

Current issues

Challenges with setting base mortality assumptions for non-pensioner lives



Ross Murray

Head of Longevity Consulting
ross.murray@hymans.co.uk



Ankush Appadoo

Consultant
ankush.appadoo@hymans.co.uk

As pension schemes mature and the transfer of longevity risk to the insurance market becomes more prevalent, the demand for non-pensioner insurance has increased significantly. The market has had to adapt to this demand, and continues to evolve. In this article, we describe some of the risks and challenges that come with estimating the baseline longevity of these members, and how we support our clients in navigating these.

The process insurers and reinsurers typically go through to set a baseline assumption for a particular portfolio is to assign a mortality curve for each member based on factors that have been shown to affect life expectancy – commonly including gender, lifestyle (postcodes) and affluence (pensions are often used as a proxy).

There would typically then be an experience analysis carried out to determine whether any adjustments are required to this preliminary estimate to allow for the historical mortality experience for that particular portfolio, which may be driven by factors specific to the portfolio that aren't captured by ratings factors alone.

There are issues with applying this process for non-pensioner lives, which introduce the risk of materially under- or over-estimating life expectancies.

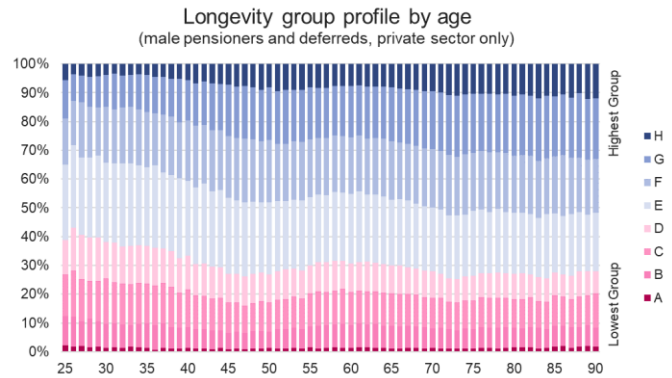
Demographic drift

Using postcode data for non-pensioners does not allow for future socio-economic "drift" over time – the likelihood that members might later move on to postcodes which are associated with a higher life expectancy. The chart below illustrates the potential issue by showing how the mix of lives in each postcode longevity group changes by age for male private sector defined benefit pension scheme members.



You can see that the composition between socio-economic groups is fairly stable from age 70 onwards. That gives comfort when pricing pensioners. However, there are more complex dynamics at younger ages, and what is noticeable is an increasing proportion of individuals in the higher socio-economic groups (illustrated by the blue bands) at progressively older ages up to age 70.

Would making no allowance for this effect potentially undervalue younger members? It's a question many clients are asking, and we are supporting them in developing an approach to allow for this effect.



Source: Snapshot of Club Vita's dataset taken in 2020, which includes data from over 220 different UK defined benefit pension schemes.

Affluence measures

Common industry practice has been to use pension amount as an indicator of an individual's affluence. The industry SAPS S3 mortality tables are a good example of that, using pension bands as the affluence indicator. For pensioners that provides for a consistent affluence measure. Mortality models are typically calibrated based on pension amounts that are already in payment. However, there are several additional considerations when mapping deferred pension amounts to these.

Non-pensioner members are younger, and they typically have shorter service than the pensioner population. In addition, many schemes have closed in recent years to future contributions and so many younger lives will have seen the period of time they could contribute to their DB pension cut short. The benefits offered in some schemes have also become less generous over time as sponsors have attempted to manage the rising risk and costs associated with DB pensions. And that's all compounded by that fact that deferred pension amounts are also impacted by optionality (for example, cash commutation).

Where credible salary information is available, this is often seen as a reliable alternative affluence measure for these lives, given it is not dependent on a member's service and future option uptake in the way pension amounts are. However, salary information is often not available, in which case adjustments and/or sensitivity analyses should be considered to understand materiality.

How to apply experience analysis results?

Clients will often go through a process of determining how much weight to put on a portfolio's mortality experience when setting a baseline assumption. That mortality data is often dominated by older pensioners who retired long ago. When applying this approach to non-pensioner lives, you also need to ask how relevant the pensioner experience is to the non-pensioner population.

Where a significant deviation from expected mortality rates is observed at older ages, careful thought is needed to assess whether the drivers of that differential mortality are likely to be applicable to non-pensioners (and indeed younger pensioners). Applying a lower weight than otherwise to the pensioner experience might be appropriate for non-pensioners, for example if the workforce had changed dramatically in the past 20 years.



Any potential mismatch between the affluence measure available in the experience analysis and the in-force population also needs to be considered. Which is more important – consistency with the experience analysis, or using preferred rating factors when the data is available? The answer will often depend on the size of the scheme and the volume of experience data available.

Overall, this is an area where subjective judgement can be required, increasing the risk of mis-estimation.

Other issues

There are other issues with setting a baseline assumption for non-pensioner lives. Examples are:

- Retirement health assumptions: judgement is required on which assumptions to use for future pensioners. Often, analysis will be carried out to determine the ill-health proportions seen in the in-force pensioner population, and these rates are then mapped onto non-pensioners.
- Data issues: Data, particularly postcode data, can be less reliable for non-pensioners. Allowance may need to be made for this within the baseline assumption.

How we are supporting our clients

We support 7 of the 8 insurers who are active in the bulk annuity market and 12 of the 14 UK longevity reinsurers. We regularly provide peer review and independent challenge to those operating in the longevity related markets including support to new entrants as they build their capabilities.

We have conducted our own extensive research into the datasets available and would be delighted to share results of our analysis in more detail. We typically deliver this to our clients via workshops as a convenient way to share and discuss the implications of our analysis.

We also often support our clients in pricing the trend risk as well as additional demographic risks (including proportion married and age difference assumptions) associated with non-pensioner lives.

If you would like to discuss this with one of our specialists, please get in touch.

London | Birmingham | Glasgow | Edinburgh

T 020 7082 6000 | www.hymans.co.uk

This document is intended for the use of insurers and reinsurers only. The information contained herein is published only for informational purposes and does not constitute investment advice.

This document has been compiled by Hymans Robertson LLP who reserve all rights to it and is based upon their understanding of legislation and events as at the date of publication. It is designed to be a general information summary and may be subject to change. It is not a definitive analysis of the subject(s) covered or specific to the circumstances of any particular person, scheme, business or organisation. The material and charts included herewith are provided as background information for illustration purposes only. The information contained is not intended to constitute advice, guidance or a recommendation to purchase (or not purchase) products and/or services, or to make (or not make) investments and should therefore not be relied on. This document and any views expressed therein should not be considered a substitute for professional advice in relation to individual objectives and circumstances. Where the subject of this document involves legal issues you may wish to take legal advice.

This document should not be shared with a third party unless it is appropriate for that audience and acknowledgment of the source is given in a prominent position and (where only part of this document is shared) making the document available in its entirety. Hymans Robertson LLP accepts no liability for errors or omissions, for results obtained from using information or reliance on any statement or opinion contained in this document, including where this document is provided to a third party (whether with or without the consent of Hymans Robertson LLP).

This information is not to be interpreted as an offer, solicitation or recommendation to make (or not make) any specific investments or product decisions. All forecasts are based on reasonable belief. Please note the value of investments, and income from them, may fall as well as rise. You should not make any assumptions about the future performance of any investments or products based on information contained in this document. This includes but is not limited to equities, government or corporate bonds, currency, derivatives, property and other alternative investments, whether held directly or in a pooled or collective investment vehicle. Further, investments in developing or emerging markets may be more volatile and less marketable than in mature markets. Exchange rates may also affect the value of an investment. As a result, an investor may not get back the full amount originally invested. Past performance is not necessarily a guide to future performance.

Hymans Robertson LLP (registered in England and Wales - One London Wall, London EC2Y 5EA - OC310282) is authorised and regulated by the Financial Conduct Authority and licensed by the Institute and Faculty of Actuaries for a range of investment business activities. A member of Abelica Global.