Commission for Financial Literacy and Retirement Income

Longevity risk pooling

Introduction

This position paper discusses the *longevity risk pooling model* which aims to ensure that people are protected against income falling below expected or desired levels, even if they survive to a longer than expected age. Longevity risk pooling works by gathering together all of a diverse group's individual risks of outliving their income and relies on the resulting large numbers to reduce overall variability in collective risk (Blake, Boardman et al., 2010).

New Zealand Superannuation (NZS) effectively pools longevity risk because it provides inflation-protected income from the age of eligibility for as long as a person lives. However, NZS provides income protection only up to the level of the standard pension. For any guaranteed ongoing regular income above NZS, people require some type of additional private income. This income might come from interest on savings, dividends from investments, running down assets (decumulation) or the purchase of a commercial annuity product, where in exchange for a lump sum payment, a provider guarantees a regular payment for an agreed period. These different approaches to additional income provide varying degrees of longevity risk protection to the individual.

History

Since their inception in 1898, publicly-provided age benefits in New Zealand have provided some measure of protection against longevity risk. In the private pension area, defined benefit schemes have declined with defined contribution becoming more the norm, but still demand for annuities has been low[1]. The management of longevity risk is a greater issue for countries that rely more heavily on defined contribution private contributory pension schemes than does New Zealand, but longevity risk still needs to be addressed as an important element of our Retirement Income Policy.

Trends in longevity

Across much of the world, people are living longer and therefore likely to spend longer in retirement than did previous generations. President Bill Clinton (1999) described this as a "high class problem". The OECD puts it this way:

> *Retirement used to be a luxury enjoyed only by the few; now it is an expectation for the many. The huge increase in life expectancy in the 20th century is a wonderful achievement... However, when added to the decline in the birth rate the result is rapid population ageing and a rapidly growing cost of paying for pensions (OECD, 2011).*

In common with other OECD countries, New Zealand has an ageing population and in July 2012, 587,000 people (roughly one in eight of all New Zealanders) were aged 65 or over. The number of people aged 65+ is expected to more than double between now and 2051, and by

[1] See position paper on "Income support".

then they are expected to make up one-quarter or more of all New Zealand residents. The number of New Zealanders aged 85+ is expected to more than quadruple, from 73,000 in 2012 to 329,000 in 2051[2].

Changes in the make-up of the population are not solely due to increased longevity. Improvement in mortality at all ages and declines in the fertility rate have also played a part, and have been amplified by the post-war "baby boom". Changing proportions of different age groups raise challenges for ensuring that each generation is treated fairly[3]. However, the emphasis of the following discussion is on the implications of people needing retirement income for increasing numbers of years.

Across OECD countries in 1960, average life expectancy at national pension eligibility ages was 13.4 years. By 2010 it had reached 18.5 for men and 23.3 for women (OECD, 2011). Currently on average, 65-year-old New Zealand men have a life expectancy of 85 and 65-year-old women of 87 (i.e. 20 and 22 years of being eligible for New Zealand Superannuation). By 2051, it is likely that New Zealand men reaching 65 will expect to live until they're 87 and women until they are 89[4]. However these are average figures and the picture is not the same for all parts of the New Zealand population. For example, Māori life expectancy at 65 (in 2005-07) was 4.4 years less than for non-Māori (men) and 4.8 less for Māori women[5]. Pasifika and Asian populations also show variations[6]. While it is not within the power of retirement income policies to close gaps in life expectancy, these and other differences do need to be taken into account in policy settings.

What is longevity risk?

An individual's longevity risk is essentially the risk that they will run out of money before they die, which could result in them living out their final years in poorer circumstances than they would expect or desire. And because people are living longer, longevity risk is likely to increase. In New Zealand a large part of this increasing risk is borne by the taxpayer because NZS is payable from the age of eligibility until the end of life. In this respect NZS evens out gender differences in longevity risk due to women's longer life expectancy.

However if an individual wishes to "top up" the income they receive from NZS they need to estimate how long they will live, and how much they will need to save or invest to sustain them through their old age. This may not be a problem for those in a private, defined benefit

[2] From Statistics New Zealand Population Projections Tables. See http://statistics.govt.nz/tools_and_services/tools/TableBuilder/population-projections-tables.aspx

[3] See position paper on "Intergenerational equity (cohort self-funding)".

[4] NZ figures provided by Statistics New Zealand and based on the latest cohort life tables and 2009-based national population projections (medium mortality assumptions).

[5] http://www.stats.govt.nz/browse_for_stats/population/births/new-zealand-life-tables-2005-07/chapter-2-national-trends-in-longevity-and-mortality.aspx

[6] http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalEthnicPopulation Projections_HOTP06-26/Technical%20Notes.aspx; updated in 2011.

superannuation scheme[7] if the scheme pays a pension for the duration of retirement. For others, the task is trickier. People are inclined to under-estimate their own likely lifespan. O'Connell (2012) found that on average New Zealand men underestimated their likely lifespan by around five years and females by seven years; a result consistent with previous studies in the UK and other countries (O'Connell, 2011a).

But longevity risk is not only individually-based. Trends towards increased longevity pose collective risks for superannuation providers and (as in the case of New Zealand) the taxpayer. It has been estimated that every additional year of life expectancy at age 65 adds about 3% (30 billion pounds) to the present value of Defined Benefit liabilities in the UK (Blake, Boardman et al., 2010).

Managing longevity risk

People need to "set aside enough money to last throughout their entire lifetime rather than simply enough to last their expected lifetime" (Gallo, 2008).

Selecting the right strategy to try to minimize longevity risk requires a good level of financial literacy. It needs consideration of a range of ages for how long you could expect to live, a range of ages for when you might retire, how much wealth you may be able to accumulate up to retirement, how much retirement income you want to target, how your family or cultural situation may affect income requirements and how the public policy framework might change.

One person might manage their longevity risk by relying solely on NZS, or assuming they will die early, or underestimating their likely lifespan by not finding out what it could be – and spending their income prior to retirement rather than saving very much. But NZS may not be enough to support the lifestyle they aspire to and as we have seen, people tend to underestimate their life expectancy. While this "under-saving" strategy will work in some cases, in others the result may be some years in old age relying solely in NZS and with a lower income than expected.

Another person might over-compensate for possible longevity by building up a substantial nest egg (sacrificing consumption through their earlier life) and then live very frugally in retirement to make absolutely certain they don't run out of money. They may thus deny themselves a comfortable lifestyle but die owning considerable assets (a desire to bequeath wealth may also drive this "over-saving" strategy).

Saving for retirement is a matter of choice[8] but it could be argued that each of the above strategies is unbalanced.

The potential impact of the diverse longevity risks faced by multiple individuals can be mitigated by pooling those risks. This can be done via a public pension scheme or through the provision of commercial annuity products.

[7] See position paper on "Income support".

[8] See position paper on "Voluntary saving".

However the annuities business is itself risky. On the part of the customer, there is a risk they will die before they get full value from the annuity (and if this happens there is usually no longer a balance to bequeath to heirs). From the providers' point of view, because not everyone will be able to afford a reasonable annuity, *"adverse selection"* means that customers are more likely to be relatively wealthier and therefore longer-lived, i.e. expensive to service (Brown, 2002; Cohen and Siegelman, 2009). Furthermore, although demographers and actuaries agree that average lifespans will keep improving, there is uncertainty about what future average lifespans will actually be at any point in the future (O'Connell, 2011b).

"Trend risk", such as increasing longevity across a whole population, cannot be diversified away by pooling. Indeed, the more business an insurer (or a Government) pools, the bigger the relative impact of trend risk (Blake, Boardman et al., 2010). It is very difficult for annuity providers to estimate the potentially very large liabilities they will end up carrying, to find suitable matching assets, and to price their risk (Crossan, 2010).

For Governments trying to mitigate the cost of increasing longevity, an option is to raise the age of eligibility for pensions. This reduces the length of the period through which pensions are paid. In some countries longevity risk is explicitly tackled by linking increases in the age of eligibility, or decreasing the level of pensions, to increases in longevity (OECD, 2011)[9]. Another approach could be to pay a higher rate of pension (or some type of other income supplement) to people above some benchmark age, say 85 or 90 years.

As it stands, New Zealand's Retirement Income Framework includes both a universal, non-means tested pension payable for the rest-of-life to those older than 65, and the growing KiwiSaver scheme. As NZS provides the same absolute amount for everyone it gives basic longevity risk protection. The protection that KiwiSaver provides against longevity risk depends on the place of KiwiSaver funds in an individual's retirement planning, and crucially whether the proceeds are sufficient to last throughout a likely expectation of remaining lifespan. KiwiSaver's individual accounts also allow for balances to become part of the member's estate if s/he dies, thereby addressing some concerns that might otherwise arise over annuitising assets saved for retirement. However an excessive reliance on KiwiSaver within the retirement income framework could be to the detriment of women, who tend to have lower lifetime earnings.

On 1 July 2012 the first KiwiSaver balances became available as lump sums. In the beginning, these balances will be relatively small but already the question has arisen as to whether they might be used to purchase annuities. The annuities market in New Zealand is tiny and some intervention may be required to stimulate supply. For example the government could become directly involved in supplying annuities or the issuing of *longevity bonds* which may "act as a catalyst to facilitate the transfer of a proportion of this (longevity) risk to the capital markets" (Blake, Boardman et al., 2010).

[9] For further discussion on this point, see www.cflri.org.nz/files/file/What's%20happening%20to%20Pension%20Ages%20in%20OECD%20countries.pdf

The foregoing discussion does not include any additional, "third tier" savings or investments that might be made on top of KiwiSaver. It also assumes an individualised approach to managing longevity risk but of course in most cultures there is also a history of care provided to older relatives by other members of the family. Schmeiser and Post (2005) have suggested a way of building on these traditional approaches whereby heirs receive remaining investment funds upon the retiree's death, but are obliged to finance the retiree if the fund becomes exhausted.

There are many potentially creative ways to address longevity risk, whether through government retirement income policy, market responses or individual or family initiatives.

Conclusion

As with many aspects of retirement income policy, New Zealand has an unusual approach to managing longevity risk. To some extent New Zealand Superannuation has excused those planning for retirement from the need to estimate their own life expectancy. This is not likely to remain the case, given the likelihood that more people will be spending longer in retirement. Individuals will need to be sufficiently financially literate to develop their own viable strategies if they are to live out their lives at their desired standard of living. Part of developing those strategies should be gathering knowledge on the realistic range of ages to which they could live, as well as using realistic retirement ages in personal planning.

The country as a whole will need to consider how to pool collective risk. Much of the debate about the fiscal sustainability of NZS has focused on the "front end" – i.e. the age at which people become eligible. There is also a need to consider the "far end" of retirement, which continues to move further into the distance as average longevity increases. The shorter lifespans of some groups within the overall population must be taken into account, although addressing these differences is within the brief of other policy areas (e.g. health and employment) rather than retirement income policy.

Some of the elements needed to address longevity risk are already in place – in addition to NZS, KiwiSaver has the potential to fill a gap in individual strategies. However there may need to be interventions to assist the development of an annuities market to help individuals mitigate longevity risk for KiwiSaver lump sums and other savings.

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