

## Mortality projections, past experience is not always a guide to the future

Each year the Institute & Faculty of Actuaries' Continuous Mortality Investigation (the CMI) produce a new version of their mortality projection model. This model allows actuaries to project current mortality trends into the future. The CMI have just released the 2020 version of their model.

Of course, as with all projections, the starting point is past experience. The inputs to the latest CMI model is past data from the period 1980 to 2020. As we all know, 2020 saw a significant increase in deaths from the COVID-19 virus and including data from 2020 brings out projections of life expectancy significantly lower than in previous years. Because the model endeavours to predict the future, the question must therefore be asked whether the data from 2020 should be included?

On the one hand, the CMI's model includes 40 years of data and arguably an event such as the current outbreak can be expected to occur in that period. Accepting this argument, the data should be included. On the other hand, the virus could be seen as an exceptional event, with mortality experience well outside of the range of experience seen over the other 39 years. In which case, the data should be excluded.

There is also a question of how the virus itself will affect future mortality experience. Will the virus and its variants stick around and continue to cause higher mortality in the future, or will the current vaccination campaign largely curb the effects of the virus? There is a question of whether those who have recovered from the virus will be a stronger group of people who will go on to live longer, or will the population have been weakened by it, for example those with long COVID and those who have had operations delayed? Finally will the lessons that we have learnt from COVID 19 prove valuable in fighting future viruses, so lessening the impact of any future outbreak?

There are so many questions here and so much uncertainty.

Late in 2020, the CMI consulted actuaries on the question of whether to include the experience of 2020 in the CMI model. The response was that the mortality experience of 2020 was considered exceptional and that it would have a disproportionate impact on the results of the projection model. The CMI have therefore decided to exclude the experience from 2020 in its core version of the model. They have, however, allowed actuaries to adjust the inputs to include some or all of this data should they so wish.

The result of excluding the mortality data for 2020 is a modest fall in life expectancies compared to the previous version of the projection model, around a one month fall in life expectancy at age 65 for males, with a much smaller reduction for females. The effect on pension scheme liabilities would therefore be a very modest fall. As ever, there are lots of other parameters affecting the valuation of pension scheme liabilities. In particular the effect of interest rate changes are likely to swamp the small reduction in liability resulting from mortality projections.

**If you would like to discuss this further, please get in touch with your usual contact at Cartwright.**

April 2021

Mill Pool House  
Mill Lane  
Godalming  
Surrey GU7 1EY

T: 01483 860201

E: [enquiries@cartwright.co.uk](mailto:enquiries@cartwright.co.uk)

250 Fowler Avenue  
Farnborough Business Park  
Farnborough  
Hampshire GU14 7JP

T: 01252 894883

E: [enquiries@cartwright.co.uk](mailto:enquiries@cartwright.co.uk)

Marlborough House  
Victoria Road South  
Chelmsford  
Essex CM1 1LN

T: 01245 293300

E: [enquiries@cartwright.co.uk](mailto:enquiries@cartwright.co.uk)

The Mansley Business Centre  
Timothys Bridge Road  
Stratford Enterprise Park  
Stratford-upon-Avon  
CV37 9NQ

T: 01245 293300

E: [enquiries@cartwright.co.uk](mailto:enquiries@cartwright.co.uk)

