	-0.0001%	-0.0002%	-0.0012%	-0.0025%	-0.0037%
Tax scenario 2b	-0.0014%	-0.0126%	-0.0358%	-0.0691%	-0.0946%
Means test scenarios					
Means test scenario 1	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Means test scenario 2	-0.0008%	-0.0108%	-0.0287%	-0.0547%	-0.0761%
Demand driven scenarios					
Demand scenario 1	0.0000%	0.0000%	0.0001%	0.0003%	0.0006%
Demand scenario 2	-0.0014%	-0.0125%	-0.0357%	-0.0687%	-0.0939%
Cost of aged care		*Deviation from baseline, % GDP*			
Tax scenarios					
Tax scenario 1	-0.0005%	-0.0110%	-0.0201%	-0.0346%	-0.0510%
Tax scenario 2a	0.0000%	-0.0003%	-0.0007%	-0.0013%	-0.0022%
Tax scenario 2b	-0.0006%	-0.0111%	-0.0210%	-0.0362%	-0.0519%
Means test					
Means test scenario 1	0.0001%	0.0000%	0.0001%	0.0003%	0.0004%
Means test scenario 2	0.0000%	-0.0085%	-0.0154%	-0.0268%	-0.0402%
Demand driven scenario					
Demand scenario 1	0.0481%	0.0448%	0.0262%	-0.0101%	-0.0231%
Demand scenario 2	0.0507%	0.0478%	0.0304%	-0.0044%	-0.0170%
Total budget impact		*Deviation from baseline, % GDP*			
Tax scenarios					
Tax scenario 1	0.0019%	0.0234%	0.0549%	0.1019%	0.1443%
Tax scenario 2a	0.0001%	0.0005%	0.0018%	0.0038%	0.0060%
Tax scenario 2b	0.0020%	0.0237%	0.0568%	0.1053%	0.1465%
Means test scenarios					
Means test scenario 1	-0.0001%	0.0000%	-0.0001%	-0.0003%	-0.0004%
Means test scenario 2	0.0008%	0.0194%	0.0441%	0.0815%	0.1163%
Demand driven scenarios					
Demand scenario 1	-0.0481%	-0.0449%	-0.0263%	0.0098%	0.0226%
Demand scenario 2	-0.0492%	-0.0353%	0.0053%	0.0730%	0.1109%

Table A.2: Effect on total retirement income, all scenarios

Year ending 30 June	2011	2020	2030	2040	2050
Tax scenario 1		*Deviation from baseline, % GDP*			
60-64	-0.0221%	-0.0359%	-0.0429%	-0.0463%	-0.0483%
65-69	-0.0236%	-0.0463%	-0.0539%	-0.0594%	-0.0620%
70-74	-0.0192%	-0.0362%	-0.0506%	-0.0542%	-0.0559%
75-79	-0.0030%	0.0125%	0.0161%	0.0158%	0.0133%
80-84	0.0097%	0.0183%	0.0356%	0.0423%	0.0399%
85+	0.0012%	0.0085%	0.0446%	0.0849%	0.0933%
Tax scenario 2a		*Deviation from baseline, % GDP*			
60-64	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
65-69	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
70-74	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
75-79	0.0002%	0.0012%	0.0021%	0.0021%	0.0019%
80-84	0.0004%	0.0010%	0.0023%	0.0029%	0.0026%
85+	0.0000%	0.0004%	0.0020%	0.0042%	0.0052%
Tax scenario 2b		*Deviation from baseline, % GDP*			
60-64	-0.0217%	-0.0352%	-0.0421%	-0.0455%	-0.0474%
65-69	-0.0231%	-0.0455%	-0.0529%	-0.0583%	-0.0609%
70-74	-0.0189%	-0.0357%	-0.0499%	-0.0534%	-0.0551%
75-79	-0.0027%	0.0130%	0.0175%	0.0171%	0.0142%
80-84	0.0099%	0.0185%	0.0369%	0.0438%	0.0407%
85+	0.0012%	0.0092%	0.0462%	0.0882%	0.0964%
Means test scenario 1		*Deviation from baseline, % GDP*			
60-64	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
65-69	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
70-74	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
75-79	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
80-84	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
85+	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Means test scenario 2		*Deviation from baseline, % GDP*			
60-64	-0.0221%	-0.0359%	-0.0429%	-0.0463%	-0.0483%
65-69	-0.0236%	-0.0463%	-0.0539%	-0.0594%	-0.0620%
70-74	-0.0192%	-0.0362%	-0.0506%	-0.0542%	-0.0559%
75-79	-0.0037%	0.0091%	0.0111%	0.0102%	0.0073%
80-84	0.0084%	0.0155%	0.0302%	0.0356%	0.0327%
85+	0.0011%	0.0072%	0.0387%	0.0752%	0.0814%
Demand scenario 1		*Deviation from baseline, % GDP*			
60-64	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
65-69	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
70-74	0.0000%	0.0000%	0.0001%	0.0001%	0.0002%
75-79	0.0000%	0.0000%	0.0001%	0.0001%	0.0003%
80-84	0.0000%	0.0000%	0.0000%	0.0001%	0.0003%
85+	0.0000%	0.0001%	0.0001%	0.0001%	0.0003%
Demand scenario 2		*Deviation from baseline, % GDP*			
60-64	-0.0217%	-0.0352%	-0.0421%	-0.0454%	-0.0474%
65-69	-0.0231%	-0.0455%	-0.0529%	-0.0583%	-0.0608%
70-74	-0.0189%	-0.0357%	-0.0498%	-0.0533%	-0.0549%
75-79	-0.0027%	0.0130%	0.0176%	0.0173%	0.0145%
80-84	0.0099%	0.0185%	0.0370%	0.0441%	0.0412%
85+	0.0012%	0.0093%	0.0463%	0.0885%	0.0970%

Appendix B: Model and assumptions

The *SuperSim* model

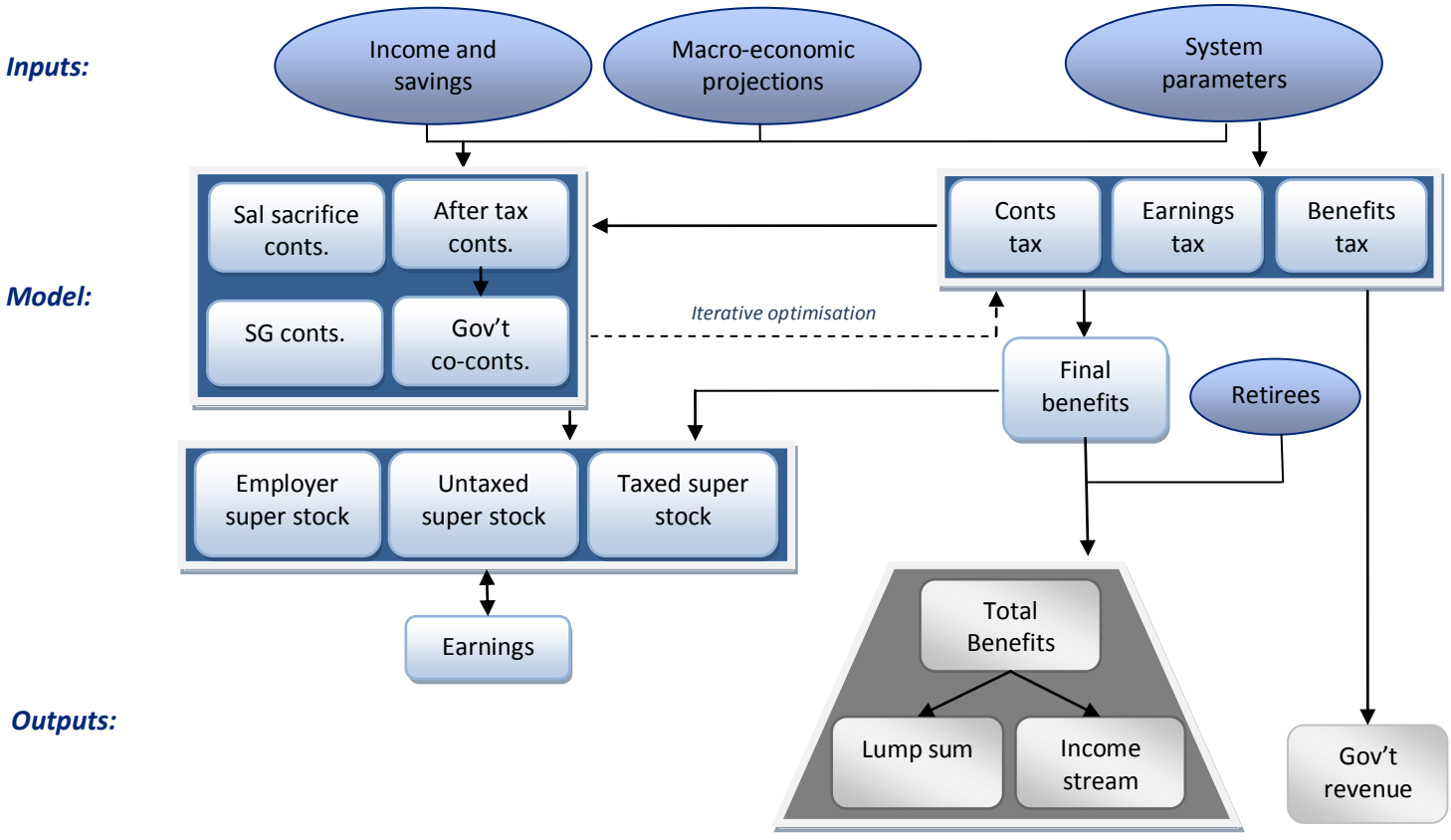
Deloitte Access Economics' *SuperSim* model projects retirement savings outcomes in Australia over the coming century. The model is a dynamic, long run model designed to project outcomes for retirement savings in Australia. It combines broad scope, detailed projections and unmatched flexibility to provide a level of modelling sophistication previously reserved for government agencies.

Originally designed to measure the impact of changes to super tax arrangements on governments and retirees, the model has a wealth of detail on the complex system of taxes applied to super. It includes detailed nominal projections of outcomes within the superannuation system, and a flexible framework for measuring the impact of changes to super policy. It also includes detailed projections of other asset holdings of Australian households, including owner-occupied housing.

Model structure

Figure A.1 shows the relationships within the basic structure of the SuperSim model.

Figure B.1: SuperSim Model Structure – accumulation phase



Key dimensions

The model covers the period from 2000-01 to 2103-04, a total of 103 years. This provides a long-run picture of the super system, where changes made today can take more than 40 years to affect the retirement benefits of individuals.

The model is built around 5 year age cohorts from age 15 through to 84, and an 85+ cohort (15 cohorts in all).

Within these cohorts there are two separate income distributions:

- **Current year income deciles**. In each year individuals earn the average income of those who fall into their income decile.
- **Lifetime income deciles**. Over a lifetime, incomes can vary considerably. Many wealth outcomes, particularly for super, depend on the path of income and savings over a lifetime, rather than in any particular year.

Broadly: **Contributions and related income tests are based on current year income, while accumulated super assets, and related retirement benefits, are based on lifetime incomes.**

FROM SINGLE YEAR INCOME TO LIFETIME INCOME:

Relating the income of an individual in a given year to their lifetime income is important for identifying long term outcomes from super.

As a general rule, observing the lifetime income path of an individual in any given year is close to impossible, as there are currently no datasets which track specific individuals' income over a lifetime. In contrast, individuals' current year income is readily observable through widely available survey data.

As a result, the calculation of lifetime income distributions needs to be constructed from current year income distributions. However, this income data needs to be linked over time, in order to capture the income variations experienced over a lifetime.

That is where the longitudinal data presented in the Household Income and Labour Dynamics in Australia (HILDA) survey can be of assistance. In HILDA, the incomes of specific individuals are linked over time, allowing the calculation of the chance that a given individual will move from their current income decile to any other decile in the next year.

The *SuperSim* model uses this information to create a set of parameters to 'map' the probability that an individual in a given income decile, will belong to each of the lifetime income deciles.

To calculate these probabilities, a Monte Carlo simulation framework is applied to the HILDA data, simulating the income path of an individual and ranking their lifetime income.

Stock-flow calculations

At the heart of the *SuperSim* model is a common approach to the accumulation of assets.

For each combination of age, income and asset type, the model follows a simple relationship:

$$Stock_{t+1} = Stock_t + Contributions_t + Earnings_t - Taxes_t - Benefits_t + CohortChanges_t$$

Where:

- Stocks are initially set to values based on the best available data.
- Contributions are based on detailed savings data and the resulting contribution projections, and are added on a pre-tax basis.
- Earnings are calculated by applying a rate of return to the total stock of assets.
- Taxes are calculated based on the rules applying to each type of asset, and include:
  - Income tax
  - Contributions tax
  - Earnings tax
- Benefits are calculated by removing the portion of the stock that belongs to those who retire in a given year.
- Cohort Changes are calculated to reflect the ageing of individuals over time. The stock belonging to a 40 year old in one year will belong to a 45 year old in 5 years time. In this way the stock owned by each cohort reflects the stocks and flows applying to that particular cohort over the whole of their working life to date.

Housing projections

Separate stocks are included in the model for:

- Owner-occupied housing.
- Investment housing.
- Other assets (excluding super and housing).

Each of these stocks has characteristics similar to those for the super stocks outlined above:

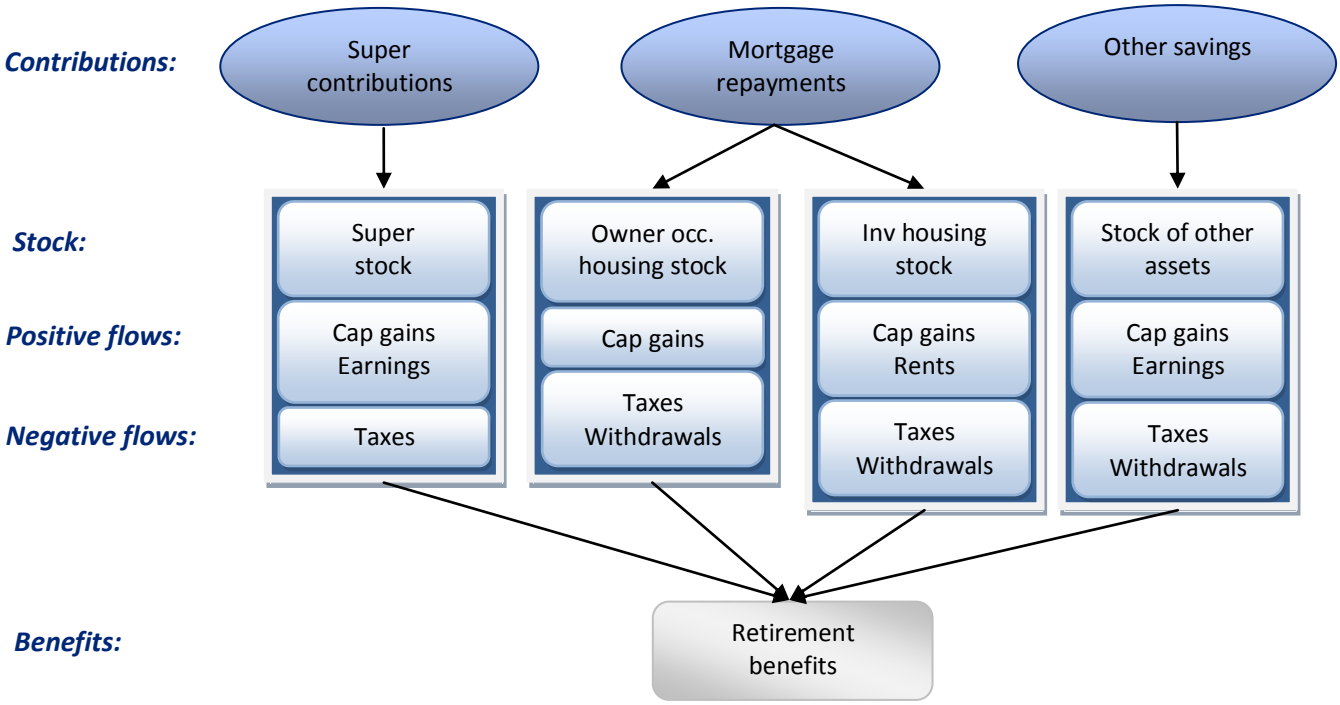
- **Contribution rates**. These are savings rates into each of the new asset classes (and are based on loan repayments in the case of property assets).
- **Rates of return**. The model allows returns for each asset class to be varied individually, including separate rental yield and capital gain assumptions for property assets.
- **Tax arrangements**. Given the different tax treatments of investment and owner occupied housing, a number of State and Federal taxes have been modelled explicitly for each stock, allowing effects on government revenues at both the State and Federal levels to be examined.

Several key assumptions are made with respect to housing assets:

- It is assumed that all homes are purchased through a standard mortgage arrangement. In the model, all mortgages are identical, with a single length of term (initially 25 years), a single deposit ratio (15%) and the same rate of mortgage interest.
- It is assumed that rental earnings from investment housing are directed towards repayment of the mortgage.

Figure A.2 summarises the stocks and flows in the expanded model.

Figure B.2: Stock and flow summary



Benefit projections

Within the model, 'benefits' represent assets that are transferred from working households to retired households. This occurs as cohorts of workers retire, and includes any retained property assets (such as the family home).

Projecting the after-tax value of benefits is achieved by combining the stock-flow framework above with projections of retirements by cohort.

RETIREMENT DATES AND THE *SUPERSIM* MODEL

The current version of the *SuperSim* model uses macroeconomic projections and superannuation preservation rules to construct an estimate of the number of retirees who are entitled to withdraw benefits in a given year, as well as the age distribution of those retirees.

The *SuperSim* model includes staggered retirements based on labour force participation data and population projections. In essence, the model determines the set of retirements needed each year to match the projected size of the workforce in the next year.

> Retirees each claim benefits once, immediately upon leaving the workforce, and all benefits must be claimed after the relevant preservation age, in line with current super rules.

Once the number of new retirees in a given year is known, a total benefit made up of part of each of the asset stocks is calculated.

This benefit is then split into three components:

- **Lump sum benefits**. These benefits are effectively converted to cash (such as a bank deposit) and consumed at a faster rate.
- **Retirement income streams**. These benefits are rolled over into a number of pension style products, which draw on both capital values and earnings to provide an income stream over time. They include:
  - Allocated (or account based) pensions.
  - Guaranteed lifetime annuities.
  - Deferred annuities.
  - Residual value products.
- **Owner-occupied housing assets**. These assets are not run down in retirement, and for retirees who do not access the equity release product provide imputed rental income only (see Box 6.2).

This split is designed to reflect the current asset holdings and take-up of retirement income stream products by Australian retirees, but can be varied by the user.

Once the asset holdings of each cohort at retirement have been projected, the model simulates post retirement incomes and assets for each year of retirement, age at retirement and lifetime income decile.

Retirement income streams are modelled explicitly within the SuperSim model. Upon retirement the income stream portion of benefits is placed in an allocated pension style asset. The model then tracks the earnings of that asset, as well as income received by the retiree as the asset value is withdrawn over time.

Under current income stream rules there are controls on the amount of the asset value that can be withdrawn each year. These withdrawal rates vary by age, and have been included in the model.

With detailed information on the incomes and assets of retirees in each year, the model is able to apply tax and social security rules directly to each cohort of retirees. This allows age pension entitlements to be calculated for each year of retirement, age at retirement and income decile.

Taxes and subsidies

The *SuperSim* model has been designed to measure the impacts on retirement incomes of changes to the complex system of taxation surrounding superannuation in Australia. It is therefore well placed to simulate a range of scenarios for future taxes and co-contribution arrangements.

Key input variables include:

- **Income tax rates and thresholds**. Incentives to contribute to super are closely tied to the income tax system, and the deductibility of some contributions mean that changes to the super system can have 'second round' impacts on income tax revenues received by the government. All current rates and thresholds, including the Medicare levy and the low income tax offset, can be altered within the model for any year in the projection period.
- **Super contributions tax rates**. The 15% tax on contributions to super is perhaps the most visible of the current super taxes. The model allows this rate to be altered in any year
- **Earnings taxes**. Within the *SuperSim* model, final 'effective' rates of earnings tax reflect two factors – the rate of tax, and the value of imputation credits available to funds for the purpose of offsetting their earnings tax liability. Both of these can be varied as part of any scenario.
- **The government co-contributions scheme**. The *SuperSim* model includes options for this scheme that include all current policy parameters, plus options to extend and alter targeting of the scheme. Inputs for each year of the projections include:
  - Income thresholds (including adding new thresholds).
  - Matching rates (including the addition of variable rates and phase-outs).
  - Maximum contributions (including phase-out rates).
- **Property taxes and charges**. The model explicitly includes a number of State and Local government taxes and charges applying to property. Due to the structure of the DFERP contract, these taxes and charges are relevant only to non-trust property investors (and otherwise act as a key arbitrage pricing point in the modelling):
  - Stamp Duty
  - Land Tax
  - Council Rates
  - Maintenance costs
  - Net household insurance costs

Model assumptions and outputs

Key inputs and assumptions

Underlying the richness of the model results is a robust and flexible methodology. In keeping with the policy modelling focus of the *SuperSim* model, scenario analysis can be conducted on a wide range of assumptions, including key model equations. All the parameters discussed can be changed to suit any new scenario within the model.

A complete list of possible changes would be long – the input-related sections of the model alone contain over 1,800 variables.

Some of these parameters are more important than others, and make up a standard set of 'levers' which provide for a range of possible future scenarios. This section outlines the major inputs and assumptions which might be varied in a straightforward simulation of the model.

Economic assumptions

Economic projections in the model are constructed from historical data and assumptions about future trends in key variables. At their simplest, these assumptions resemble those

in the Commonwealth's Intergenerational Reports (IGRs), though more detailed economic trends are informed by Deloitte Access Economics' own in-house demographic (DAEDem) and macroeconomic (DAEM) models.

Assumptions are made about the following variables, in each year of the projection period:

- **Population projections**, by five year age cohort. Current values reflect the most recent version of the DAEDem demographic model and are based on detailed projections of fertility, mortality and migration by age and gender.
- **Inflation**. In the forecast period, inflation is assumed to be maintained at 2.5% – the middle of the Reserve Bank's target range.
- **Productivity growth**. In the forecast period, labour productivity growth is assumed to be maintained at 1.75% – the average result for the 1970s, 1980s and 1990s.
- **Participation rates by age cohort**. Future changes to participation rates by age are informed by Deloitte Access Economics' own intergenerational modelling.

Changing the values of any of these assumptions, year by year, is a simple matter within the model. In this way, the model can create new economic projections to suit any scenario.

Super system parameters

Much of the *SuperSim* modelling uses known system parameters, such as the 9% SG rate, to project future outcomes. While some of these values are fixed over time, they present opportunities for scenario analysis to reflect changes in government policy, and alternative views of future consumer behaviour in the retirement savings system.

A selection of key parameters might include:

- **The SG Rate**. This parameter allows the model to consider the impact of a broad lift in super contributions; of particular relevance given the Government's recent proposal to increase the Superannuation Guarantee from 9% to 12%.
- **Preservation arrangements**. Preservation rules currently prevent individuals from accessing their super benefits early. Given demographic trends, there may pressure to further increase the preservation age in coming years. A set of parameters identifying eligibility for super benefits is available by age, allowing staggered changes to preservation ages over time.
- **Voluntary contribution rates**. Voluntary contributions are modelled in detail within the model, but assumptions about the level and source of these contributions can be varied. Separate parameters are available by contribution type, allowing changes to effect salary sacrifice contributions and after tax contributions separately. Current values assume that recent contributions behaviour is unchanged over the projection period. For each year in the projection period changes can be made both by age cohort, and current year income decile.
- **Earnings rates by broad asset class**. Earnings in the SuperSim model are currently set to growth in nominal GDP, plus an optional 'equity risk premium', and are equal for super, housing and other assets. Each of these assumptions can be varied in each year to create a wide range of potential scenarios for future investment performance.

- **Income stream purchases**. Shares of the benefits from the super system which are withdrawn as an income stream product (e.g. allocated pension) are currently informed by a combination of industry statistics and ATO TaxStats. The model's parameters are set to assume that two-thirds of member benefits at retirement are taken as a lump sum, which is then drawn down at double the rate of superannuation allocated pensions.

Key outputs

At its broadest level, the model is able to project outcomes for:

- **Working households**. Relevant stocks and flows among pre-retirement households, are presented in a framework similar to the ABS national accounts, including:
  - Household income
  - Household savings by broad asset class
  - Household consumption
- **Retirees.** Detailed projections of assets at retirement are coupled with an allocated pension framework to create a full suite of private asset and income projections for retirees.
- **Governments**. Taxes on income, housing and superannuation are projected within the model, and policy changes flow through to all other aspects of the results, including through the behavioural responses of individuals.
- **Asset markets**. As retirement savings are accumulated within the model, projections of total assets within each broad class are available.

At finer levels of detail the model provides insights into the savings experience of a range of groups, allowing analysis of retirement outcomes:

- **By age, and date of retirement**. Model results can be tailored to show impacts of specific generations of retirees, as well as retirement cohorts.
- **By current and lifetime income**. A dual income distribution allows the model to distinguish between the 'asset rich' and the 'income rich' at any point in time.

The deferred lifetime annuity product

In developing estimates of annuity income streams the model takes two aggregates as key, the stock of accumulated assets including superannuation and demographic profiles of retirees.

Coupled with predetermined product specifications the model develops estimates of lifetime and life expectancy annuity income flows along with residual capital values.

Initial value of the annuities

Based on the product weights allocated by the user, the model takes the population retiring in the current period and uses their super assets (taxed and untaxed) to buy into annuity and other products. Purchase prices for these assets reflect the initial funding available for purchasing each product type.

For example, a retiree with $700,000 in a taxed superannuation and a further $150,000 in untaxed superannuation is allocated purchase weights in the model according to the table below.

Table B.1: Initial Capital Values for Annuities

Purchase weight	Annuity			Allocated Pension			Investment Housing	Other Assets
	Lifetime	Life expectancy	Current Min.	Midpoint	Life expectancy	Life expectancy		
Taxed		30%						70%
Untaxed	100%							

Thus the retiree in this example spends $210,000 from taxed sources on a fixed term annuity product to life expectancy at retirement, while all $150,000 in untaxed superannuation assets are used to purchase a lifetime annuity. All remaining assets are withdrawn from the superannuation system and converted to other assets.

The model then takes these initial investments and determines product prices for the income stream calculations. Actuarially fair annuity prices are determined for both lifetime and fixed term annuities.

In determining annuity pricing for each cohort of retirees, the model makes allowance for;

- the age of the retiring cohort at retirement (the purchase date);
- expected mortality rates for the cohort over the following 50 years;
- expected investment returns on assets underlying the annuity; and
- user defined parameters, such as agreed income stream indexation rates and exogenous 'discounts' to the purchase price (which are primarily included for use in scenario analysis).

Calculation of the annuity price for lifetime annuities

The fair value of a lifetime and life expectancy annuity are determined after accounting for a number of key inputs. Chief among these are the pension valuation factors (PVF) and expected investment returns over the term of the annuity.

The model takes the pension valuation factors outlined in the SIS regulations, with additional factors extrapolated for those over 100. While, investment returns are assumed to be fixed over the term of the product. The model uses these figures, and forecast rates of return based on Deloitte Access Economics' macroeconomic inputs, to calculate a mortality adjusted weighted average return on assets (RoR).

Total future payments are modelled as the sum of mortality adjusted payments at the agreed (model input) indexation rate (Pmts).

The calculations above make adjustment for a fixed deferral period before the first payment as calibrated in the user inputs. This rate and the sum of future payments are then used in a standard net present value calculation to determine a fair annuity price, which includes an adjustment for any annuity price discount (another user input).

In effect, this stage of the modelling produces a unit price for the annuity, which is used later to scale the payments (income stream) to the full purchase price of the annuity.

The lifetime annuity product calculations

With the purchase price and annuity price determined, the model then calculates:

- Income flows
- Income flows for the Income Test
- The asset value for the Asset Test
- Taxable income
- Deeming Assets
- A bequest amount, equal to any residual capital value in the asset

Income flows begin in the first period after the deferral period expires, with an initial payment determined by the purchase price, annuity price and the indexation rate on payments.

Note that agreed rate of indexation applies throughout the term of the product, including during the deferral period.

By assumption, the residual capital value of the default annuity is zero, so the initial term collapses to:

This is the initial capital outlay, scaled by the fair unit value of the annuity.

The calculation of income for the age pension income test is performed according to the method prescribed in legislation, which adjusts income to account for the return of invested capital using the purchase price and Pension Valuation Factor (rescaled to reflect the date of retirement).

By default, assessable assets for the age pension asset test are set equal to the purchase price for the entire term of the product (including during the deferral period).

As the product is purchased with superannuation income, taxable income is zero for those over 60, and equal to the income flow for those under 60.

As lifetime annuities are not subject to the age pension deeming provisions, deeming assets are set to zero.

Appendix C: The PC's proposed aged care funding model

The Government has recognised the potential strains on the aged care system and recently commissioned the Productivity Commission to develop regulatory and financial reforms for community and residential aged care based on recommendations made by the National Health and Hospital Reform Commission (NHHRC, 2009).

As part of its inquiry into Caring for Older Australians, the Productivity Commission has released a draft report (PC, 2010a) containing a range of recommendations for the future of aged care in Australia.

Two key themes emerged from those recommendations of the PC:

- First, that the current supply targets are an impediment to competition and choice and should be abolished. Instead, provision of aged care should be driven by community demand. More discussion on this unmet demand is provided in Appendix D.
- Second, that provision of residential and community aged care should be better aligned. In particular, private contributions to the cost of care should be calculated on a common basis, by splitting costs into three core components: care expenses, everyday living expenses, and accommodation expenses.

Splitting the cost of aged care into three key components would allow fees and charges to better reflect their actual cost, and would also provide consumers with more choice – for example it would allow a person to receive care without being tied to accommodation. The PC's costing structure is also arguably simpler than current arrangements, meaning less would need to be spent on 'explaining' the aged care system to customers.

In broad terms, the overarching concern with the aged care system is that **many of the subsidies and payments do not accurately reflect the costs of providing aged care**. Specifically, the PC highlights a de-coupling between the cost of service and the fee that a recipient is required to pay. For example, all residential care places attract the same fee regardless of the quality of the room or the standard of the care. To use the PC's analogy, this is a bit like every hotel room in Australia having the same charge regardless of its star rating.

What follows is a brief discussion of key concerns highlighted in the PC's report, specific to community and residential aged care. For further detail readers are advised to refer to the PC's report (PC 2011).

Community care

Many older Australians prefer to remain in their own homes rather than to live in nursing homes. It is also cheaper, both from an individual and a community standpoint, for people to be cared for at home rather than in a nursing home. The PC report recognises this and contains a number of recommendations aimed at simplifying and improving the provision of community based care.

The PC also recognises that community care can in some cases play a preventative role: for example, low level community care started at a relatively early age (say, 60), could

ameliorate the need for more high level care later on. It also notes that programs aimed at assisting people to care for themselves, such as the Home Improvement Program in Western Australia, are generally more 'successful' than programs aimed at *providing* care, such as the Federal Government's Home and community Care program (HACC).

Currently, community care is paid for by a flat fee equal to 17.5% of the prevailing single age pension. Recipients who earn in excess of the age pension are technically liable to pay 50% of this excess, though the share of recipients that actually do is small. The government pays a flat subsidy to providers, regardless of a provider's income.

And therein lies a problem: rich people do not necessarily pay any more toward the cost of their care than poorer people. Under the PC recommendations, a person will pay between 5% and 25% of the cost of their care, depending on their income and assets. Recognising the positive externalities that flow from an efficiently functioning system of community-based care, the government will continue to subsidise the majority of care costs. However, under the PC system wealthier recipients will make a greater contribution to their care costs than poorer recipients.

Residential care

The system of paying for residential aged care can be summed up in one word: inconsistencies. There are inconsistencies between the funding arrangements residential care and community care, as well as within the residential care market.

The first inconsistency is that residential care charges are capped, whereas community care charges are not. Hence, wealthier people in residential care receive benefits that their counterparts in community care do not (or, more accurately, the relatively small share of community care recipients that actually pays an income tested fee). This provides a somewhat perverse incentive: wealthier care recipients face an incentive to enter residential care over community care. However, given that residential care is far more costly to provide than community care, the incentives, if anything, should in fact be the other way around.

The second inconsistency is between low care and high care charges. Currently, recipients of low care are asked to pay a bond, while recipients of high care need only pay an accommodation charge. Although the high care accommodation charge is capped, the low care bond, provided care recipients are left with a minimum level of assets after paying the bond, is not: the PC notes instances of exorbitant bonds in excess of $1 million being paid to some providers.

This creates a disincentive to invest in high care places; precisely those that will be needed in future to cope with the strains of an ageing population. People paying bonds (low care) invariably end up cross subsidising people on accommodation charges (high care). Not only is this inefficient but also grossly inequitable. The situation could arise, for instance, where a pensioner in low care effectively subsidises a millionaire in high care.

How to pay for the PC's recommendations?

To support the recommended changes to aged care funding policies, the Productivity Commission explored several alternative aged care funding arrangements, including health and ageing savings accounts and long term care insurance. As community acceptance of such private financing products grow, the capacity of older people to fund their own care increases, as does the demand for differentiated aged care.

Deferred lifetime annuities are one such instrument that would insure future retirees against the risk of outliving their savings and significantly contribute to long term aged care funding. The product provides another level of flexibility in the private sector's ability to contribute to the cost of care, in turn creating greater individual choice in the range and quality of care received.

Appendix D: Developing an aged care module

Due to the intertwined nature of Australia's superannuation and aged care systems, the *SuperSim* model has been altered for this project to include a specific aged care module, which develops projections not only of the take up of aged care services but also of their associated costs, both to the government and to private individuals.

To that end, two distinct scenarios have been developed.

- The **baseline scenario** aims to extend the status quo out into the future. It can be thought of as a supply driven scenario, where aged care places (and their associated costs) are driven by target planning ratios of aged care supply and the current government financing measures are assumed to continue.
- A **demand-driven scenario,** included for comparison with the modelling and recommendations released by the PC, and is similar to the approach taken in Treasury's IGR modelling.

Similar to the Productivity Commission's approach in its recent report *Caring for Older Australians* (PC 2011), the demand scenario assumes that existing supply targets are completely removed. It further assumes that the market for aged care always and completely clears – that is, there is never any unmet demand for care. This scenario is useful since it allows us to gauge the extent to which the current provision of aged care services is likely to keep pace with the demand for such services going forward.

Under both scenarios, the modelling approach can be broken down into two distinct stages: projecting the number of aged care packages, and projecting the total cost of aged care provision. Both of these stages will now be discussed in turn.

Projecting the number of aged care packages

Before we can estimate the cost of aged care provision we need to estimate how many people will actually utilise aged care packages. The methodology for doing this is rather simple for the baseline, while the demand driven scenario is a little more complicated.

Baseline scenario

The baseline scenario aims to extend current aged care policy settings out into the future.

The provision of aged care in Australia is currently determined by target planning ratios, expressed as a percentage of the population aged 70 years or older. These ratios are used to plan new place approvals, and are provided in Table D.1.

In the baseline scenario, it is assumed that these ratios are fully met and remain constant throughout the projection period.

Table D.1: Target ratios for provision of aged care services, baseline

Package	Approved places	Operational places
	% of population over 70	
High care residential	4.82	4.28
Low care residential	4.84	4.44
CACP	2.06	2.06
EACH	0.27	0.27
EACHD	0.12	0.12

Source: DOHA

Note that the target ratios above do not directly tell us how many people actually receive care An aged care place (say, a bed in a nursing home) may be approved or even operational for quite some time before it is actually occupied.

That said, the ratio of occupied to approved places has been fairly steady over the past ten years for each type of care, and is assumed to remain at its 2009-10 level throughout the projection period – 85% for high care, 79% for low care, 93% for CACP, 94% for EACH and 89% for EACHD.

For community care packages, projections are based on the target ratio multiplied by the projected population aged 70 and over (taken from DAE's in house demographic modelling), and adjusted for the ratio of occupied to approved places.

For residential care places, an additional adjustment needs to be made to account for residents whose care needs change over the duration of their stay. Specifically, a number of residents enter a facility as a low care patient but over time their needs change to high care. To reduce burden on the patient (and the system), these residents are allowed to 'age in place'.

Due to ageing in place, the number of high care places that is implied by multiplying the target ratio by the population over 70 will be less than the number of people who actually receive a high level of care. Similarly, the number of allocated low care places will be rather larger than the number of people who actually receive a low level of care.

The excess of occupied places over the initial allocation thus reflects those people whose care needs have changed over the duration of their residency.

Ageing in place statistics are reported in DOHA's annual *Report on the Operation of the Aged Care Act* (ROACA). In 2009-10, 37,283 residential care places originally allocated as low care were utilised by high care recipients. To account for ageing in place, the model estimates an 'adjusted allocation,' which is intended to reflect the actual distribution of care needs in the residential care system.

For high care, initial allocated places are 'factored up' by the number of people ageing in place divided by the total number of people receiving high level care. The adjusted allocation is then the initial allocation multiplied by 1 plus the factor up rate[8]. Similarly for low care, initial allocated places are factored to ensure total allocated places are maintained.

[8] For 2009-10, the adjusted allocation is

Demand-driven scenario

Provision of aged care places through targeted planning ratios is unlikely to be enough to meet the pressures of a rapidly ageing population. Accordingly, one of the Productivity Commission's key recommendations was the removal of quantitative limits on the number of aged care places.

To the extent that not all people who require care are currently receiving care, the transition to a demand-driven framework would, other things being equal, result in an increased utilisation of each type of care. This is the amount of **unmet demand.**

Estimating unmet demand – the PC approach

From the outset it should be noted that any measure of unmet demand is necessarily an estimate that is heavily dependent on the assumptions employed. As noted in the PC report, data are not currently available on the underlying demand for aged care services, focusing instead on the number of services actually provided.

The Productivity Commission used data showing the difference between ACAT approvals and entries into care as a measure of unmet demand. One advantage of using ACAT data is that only people who meet established and verified criteria are approved for care, rather than individuals' own (subjective) assessment of their care needs.

However, there are also a number of disadvantages to using the ACAT data in this way:

- As noted by the PC, ACAT approvals and ACAT admissions are obtained from different datasets, meaning that direct comparison of these datasets may be problematic.
- Waiting lists, and voluntary delays on the part of consumers, may mean that some people who are approved for care in one period may not actually enter care until the next period. Whereas the PC assumed that the difference between approvals and admissions in 2009 is the unmet need for 2009, some admissions in 2009 would in fact have been approved for care in 2008. Also, as the PC correctly notes, extended waiting times may discourage people from seeking assessment.
- Circumstances may change in between a person being approved for care and actually entering care. People who were assessed as low care may in fact require high care by the time a place becomes available. Or, people for whom community care was deemed sufficient may in fact require residential care by the time a place becomes available. In some cases, the need or desire for care may no longer exist by the time a place becomes available.
- The difference between ACAT approvals and admissions does not necessarily reflect **demand** for aged care. ACAT approvals are not binding; they are merely a measure of **entitlement**. Consider an elderly person who is approved for residential care but instead decides to remain at home with their family. Under the PC's assumptions this person would be considered part of the unmet demand for residential care. Although there is no ready way of estimating how many people choose not to abide by their ACAT recommendations, this effect may be significant.
- The proportional difference in ACAT approvals and admissions has been far from constant over the past few years: 105% in 2006, 82% in 2007, 67% in 2008 and 52% in 2009. The PC assumes that the gap in future will be the average of the past four years – 76%. Four years worth of data, particularly four years which include a rapid addition of packaged care options to the aged care system, is simply not enough to establish longer term trends.

Estimating unmet demand – DAE's approach

Instead of using ACAT data, the analysis in this report presents estimates of unmet demand using data from the 2009 ABS Survey of Disability Ageing and Carers (SDAC).

It is worth noting that this approach also has a number of disadvantages.

First, and as noted by the PC, the SDAC relies on self reported disability measures. Hence, it suffers from 'self reporting bias,' in the sense that a respondent's self assessed need for care may differ from their 'actual' need as determined by an ACAT assessment. Appendix H of the PC report contains a good discussion of such biases. However, this is arguably not a huge concern; we are, after all, considering a demand driven world, one in which anyone who demands care, regardless of their actual need for such care, will receive it.

Another problem with using the SDAC is that it does not consider the cost of accessing aged care services. Demand measures presented here assume that all people who indicate that their care needs have not been fully met are candidates for additional care. However we have no information on respondents' willingness, or ability, to pay for such services.

Despite these concerns, we are of the view that the SDAC produces slightly more robust estimates of unmet demand than are available from ACAT data alone. However, like the PC, we caution that any estimates of unmet need are necessarily somewhat crude, and therefore are better seen as illustrative.

Our approach to estimating unmet demand involves two key steps. Unmet demand can be thought of as the **number of people currently not receiving care who would potentially demand such care if supply restrictions were removed**. To relate this to the baseline forecasts, the level of unmet demand is expressed as a percentage of the number of people already receiving care.

Estimating the factor up rates involved seven steps:

1. First, data was obtained from the SDAC showing the number of people over the age of 55 (in five year age groups) who reported having profound, severe, moderate or mild disabilities.
2. This group was further refined to estimate those who have a disability *and* need assistance.
3. These measures were then further refined into people who live in a private dwelling. It is assumed that people living in other than a private dwelling (mainly hospitals and nursing homes) are already receiving the care they need.
4. Estimates from step 3 were then split into three different categories based on the extent to which they perceived their needs to have been met: needs fully met, needs partially met, and needs not met at all. Those in the latter two categories can be thought of as 'new demanders' – people who, for whatever reason, are not currently receiving care but who indicate that their needs are less than fully met.
5. The 'new demanders' from step 4 were then allocated into two groups – residential care and community care:
    a. The residential care group consists of people with profound or severe disabilities, whose needs were not met at all.
    b. The community bucket consists of all people from step 4 whose needs were partly met, as well as people with moderate or mild disabilities whose needs were not met at all.

6. Estimates from step 5 were then split into specific aged care programs (i.e. high care, low care, CACP, EACH and EACHD) based on each program's share of total allocated residential and community care places.
7. The amount in step 6 was then divided by the total number of occupied places in each category to obtain the age specific factor up rate. This can be thought of as the potential addition to demand for these services if supply targets were abolished and places were allocated according to market forces. These age specific factor up rates are presented in Table D.2.

Table D.2: Estimated unmet meed, ratio to existing provision

Age	High care	Low care	CACP	EACH	EACHD
55-59	6%	6%	78%	78%	78%
60-64	13%	13%	86%	86%	86%
65-69	7%	7%	94%	94%	94%
70-74	3%	3%	50%	50%	50%
75-79	1%	1%	27%	27%	27%
80-84	1%	1%	31%	31%	31%
85+	0%	0%	24%	24%	24%
Total	2%	1%	48%	37%	43%

Source: DAE estimates

Once total demand for care is estimated for 2009-10, similar estimates are needed for each year of the projection period.

For subsequent years, the number of people receiving care will be the number of people already in care plus the number of 'new' care demanders – i.e. people who have developed a need for care over the past 12 months. So, in each year of the projection period, we need an estimate of the number of 'new' care demanders.

To do this we developed an 'indicator' series of the total number of care demanders in any one year. Four steps were involved:

1. Age specific disability rates for 2008-09 were obtained from the SDAC data, and held constant throughout the projection period.
2. For each year, the age specific disability rates obtained in step 1 are multiplied by the projected population in each year to obtain an estimate of the total population with a disability. The growth rate of this series thus represents 'new' disabled people.
3. For the 'new' disabled people from step 2, it is assumed that the share which needs assistance corresponds with SDAC data –it is assumed that 78% of profoundly disabled, 96% of severely disabled, 67% of moderately disabled, and 43% of mildly disabled people will demand some sort of formal care.
4. The indicator level is the weighted sum of people with a disability. That is, the indicator level equals , where t is the type of disability (profound, severe, moderate or mild), is the number of people with disability type t, and is the share of people with disability type t that need assistance.

For each year of the projection period, estimated recipients for each type of care are calculated as recipients from 2009-10 inflated year on year by the growth in the 'indicator' series described above.

Implementing the demand driven scenario

Recall that the baseline scenario is dependent on planned target ratios. For modelling purposes equivalent ratios were constructed for the demand driven scenario. These rates also have a handy intuitive interpretation; they are the target rates that would be required to meet the estimated total level of demand for care. The implied target ratios under the baseline and the demand scenario are provided in Table B3.

Table D.3: Implied target supply ratios, Places per 1,000 people aged 70+

	Baseline target	Demand driven target
High care	48.2	49.4
Low care	48.4	54.4
EACHD	1.2	2.0
EACH	2.7	4.6
CACP	20.6	29.0

Source: DOHA; DAE estimates

Projecting the cost of aged care

Recall that the baseline scenario assumes that current aged care policy continues into the future, while the demand driven scenario assumes that the PC's recommendations are implemented fully and immediately.

So that we can directly compare the cost assumptions of both scenarios we have categorised the costs from both current policy and the PC's recommendations into three categories:

- Flat fees
- Income tested fees
- Asset tested fees

Individual fees and charges are assumed to grow in line with either CPI or the value of the single base age pension, as outlined in the existing aged care legislation.

However, the unit cost of aged care services is assumed to grow in line with nominal GDP, rather than CPI. This assumption implicitly assumes that the 'quality' or 'amount' of aged care services per recipient grows over time, in line with community living standards.

Baseline cost assumptions

For **residential care**, government expenditure is composed of government subsides, accommodation supplements and other supplements (to cover the cost of things like oxygen tubes and enteral feeding). Individuals of limited means are able to get the entire cost of their care paid for by the government, while individuals with sufficient means must make a contribution to their care costs.

Under current arrangements, there are three main charges that a resident may pay:

- Basic daily fee
- Income tested fee
- Accommodation payments

The basic daily fee is currently set at 84% of the single base age pension and must be paid by all residents. Residents with incomes above a certain amount may also be asked to pay an income tested fee, which is calculated at a rate of 5/12'ths of the resident's income above the maximum income for a full pensioner, up to a maximum of $64.69 a day.

Asset tested fees are in the form of accommodation bonds for low care residents and accommodation charges for high care residents. Bonds are uncapped, but must leave a resident with assets of at least 2.25 times the age pension. The maximum daily accommodation charge is $30.55, with any amount of this maximum not paid by the resident paid instead as an accommodation supplement from the government.

Recipients of **community care** are also required to contribute to the cost of their care. A flat fee may be charged to all recipients, equal to 17.5% of the single age pension. People with incomes in excess of the age pension may be asked to pay an income tested fee of up to 50% of their income over and above the age pension.

The government pays a fixed daily subsidy for all community care packages, regardless of the recipient's income. As at 1 July 2011 this subsidy is $36.73 for CACP, $122.79 for EACH and $135.41 for EACHD.

Demand driven scenario cost assumptions

Under the demand scenario costs and fees are assumed to be in line with those used under the PC's modelling. One of the PC's main recommendations, and central to the cost forecasts discussed herein, is that the charges of aged care should be separated into three different components, each of which face different cost pressures. The three components are daily living, accommodation and care.

However, for modelling purposes, and for easy comparison with the baseline, the cost inputs under the demand scenario have been presented in a format consistent with the baseline: that is, flat fees, income tested fees and asset tested fees.

A summary of cost assumptions for the baseline and demand scenario is presented in Table D.4

Table D.4: Cost assumptions, baseline vs. demand scenario

Item	Baseline	Demand scenario
Flat fees		
Residential	84%	84%
EACH-D	17.5%	12.7%
EACH	17.5%	11.5%
CACP	17.5%	3.7%
Income tested fees (max $/day)		
High care	60.06	36.77
Low care	60.06	14.37
EACHD	36.59	30.99
EACH	36.59	28
CACP	36.59	9.06
Asset tested fees (max $/ day)		
High care	26.88	86.77

Low care	-	64.37
EACHD	-	30.99
EACH	-	28
CACP	-	9.06
Accommodation bonds		
Minimum assets ($)	38,463	-
Retention limit ($)	299	-

Source: DOHA, DAE calculations

Note: Bonds are not explicitly modelled in the demand driven scenario. Although bonds are allowed under the PC recommendations, they are merely an alternative to other equivalent periodic payments.

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Contact us

Deloitte Access Economics
ACN: 49 633 116

Level 1
9 Sydney Avenue
Barton ACT 2600
PO Box 6334
Kingston ACT 2604 Australia

Tel: +61 2 6175 2000
Fax: +61 2 6175 2001

www.deloitte.com/au/economics

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