Executive summary
This paper takes up the challenge of longevity risk with reference to the superannuation savings of everyday Australians. It finds that the question of ‘How long will a person’s super last in retirement?’ has been largely left unanswered by Australia’s super system and the financial institutions that service it.

While the Government age pension can be viewed as a potential ‘safety net’ against the risks of superannuation decumulation, it provides only a limited income from which a person can eke out a frugal lifestyle.

This paper proposes a system of longevity pooling designed primarily around life expectancies that may provide participants with increased ‘alpha’ for their super investments. Using this pooling concept, it is argued that a person can increase their effective retirement income and achieve a measure of financial peace of mind right to the end of their individual life.
**Time for a new question**

For the past decade, one question has been viewed as the holy grail of financial planning for a comfortable income in retirement.

“How much is enough?”

A quick internet search reveals the extent to which this question dominates the super landscape. In 2007 Arun Abey, the Head of Strategy and founding partner of ipac financial planning (and I recall guest speaker at last year’s Colloquium dinner), released a book that used this question as its title. Colonial First State and AMP super, similarly, have a calculator with the same title. Likewise, BT/Westpac offer a lifestyle planning map under this heading and Vanguard, too, use the phrase to highlight their assumed expertise in helping Australians uncover the answer.

Not immune from the trend, UniSuper has also taken the question as the title of a direct marketing campaign in 2006 and continues to use it for a regular seminar given to members.

There is no doubt that this question is invaluable for conceptualising the potential amount of savings and investments that an individual needs to acquire to support them for the 20, 30 or even 40 years of their retirement. However, the question relies on a number of assumptions to answer it. These include assumed rates of return for investment earnings, assumed costs of investing and (perhaps most heroically of all!) an unchanging superannuation legislative environment – all of which we know to be variable, especially when you consider the investment experience of 2007–08 and the magnitude of recent legislative changes to super.

But perhaps the greatest assumption around the question of how much super is enough comes from the implied judgement as to when a retirement income will cease. This is requires a decision as to when a person will die and, of course, no longer require an income. A taboo subject in polite company, perhaps, but inevitably one that needs to be addressed by all of us who profess to be professional intermediaries or researchers in the retirement savings industry.

Again, a quick survey of how the super industry currently addresses this assumption reveals multiple approaches in the footnotes and disclaimers of calculators that claim to answer the primary question, How much is enough?

AMP, for example, assumes that a retiree will live to 100 whereas as ING takes the position that those using their calculator will know how long they plan to live in retirement. Colonial, opting for a different path, sets its retirement income planner to run empty for everyone at the expected lifetime for a female, based on the Australian Life Table 2004–06. Curiously, the Government’s own consumer website for investment and super, FIDO,
sidesteps the issue of income longevity by providing only a lump sum measurement based on assumed investment returns and costs.¹

Understandably, the exact point at which a person will die is impossible to predict. And, as a result, the current solutions that purport to resolve the question of ‘How much super is enough?’ are to a large extent illusionary.

What, happens, for example in the case of a person who lives beyond their typical life expectancy, which logic tells us will naturally be true for around 50 per cent of the population?

Before I begin addressing this issue, some acknowledgements are necessary. Firstly, this paper borrows heavily from some pioneering work that was done on this topic many years ago by a former colleague of mine, Andrew Wakeling, at what was then known as County Investment Management. In fact, I recall that back in 1999 or 2000, Andrew presented to this very forum on the topic of longevity risk. The core of his message remains as compelling now as it was then – indeed even more so, given the regulatory changes we have since experienced for retirees in Australia. I’m sure Andrew won’t mind my re-visiting some of his work from that time but would like to acknowledge his foresight in raising this issue so eloquently all those years ago.

Another acknowledgment is due to Andrew Robertson of Ingevity Pty Ltd, who was instrumental in helping to produce the case study described on the following pages.

A Typical Retirement Planning Scenario
Consider for a moment the case of Geoff.

**Case study – Geoff plans for his retirement**

Geoff is a single, healthy 65-year old male who is about to embark on his much-anticipated retirement.

For most of the past 40 years, like many of Australia’s wage and salary earners, Geoff has been earning an income and putting away what he can to save for his retirement. Now, on the cusp of retirement, Geoff faces the daunting task of planning for his coming years.

Having set out a budget with his financial planner, Geoff concludes that he will need $37,000 per annum in real terms to support his current standard of living and enjoy his retirement. Together they discuss investment risks, and the financial planner presents two scenarios for Geoff’s future. Both of these scenarios factor in Geoff’s expected social security entitlements as well as the expected depletion of his own capital over time.

According to best estimates, the current Life Tables say an Australian male who is aged 65 can reasonably expect to live for another 22 years on average.²

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¹ See Appendix 1 for website URLs and details of calculator assumptions.

² See Appendix 1 for website URLs and details of calculator assumptions.
Option 1
To begin the discussion, Geoff’s adviser shown him that if he was to invest in an allocated pension he could expect his pension last to age 100 by targeting total pension benefits (including social security) of around $27,000 per annum.

However, this is significantly below the annual income that Geoff desires.

Option 2
Alternatively, Geoff could anchor himself to his original income objective and draw down an annual income of $37,000 until he is aged 80, and then reduce his pension to the a modest level thereafter.

In this case Geoff’s allocated pension is expected to run out at age 87

Assumptions:
- Mortality as estimated by the Australian Life Table 2000–02 with 25-year improvement factors
- Investment-linked returns assumed to be 8.63% before age 80 and 7.13% after age 80.
- Incorporates pension factors, tax and social security as per Treasury web-site

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The missing link
For the planner, the scenario is a typical one. However, something fundamental is missing in the advice being provided and indeed in the framing of the dialogue between the Geoff and his professional adviser.

The planning process that Geoff experienced has focused solely on managing the investment risks to help him make financial decisions about the assets he will hold during his retirement.

Unfortunately for Geoff the investment risk he faces within his allocated pension and other investments is not the only risk he must bear. In fact, Geoff faces a far larger financial risk than asset fluctuations. In the ‘real world’, a 65-year old retiree might be unfortunate enough to live for only another 12 years (or less), or fortunate enough to live for another 32 years (or more) – the only thing approaching real certainty is that he will not live for exactly his 22 ‘expected’ years.

While Option 1 presents a long-term answer, up to the age of 100, it requires that Geoff live with only 72% of the income he believes is necessary to support his current lifestyle. Against this, Option 2 offers him the income he requires, but only up until an age that he has a roughly even chance of exceeding in real life.

In reality, neither option presents Geoff with a satisfactory financial planning solution around which he can have peace of mind.

Herein lies the theme of this paper. That the uncertainty around the length of a retiree’s life – longevity risk – is seldom addressed in the attempts to educate and prepare individuals for their financial future and the fate of their retirement saving. While financial planning strategies have been growing in sophistication with respect to investment risk, they have remained disturbingly silent on the risks of living and dying.

The reality is that neither Geoff nor his financial planner knows the actual date of Geoff’s death. Living longer and extending our life expectancy has been one of the great medical achievements of our society, but ironically it now poses a very significant financial risk for individuals – the risk that they may out-live their retirement savings. This is the risk of longevity.

This paper proposes that Australians be encouraged to ask a new question in conjunction with the traditionally investment-focused ‘How much is enough?’ This question is, ‘How long will my super last?’

How long will it last? – defining longevity risk

For most of their working lives, Australians accumulate and invest their superannuation, whether voluntarily or compulsorily. Once retired, the accumulated sum continues to be invested but now begins a process of decumulation.
Broadly speaking, decumulation is the use of financial assets accumulated during one's working life in such a way as to provide a more or less regular payment stream in retirement. In the case of Geoff, this decumulation will be accomplished by drawing down $37,000 per annum on his invested capital each year. Alternatively, it could be achieved by using his accumulated sum to purchase the promise of regular income through annuitisation, using insurance mechanisms.

As a result of decumulation, there arises a risk of outliving one's retirement savings. Thus, longevity risk can be defined as the probability that a retiree will still be alive on the exact date that their initial lump sum savings are exhausted. At this date the retiree will be alive for a further unknown length of time but will no longer be able to financially provide for their self.

Arguably, the impact of this risk is increasing. As medical science continues to improve the terms of our lives and the population as a whole begins to age, it is not surprising that Governments representing both sides of politics have sought to encourage a movement away from defined benefits towards defined contributions. And this movement towards a more user-pays and individually orientated retirement funding model has not only increased individual exposure to investment risk, it has also increased the exposure to longevity risk.

In Australia, this trend has progressed perhaps further than anywhere else in the world, with the recent ‘Better Super’ legislative reforms effectively eliminating the last vestiges of paternalism from our nation’s private retirement savings system and creating an environment of complete neutrality between annuity-based and account-based pension products. Gone now are taxation measures such as Reasonable Benefit Limits and the social security concept of ‘complying income streams’ that used to provide incentives for the annuitisation of retirement savings, and give consumers some pause to think about their income in retirement. Instead, we have moved to a virtual laissez-faire retirement incomes environment under which individuals are now fully responsible for managing their own drawdowns of retirement capital.

In addition, today’s Government age pension, while being a critically important safety net, offers only subsistence living on a frugal budget, at least in the context to the retirement aspirations of most relatively affluent working Australians.

For today’s retirees, the situation is delicately poised. They must balance their current spending against their future financial security. The more they spend today, the greater their enjoyment of retirement, but the less they will have for their future. The less they spend today, the greater security they may have for the future but the less they will have to spend and enjoy today.

For the behavioural finance experts reading this paper, this leads to some very interesting questions about consumers’ actual capacity to grasp the implications of a self-funded retirement and some of the heuristics that might prevail in their valuation of a potentially all too alluring lump sum that they find
themselves possessing upon retirement. For many, this sum will be more money than they have ever had at one time, and tax-free to boot (from age 60). As an aside, I think that this is a very interesting area for research into the ‘mental accounting’ processes that are driving actual consumer behaviour in this area, with the new Australian regulatory environment providing a very fertile laboratory given the almost complete absence of constraints that now exist on the personal deployment of retirement lump sums.

Meanwhile, for those of us in the financial intermediation business, there are many questions about how we might adapt our products and communication strategies to this new account-based pension environment. Whilst the Government appears to have stepped back from providing the paternalistic tax and welfare benefits to encourage prudent drawdown of post-retirement savings, this opens up an opportunity for progressive financial institutions to fill the gap with some new thinking about products and services better suited to the environment we now face?

**Understanding retirement planning – the UniSuper experience**

To better understand how our own members relate and deal with the consequences of longevity risk, UniSuper conducted a series of in-depth qualitative discussion forums.

The research consisted of eight focus groups totalling 60 UniSuper members. Interviews and group sessions of 1.5 hours duration were conducted in Melbourne and Brisbane. Each group consisted of members who had an allocated pension with UniSuper. Care was taken to ensure that each group consisted of:

- members aged 55-64 years, mix of men and women
- members aged 65 years and over, mix of men and women
- female members aged 55-64 years
- male members aged 55-64 years.

According to the research, when it comes to making financial decisions “most people tend to follow a similar approach about their retirement income”. It was found that people generally relied upon:

- reading financial magazines, books and sections of the newspaper
- using websites, such as [www.unisuper.com.au](http://www.unisuper.com.au), the ATO and online calculators
- attending seminars and consulting financial advice professionals
- talking with family and colleagues.

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**In their own words**

- “I find I’m spending a lot more money now in retirement than when I was working. My income requirements are higher now!”
  
  (Bris, man 65+)

- “I want an income from pension no less than what I was earning. I’m going to enjoy life! I worked hard!”
  
  (Melb, woman 55+)

- “Not much I can do about the situation. I am trying to make sure something is vaguely there however long I live.”
  
  (Melb, woman, 55+)

- “I’m not as worried. You can make calculations etc –its all a matter of choice. A risk is that you burn it away too quickly if you do all those things as planned. I want something to give me at least five years amount of time then go back to basic living.”
  
  (Brisbane, man 55+)
Most people, too, despite the campaigns undertaken by the Government and their superannuation fund, only thought about the amount of income they would need in retirement around two to five years prior to actual retirement. And those with large balances or a ‘defined’ pension balance tended to think about retirement less, knowing they had little to worry about. More than half of those consulted had previously sought advice from a financial planner.

Most of those interviewed approached retirement with fundamental concerns about income, which were usually addressed during the decision-making process by seeking answers to questions such as:
- How much will I need?
- How long will I live?
- How long will my savings last?

Concerns raised in assessing income needs in retirement were shown to be:
- wanting to enjoy retirement – overseas travel was an expectation for many
- the risk of future investment performance
- providing a bequest for their family
- the potential to run out of money.

In addition, most interviewees had adjusted their expectations of retirement to meet their income. Those with larger amounts of capital wanted to maintain their lifestyle or increase their spending and were mainly concerned about flexibility and control. Those with smaller amounts of capital were more concerned about living a reasonably comfortable life and being able to access the age pension. For this group, the main concerns were about financial security.

**Australians want answers to the problem of longevity**

When it came to discussing longevity risk, most participants had thought about their life expectancy. Indeed, despite some reticence on our own part when commissioning the research, the ‘D-word’ was generally openly discussed by the focus group participants and was clearly a major factor in their thinking and planning.

Interestingly, personal estimates of life expectancy varied and were based instead on the longevity of their parents and grandparents, their own health and the understanding that life expectancy is increasing generally.

Perhaps most telling was the finding that more than 50 per cent of those interviewed agreed they would be interested in “looking at the numbers” to find out more about some kind of longevity pooling option to further enhance their retirement income if they lived beyond traditional life expectancy.

Indeed, one in six people indicated that the prospect of longevity pooling – outlined in the section below – would be advantageous for them.
**Addressing longevity risk**

For a moment, let us turn back to the case study of Geoff, who can reasonably expect to support himself at the income level he requires up until the age of 79 and at a reduced income level until age 87. However, this expectation is effectively an average of the experience of all 65-year old Australians whose life expectancy is around 87 years of age. This means that approximately 50% of all 65-year olds can expect to live longer than 22 years.

In other words, if Geoff’s ‘expected’ future investment experience occurred according to the investment assumptions used, and if he drew down the $37,000 per annum of income that he requires to live, Geoff faces a 50% chance that he will run out of money.

This is an enormous risk. And it effectively equates to an ‘odds on’ chance that Geoff will have to survive on a Government pension if he lives beyond the 22 years of income – the last nine of which are well below his expected required income level in any case – that is being recommended by his adviser.

What Geoff really needs is a holistic financial planning solution that genuinely addresses all of his future financial risks.

**The traditional answer – lifetime annuities**

To most of us conversant with superannuation or life insurance, of course, the obvious solution to the longevity risk problem is annuitisation of retirement savings, either through some form of compulsion or through an opt-in process managed by a financial institution (such as UniSuper), typically alongside another option such as account-based or allocated pensions.

However, practical experience has shown these types of products to be largely unpopular and little used across the Australian population.

Reasons given for lack of current interest in traditional index pensions has been because they are viewed as relatively expensive, conservatively structured and heavily weighted in favour of the institution that offers the pension. In addition, those who purchase index pensions traditionally forfeit any benefits upon death and so people are unable to bequest the unused savings to their estate.

As a result, index pensions are not seen as a practical solution to longevity risk. This brings us to the concept of longevity risk pooling.

**Longevity risk pooling**

Instead of taking the ‘group’ experience of life expectancy tables and applying them to individual planning scenarios, a new approach could be adopted whereby life expectancy tables could be better deployed in a pooling arrangement. This would see those outliving average life expectancy (or a similar threshold) benefiting from the investment earnings of those who pass away.
This is an inherently simple concept: the income needs of those who live longer than average could be funded by the unspent assets those who don’t. The upside of such a strategy is that all of the people in the pool could safely enjoy financial peace of mind around their retirement income in later life.

In simple terms, by pooling a relatively modest proportion of initial retirement savings, funds that would have otherwise been required to provide benefits to people who have passed away prior to their life expectancy could be successfully re-distributed to surviving members of the pool.

These so-called ‘longevity bonuses’ would naturally increase the funds available to those members who out-lived life expectancy and would create an expected ‘alpha return’ for surviving members of the pool.

Undoubtedly, the prospect of pooling a portion of a person’s retirement savings in order to fund the potential of living beyond one’s life expectancy has some significant hurdles.

Chief amongst these is the desire for many Australians to bequeath their financial assets to their children (or a beneficiary of some sort), rather than to an investment pool for other surviving members. However, when this is balanced against the very real scenario that many Australians will literally run out of money as a result of following conventional financial planning strategies, the idea is compelling.

Moreover, as our own research showed, there is also a countervailing human anxiety that longevity pooling could address. This is the fear that many retirees have of becoming a financial burden on their children if or when they reach advanced old age.

Other issues, of course, arise in the technical development and practical implementation of a longevity pooling mechanisms, and in how such a product would be treated by the taxation and broader regulatory system in Australia. Without going into too much detail on these points, I can say that UniSuper is at a fairly advanced stage of scoping and development of such a product, in partnership with a specialist provider in this field, Ingevity Pty Ltd.

Ultimately, if this concept comes the fruition, we see it as one of a straight ‘win-only’ bet taken by the individual that they will endure beyond an established age milestone, such as their life expectancy.

More income for survivors – assessing the “longevity alpha” on pooled investments

There are several ways to evaluate the effective value generated by a pooled longevity fund for its investors. One method is to look at this question in the same way that investment professionals typically do to the achievement of excess returns over market benchmarks; that is, to estimate the ‘longevity alpha’ that might be received by a participant in the pool who survives beyond his or her average life expectancy.
In this context, the ‘beta’ return would simply reflect investment returns on an indexed investment strategy with no excess investment return attributable to active investment decisions. The ‘alpha’ would represent the longevity bonuses, that is, the equitable re-distribution to this member of the excess savings of members who had been in the pool and passed away before reaching their survival age.

The projections we have done on this ‘longevity alpha’ suggest that quite significant excess returns could be generated from distributions of surplus savings from non-survivors to surviving members in a pool in the order of 1 to 2% p.a. for those retiring at age 60 who survive into their mid-late 80s, and up to 4% p.a. and above for those who live beyond age 100 (after allowing for reasonable selection bias in the pool of members who elect to participate in the first place). The numbers are even higher if favourable assumptions are used regarding the social security treatment of the individual pensioner’s overall account – principally that the amount held in the longevity pool is not counted towards the social security assets test until it becomes accessible on reaching the survival age.

To better visualise this at an individual level, let’s re-examine the results for Geoff had he initially chosen to swim in the longevity pool.

<table>
<thead>
<tr>
<th>Geoff’s income for life</th>
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<tr>
<td>As we know, Geoff has a super balance of $450,000 and he wishes to draw down an income of $37,000. His financial planner initially proposed two options, one that gave him a reduced income to age 100 and the other primarily designed around his life expectancy.</td>
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However, if the adviser recommended that Geoff instead invest 20% of his initial pension into a pooled fund that operated along the lines described above, Geoff could reasonably expect to experience an income in retirement along the lines of the graph presented below.
As shown, up to age 80, Geoff would receive increasing social security payments in line with Government asset and means tests. Then, from age 80 and the point at which his ordinary pension assets had expired, Geoff’s pooled investments would begin to supplement his income. From this point, Geoff could reasonably expect an income substantially higher than the Government pension for the remainder of his life.

This kind of strategy would meet Geoff’s desire to plan his retirement not just for a life that was defined by mortality tables but one that allowed him to live long into the future with an assured reasonable means of income support.

The challenge, of course, is to ensure that these longevity bonus and social security benefits are not overshadowed by the increased administration fees that would naturally be expected to accompany this kind of arrangement. This is very much the point we are now at with regard to further development of this product idea and thinking about the administration and commercial scale economies that will be needed to make it all work commercially.

**New questions will require new answers**

There is little doubt Australians will increasingly feel the burden of an ageing population and the Government’s public purse will struggle to keep retirees in the manner to which they are accustomed. Even now, the Government pension barely provides an adequate means by which retirees can support themselves.

Added to this, the seismic shift from defined benefits to defined contributions that has occurred in our superannuation system means that individuals are more and more responsible for their own retirement incomes.

One thing is certain: for those who provide superannuation products and services to Australians, innovation and practical thinking at an individual level will be a vital contributor to the level of retirement satisfaction enjoyed by many Australians. Finding practical solutions that can help people be financially able to fully participate in life, regardless of how long they live is a discussion this industry needs to have and one that it, in my opinion, has been largely ignored. Longevity risk pooling is one potential solution that the superannuation industry needs to consider.

Without this kind of thinking, longevity risk may well emerge as a much greater obstacle than its much-discussed and over-analysed investment equivalent.

Undoubtedly, the question of ‘How much is enough?’ is critical for every Australian. But equally, the question of ‘How long this will last?’ is an issue the financial industry will need to provide multiple and sophisticated solutions.
Appendix 1 – Industry calculators and life expectancy

AMP Financial Planning – my super simulator

Assumption
- Based on our understanding of industry practice, your default target is calculated to provide 65% of your pre-retirement after-tax income every year in retirement. The default assumes you retire at age 60 and that you live to 100.

ING – Capital requirements calculator
Colonial First State – How much super is enough?


Assumption

- The term used is the expected lifetime for a female, based on the Australian Life Table 2004–06.

FIDO – Account-based pension calculator