



MORTALITY TABLES



Reno Blake,
Scheme Actuary

Reno Blake is one of five Scheme Actuaries employed by Alexander Forbes Financial Services and works out of our Birmingham and Bristol offices

The amount of money reserved in a defined benefit (DB) pension scheme is directly influenced by the mortality assumptions placed upon the scheme members. This means it is crucial that the predictions are as close as they can be and where possible consider the socio-economic factors affecting the individual members. A 'one size fits all' approach to mortality therefore, is unlikely to be the most accurate assumption for your scheme.

Pensions Matters 11 looks at ways of measuring mortality and explores why these have changed. We also put forward some things for you to consider with regards to your own scheme and identify our own approach.



Are we making too much of increased life expectancy?

The fact that we are all living longer is widely greeted as good news. The only exception seems to be if you happen to be a trustee of a Defined Benefit (DB) pension scheme or the sponsoring employer. If this is the case then people living longer presents a problem: pensions payable by your scheme will have to be paid for longer and will therefore cost more to provide.

Longevity trends continue to confound the best estimate projections of demographers and actuaries. In particular, the rate of improvement shows no sign of slowing down and there is little indication of when increases to life expectancies will, if ever, plateau!

For example, one firm of consulting actuaries expects 1 out of every 300 males in the UK now aged 65 years to live to 120. On some projections, this proportion increases to 1 in 20 within 35 years. Can this possibly be right? Who actually lives to 120? To date, the records to support these projections are sparse and somewhat controversial.

Many actuaries accept that the allowances made for life expectancy in the past have underestimated pensioner longevity. In recent years, many scheme actuaries have adopted ever stronger mortality assumptions thereby increasing the reserves needed to be held by schemes out of which pensions are paid, and consequently increasing the costs to sponsoring employers.

Today's economic environment with low inflation and low real interest rates means proper estimation of life expectancy and future longevity improvements

is essential if pension promises are to be adequately funded. This has been reinforced in recent years by the Pensions Regulator who has advised trustees of occupational pension schemes that they need to make adequate allowance for increasing longevity.

SO, HOW DO TRUSTEES ASSESS THE IMPACT OF LONGEVITY ON THEIR SCHEME FUNDING?

Most pension schemes are too small to be able to use a credible scheme specific mortality experience to predict the life expectancy of their members. The scheme actuary is normally obliged to recommend using published mortality tables in order to make an allowance for the impact of pensioner longevity. So the question has become, which table (or tables) is most appropriate when considering the long-term future?

This has been complicated over the last few years. There has been a realisation that for a cohort born during the late 1920s life expectancy has been increasing at rates faster than those for other lives, and also at a much faster rate than anticipated by the published mortality tables, even after allowing for projected improvements. So much so, that in December 2002, the actuarial profession published three further tables, known as the short, medium and long cohort projections, to allow for the improved longevity of this group of people. The terms short, medium and long refer to expected duration that the additional longevity improvements are assumed to apply.

These cohort tables were derived from the experiences of insured pensioners. Meaning that the pensioners had retired from pension arrangements administered by insurance companies or funds used from other sources, such as PEPS, inheritances or equity release arrangements. The life expectancies of these pensioners is probably different, perhaps significantly so, to those who have retired from self-administered pension schemes, i.e. DB schemes that pay pensions to members directly from scheme assets.

The “medium cohort projections” for a time, became the de facto standard table of choice for many pension scheme actuaries. The use of these projections has also been promoted by the Pensions Regulator, though this may in part have been prompted by the Regulator’s objective of protecting the Pension Protection Fund.

The Regulator, in a consultation document published on 18 February 2008, is now proposing the use of long cohort projections as a minimum standard for funding purposes. This is estimated to add a further 2 years or so to life expectancies at age 65 in relation to the medium cohort projections.

ARE MEDIUM OR LONG COHORT PROJECTIONS SUITABLE FOR PENSION SCHEMES IN THE UK IN GENERAL?

A ‘one-size-fits-all’ approach is not likely to be appropriate for every scheme, particularly taking account of socio-economic factors, or workplace and industrial differences. Also, different actuarial assumptions are appropriate for specific purposes. For example, use of medium cohort projections is required to assess the technical provisions required to assess the PPF levy.

Further research investigating the mortality experience of pensioners who retire from self-administered pension schemes (SAPS) has also been published. This study followed earlier research which suggested that the mortality experience of self-administered schemes is heavier (i.e. shorter life expectancy resulting in lower liabilities) than the mortality of pensioners from insured schemes. Those favouring the cohort adjustments have perhaps not taken account of the SAPS studies.

The findings of this further research reinforced the earlier SAPS conclusions that the actual mortality experience of pensioners retiring from self-administered occupational pension schemes is generally heavier than that of people retiring from insured pension arrangements, particularly at younger ages.

In addition, longevity was found to be strongly dependent on a number of other factors, including pension amounts and the industry in which the sponsoring employer operates. As might be expected, pensioners with ‘large’ pensions have a longer life expectancy than those with ‘small’ pensions, and also experience longer than expected lives in terms of the published mortality tables. However, this effect declines with increasing age. Pensioners with ‘small’ pensions experience significantly heavier death rates than expected by both the short cohort projections and the most recent mortality tables (the so called “00” mortality tables).

The first graph on page 4, taken from the SAPS survey, illustrates the effect of pension size on expected longevity. If the emerging mortality experience of the pensioners exactly mirrored the standard mortality table known as PCMA00, the lines on the graph would follow the 100 line. It is apparent that pensioners’ longevity is linked to size of pension; those with larger pensions exhibiting lighter mortality (i.e. living longer) than those with small pensions, and living longer than implied by the table.

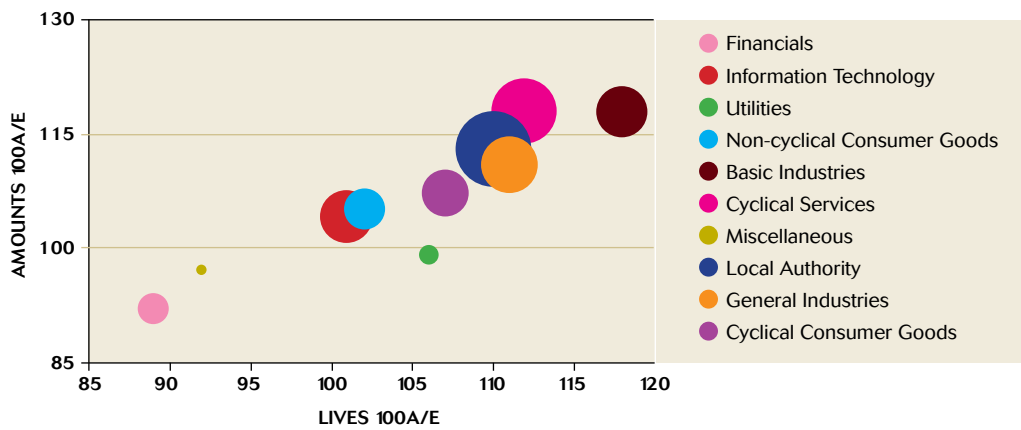
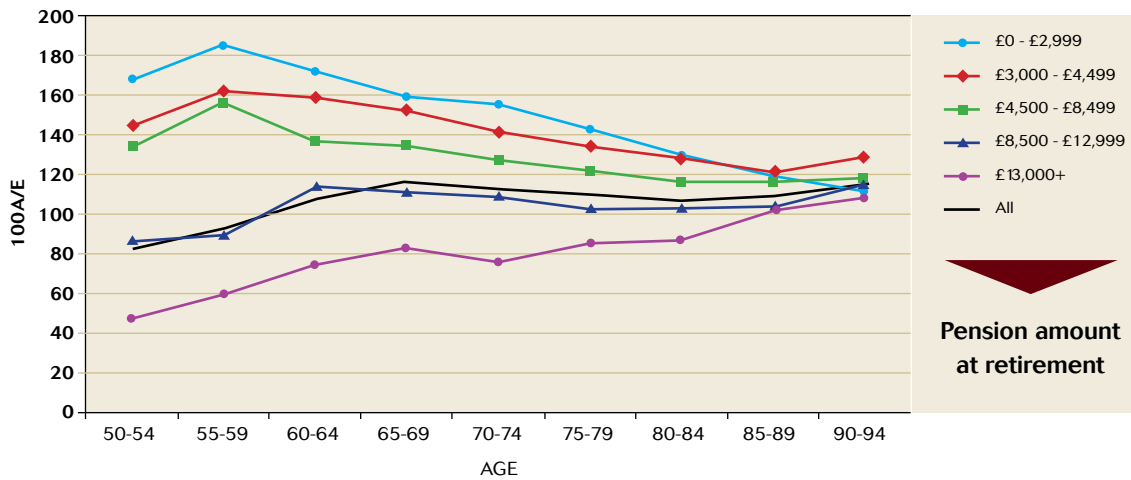


100A/E is the notation used by CMI. It represents the ratio of “Actual” versus “Expected” deaths per 100 deaths. “Actual” deaths were extracted from the SAPS data and “Expected” deaths is the number of deaths expected assuming deaths occur as predicted by the standard mortality table known as PCMA00. The full SAPS survey shows comparisons against other standard mortality tables.

The industrial sector in which the employer operates is also a significant determinant to life expectancy. Employees in the financial services sector seem to live longer than, say, workers in the basic industrial sectors. The second graph, again taken from the SAPS mortality survey, illustrates this effect. The size of the circle represents the number of lives in each of the broad employer categorisation.

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100A/E FOR ALL MALES AMOUNTS ON PCMA00



There is also evidence from studies by the Office of National Statistics that longevity depends on where people live, with those in the south of England living longer than people in the north and in Scotland. However, by examining post codes, these broad longevity effects are masked (and probably out-weighted) by micro geographic effects. Longevity is more closely associated with specific locations, depending on whether people live in socially more deprived areas or in the wealthier suburbs. Also, areas which include hospitals and nursing homes are likely to experience high death rates, regardless of any larger underlying geographic trends. Although life insurance companies are increasingly allowing for post codes in assessing mortality risk, it is not practical to do this for pension schemes.

The actuarial profession has recently published draft mortality tables that take account of the experience of SAPS over the period 2000 to 2006. In total, 20 tables have been produced, including normal health pensioners, ill-health pensioners and dependants. Separate tables have been developed for light and heavy mortality as well as aggregate tables combining

the two. Further work is being carried out to establish how these new tables may best be employed. However, the issue of how to allow for future improvements in longevity have not been specifically addressed in these latest tables.

For statutory funding purposes, whilst actuaries have a professional responsibility to ensure that a pension scheme holds sufficient assets to meet its commitment to pay pensions, they also have a duty to make assumptions that are reasonable in the light of the available evidence and do not result in a contribution rate that commits an employer making excess payments that serve only to build up surplus assets.

The extent of mortality improvement is the subject of considerable debate. Whilst there is strong evidence that people born between 1925 and 1945 are experiencing increased longevity, the experience of people born since 1945 has shown little or no relative improvement. In recent years increasing concerns about drug and alcohol abuse and obesity mean that the future course of mortality is subject to considerable uncertainty.



Summary

Neither the increasingly common use of the medium cohort projections nor the Regulator's proposals on using long cohort projections can be the way forward for all pension schemes for all valuation purposes. Especially as scheme trustees are now required to take account of scheme specific information when setting the valuation bases. It has become all the more important for trustees to obtain sound professional advice when considering what allowance should be made for future longevity of scheme members.

It is the responsibility of the scheme actuary when setting the valuation bases to advise the trustees and the sponsoring employer of the best estimate of future mortality experience taking account of known factors such as the socio-economic level of the scheme members and the industry in which the employer is conducting its business. Predicting future life expectancy is highly uncertain and the extent of future improvements in longevity is likely to depend on a variety of complex and often interdependent factors. Actuaries need to be proactive and continue to advise

their clients based on the results of the most up to date research taking account of the specific circumstances of the scheme rather than merely following the herd.

Recent research into the mortality experience of members of SAPS suggests that the general use of cohort projection tables (such as the medium or long cohort projections) is probably overly prudent for many pension schemes in the UK at the present time, both for statutory funding and FRS 17 purposes.

We intend to ask trustees at an early stage in the valuation process a number of questions concerning their own scheme and its members before recommending what assumptions they should adopt for valuation purposes. We have also developed an interactive mortality model to help trustees understand the financial effects of the mortality risks on their schemes and to assist them when considering the valuation assumptions. We believe this model to be an extremely valuable tool to enable the trustees to relate the assumptions adopted to their own specific scheme.

This briefing is based on our understanding of the current proposals which may change.

All reasonable steps have been taken to ensure that the information is accurate and up to date at the date of publication.



Alexander Forbes Financial Services Limited
Leon House, 233 High Street, Croydon, Surrey CR9 9AF.
Tel: 020 8686 0660 Fax: 020 8681 4093 Web: www.alexanderforbes.co.uk



Alexander Forbes

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