XPS Pensions

Briefing
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CMI 2018: a new parameter to help pension schemes

In brief

- **CMI 2018 projects lower life expectancies than CMI 2017**
- **The core model has been updated to put more weight on the recent lower trends in improvements in longevity**
- **A new parameter has been added to adjust for different improvements between the general population and other groups, such as pension scheme members**

Next steps

- **Consider adopting CMI 2018 for scheme funding, company accounting disclosures and pricing member options such as transfer values**
- **If CMI 2018 is adopted, consider whether to use the new 'initial addition to mortality improvements' parameter and review whether the long-term rate and smoothing parameter previously used remain appropriate**

Definitions

- **Improvements in longevity** – a reduction in the mortality rate from the previous year, suggesting people are living longer
- **Mortality rate** – probability of dying over the next year
- **Base table** – a table of mortality rates at each age calculated at the time the table is produced (so do not allow for future improvements in longevity)

The Continuous Mortality Investigation (CMI) released the 2018 version of their model for projecting future improvements in longevity, CMI 2018, in March 2019. As well as allowing for actual deaths up to the end of 2018, the core model puts more weight on the recent lower trends in life expectancy seen in the general population which together mean CMI 2018 projects lower future improvements in longevity than CMI 2017.

Background

The CMI first released a mortality projection model in its current form in 2009 based on data from the Office for National Statistics (ONS) for the population of England and Wales (E&W). The model projects life expectancy (also referred to as 'longevity') by assuming future improvements start at the 'current' annual changes and that they will converge to a 'long-term rate' of improvement (LTR) as specified by the user. The model has been updated each year to include the latest mortality data and in some years other changes have also been made to the model.

In December 2018, the CMI consulted on (and agreed to) reducing the core (or default) value of a key input called the smoothing parameter, to give more weight to recent lower trends in improvements in longevity.

Life expectancies at age 65 under the CMI 2018 core model are 2.4% lower for males and 2.1% lower for females than those projected by the 2017 model as a result of both the change in the core smoothing parameter and the update to the dataset for the latest year of mortality data.

The model is widely used to project improvements in longevity in the pensions industry in the UK. The Pensions Regulator's (TPR's) 2018 Scheme Funding Statistics survey showed that 96% of defined benefit (DB) schemes in deficit who had valuations over the year to September 2016 were using the CMI model.

Recent trends in improvements in longevity

Population data

Since 2013, the CMI model, which is based on the general population data for E&W, has indicated average improvements in longevity of around 0.5% per annum. This is significantly lower than they were in the period from 2000 to 2011, when improvements were around 2% per annum or higher. There has been debate over the last few years as to whether this represents a new trend or is merely a 'blip' due to short-term events.

The latest year's data (2018) provides more evidence that the lower level of improvements in longevity since 2011 are likely to be due to medium or long-term influences.

DB pensioner experience

Research by the CMI on the population underlying the self-administered pension scheme (SAPS) tables (which are based on individuals who have a DB pension), suggests that improvements in longevity have averaged around 1% per annum higher for the SAPS population than the E&W population in recent years.

Experience of different socio-economic groups

Recent improvements in longevity have also been compared by the CMI between three different socio-economic groups (SEGs) of the E&W population. The analysis shows that people living in deprived areas have had lower improvements in longevity than those in less deprived groups. This suggests that mortality rates between the lowest and highest SEGs have been diverging in recent years. In turn, this suggests that improvements in longevity are likely to vary between pension schemes depending on the membership of the scheme. This is important to consider as members whose benefits form the largest part of a pension scheme's liability may also be those who are likely to live the longest.

What parameters could I change in the CMI model?

Because the CMI model is based on the general population data of E&W you should consider whether the longevity trends seen and expected in this population are representative of the members of your pension scheme. As has always been the case, the user needs to choose the long-term rate of improvement (LTR). There are two further parameters that can be easily adjusted to reflect your beliefs on future improvements in longevity.

Smoothing parameter

The smoothing parameter can be used to alter the model's level of responsiveness to new data, thus smoothing between subsequent versions of the model. For example, if you wish to place more weight on recent data (e.g. you believe that the recent experience of lower improvements in longevity **is** the start of a longer-term trend), you can achieve this by reducing the smoothing parameter. This will reduce life expectancy. Conversely, increasing the smoothing parameter will give less weight to recent data.

The CMI has reduced the core value for the smoothing parameter in the CMI 2018 model as the recent experience of lower improvements in longevity now appears more likely to be a trend than a blip. Users will still be able to retain the original value (7.5), move to the new core value (7) or chose an alternative value if they wish. However, the CMI have highlighted that this parameter should no longer be used to approximate for any differences in longevity improvements between populations.

Initial addition to mortality improvements

For this year's release of the model, the CMI has added a new parameter – initial addition to mortality improvements (IAMI) – which should be used to adjust the model to reflect the view of the user on appropriate improvements for specific populations.

The IAMI works by adding a fixed percentage each year to historic rates of improvements up to 2018. Going forwards, improvements start from the higher initial rate and then tend towards the LTR as per usual. The default value is 0%.

The CMI urges users to ensure that they use initial improvements that are appropriate for their specific populations, making adjustments if necessary. Users who have in the past used the smoothing parameter to make approximate adjustments might need to consider whether to use the IAMI and if so, whether any consequential change is needed to the smoothing parameter.

Long-term rate of improvement

TPR's 2018 Scheme Funding Statistics survey showed that 71% of schemes in deficit that had valuations over the year to September 2016 used the CMI model with a LTR of 1.5% per annum, with 85% using LTRs greater or equal to 1.5% per annum. However, the assumption you use should be specific to the circumstances of your scheme members. You should also consider whether the LTR you have previously used remains suitable for the purpose of the valuation of your scheme's liabilities.

What can we do to help you further?

- Provide bespoke training on longevity assumptions and risk.
- Advise and discuss with you what parameters to use in the CMI model so that the assumptions for improvements in longevity reflect the circumstances of your scheme and have an appropriate margin for prudence for the purpose required.
- Advise how to adjust the CMI model to better reflect the socio-economic characteristics of your scheme membership.
- Use our model, **ProLonG**, to show a range of possible future scenarios (reflecting the characteristics of your scheme membership) based on real-world examples to help you decide if your chosen mortality assumption is suitable for your scheme and your beliefs of what may happen.

For further information

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