

richards consulting



## Longevity Risk Segments

Helping financial service providers to understand the risks of increased life expectancy



## Background

With lower long-term interest rates and stable inflation, attention is increasingly turning to exposure to longevity risk. This is important not just to life companies and pension providers with annuity portfolios, but also to any company with a defined-benefit pension scheme. The new disclosure regimes under FRS17, IAS19 and IFRS demand that companies now manage their pension-related exposure better.

In the 10 years between 1996 and 2006 the life expectancy of 65 year olds in the UK has changed dramatically, as shown in the following table:

|         | Males      | Females    |
|---------|------------|------------|
| In 1996 | 17.3 years | 20.1 years |
| In 2006 | 19.5 years | 22.2 years |

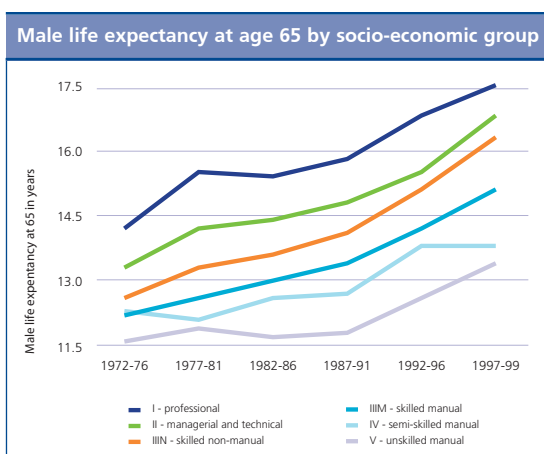
Source: Government Actuary's Department, principal cohort projection.

Consequently, people will be drawing their pension for longer than was originally anticipated, which in turn has major implications for pension scheme reserves and corporate profitability.

However, it is not enough to consider solely average life expectancy when assessing pension liabilities. Socio-economic differences and marital status also need to be considered.

- **Social Class**

It is recognised that life expectancy differs by socio-economic group. It is also evident that social class differentials in life expectancy are both pronounced and persistent. Knowing the socio-economic mix within your pension scheme will help you better manage longevity risk.



Source: ONS Longitudinal Survey

- **Marital Status**

Most pension schemes provide spouse benefits, paying benefits to a surviving partner on death. The presence of a spouse can add around 12% to the total cost of providing pension benefits. It is therefore important to have an indication of who is married and who is not.

The traditional approach to longevity risk has only used age, gender and pension size. There is broad acceptance in the market that additional data needs to be added to current actuarial calculations. This has not been available to practitioners, until now.

## Understanding your longevity risk

Longevity Risk Segments (LRS) is a new data product for companies with significant exposure to longevity risk. It enables users to better quantify their longevity risk, both in terms of socio-economic differentials in life expectancy and in terms of marital status and dependent's benefit.

LRS is the result of a joint venture between Experian and Richards Consulting, a specialist in analysing longevity risk. This unique combination of resources and expertise have come together to deliver a significant advance in the management of longevity risk.

### Who should use this product?

- Pension schemes preparing funding statements
- Companies including pension scheme disclosures under FRS17, IAS19 or IFRS accounting principles
- Life insurers and pension and annuity providers

## Methodology

The improvement of longevity model performance by combining socio-economic and lifestyle based data is well established\*. The importance of marital status is a more straightforward assessment but one for which little empirical data currently exists.

Over more than 25 years Experian have developed a detailed database of information on the demographic, socio-economic, and lifestyle characteristics of every adult and household in the UK. The UK Consumer Dynamics Database is universal, fully compliant and updated on an annual basis.

This extensive data has been used to create seven **Mortality Groups** based on detailed analysis and modelling undertaken by Richards Consulting. The weightings used in the definition of Mortality Groups and the calculation of life expectancy are defined so as to represent the population in receipt of private and occupational pensions, not the wider population.

The traditional approach to socio-economic differentials has been to observe the different mortality rates exhibited by occupational classifications. The definition of these Mortality Groups is more sophisticated. Groups have been defined specifically with reference to their mortality experience and are therefore a more powerful classification for pension liabilities than merely occupation. The Mortality Groups were defined and optimised using Longevity, a longevity-modelling system.

The Mortality Groups are defined as:

| Mortality group | Male life expectancy at 65 years | Female life expectancy at 65 years |
|-----------------|----------------------------------|------------------------------------|
| 1               | 20.4                             | 22.9                               |
| 2               | 19.8                             | 22.4                               |
| 3               | 19.1                             | 21.7                               |
| 4               | 18.7                             | 21.5                               |
| 5               | 17.9                             | 20.8                               |
| 6               | 17.4                             | 20.6                               |
| 7               | 16.1                             | 19.3                               |

The table above shows life expectancies of 65 year-olds at current rates (i.e. no projection for future improvements).

For comparison, the same figures on the most recent actuarial tables, calculated on the same basis are:

| Gender | Table | Life expectancy at age 65 |
|--------|-------|---------------------------|
| Male   | PMA00 | 18.7                      |
| Female | PFA00 | 21.2                      |

As can be seen, life expectancies calculated using the latest actuarial standard tables broadly fall in the middle of the ranges for Mortality Groups. This illustrates how they are applicable to people with private and occupational pensions, not the population as a whole.

For pensions originating from defined benefit schemes, it is useful to know who is likely to be married and who is not. The presence of a spouse can add around 12% to the total cost of providing benefits, so this a material variable either for scheme funding or for buy-out pricing. To add further insight Experian's **Marital Status** demographic model, which categorises UK adults into three classes - married, single, and unknown, has been applied. This person-level variable has been created by analysing the combination of adults living at an address and their ages to predict likely marital status.

The result is a classification of the seven Mortality Groups by Marital Status giving 21 **Longevity Risk Segments** that can be easily appended to customer records.

## Delivery

The 21 Longevity Risk Segments and seven Mortality Groups have been applied across Experian's UK Consumer Dynamics universe of names and addresses in the UK.

The Longevity Risk Segments can be appended to customer data using Experian's name and address matching software, iCoder, which attaches a Longevity Risk Segment code to each customer record. A copy of the software is provided within the full LRS licence.

\* SIAS : "Financial aspects of longevity risk" by S. Richards and G. Jones

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#### About Experian

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For more information, visit the Group's website on [www.experiangroup.com](http://www.experiangroup.com)

#### About Richards Consulting

Richards Consulting was founded by Stephen Richards to specialise in the analysis of mortality and longevity. Stephen has been modelling mortality since 1988 and advises a wide range of insurers, pension schemes and other corporate clients on all aspects of longevity and other demographic risks.

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