Setting mortality assumptions in a post COVID-19 world

By Andrew Gaches for

COVID-19 Actuaries Response Group – Learn. Share. Educate. Influence.

Introduction

In our first bulletin looking at the impact of the pandemic on mortality, we considered what could reasonably be inferred now about the likely post-pandemic mortality of survivors. In this second bulletin, we explore the question of mortality from the perspective of how best to use data once we are 'post-pandemic'. This will be a challenge for pension schemes and insurance (and reinsurance) companies.

Allowing for COVID-19 in mortality investigations

Baseline 'best estimate' mortality assumptions are typically calibrated using recent mortality experience, either directly (through recent experience of the portfolio in question) or indirectly (using experience from alternative relevant datasets). In either case, it is implicitly assumed that the recent experience is a good indicator of current underlying rates of mortality (albeit needing to be rolled forward for a few years).

A mortality shock, which occurs in a single year and is not expected to be repeated, could invalidate that assumption, and inappropriately distort the baseline mortality assumption. The current pandemic is likely to distort 2020 mortality experience in this way.

Various approaches for dealing with this are:

1. **Calibrate baseline mortality <u>including</u> 2020 data (as normal)**

   This approach may be reasonable if a combination of the following hold:

   i) the impact of COVID-19 on 2020 mortality (in the data used for calibration) is relatively small (eg COVID-19 resulted in relatively few excess deaths);

   ii) a long experience period is used (so 2020 has a relatively small impact on the calibration);

   iii) the impact of COVID-19 is expected to continue materially beyond 2020.

2. **Calibrate baseline mortality <u>excluding</u> 2020 data**

   A rationale for this approach would be if the 2020 experience was assumed to be a 'one-off', and therefore not relevant to assessing underlying mortality rates. This may be the case if:

   i) the impact of COVID-19 on 2020 mortality is large;

   ii) a short experience period is used (so 2020 would have a relatively large impact on the calibration);

   iii) the impact of COVID-19 is not expected to continue beyond 2020 (or explicit adjustment for its continued impact is preferred).

3. **Calibrate baseline mortality including <u>adjusted</u> 2020 data**

   Inclusion of 2020 data, with the impact of COVID-19 stripped out, may be preferred if:

   i) the impact of COVID-19 on 2020 mortality is large, but can be clearly identified (and adjusted for);

   ii) there is a desire to maximise data volumes (or reflect broader 2020 effects);

   iii) the impact of COVID-19 is not expected to continue beyond 2020 (or explicit adjustment for its continued impact is preferred).

Other considerations

While we have set out above the main reasons why particular approaches may be more or less attractive, other considerations will also be:

- Simplicity *v* complexity (for instance, it would not be simple to decide how many deaths to attribute to the pandemic if wishing to strip those deaths out from the investigation);
- Market practice (and perhaps in some territories there may be actuarial guidance);
- Views on margins (even if the calibration is required to provide a best estimate, there may be a desire – in the absence of a perfect approach – to select an approach that errs in a prudent direction).

Andrew Gaches
3 June 2020