

Australia's Longevity Tsunami

What Should We Do?



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Executive Summary



Australia is experiencing a major demographic and societal transformation. By 2050, almost a quarter of the population will be aged over 65 compared to 14% now. Australians are already **one of the longest lived populations on the planet**, and our longevity is steadily improving.

Australian life expectancies are rising much faster than commonly understood and this has serious social policy implications – especially in economic, retirement incomes, health and welfare policy.

Public commentary on life expectancies is normally driven by the annual release of the Australian Bureau of Statistics reports¹. These 'reported' life expectancies are a snapshot that capture past longevity improvements but make no allowance for expected future **improvements**.

There are efforts made by various arms of Government and other organisations to predict cohort life expectancies, i.e. life expectancies which include projected future mortality improvements. While more realistic, owing to uncertainty of future outcomes there are plausible scenarios where this approach too will underestimate life expectancy.

Underestimating life expectancy will have major implications for retirement incomes policy. An effective retirement incomes policy should take into account the uncertainty that an individual faces in understanding the financial implications of their own longevity. It should also anticipate that the **economy-wide costs** of providing for older people could be significantly higher than currently projected.

What can policy-makers do to protect Australians against the risk that we have underestimated future life expectancies?

In this White Paper the **Actuaries Institute** is contributing to the debate on this **Longevity Tsunami**, by identifying the issues that should be on the table when the Government is developing **retirement incomes policy**. This discussion builds on our Policy position on retirement incomes², and previous submissions we have made to the Government, in particular the Cooper Review³ in 2010 and pre budget submissions in 2011⁴ and 2012⁵.

We explore some important ways in which the Government can address these problems, including a discussion on how post-retirement financial services products – and the Government's approach to their regulation – could contribute to the solution.

The objective of this discussion is to highlight structural changes in the current retirement incomes rules that are needed to mitigate the financial risks of unpredictable increases in life expectancy.

¹ ABS 4125.0 - Gender Indicators, Australia, Jan 2012

² http://www.actuaries.asn.au/Libraries/PublicPolicy/PolicyPositionRetirement_IncomesMarch2012.sfb.ashx

³ http://www.actuaries.asn.au/Library/2010_0219_Sub_Super_System_Review_Phase_3_Structure_Final.pdf

⁴ http://www.actuaries.asn.au/Library/2011_0124_Treasury_Pre_Budget_Submission.pdf

⁵ <http://www.actuaries.asn.au/Library/Submissions/reBudgetSubmissions/2012/PreBudgetSubmission2012.pdf>



These changes include:

1. **Providing greater incentives to individuals to take the majority of their retirement benefits as an income stream.** Currently there is no tax payable on lump sums drawn from superannuation funds for members aged 60 and over, although there are some tax incentives for assets to remain invested in the superannuation system in retirement. There is therefore potential for people to draw all of their retirement funds at the earliest opportunity, spend these savings, and then fall back on the Age Pension. Whilst there is little evidence that a material number of retirees do this, there may be a case for the Government to consider providing greater incentives for post-retirement assets to be used to provide an income stream. In particular, those retirees that can afford to should be incentivised to protect themselves against their own longevity.
2. **Increasing the preservation age to three to five years less than the Age Pension age.**
3. **Extending the MySuper regime to include post-retirement solutions with “intelligent defaults” that provide retirees with secure income streams.** In particular, we propose that if a person has retired from full-time employment and does not choose a specific retirement product (e.g. they are already in a MySuper default superannuation product), then they are placed into an income stream product that allows flexibility and control of capital in the younger retirement years, and then potentially provides a guaranteed income in later years to supplement the Age Pension.
4. **Removing the impediments that discourage older people who want to work.** In particular remove the age limits on superannuation contributions, encourage workforce participation by changing the Means Test, and consider introducing an increased Age Pension or a lump sum payment for people who continue to work past the Age Pension age.
5. **Removing the legislative barriers preventing innovation in developing post-retirement income stream products such as annuities.** There are a number of well documented legislative and taxation barriers to innovation in the annuities market.
6. **Moving to link changes in the Age Pension eligibility age to improvements in life expectancy.** We recognise that the Government has recently acted to increase the qualifying age for the Age Pension to age 67. This increase is to be phased in over six years, commencing from 1 July 2017. Over the longer term, we suggest that the Government consider increasing the Age Pension eligibility age in line with increases to life expectancy.

What do we know?



The average global life expectancy has doubled over the past 100 years⁶. Half of all the people who have ever lived to age 65 are *currently alive*⁷.

A 2002 United Nations report⁸ states that:

“Population ageing is unprecedented, without parallel in human history...Population ageing is enduring: we will not return to the young populations that our ancestors knew...Population ageing has profound implications for many facets of human life.”

Underfunding of retirement is a global issue. We have seen the problems in Europe and the need for severe austerity measures including the lifting of the retirement age and the reductions in age pensions in some countries. In the United States it has been noted that:

“Social Security remains in a period of permanent cash deficits, with slower economic growth moving the looming bankruptcy date up to 2033. When its trust fund is exhausted, seniors can expect a 25 percent cut in their benefits.”⁹

Chapter 4 of the International Monetary Fund's April 2012 Global Financial Stability Report¹⁰ highlights the potentially significant global financial implications of longevity risk, that is, the risk that people may live longer than expected, and shows its magnitude – amounting to 25% – 50% of 2010 Global GDP, if people live three years longer than expected which they state is in line with underestimations in the past. The Report states that:

“More attention to longevity risk is warranted now, given the potential size of these effects on already weakened public and private balance sheets, and because the effective mitigation measures take years to bear fruit. Governments need to acknowledge their exposure to longevity risk; put in place methods for better risk sharing between governments, private sector pension sponsors, and individuals; and promote the growth of markets for the transfer of longevity risk.”¹¹

In Australia, this problem is well understood and policymakers have been focused on the issue for a number of years. Treasury's Intergenerational Report 2010¹² identifies the future increases in Commonwealth Government spending (expressed as a % of Australia's GDP) from our ageing population, especially in the areas of health costs (from 4% to 7% of GDP) and Age Pensions (from 2.7% to 3.9% of GDP).

⁶ The World Health Report 2998: Primary Health Care (Now More Than Ever), http://www.who.int/whr/1998/media_centre/press_release/en/index1.html.

⁷ Prime Time, Marc Freedman, Public Affairs Books, 1999

⁸ <http://www.un.org/esa/population/publications/worldageing19502050/>

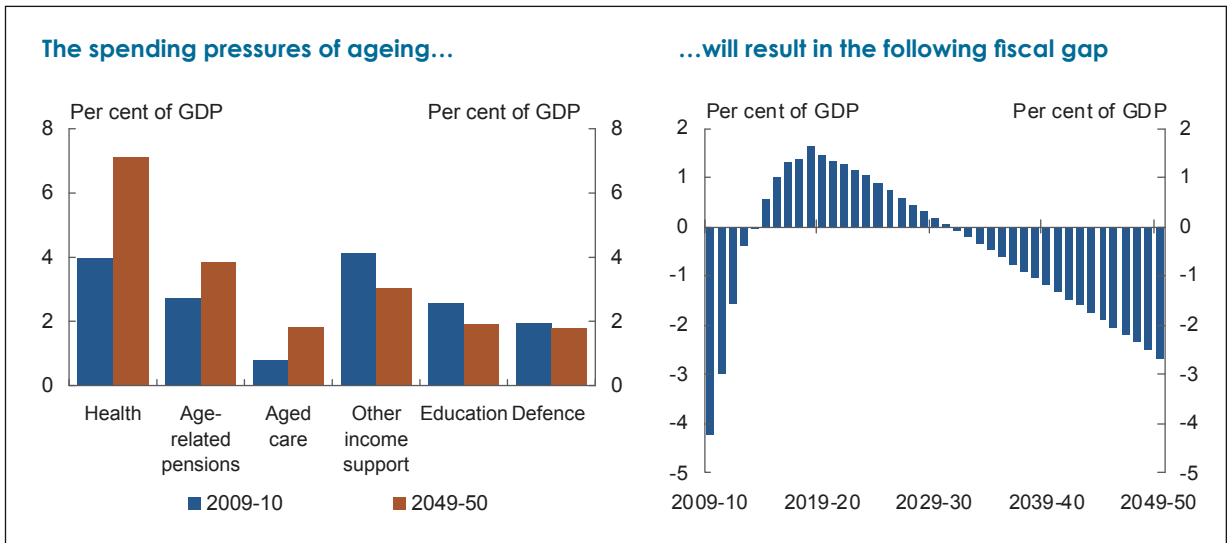
⁹ Ryan, P Chairman Ryan: Seniors Deserve Better from President Obama, April 23 2012. Found at: <http://budget.house.gov/News/DocumentSingle.aspx?DocumentID=292036>.

¹⁰ International Monetary Fund, Global Financial Stability Report: The Quest for Lasting Stability, April 2012. Found at: <http://www.imf.org/External/Pubs/FT/GFSR/2012/01/pdf/text.pdf>.

¹¹ International Monetary Fund, Global Financial Stability Report: The Quest for Lasting Stability, April 2012, page xii. Found at: <http://www.imf.org/External/Pubs/FT/GFSR/2012/01/pdf/text.pdf>.

¹² Intergenerational Report 2010, Australia to 2050: Future Challenges, The Treasury, January 2010. Found at: <http://archive.treasury.gov.au/igr/igr2010/default.asp>.

What do we know? CONTINUED



Source: http://archive.treasury.gov.au/igr/igr2010/Overview/pdf/IGR_2010_Overview.pdf

The Report states that:

“Ageing and health pressures are projected to result in an increase in total government spending from 22.4 per cent of GDP in 2015–16 to 27.1 per cent of GDP by 2049–50. As a consequence, spending is projected to exceed revenue by 2¾ per cent of GDP in 40 years’ time.”¹³

Australians are already one of the longest lived populations on the planet¹⁴, and our longevity is steadily improving. The Australian Bureau of Statistics recently stated that:

“Since the late 1800s, life expectancy for Australian boys and girls has increased by over 30 years...”

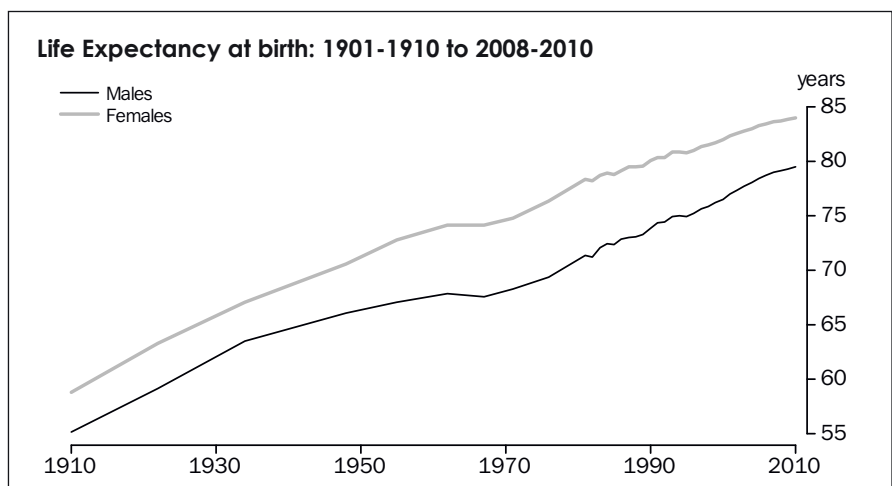
The past two decades have seen further increases in life expectancy. These increases have been partly due to lower infant mortality, fewer young people dying in motor vehicle accidents, and fewer older men dying from heart disease. The reduction in deaths from heart disease has been linked to medical advances and behavioural changes such as improvements in diet and less smoking.”¹⁵

¹³ Intergenerational Report 2010, Australia to 2050: Future Challenges, The Treasury, January 2010. Page x. Found at: <http://archive.treasury.gov.au/igr/igr2010/default.asp>.

¹⁴ Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2007). World Population Prospects: The 2006 Revision, Highlights. New York: United Nations. For more information, see Appendix A – Life Expectancy.

¹⁵ Australian Social Trends: Using Statistics to Paint a Picture of Australian Society, Australian Bureau of Statistics, March 2011, ABS Catalogue No. 4102.0, page.1.

Source: Australian Historical Population Statistics (3105.0.65.001); Deaths Australia (3302.0).



What is the problem?

COMMON UNDERSTANDING VS. THE REALITY OF FUTURE LIFE EXPECTANCY

The latest ABS data reports the life expectancy at birth for a male as 79 and a female as 84¹⁶. These figures are reported in the media and most Australian retirees base their views on how long they will live on this information.

The more realistic predicted scenario is much more dramatic. After allowing for mortality improvements on a cohort basis (refer to Appendix A), it's estimated that **retirees** aged 65 now (i.e. in 2010) will live until 86 for men and 89 for women. So rather than living 14 years after age 65, men are expected to live 21 years i.e. 50% longer! Similarly women will be living 26% longer! By 2050 the average life expectancy for people aged 65 is projected to have improved to 92 for men and 93 for women.

And this is an average. Many will live longer than this.

So what is the longevity problem? We have nearly 40 years to prepare for increased life expectancies of younger and middle aged Australians. We have ample warning – we know it is coming, and policy-makers have plenty of time to react.

The problem is that it's notoriously difficult to predict improvements in longevity. What if life expectancies begin to improve even faster than the trend over the last 25 years? If that's the case, both individuals and policymakers may be underestimating longevity and hence significantly underestimating the cost of the aged on younger generations.

Exacerbating the underestimation issue is the fact that there appears to be no general community awareness of increasing longevity. The constant focus in the media on the ABS reported life expectancies, results in most people significantly underestimating their own life expectancy. Whilst retirees appear to be frugal because of specific uncertainty about their own life expectancy, for the whole community, the real risk is the UNCERTAINTY surrounding life expectancy.

**65 year old men
are projected to live
50% longer than
many expect.**

¹⁶ Australian Life Tables 2005-07. Australian Government Actuary, Commonwealth of Australia, 2009. For more information, see Appendix A – Life Expectancy.





WHY IS IT DIFFICULT TO PREDICT LONGEVITY IMPROVEMENTS?

Actuaries estimate future improvements to life expectancy by looking at how fast life expectancy has improved over past years. This is all the data we have. However, projections based on past trends may not adequately recognise the impact of new medical and other technological advances that could significantly increase life expectancy. Appendix B shows that despite best efforts, some past projections of life expectancy have consistently underestimated actual life expectancies.

Even when allowing for future improvements to longevity (refer to Appendix A) the Government Actuary in the Life Tables Report acknowledges the uncertainty and states that these numbers "should be regarded as indicative rather than firm forecasts of life expectancy."¹⁷

UNDERESTIMATION OF FUTURE LIFE EXPECTANCY

Although it is not possible to provide reliable predictions of life expectancy, this discussion anticipates that current projections based on past data (including those in the Intergenerational Report 2010) are likely to underestimate actual life expectancies. As stated in the actuarial paper Longevity in the 21st Century¹⁸ (refer Appendix B):

"The pace of scientific development appears to be accelerating, and it is possible that this explosion in knowledge will drive increasingly rapid advances in medicine. These advances may cause mortality rates to fall with increasing speed."

Continued improvements in treatments for cancer and cardiovascular disease (the big killers), as well as the wealth of research currently underway into treating the physical impacts of ageing and even slowing the ageing process¹⁹, mean that it's plausible that life expectancies of the current middle-aged population could jump beyond expectations.

On the other hand there has been much debate about the so-called "obesity epidemic". If current trends continue it is expected that 80% of Australians will be overweight or obese by 2020²⁰. Currently around 61% of Australians are either overweight or obese²¹. It has been noted that people who are overweight or obese suffer medical conditions that can materially reduce their life expectancy compared to their peers who have a healthy weight²². It could be argued therefore that increasing obesity reduces the financial risk of longevity. We agree that if the "obesity epidemic" cannot be arrested, this may dampen the potential increase in life expectancies for the unhealthy segment of the population.

However this trend may not continue, and even if it does medical advances will also improve the longevity of the unhealthy segment of the population. This paper argues that healthy people may have significantly increased longevity and public policy should recognise their needs. Whilst we are not specifically discussing health care costs it would also be expected that overweight or obese people may consume more healthcare over their shorter lives.

¹⁷ Australian Life Tables 2005-07. Australian Government Actuary, Commonwealth of Australia, 2009, pg.21.

¹⁸ Refer Appendix B.

¹⁹ The Futurist May June 2012 page 21

²⁰ <http://www.modi.monash.edu.au/obesity-facts-figures/obesity-in-australia/>

²¹ <http://www.health.gov.au/internet/healthyactive/publishing.nsf/Content/overweight-obesity>

²² Australian Institute of Health and Welfare 2008, Australia's health 2008, Cat No. AUS99

What is the problem? CONTINUED

Historically, we have underestimated improvements in longevity, if this holds true, there is a tsunami coming.

If the average expected life expectancy of 65 year olds in 2050 is 92 for men and 93 for women, then given the uncertainty of predicting life expectancies, and the fact that historically we have underestimated improvements in longevity, there are plausible scenarios where people who are currently aged 65 and healthy will be expected to live past 100. The life expectancy for younger generations could exceed 120 years.²³

There's a tsunami coming...are we prepared?

CURRENT AGED BASED RULES ENCOURAGE PEOPLE TO RETIRE.

It could be argued that Australia's age-based rules encourage people to retire earlier than they may otherwise because:

- We currently have access to superannuation assets from age 55 moving to age 60 (Preservation Age);
- The Disability Support Pension – provides half a million people above age 55 with an early age pension;
- There is unlimited access to super benefits tax-free from age 60 although, it should be said that there is little evidence that retirees are removing significant assets on retirement; and
- There is a specified Age Pension age (65 moving to 67) which does not suit everyone.

Increasing life expectancies, continued early retirement (with a median retirement age of 61 and an intention to retire at 63²⁴), and the lack of either incentives or compulsion to take an income stream on retirement, are putting pressure on the Age Pension system. Whilst the Intergenerational Report 2010 predicted that the cost of the Age Pension would increase from 2.7% to 3.9% of GDP by 2050²⁵, our view is that Government policy should anticipate that there could be a higher increase in the cost of the Age Pension due to longer than anticipated life expectancies.

²³ The October 2011 edition of the UK Wired magazine (<http://www.wired.co.uk/magazine/archive/2011/10/features/darwin-for-the-dna-age?page=all>) published an interview with Juan Enriquez – the founding director of the Life Sciences Project at Harvard Business School and a fellow at Harvard's Centre for International Affairs, where he says that lifespan will double over the next century because of advances such as:

- Researchers are growing new body parts using stem cells e.g. tracheas for people with TB, regrown ears for wounded soldiers, new bladders instead of colostomy bags.
- Researchers have found a way to transfer skin cells into stem cells. So the combination of these two technologies means you can take a piece of your skin and grow it into almost anything in your body.

²⁴ See Appendix D – Retirement and Retirement Intentions.

²⁵ Intergenerational Report 2010, Australia to 2050: Future Challenges, The Treasury, January 2010, Page 47. Found at: <http://archive.treasury.gov.au/igr/igr2010/default.asp>.



What should we do?



POLICY LEVERS

There are a number of areas where structural changes in the current retirement incomes rules can mitigate some of the financial risks of unpredictable increases in life expectancy.

This discussion does not include an assessment of the adequacy of the current Age Pension (other than observing that, on its own, it is set at a level sufficient to provide only a very modest standard of living), or an assessment of the implications that unpredictable increases in life expectancy will have on the costs of health care. We do not discuss the adequacy of the 12% superannuation compulsory contribution rate.²⁶ Our focus here is on the existing retirement savings system and how this integrates with the Age Pension.

The nature of the Australian accumulation-based superannuation system with, amongst other things, account balances primarily invested in riskier growth assets (approximately 70%²⁷ in the largest superannuation funds), means that there is already a sharing in the financial risks of adequacy of post-retirement incomes between the individual retiree and the community as a whole.

The risks for the individual retiree include:

- **Adequacy** – insufficient savings by retirement;
- **Investment** – capital values eroded by market movements in retirement;
- **Inflation** – the retiree's standard of living is eroded over time as income does not keep up with inflation; and
- **Longevity** – outliving accumulated retirement savings and falling back on the Age Pension. Longevity also exacerbates the above three risks.

The community as a whole also bears some of these risks. In particular, the Age Pension protects individual retirees if their assets are insufficient for any reason or if they live materially longer than expected. The families of the retired and the taxpayer generally provide the backstop to individual risks, including the risks that individuals themselves choose to take.

Since the community bears a risk related to how individuals access and invest their retirement savings, the Actuaries Institute believes that it is reasonable for the Government to propose various incentives and/or restrictions on how superannuation fund assets can be drawn down. There needs to be a balance between the rights of the individual to retain flexibility in how they access and invest their post-retirement assets, and the overall community need to ensure that the retirement system is integrated with the social security system.

As mentioned above, we believe that policy should be set in anticipation that life expectancies could be significantly higher than currently planned and costed, and that this change will affect existing generations. Our objective is to outline a suite of proposals that we believe will provide improved adequacy and predictability of retirement incomes from the perspectives of the individual and the community.

²⁶ The Actuaries Institute supported the increase in the compulsory superannuation contribution rate from 9% to 12%, because we recognised the need for each generation of retirees to carry a greater burden for funding their own retirement benefits.

²⁷ APRA Statistics Superannuation Bulletin June 2011 issued February 2012 Table 18. Assuming that Default funds are indicative of aggregated investment strategies of funds.

Key Principles and Summary of Positions

A deeper, more developed post-retirement market is vital to provide greater choices for people looking to sensibly invest their retirement savings – over what may be a 30+ year period for many.

The Actuaries Institute considers that policy-making in this area should be guided by the following principles:

a. Development of a long-term regulatory outlook which facilitates:

- A goal of achieving a secure flow of income over an appropriate period;
- Adequacy of income for the relevant period of retirement; and
- Recognition that complexity in the superannuation system has a real financial cost and increases the chance that individuals will make the wrong decision.

b. The need for flexibility within the regulatory framework in order to:

- Reflect different individuals' retirement income needs and varying capacity to bear risk and exercise choice;
- Encourage competition and not impede innovation unless there are significant offsetting benefits; and
- Ensure proportionality between the social objectives of regulation and the implications for individual retirees.

c. The need to encourage intergenerational equity whereby, to the extent possible, each generation funds their own costs of retirement.

The Actuaries Institute believes that there is an immediate need to undertake some structural reform. We propose the following:

1. Providing greater incentives to individuals to take the majority of their retirement benefits as an income stream.
2. Increasing the preservation age to three to five years less than the Age Pension age.
3. Extending the MySuper regime to include post-retirement solutions with "intelligent defaults" that provide retirees with secure income streams.
4. Removing the impediments that discourage older people who want to work.
5. Removing the legislative barriers preventing innovation in developing post-retirement income stream products such as annuities.
6. Moving to link changes in the Age Pension eligibility age to improvements in life expectancy.



STRUCTURAL REFORM TO ENABLE AUSTRALIANS TO SECURE A PREDICTABLE INCOME IN POST-RETIREMENT

Australia is experiencing a major demographic and societal transformation. The Intergenerational Report 2010 reveals that by 2050, almost a quarter of the population will be aged over 65 compared to 14% now.²⁸

As part of this transformation, there is the potential that Australia will witness a significant outflow of money from superannuation funds in the next 15 years, as the baby boomers move into retirement. Currently, Australia's ageing population has a relatively limited range of options regarding how to invest their superannuation in a way that will provide the right balance of security and predictability of income in retirement.

The amount of money moving from the accumulation phase of the superannuation system into the retirement phase is likely to be substantial. This is a natural progression as the superannuation system matures. Relevant statistics at 30 June 2011 are:

- \$325 billion of assets is vested in people over the age of 60 and a total of \$645 billion is vested in people over the age of 50. That is, over the next 15 years more than 60% of all fund assets are expected to flow out of the accumulation phase and enter the retirement phase.²⁹
- In addition, there is around \$418 billion of assets in the self-managed superannuation fund (SMSF) segment, the vast majority of which is vested in members over aged 50.³⁰

The expected outflow of money from the accumulation to the retirement phase of the superannuation system means that those superannuation funds who are well placed with suitable retirement options will be those most likely to retain their existing members, and perhaps attract new retired members. On the other hand, a lack of intelligent defaults for retirement could leave many superannuation funds unable to retain members. Many retirees will be left without a sufficient choice of suitable products to protect themselves against the post-retirement financial risks, and for this reason may decide to withdraw their retirement savings from superannuation more rapidly than is consistent with their life expectancy.

A deeper, more developed post-retirement market is vital to provide greater choices for people looking to sensibly invest their retirement savings – over what may be a 30+ year period for many. However, a wide range of barriers needs to be better understood and then tackled in order to help new and innovative retirement solutions to enter the mainstream financial services system.

The Actuaries Institute has previously recommended to Government a range of changes to Australia's regulatory and taxation system to help overcome obstacles to having deferred lifetime annuities (DLAs) and innovative guaranteed income stream products available.³¹



²⁸ Intergenerational Report 2010, Australia to 2050: Future Challenges, The Treasury, January 2010. Found at: <http://archive.treasury.gov.au/igr/igr2010/default.asp>.

²⁹ APRA, Annual Superannuation Bulletin June 2011. Issued 29 February 2012. Table 5

³⁰ ATO, SMSF Statistical Overview 2009-10. Published April 2012.

³¹ In our Pre-Budget Submission of 27 January 2012, we recommended the following changes:

- Amend Superannuation Industry Supervision Regulation 106, which is a block to the development in the annuities market of products which protect against the risk of individuals outliving their retirement savings and the market risk of losing superannuation capital in retirement.
- Reverse the unfavourable treatment of annuities under aged care and Centrelink rules.
- Allow annuities and deferred annuities to be issued as a component of an account based pension.
- Change the tax rules on deferred annuities so that, if taken out in the drawdown phase, the product is regarded as a pension (rather than a non-pension) for tax purposes.

For more information, see: <http://www.actuaries.asn.au/Library/Submissions/reBudgetSubmissions/2012/PreBudgetSubmission2012.pdf>



The Actuaries Institute proposes that the Government require that all approved superannuation funds develop a set of intelligent post-retirement default products.

1.1 Greater Incentives to Take Retirement Assets as Income Streams

Currently, there is no tax payable on lump sums drawn from superannuation funds for members aged 60 and over, although there are some tax incentives for assets to remain invested in the superannuation system in retirement. There is therefore potential for people to draw all of their retirement funds at the earliest opportunity, spend these savings, and then fall back on the Age Pension. Whilst there is little evidence to indicate that a material number of retirees do this, there may be a case for the Government to consider providing greater incentives for post-retirement assets to be used to provide an income stream. In particular, those retirees that can afford to should be incentivised to protect themselves against their own longevity.

There are arguments that the Government should make the purchase of a guaranteed income stream (such as an immediate or deferred lifetime annuity) compulsory for people with more than a pre-determined amount invested in superannuation. The argument could be made that compulsory superannuation for pre-retirees already exists and should be extended to the drawdown phase.

The Actuaries Institute does not support the argument that a retiree should be compelled to purchase a specific type of product in post-retirement. We do, however, think that the Government should provide retirees with an incentive to enter into an income type product (we describe some typical products in Appendix F) or, if there is no active choice made by the retiree, there should be an approved set of intelligent type default products designed to provide some level of security and predictability of post-retirement income.

In effect, the Actuaries Institute believes that the Government should introduce disincentives for individuals with assets above a threshold amount, to take a large proportion of these as lump sums. The assets would need to be drawn down over the long term. There would need to be an appropriate phase-in period for this change.

1.2 Preservation age

In line with the idea of placing restrictions on the amount of lump sum that may be withdrawn from superannuation, we also recommend that **the Government increase the Preservation Age gradually to (say) three to five years or less than the Age Pension eligibility age**. Based on the current phased increase in the Age Pension age, this could see the Preservation Age move to above age 62 by 2023.

1.3 The Introduction of a System of Intelligent Defaults

While removing barriers and providing incentives to take out income streams would be a positive step forward, the Actuaries Institute also proposes that the Government require that all MySuper approved superannuation funds develop a set of intelligent post-retirement default products.

In particular, we propose that if a person has retired from full-time employment and does not choose a specific retirement product (e.g. they are already in a MySuper default superannuation product), then they are placed into an income stream product that allows flexibility and control of capital in the younger retirement years, and then potentially provides a guaranteed income in later years to supplement the Age Pension. This product may be organised into two parts, i.e. to provide liquidity and to provide longevity protection. Flexibility in the early years may include access to a capped lump sum.

The rationale underlining this suggestion is that the Government is currently prescribing a system of pre-retirement defaults through the MySuper initiative. We are proposing that retirees benefit from the same system of defaults post-retirement, where retirees are otherwise much more exposed to the consequences of poor decision-making.

The Government should seek feedback from the superannuation industry with regard to the most appropriate types of default products. As with the MySuper initiative, the trustees of the various superannuation funds would be required to licence their default products and they would be accountable to their members for the design. In designing post-retirement default products it also needs to be recognised that the retiree will need to engage with the product provider if only to organise where the income should be paid.

1.4 Removing Existing Impediments for Older Australians who Want to Work

One of the most powerful levers available to influence the level of post-retirement consumption is the retirement date, as this signifies the date that a person chooses to start drawing down on their retirement income and become eligible to receive the Age Pension. Many people are keen to keep working but, whilst there is no legal retirement age in Australia, there is a community idea about what age it is appropriate to retire (i.e. when the Age Pension commences).

There are significant benefits to both the individual and the community if individuals are able to work for longer. First, since a person continues working their superannuation account balance continues to grow through a combination of additional contributions and investment. If the person had retired, they would have started to drawdown their assets. Second, the community benefits from a productive taxpaying individual who is not drawing the Age Pension.

The Actuaries Institute specifically recommends that the Government:

- Removes age limits on superannuation contributions;
- Encourages workforce participation by changing the Means Test; and
- Considers introducing an increased Age Pension, or a lump sum payment, for people who continue to work past retirement.

Appendix E – The Case for Removing Barriers to Working Longer provides some background for these recommendations.

1.5 The Development of a Vibrant and Competitive Superannuation Annuities Market

The Actuaries Institute suggests that the Government considers placing limits on the amount of money that individuals may draw out of the superannuation system in post-retirement. In effect, we suggest that high net worth retirees should be required to draw down the majority of their funds over an extended period.

There are a number of potential products that could be made available to retirees to assist in this regard. We have described these products as annuity products although they each have significantly different features.

Appendix F – Annuity Products, provides detail on this recommendation.

1.6 Move to Link the Age Pension Age to the Life Expectancy

The Actuaries Institute recognises that the Government has recently enacted to increase the qualifying age for the Age Pension to 67. This increase is to be phased in over six years, commencing from 1 July 2017.

Over the longer term, we suggest that the Government consider increasing the Age Pension age in line with increases to life expectancy. This recognises the effect of increasing longevity and improved health, and offsets some of the effects of an ageing population on social security costs.

We suggest that the Government consider increasing the Age Pension age in line with increases in life expectancy.





Appendices

Appendix A Life Expectancy

AUSTRALIANS HAVE A LONG LIFE EXPECTANCY

Australians are one of the longest lived populations in the world.

TABLE S.15.
THE TEN COUNTRIES OR AREAS WITH THE HIGHEST AND THE TEN COUNTRIES OR AREAS WITH THE LOWEST LIFE EXPECTANCY AT BIRTH, 2005-2010, 2045-2050 AND 2095-2100

2005 – 2010			2045 – 2050			2095 – 2100		
Rank	Country or area	Life expectancy	Rank	Country or area	Life expectancy	Rank	Country or area	Life expectancy
A. Highest life expectancy at birth								
1.	Japan	82.7	1.	Japan	87.4	1.	Japan	92.3
2.	Switzerland	81.8	2.	China, Hong Kong SAR	87.2	2.	China, Hong Kong SAR	91.8
3.	China, Hong Kong SAR	81.6	3.	Switzerland	86.4	3.	Switzerland	91.4
4.	Australia	81.4	4.	Israel	86.3	4.	Israel	91.2
5.	Italy	81.4	5.	Australia	86.0	5.	Australia	91.0
6.	Iceland	81.3	6.	Iceland	85.8	6.	Iceland	90.8
7.	France	81.0	7.	France	85.8	7.	Spain	90.8
8.	Sweden	80.9	8.	Spain	85.8	8.	France	90.8
9.	Israel	80.7	9.	Italy	85.7	9.	Sweden	90.7
10.	Singapore	80.6	10.	Sweden	85.7	10.	Italy	90.6
B. Lowest life expectancy at birth								
1.	Central African Republic	45.9	1.	Lesotho	58.0	1.	Sierra Leone	74.1
2.	Lesotho	46.0	2.	Dem. Republic of Congo	61.5	2.	Dem. Republic of Congo	74.1

United Nations Department of Economic and Social Affairs/Population Division
 World Population Prospects: The 2010 Revision, Highlights and Advanced Tables

Appendix A Life Expectancy CONTINUED

Australian life expectancies are improving rapidly

The following data from the Australian Bureau of Statistics demonstrates how Australian life expectancy at all ages has improved dramatically over the last 100 years:

Complete expectation of life at selected ages:

Males				Females			
Life Tables	0	Age 30	65	Life Tables	0	Age 30	65
1881 -90	47.20	33.64	11.06	1881 -90	50.84	36.13	12.27
1891-00	51.08	35.11	11.25	1891-00	54.76	37.86	12.75
1901-10	55.20	36.52	11.31	1901-10	58.84	39.33	12.88
1920-22	59.15	38.44	12.01	1920-22	63.31	41.48	13.60
1932-34	63.48	39.90	12.40	1932-34	67.14	42.77	14.15
1946-48	66.07	40.40	12.25	1946-48	70.63	44.08	14.44
1953-55	67.14	40.90	12.33	1953-55	72.75	45.43	15.02
1960-62	67.92	41.12	12.47	1960-62	74.18	46.49	15.68
1965-67	67.63	40.72	12.16	1965-67	74.15	46.34	15.70
1970-72	68.10	41.10	12.37	1970-72	74.80	46.86	16.09
1975-77	69.56	42.18	13.13	1975-77	76.56	48.26	17.13
1980-82	71.23	43.51	13.80	1980-82	78.27	49.67	18.00
1985-87	72.74	44.84	14.60	1985-87	79.20	50.49	18.56
1990-92	74.32	46.07	15.41	1990-92	80.39	51.48	19.26
1995-97	75.69	47.26	16.21	1995-97	81.37	52.30	19.88
2000-02	77.64	49.07	17.70	2000-02	82.87	53.72	21.15
2005-07	79.02	50.20	18.54	2005-07	83.67	54.44	21.62

Source: Australian Life Tables 2005-07 http://www.abs.gov.au/publications/life_tables_2005-07/downloads/Australian_Life_Tables_2005-07.pdf.

During this 103 year period:

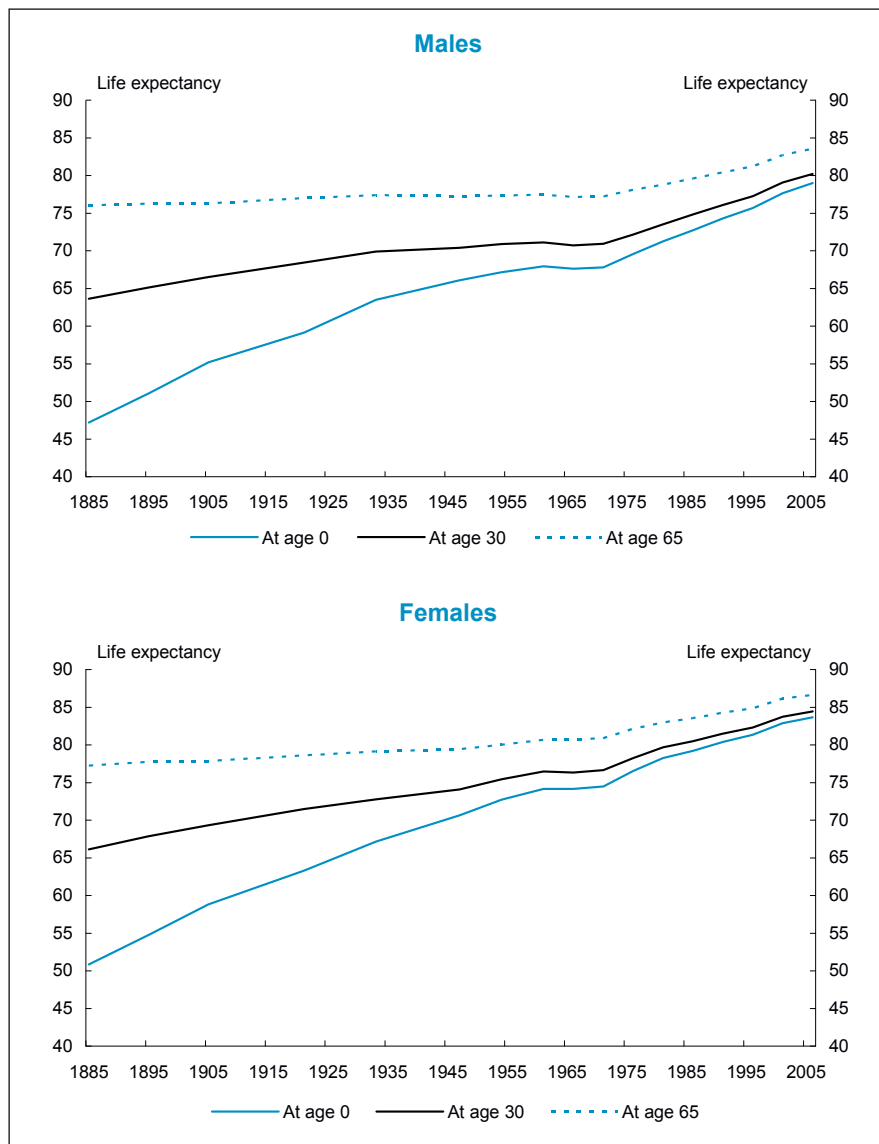
- Life expectancy at birth has lengthened by 67% for men and 65% for women; and
- Life expectancy at age 65 has lengthened by 68% for men and 76% for women.

Appendix A Life Expectancy CONTINUED



The improvements in recent years, especially the last 40, have been more rapid than in previous years – as the following charts illustrate:

Total life expectancy at selected ages*



Source: The Australian Life Tables 2005-07 http://www.aga.gov.au/publications/life_tables_2005-07/downloads/Australian_Life_Tables_2005-07.pdf

* Note that these life expectancies do not make allowance for the improvements in mortality experienced over a person's lifetime.

The Australian Life Tables 2005-07 Report³² states:

“Reported life expectancy at birth has shown dramatic improvement, increasing by over 30 years for both males and females... At older ages, the substantial improvements in mortality rates for this group over the past thirty years have flowed through into significantly increased life expectancies, with expectation of life at age 65 increasing by around six years for both males and females. This represents an increase of more than 50 per cent for males and 37 per cent for females in the expectation of life at this age.”

³² Australian Life Tables 2005-07 Report. Australian Government Actuary, Commonwealth of Australia, 2009. Pages 12-13.

Appendix A Life Expectancy CONTINUED

Reported figures don't include all the mortality improvements we can expect

The latest ABS data, based on the 2005-07 Life Tables, reports the life expectancy at birth for a male as 79 and a female as 84. These figures are reported in the media and hence most Australians base their views on how long they will live on this information. Reported life expectancies are based on actual deaths in the investigation period. They do not project future life expectancy of people currently alive.

The following table compares the reported life expectancies with life expectancies allowing for mortality improvements derived by using 25 year mortality improvement factors.

	LIFE EXPECTANCY AT BIRTH					
	In 2010		Expected in 2050		Additional years of life 2050 vs. 2010**	
	Males	Females	Males	Females	Males	Females
ABS reported in annual stats ³³	79.5	84.0				
Cohort expectancy allowing for faster improvements over last 25 years*	92.4	93.9	96.7	97.3	17.2	13.3

* Figures in the last row are sourced from the Australian Life Tables 2005-07 Report, Australian Government Actuary, on page 19.

** This is the increase in life expectancy between reported and cohort.

What's the difference between the figures?

When you are looking at the likely life expectancy of future Australians, a cohort life expectancy measure is more realistic. As stated by the Government Actuary in the Australian Life Tables 2005-07 Report:

*"Cohort life expectancy... takes into account the improvements that could be experienced over the lifetime of the individual... Cohort life expectancies can be thought of as being a more realistic representation of the unfolding mortality experience of the Australian population."*³⁴

³³ ABS 4125.0 - Gender Indicators, Australia, Jan 2012

³⁴ Australian Life Tables 2005-07 Report. Australian Government Actuary, Commonwealth of Australia, 2009. Page 18.



Appendix A Life Expectancy CONTINUED

Whilst the government uses cohort life expectancies to guide its policy settings, these figures are not widely publicised and the average Australian is unaware of their likely true life expectancy when they reach retirement.

So why are the media not reporting cohort life expectancies? Maybe because these figures involve making a series of assumptions, and as a result are somewhat volatile and jump around from census to census. Forecasting mortality improvements is not an exact science. The Government Actuary issues this word of caution about using cohort data to estimate future life expectancy:

“The period and cohort life expectancies ... illustrate what would occur if mortality continued to improve at the rates observed in the past. Measured mortality improvement can change appreciably between successive Tables...”

As a result, the 25 year mortality improvement factor at this age has more than doubled from 0.8 per cent per annum to 1.8 per cent per annum between the 2000-02 Tables and the current Tables.

Furthermore, the effects of these movements are magnified because the projections assume that mortality improvement will be constant for a particular age...

History demonstrates that mortality improvement is not constant at a particular age and, indeed, can vary within a quite considerable range...

Thus, the estimates of cohort mortality included here must be accepted as projections of outcomes under assumptions that have a certain historical basis. They should be regarded as indicative rather than firm forecasts of life expectancy.”³⁵

Cohort life expectancies are only an indication, but they may be the best indication that we have, and are more realistic than the reported life expectancies.

What’s the potential impact on retirees?

The above discussion looked at life expectancy from birth. This was useful to illustrate the use of cohort life expectancies and the difference they can make. What matters for this discussion however is the life expectancy of retirees. So let’s now use cohort life expectancies to see what mortality improvements people aged 65 can expect.

Total life expectancy at age 65 is longer than life expectancy at birth, because by age 65 some people have already died. However we can expect improvements in life expectancies for 65 year olds in 2050 to be smaller than those for a new baby being born in 2050.

³⁵ Australian Life Tables 2005-07 Report. Australian Government Actuary, Commonwealth of Australia, 2009. Page 21.

Appendix A Life Expectancy CONTINUED

The table below repeats the previous analysis, but looks at life expectancies at age 65 rather than at birth.

	LIFE EXPECTANCY (EXPRESSED AS TOTAL LIFE SPAN) AT AGE 65					
	In 2010		Expected in 2050		Additional years of life 2050 vs. 2010**	
	Males	Females	Males	Females	Males	Females
ABS reported in annual stats ³⁶	83.9	86.8				
Cohort expectancy allowing for faster improvements over last 25 years*	86.3	89.0	92.0	93.3	8.1	6.5

We could realistically be living longer in retirement, 30% longer for women and 44% longer for men, than currently.

* Figures in the last row are sourced from the Australian Life Tables 2005-07 Report, Australian Government Actuary, Projected Cohort Life Expectancy, on page 19.

** This is the increase in life expectancy between reported and cohort.

The above figures indicate that the more realistic scenario based on the cohort figures is that 65 year olds in 2050 will actually be living an extra six to eight years in retirement above the current reported life expectancy.

That's 30% longer for women and 44% longer for men than currently.

But it could be longer. What if life expectancies begin to improve even faster than the trend over the last 25 years? **You can see from the above analysis how uncertain projecting longevity improvements is. In Appendix B we claim that there is a chance that the above analysis, even the longer "cohort" figures, will underestimate future longevity improvements, as it has done in the past.**

What figures are policymakers using?

Treasury in their Intergenerational Report 2010³⁷ has the following analysis:

These mortality and life expectancy trends are projected to continue (Table 1.3).

- Men born in 2050 are now projected to live an average of 7.6 years longer than those born in 2010, and women an average of 6.1 years longer.
- 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.

Importantly, Treasury's predictions are lower than the life expectancy indicated by the cohort analysis.



³⁶ ABS 4125.0 - Gender Indicators, Australia, Jan 2012

³⁷ http://archive.treasury.gov.au/igr/igr2010/report/pdf/IGR_2010.pdf

Appendix A Life Expectancy CONTINUED

Table 1.3: Australians' projected life expectancy (years)

	2010	2020	2030	2040	2050
Life expectancy at birth					
Men	80.1	82.5	84.5	86.1	87.7
Women	84.4	86.2	87.8	89.2	90.5
Life expectancy at age 60					
Men	23.4	25.2	26.7	28.0	29.2
Women	26.6	27.9	29.2	30.4	31.4
Life expectancy at age 67					
Men	17.6	19.1	20.4	21.6	22.6
Women	20.4	21.6	22.8	23.8	24.8

Source: Treasury.

So at age 67 in 2050, Treasury are predicting that men will live until 89.6 and women until 91.8. This is lower than the life expectancy indicated by the cohort analysis outlined above, and actual life expectancies could be longer again.

Appendix B Why We Underestimate Life Expectancy

The following is an extract from the paper “Living Until 120: The Implications for Absolutely Everything” by actuaries Barry Rafe and Melinda Howes.³⁸

³⁸ This Paper was presented at the Actuaries Institute Financial Services Forum, Melbourne, 30th April 2012 and the IAA Colloquium, Hong Kong, 7th May 2012.

³⁹ Longevity Management Issues for Australia’s Future Tax System, The Treasury”, Mike Sherris & John Evans, UNSW, Aug 2009.

Normal modelling techniques cannot handle discontinuities – things like major medical breakthroughs, a cure for cancer or viruses.

Actuaries have been modelling mortality for more than 100 years. We are very good at predicting gradual increases in life expectancy. However, we have a problem.

In a paper written for the Henry Review of the Tax System³⁹, actuaries Mike Sherris and John Evans contend that longevity risk can be considered as being made up of:

- The “**known/knowns**” – A general improvement trend from socioeconomic improvements – as we can see on this chart;
- The “**known/unknowns**” – Some variation around the longer term improvement trend; and
- The “**unknown/unknowns**” – Sudden changes from wars, pandemics that may shorten life expectancies and disease management which may substantially increase life expectancies.

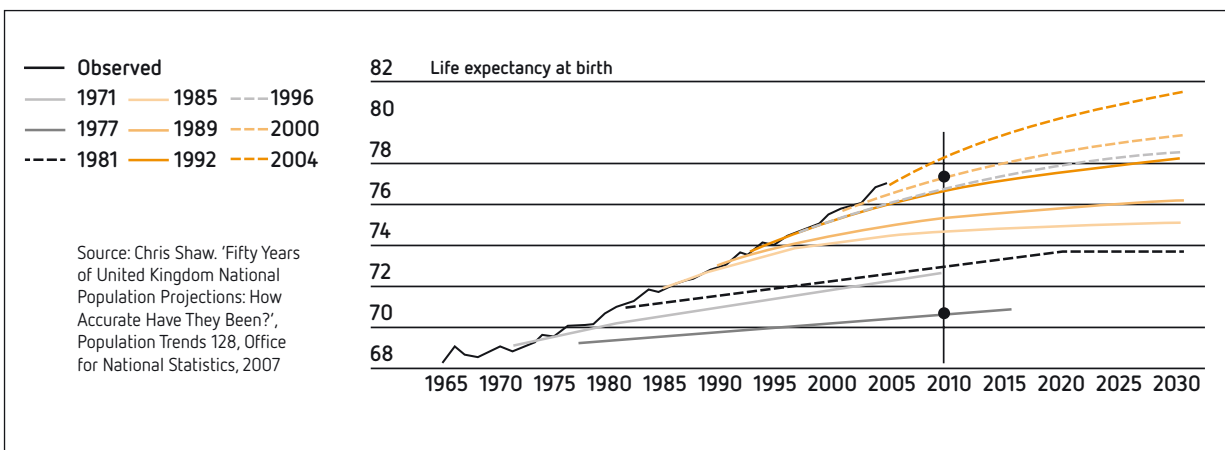
They go on to say:

“Whilst the known/known risk is easily managed as it can be modelled and therefore appropriate allowances made in pricing, the known/unknown risk is more difficult as its modelling is uncertain, and the unknown/unknown risk is impossible to manage as it is not predictable, and therefore appropriate allowances for these possible changes is not feasible.”

The problem is **DISCONTINUITIES** – normal modelling techniques cannot handle things like major medical breakthroughs, a cure for cancer or viruses. If normal modelling techniques are unable to anticipate discontinuities then there are difficulties in developing policy.

The following chart shows the success rate UK actuaries have had in the past with predicting mortality improvements – as you can see it clearly illustrates the difficulty of predicting the future based on past improvement trends.

Actual and projected life expectancy at birth, UK males



Appendix B Why We Underestimate Life Expectancy CONTINUED

⁴⁰ "A window into the Future: Understanding and Predicting Longevity," SwissRe, 2011.

The list below⁴⁰ sets out some of the medical advances that took place between 2000 and 2010. Each of these can have a significant impact on life expectancy and quality of life.

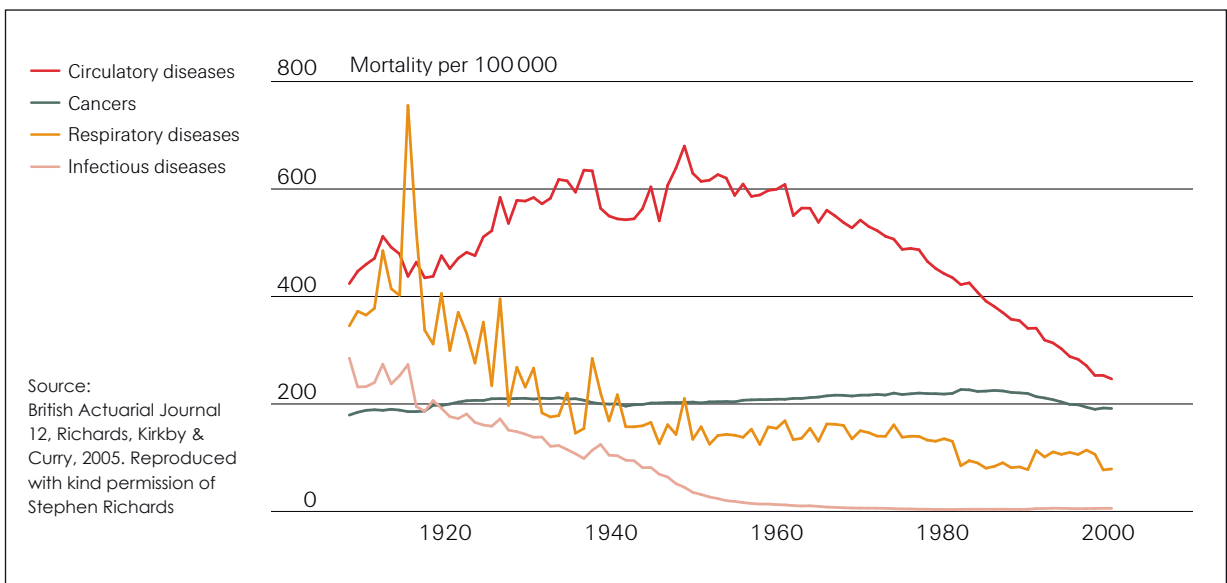
ABC News and Med Page Today's top-ten US medical advances of 2000-2010

1. Human genome discoveries reach the bedside
2. Doctors and patients harness information technology
3. Anti-smoking laws and campaigns reduce public smoking
4. Heart disease drops by 40%
5. Stem-cell research: laboratory breakthroughs and some clinical advances
6. Targeted therapies for cancer expand with new drugs
7. Combination drug therapy extends HIV survival
8. Minimally invasive and robotic techniques revolutionise surgery
9. Study finds heart and cancer risk with hormone replacement therapy
10. Scientists peer into mind with functional MRI

Deaths from some of our major diseases are on their way down as a direct result of medical advances.

In addition, we can see from the chart below that deaths from some of our major diseases are on their way down as a direct result of these medical advances. Only cancer is stable.

Mortality by cause, England and Wales



Appendix B Why We Underestimate Life Expectancy CONTINUED

The following is an extract from the actuarial paper “Longevity in the 21st Century” by R. C. Willets, A. P. Gallop, P. A. Leandro, J. L. C. Lu, A. S. Macdonald, K. A. Miller, S. J. Richards, N. Robjohns, J. P. Ryan and H. R. Waters.⁴¹

Rapid advances in medicine may cause mortality rates to fall with increasing speed.

4. MEDICAL ADVANCES

4.1 Introduction

- 4.1.1 In Section 2 it was observed that a substantial part of current mortality improvement is being driven by advances in medicine. The reduced number of heart disease deaths has been partly due to the development of new treatments, such as beta-blockers, and new surgical procedures, such as bypass grafts and angioplasties. Improvements in cancer mortality have been largely due to advances in detection and treatment of cancers; underlying incidence rates appear to have remained broadly level or increased for many cancer types.
- 4.1.2 At the beginning of the 21st century, the results of scientific development are increasingly altering the way in which we live our lives. A prime example was the project to decode the entire human genome, which has provided us with a map of the DNA making up our chromosomes. This task was only possible because of the enormous developments in computing technology that have occurred over the past few decades. The human genome project is now likely to sow the seeds for a whole range of scientific and medical progress.
- 4.1.3 The battle against cancer is progressing on a number of fronts, with much of the research having a genetic basis (one aspect of this is discussed later in this section). The growth of replacement organs for transplantation is another area in which progress is likely in the 21st century, and new surgical procedures for combating heart disease are also likely.
- 4.1.4 The pace of scientific development appears to be accelerating, and it is possible that this explosion in knowledge will drive increasingly rapid advances in medicine. These advances may cause mortality rates to fall with increasing speed.
- 4.1.5 A comprehensive analysis of future trends in medicine is beyond the scope of this paper. However, two particular areas of medicine will be explored: firstly, a potential development in the treatment of cardiovascular disease; and secondly, research into the ageing process.

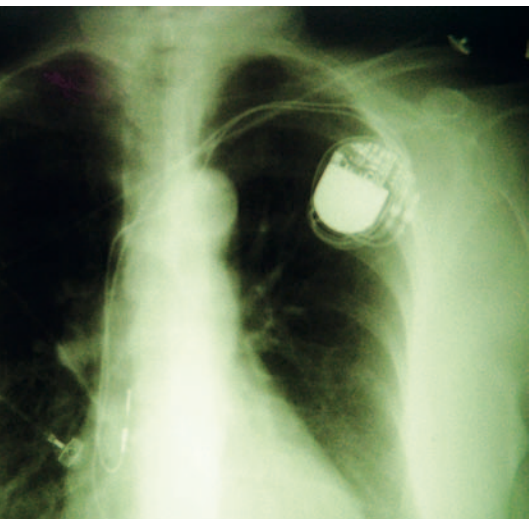
...

4.2 Drug Treatments for Cardiovascular Disease

- 4.2.1 In this section, some recent developments in the treatment and prevention of heart disease and stroke are discussed. These developments are of considerable interest in themselves, and also provide some insight into how medical advances may occur in future. Heart disease and stroke are major causes of mortality in the U.K. In Sections 2.5 and 2.6 we saw that over 40% of deaths for people aged over 70 in England and Wales are due to circulatory disorders, such as heart disease and stroke. Clearly, any

⁴¹ This Paper was presented at the Faculty of Actuaries, 15 March 2004, and to the Institute of Actuaries, 26 April 2004.

Appendix B Why We Underestimate Life Expectancy CONTINUED



developments which reduce the incidence of heart disease and stroke are likely to have a major impact on population mortality.

4.2.3 Some of the developments discussed in this section have been established medical practice for a number of years. However, the most recent development has not yet even been tested. This was announced in a series of three papers in a June 2003 issue of the *British Medical Journal*, one of which was entitled, 'A strategy to reduce cardiovascular disease by more than 80%' (Wald & Law, 2003). These papers were highlighted by two editorial articles in the same issue, entitled, 'A cure for cardiovascular disease?' (Rodgers, 2003), and, 'The most important BMJ for 50 years?' (Smith, 2003).

...

4.2.8 The claims that cardiovascular disease could be reduced by more than 80%, mentioned previously, are based on the research of Professors Law and Wald. Their concept, for which they are currently seeking a patent, is appealingly simple. They propose that a single pill, consisting of six drugs already used individually to treat risk factors for cardiovascular disease, should be taken by everyone over the age of 55, irrespective of their pre-treatment levels of these risk factors. The ingredients of this 'polypill', a name for which Professors Law and Wald have applied for a trademark, are:

- a statin to reduce LDL;
- a combination of low doses of three blood pressure reducing drugs;
- folic acid to reduce the level of homocysteine in the blood; and
- aspirin to regulate blood platelet function.

...

This paper was published in 2004. A search of "polypill" on Wikipedia gives the latest state of play:

The polypill could reduce mortality due to heart disease and strokes by up to 80%.

CARDIOVASCULAR POLYPILL

In their paper *A strategy to reduce cardiovascular disease by more than 80%* (published in the *British Medical Journal*) on June 28, 2003, Wald and Law postulated that by using a combination of well known, cheap medications in one pill (the "Polypill") would be a particularly effective treatment against cardiovascular disease. They presented a statistical model which suggested widespread use of the polypill could reduce mortality due to heart disease and strokes by up to 80%. The treatment is potentially cheap, with few side effects (in perhaps 10-15% of recipients) and the research was based on data from many trials relating to the individual components.

The concepts they present are based on these principles: reducing blood pressure, cholesterol and taking a low dose of aspirin to help prevent heart disease and stroke. (In the interim, however, there is concern that the use of aspirin in a healthy population causes more harm than good.^[4]) Tests of the Wald and Law polypill have been recommended in 2005. Additionally, "polypills" are currently available in India. Any GP can currently prescribe

Appendix B Why We Underestimate Life Expectancy CONTINUED

all the components of the polypill separately for her/his patients. The ingredients of the polypill are off patent. Since this would make the polypill quite cheap (some estimates on the BMJ rapid responses were less than 70 pounds per year), there is little financial incentive for pharmaceutical companies to pay the high costs of a clinical trial. (Naturally, however, large insurers, or national healthcare systems, may have considerable financial incentive to pay for such trials).

Cardiologists in Spain (Sanz and Fuster, 2009) are currently developing a polypill for secondary cardiovascular prevention. This project is being done in collaboration with Ferrer-Internacional, which is a Spanish pharmaceutical company based in Barcelona with experience in the development and launching of international projects. These authors believe that this polypill delivered at a low price could improve adherence to treatment, reduce the cost and make treatment affordable in low-income countries. Furthermore, they preview that success in this area of prevention could lead to the development of polypills for several other diseases, such as diabetes and stroke.

Continuing the extract from the actuarial paper "Longevity in the 21st Century" by R. C. Willets, A. P. Gallop, P. A. Leandro, J. L. C. Lu, A. S. Macdonald, K. A. Miller, S. J. Richards, N. Robjohns, J. P. Ryan and H. R. Waters.

4.5 Theories of Ageing

4.5.1 Whilst there is a lack of complete understanding, there has been a lot of progress, in the field of ageing research. There are plenty of ideas and a 748 Longevity in the 21st Century large range of different theories. In his review paper, Held (2002) cited the example of the Russian gerontologist Medvedev, who had reportedly listed and categorised over 300 theories of ageing. Some of these ideas overlap, and others appear quite independent. One challenge facing researchers is the development of a 'unified theory of ageing'. A few decades ago this appeared to be a long way off. However, in recent years scientists have been getting more optimistic, as the quotes listed below demonstrate:

"With the knowledge that is accumulating now about the nutritional and neuroendocrine aspects of ageing, and if we develop ways to repair ageing tissues with the help of embryonic cells, we could add 30 years to human life in the next decade. And beyond that, as we learn to control the genes involved in ageing, the possibilities of lengthening life appear practically unlimited." – **William Regelson - Professor of Medicine at the Medical College of Virginia - quotation in Medina (1996)**

"I believe ... in 25 years time we could see the creation of the first products that can postpone human ageing significantly. This would be only the beginning of a long process of technological development in which human life span would be aggressively extended. The only practical limit to human life span is the limit of human technology." – **Michael Rose - University of California - quotation in Medina (1996)**

"The cure for ageing must now be taken seriously by responsible gerontologists, because it is no longer science fiction." – **Aubrey de Grey (2003) - Department of Genetics, University of Cambridge**

The cure for ageing must now be taken seriously as it is no longer science fiction.

Appendix B Why We Underestimate Life Expectancy CONTINUED

⁴² de Grey, Aubrey D. N. J. (June 15, 2004), "Escape Velocity: Why the Prospect of Extreme Human Life Extension Matters Now", PLoS Biol 2 (6): 723–726, DOI:10.1371/journal.pbio.0020187, <http://biology.plosjournals.org/perlserv/plosonline/%3Frequest%3Dget-document&doi%3D10.1371/journal.pbio.0000045?request=get-document&doi=10.1371/journal.pbio.0020187>, retrieved 2007-02-12.

⁴³ Traister, Rebecca (November 22, 2006), "Diet your way to a long, miserable life!", Salon.com, http://www.salon.com/mwt/feature/2006/11/22/cr_diets/index.html, retrieved 2008-10-31

⁴⁴ Dibbell, Julian (October 23, 2006), "The Fast Supper", New York Magazine

⁴⁵ de Grey, Aubrey; & Rae, Michael (September 2007), *Ending Aging: The Rejuvenation Breakthroughs that Could Reverse Human Aging in Our Lifetime*, New York, NY: St. Martin's Press, p. 416, ISBN 0-312-36706-6

⁴⁶ Birnbaum, Ben (2006), "Extension program", Boston College Magazine

This paper was published in 2004. (Latest state of play)



4.5.2 The work of Dr Aubrey de Grey has become more widely known amongst actuaries in the U.K. through his participation in a recent seminar (October 2003) on mortality improvement, jointly sponsored by the CMI Bureau and the GAD. In his presentation at the seminar, de Grey described how the 'war on ageing' could be only a decade away, and discussed what actuaries should be doing in the run-up to a 'post ageing world'. He explained how advances in medicine could lead to 'engineered negligible senescence', and described a set of milestones on the path to achieving this goal. De Grey's theories are founded on the belief that there are only seven mechanisms for accumulating damage to the human body. Furthermore, therapies for reversing or obviating all of these types of damage are clearly foreseeable. He felt that, given sufficient commitment and resources, the goal of 'engineered negligible senescence' could be achieved by the year 2025.

4.5.3 Obviously, not everyone agrees with these views; but should we completely ignore what these scientists are saying? The general consensus suggests that we are unlikely to see a cure for ageing in the next few decades. However, looking further into the future – say 30 or 40 years – it is very difficult to tell whether the optimism of some scientists will prove to be correct. With the accelerating pace of scientific development, a great deal can change in 30 or 40 years. Yet, the youngest members of final salary schemes may well be alive 60 or 70 years from now, perhaps even longer.

...

De Grey has an article in *The Futurist* in May 2012 called "A Thousand Years Young" where he identifies the medical and biochemical advances that could eventually eliminate all the wear and tear that our bodies and minds suffer as we grow old. A link to the article is here: <http://www.wfs.org/futurist/may-june-2012-vol-46-no-3/thousand-years-young> (subscription required).

You can hear de Grey talk about his ideas at TED through this link: http://www.ted.com/talks/aubrey_de_grey_says_we_can_avoid_aging.html

ACTUARIAL ESCAPE VELOCITY

Wikipedia provides the following definition:

"Life expectancy increases slightly every year as treatment strategies and technologies improve. At present, more than one year of research is required for each additional year of expected life. Actuarial escape velocity occurs when this ratio reverses, so that life expectancy increases faster than one year per one year of research, as long as that rate of advance is sustainable."^{42,43,44}

The concept was first publicly proposed by David Gobel, founder of the Methuselah Foundation. The idea has been championed by biogerontologist Aubrey de Grey⁴⁵ and futurist Ray Kurzweil.⁴⁶

Appendix C Amendments to Facilitate Innovation in the Annuities Market

Legislation should be sufficiently broad to allow different product solutions to be developed.

1. Amend Regulations 1.05 and 1.06 of the Superannuation Industry (Supervision) Regulations to ensure that they allow product innovation in pensions and annuities.

The current regulations are overly complex and prescriptive and discourage or prevent the introduction of most of the annuity products that have been successful internationally.

In particular, the Actuaries Institute's view is that the following product designs, which are "mainstream" internationally, and meet all of current policy objectives (mainly of a revenue nature), are either prohibited or difficult to implement:

- Variable annuities with the pooling or guarantee of longevity risk.
- With profit annuities, where investment and longevity profits and losses are shared with the pensioners.
- Income stream packages that incorporate a deferred annuity from an advanced age.

In each case, the product design should specifically allow payments to be varied to limit fluctuations in the combined payments from the pension/annuity and the Age Pension.

We suggest that the legislation should not define an annuity as a product that has one or two named features, and should instead be sufficiently broad to allow different product solutions to be developed.

2. Change the tax rules on deferred lifetime annuities so that, if taken out in the drawdown phase, the product is regarded as a pension (rather than a non-pension) and therefore exempt from income tax.

The Actuaries Institute is not aware of any provider issuing deferred lifetime annuities largely due to the product's classification as a non-pension. Challenger has estimated that the price of a deferred lifetime annuity is 14% higher because of the current taxable classification.⁴⁷

We understand that the Government is concerned about the impact on revenue from changing the tax status.

Introduction of deferred annuities into the Australian superannuation system would involve a short term cost to government finances. By buying a deferred annuity, a retiree is deferring retirement income that will result in a reduction in retirement income during the deferral period. If the retiree is eligible for a part Age Pension this would result in a small increase in pension outlays. Provided retirees are complying with the minimum draw down rules they have the option to defer private income and take a larger Age Pension whether they are buying a deferred annuities or not. The Institute notes, however, that any rule changes would need to be carefully framed to apply tax free status to genuine retirement deferred lifetime annuities purchased with superannuation money, and not extend such treatment to other deferred annuities.

⁴⁷ Challenger's figures are based on a deferred annuity at age 65 commencing payment at age 85 i.e. a 20 year deferral period.

Appendix C Amendments to Facilitate Innovation in the Annuities Market CONTINUED

The Actuaries Institute contends that if the proposed tax treatment is limited to non-commutable income streams purchased with superannuation money, there is no opportunity to exploit the system. People will not attempt to “hide” capital in something that is non-commutable, because they can never get the money back.

The Actuaries Institute believes that there is no justification to have different tax treatment for deferred annuities compared to other income streams that can be purchased with superannuation money. The special tax treatment of annuities was put in place a number of years ago to prevent exploitation in a different part of the market. The resulting application to superannuation deferred annuities appears to be an unintended consequence.

3. Issue longer dated Government (and corporate) bonds.

The Actuaries Institute recognises that product providers currently experience problems finding investments to back annuity products.

A key element which could facilitate product development, but which is currently missing, is the availability of longer dated government (and corporate) bonds. Superannuation funds can try to create their own fixed term annuity type products, but the lack of available longer dated government bonds has made this a difficult exercise. (There are even fewer corporate bonds - having a deeper /longer dated market there would help too.)

Having the Government issue longer dated bonds (say 30 or 40 years) could also be of use in the life / deferred annuity market (as well as the fixed term market).

4. Reverse the unfavourable treatment of annuities under aged care and social security rules and make lifetime non-commutable annuities exempt from the Centrelink Assets Test.

The Actuaries Institute believes that a non-commutable guaranteed annuity should be excluded from the Centrelink assets test; however we understand that there are revenue implications for this measure that have not been costed here.

5. Do away with minimum surrender values.

APRA Prudential Standard *LPS4.02 Minimum Surrender Values and Paid-Up Values (28 June 2010)* treats deferred annuities as an investment product during the deferral period and requires a surrender value. This would render a deferred annuity uneconomic to provide as a lifetime product, or would defeat the attractive pricing, which is the basis of deferred lifetime annuities as having a role in an ageing society.

6. Remove deferred lifetime annuities from being subject to minimum drawdown rules.

The rule requiring a minimum payment to be made from a pension every year does not cater for deferred annuities.



Appendix D Retirement and Retirement Intentions

The following is an extract from ABS Publication 6238.0 – Retirement and Retirement Intentions, Australia, July 2010 to June 2011. Issued 13 December 2011. Found at: [http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/C4C9530A2947002ACA25796400145D56/\\$File/62380_july%202010%20to%20june%202011.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/C4C9530A2947002ACA25796400145D56/$File/62380_july%202010%20to%20june%202011.pdf)

Average Retirement Age

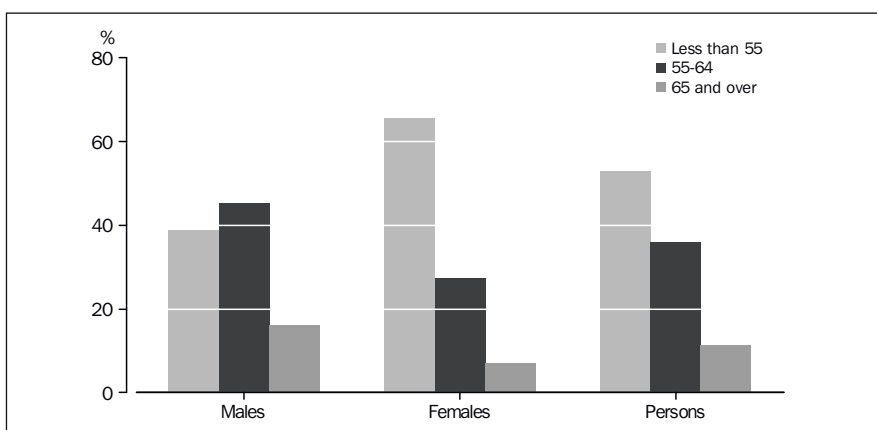
The average age at retirement from the labour force for people aged 45 years and over in 2010-11 was 53.3 years (57.9 years for men and 49.6 years for women). Of the 1.4 million men who had retired from the labour force:

- 27% had retired aged less than 55 years;
- 53% had retired aged 55-64 years; and
- 20% had retired aged 65 years and over.

The 1.8 million women who had retired from the labour force had retired on average at a younger age than men. The ages at which women retirees had retired from the labour force were as follows:

- 57% had retired aged less than 55 years;
- 35% had retired aged 55-64 years; and
- 8% had retired aged 65 years and over.

Persons retired from the Labour Force – Age at retirement (years) – by sex



The average age at retirement for recent retirees (those who have retired in the last five years) was 61.4 years. Within this group, the difference between the retirement age of men and women was relatively small, with women retiring a little younger than men (the average retirement ages for this group were 62.5 years for men and 60.3 years for women).

Age Intends to Retire

Of the 3.9 million people in the labour force who indicated that they intend to retire from the labour force, 1.6 million people (40%) did not know the age at which they would retire (38% of men and 43% of women). Of those who did indicate an age:

- 14% intend to retire aged 70 years and over (17% of men and 10% of women);
- 47% intend to retire aged 65-69 years (53% of men and 40% of women);
- 28% intend to retire aged 60-64 years (22% of men and 35% of women); and
- 12% intend to retire aged 45-59 years (9% of men and 15% of women).

The average age at which people intended to retire was 62.9 years (63.5 years for men and 62.0 years for women).



Appendix E The Case for Removing Barriers to Working Longer



The Actuaries Institute recommends that the Government:

- Remove age limits on superannuation contributions;
- Encourage workforce participation by changing the Means Test; and
- Consider introducing an increased Age Pension, or a lump sum payment, for people who continue to work past retirement.

More people are gradually winding down to retirement instead of stopping work completely.

According to the Australian Bureau of Statistics (Multipurpose Household Survey 2011), about 40% of older workers expect to wind back their hours for several years before eventually retiring, while another 13% intend to never retire but just keep working – at least part time.

According to Australian Super General Manager of Strategy, Paul Schroder, the notion of 'retirement' no longer exists: **"People are working part time, changing careers, learning new skills and all kinds of transitions. People are morphing into retirement these days, there is no big race to the finish line."**⁴⁸

Appendix D sets out an indication of intended retirement age. In particular 12% expect to retire before age 60 and 14% intend to retire after age 70.

In its 2011 Report to the Federal Government – **"Realising the Economic Potential of Senior Australians: Turning Grey into Gold"** – the Advisory Panel on the Economic Potential of Senior Australians made the following recommendation: **"The Federal Government conduct a review of how the retirement income system interacts with mature age workforce participation, for completion by the end of 2013."**⁴⁹

The Age Discrimination Commissioner, The Hon Susan Ryan AO, says that: **"As a society, we have been slow to recognise that millions of older Australians are locked out of the workforce by age discrimination."**⁵⁰

The Federal Government's commitment to removing the superannuation guarantee age limit (from 1 July 2013) should be commended. However, age limits on some contributions, for example salary sacrifice contributions, remain within the superannuation system, restricting older Australians aged 75 and over from making these contributions.

The Federal Government could encourage workforce participation by removing earned income from the Means Test for the Age Pension so retirees are not penalised for working if and when they can.

To assess the financial impact of continuing to work and earn an income post Age Pension age, a retiree currently needs to determine the reduction in the Age Pension due to earned income and the complex marginal tax rates payable on earned income.

The impact of this confusing system of Age Pension reductions, personal tax rates and tax offsets is that it is extremely complicated for a person of Age Pension age who is in receipt of the Age Pension to even know the "cost" of earning additional income.

⁴⁸ "Don't Stop Working – Ever?" Tuesday 27 March 2012. http://www.agedcareguide.com.au/news.asp?newsid=7075&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+AgedCareLatestNews+%28Aged+Care+Latest+News%29

⁴⁹ Recommendation 19.

⁵⁰ Source Working past our 60s: Reforming laws and policies for the older worker http://www.hreoc.gov.au/age/publications/Working_past_60_2012.html

Appendix E The Case for Removing Barriers to Working Longer CONTINUED

More people are gradually winding down to retirement instead of stopping work completely.

The Actuaries Institute recommends that earned income be removed entirely from the Means Test and that simpler means testing rules be applied to assets, with a view to both reducing complexity and improving labour market participation amongst older workers.

We believe that there would be significant administrative and efficiency advantages in making these changes to the means testing regime, as well as improvements in the behavioural and financial incentives to keep working.

In turn, this would then make it easier for retirees to provide additional post-retirement income for themselves from multiple sources.

The Actuaries Institute believes that the Government should revisit the idea of allowing the Age Pension to be deferred, so that if a person who is eligible for the Age Pension keeps working for a limited (or unlimited) deferral period after the Age Pension commencement age, their Age Pension entitlement increases. This means retirees can fund the first part of their retirement through their superannuation savings for a known period and rely on a higher Age Pension to manage their longevity risk.

A deferred Age Pension is a policy that is used in a number of OECD countries, including the United Kingdom and United States. As an example in Australia, an option could be to increase the Age Pension by 5% for each year that it is deferred up to a maximum increase of 50% after 10 years of deferral. The relevant means testing will still need to be applied each year of payment or deferral, in particular if the retiree is not eligible for the Age Pension then they would not be eligible to defer it. The objective therefore will be to encourage age pension eligible persons to keep working.

It could be argued that deferring the age pension could create a larger liability for the Government than it gains from the lower period of payment. Detailed modelling would be required but we believe that the benefits from securing productive work and tax from people who would otherwise have retired could more than compensate for any additional cost. We note that there would need to be rules that ensured that more wealthy people will not qualify for the increasing pension payments if they were not eligible for the Age Pension. Rather than deferring the age pension and receiving higher payments later there may be an option for the retiree to receive a lump sum from the Government in recognition of the deferral, this may be a small one off payment or may be a contribution to the individuals superannuation fund for example in the form of a co-contribution.


Whilst the Government should remove barriers to working longer there are also the social issues around providing opportunities for older persons to find meaningful employment. These issues are outside the scope of this discussion.



Appendix F Annuity Products

The Actuaries Institute is suggesting that the Government place limits on the amounts of money that may be drawn out of the superannuation system post-retirement. In effect the high net worth retirees would need to draw down the majority of their funds over an extended period of time. This section discusses some potential products available to retirees. We have termed these annuity products although they have significantly different features.

Annuities are income stream products that provide an income in retirement. There are different types of annuities that can be made available by superannuation funds or financial services businesses. The following is a summary of the range of products available:

- 
- **Account-Based Annuity** (Note that these are currently referred to as account based pensions) – Retiree manages their own individual account. Features include: choice of investments, no guarantee of balance or income, flexible income with a minimum annual draw-down, complete access to capital for transfer to another annuity product or withdrawal as determined by the Government rules. There is no insurance component to this product.
 - **Term Annuity** – Retiree purchases product from an annuity provider. The income is not flexible but is fixed or indexed to a specified indicator, income is guaranteed to be paid for a certain term. Some annuities return the capital at the end (100% RCV), others utilise the capital to make regular payments so there is no residual capital value (zero RCV). Under current legislation there must also be a benefit paid on death.
 - **Lifetime Annuity** – Retiree purchases product from an annuity provider, income is not flexible but is fixed or indexed, income is guaranteed to be paid for life, there is usually no residual capital value (zero RCV) on death – although “insurance” can be bought which may provide for a payment guarantee or a death benefit.
 - **Deferred Lifetime Annuity** – As for lifetime annuity, these may be purchased at retirement or over a number of years, but the payments are “deferred” – they do not commence immediately but start in future. E.g. a 20 year deferred annuity bought at age 65 will commence payments at age 85 if the retiree is still alive. There is generally no return of capital on earlier death.
 - **Variable Annuities** – Variable annuities are unit linked savings contracts with attaching guarantees, for example they may provide capital guarantees or minimum annuity rates.
 - **Other new innovative products** These are a hybrid of some of the above types of annuity. E.g. a variable annuity may start as an account-based annuity then “morph” into a guaranteed annuity at say age 85.

Over the past 15 years, account-based pensions have become the most popular choice for retirees with substantial superannuation balances. Investment markets were strong up until 2007, and high equity returns boosted account balances. Retirees are attracted to the payment flexibility and access to capital in the early, active stage of their retirement. The disadvantage with these products is that they offer no protection of capital

Appendix F Annuity Products CONTINUED

Current lifetime annuities products are becoming increasingly unattractive and insurers should be enabled to develop further options for future retirees.



and many retirees have had their capital reduced by low investment returns since 2008. In addition, there is no longevity guarantee so when the account balance is used up, the payments cease.

Lifetime annuities were popular when interest rates were high (and retirees could lock in this high rate of return for life) and investments in lifetime or long term certain annuities were exempt from the Age Pension asset test. Lifetime annuities provide the greatest protection against both investment and longevity risk, and can also protect against inflation if they are indexed. However, these products are unattractive to today's retirees because, amongst other things:

- They do not allow access to capital;
- They do not allow flexibility of payments;
- They introduce a counterparty risk, because annuity payments are dependent on the provider or insurance company's ability to meet future payments over a potentially longer period; and
- The products appear expensive because the risks and uncertainties are significant from a provider's perspective which is reflected in the pricing and prudential capital requirements.

In the absence of the reintroduction of major tax or other incentives, it is unlikely that lifetime annuities will become popular with today's retirees. However, the Actuaries Institute believes that there is an important role for deferred lifetime annuities as an "insurance policy" against longevity.

Purchasing a deferred lifetime annuity on retirement (which starts payments say 20 years later) may be a cost effective way for a retiree to lock in an income above the Age Pension in their later years. Deferred annuities deliver a guaranteed income stream in addition to the Age Pension in old age when most retirees want certainty and do not want to be burdened with looking after complex financial affairs.

A deferred annuity can be viewed as the opposite of life insurance; it insures the retiree against not dying! It is also not an investment product, although the upfront premium is invested by the insurance company. There is no payment on death prior to the commencement age.

Deferred annuities face a range of legislative and regulatory impediments that make them inefficient. The Actuaries Institute believes the Government needs to remove these barriers to retirement product innovation. We have summarised these changes in Appendix C.

Removing the legislative barriers to lifetime, deferred lifetime and variable annuities, and drafting legislation flexible enough to accommodate product innovation, will enable insurers to develop products that can compete with the other options available to the retiree.

■ END



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