Mortality briefing, February 2024
CMI releases new mortality tables

The Continuous Mortality Investigation (CMI) has released a new set of mortality tables, the S4 tables. For the first time, the CMI includes postcode data in new S4 tables. Along with pension size, a member's postcode is one of the most common factors used when setting a life expectancy assumption.

The S4 tables also point to a slight reduction in life expectancy, although the impact on individual schemes will differ.

What are mortality tables?

In many areas of work, actuaries need to make an assumption about how long a person (or group of people) is expected to live. This may happen when valuing a Defined Benefit pension scheme, for example, or pricing a life insurance premium.

To do this, actuaries use mortality tables. These are used to estimate mortality rates (probability of death at each age), based on historical data from a specific scheme, or in most cases, from several schemes.

Let's look at an example, based on the simplified table below, to see how mortality tables can be used. The CMI's mortality tables start at age 16, with all the population assumed to be alive at that date. In our example, we assume a starting population of 100,000, but this number doesn't matter in practice.

Age	Lives
16	100,000
…	…
65	91,000
66	90,000
…	…
70	87,000

Our table says we would expect 91,000 of the original 100,000 to remain alive at age 65. This gives a probability of surviving to age 65 of 91% (or a probability of dying before age 65 of 9%).

A scheme will use these tables to calculate the probability of death at each age for members before and after retirement. For example, we can calculate for a 65-year-old:

- The probability of surviving one year to age 66 is around 99% (90,000 / 91,000).
- The probability of surviving five years to age 70 is around 96% (87,000 / 91,000).

CMI's latest S4 mortality tables

The CMI regularly produces mortality tables for self-administered pension schemes (SAPS). The latest SAPS tables, S4, have now been released. They're based on more recent data than the previous S3 tables, although 2020 and 2021 data is excluded because of the unusual mortality experience of the pandemic.

- Mortality rates in the proposed S4 tables are typically higher (lowering life expectancies) than what we'd expect if we projected mortality rates from the S3 tables to the same date. This is due to differences in mortality improvements between scheme members and the general population, as well as data updates in the S4 tables.
- The impact on schemes will vary, as users will need to consider which of the new S4 sub-tables is most appropriate for their scheme.

Postcode data – and why it's important

For the first time, the CMI has produced tables based on postcodes.

Along with pension size, a member's postcode is one of the most common factors used when setting a life expectancy assumption. Those who live in more 'affluent' postcodes tend to live longer, and vice versa.

With the new tables, a member's postcode can be mapped to an 'index of multiple deprivation' (IMD) decile. Along with pension size, this is used to assign that member to one of the group 'IMD tables'.

A male living in an area of high deprivation, with an IMD score of 2 and an annual pension of £2,000, would be assigned to the Group 1 table.

Whereas a female living in an area of low deprivation, with an IMD score of 9 and an annual pension of £10,000, would be assigned to the Group 3 table.

Looking at the CMI tables below, we can see that postcode affects males and females in a slightly different way:

	0.4-2.7	2.7-5.5	5.5-9	9-15	15-22	22-44	44+
1	1	1	1	2	2	3	4
2	1	1	1	2	2	3	4
3	1	1	1	2	3	3	4
4	1	1	2	2	3	3	4
5	1	1	2	2	3	3	4
6	2	2	2	3	3	3	4
7	2	2	2	3	3	3	4
8	2	2	2	3	3	4	4
9	2	2	2	3	3	4	4
10	2	2	3	3	3	4	4

Male pensioners – Proposed IMD tables by amount (£1,000s) and IMD decile (1-10).

	0.1-1	1-2.5	2.5-5	5-9	9-18	18+
1	1	1	1	1	1	2
2	1	1	1	1	2	2
3	1	2	2	2	2	2
4	2	2	2	2	2	3
5	2	2	2	3	3	3
6	2	2	3	3	3	4
7	2	3	3	3	3	4
8	3	3	3	3	3	4
9	3	3	3	3	3	4
10	4	4	4	4	4	4

Female pensioners – Proposed IMD tables by amount (£1,000s) and IMD decile (1-10)

For males, the four coloured areas run in a broadly diagonal pattern from bottom left to top right. This suggests that pension size and postcode have a similar impact on life expectancy.

For females, the four coloured areas are much closer to horizontal. This suggests that postcode has a much higher impact on life expectancy than pension size.

Other useful S4 features

The CMI has also provided a range of 'sub-tables', allowing users to choose the mortality table that best suits the characteristics of the population being modelled. These sub-tables include data for:

- Age
- Sex
- Member type (pensioner, dependant, normal-health and ill-health retirement)
- Pension size.

What should I be doing now?

For many users, updating to the new set of tables will involve a bit more work than a simple 'find and replace' to swap S3 for S4. Users should ensure they're adopting the most suitable mortality base table for their membership, for example by undertaking a postcode mortality analysis.

Many trustees will look to move to the new tables in preparation for their next triennial actuarial valuation. But trustees may also want to understand the impact of the new tables on their scheme before their triennial valuation, for example, when setting assumptions for member factors, or in the lead-up to a bulk annuity transaction.

Employers that sponsor Defined Benefit schemes should consider whether to adopt the most recent tables for their year-end accounting disclosures, particularly if the triennial actuarial valuation is some way off.

Get in touch

To discuss the contents of this briefing, and how it may impact your scheme, contact one of our mortality experts:

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