

Actuarial valuation of the Firefighters' Pension Schemes as at 31 March 2007

A note by the Government Actuary's Department on Scheme Pensioner Longevity

At the meeting of the Firefighters' Pensions Committee (FPC) on 18 November, GAD presented the results of the actuarial valuation of the Firefighters' Pension Schemes as at 31 March 2007. During the subsequent discussions at the meeting, GAD was asked by the FPC for some additional information on the pensioner longevity assumptions used in the valuation. At the request of CLG, GAD has produced this note.

Summary

The main conclusion from our analysis of Firefighters' pensioner mortality over the period 2003 to 2007 is that the longevity of Firefighters in retirement is greater than that of the general UK population. This is demonstrated in the table below which shows the life expectancy of Firefighters retiring in March 2007, compared to the general population.

Age at retirement in 2007	Expected UK population longevity	Expected Firefighter pensioner longevity
50 (male)	34.7	36.3
55 (male)	29.9	31.6
60 (male)	25.1	27.0
50 (female)	37.9	38.0
55 (female)	32.8	33.3
60 (female)	27.9	28.6

Further detail on our analysis follows below.

Detailed analysis of Firefighter pensioner longevity

Data on the number and sex of Firefighter pensioners who had died each year during the period 2003 to 2007 was supplied by 39 Fire Authorities. Around one-third of the Authorities were able to provide satisfactory data separately for age retirement and ill health deaths, covering approximately 55% of all deaths during the period. Unfortunately it was not possible to identify the remaining age retirement and ill health deaths separately in the experience data provided and we therefore performed a combined analysis of the mortality of age and ill-health pensioners. (Ill-health pensioners can, on average, be expected to experience heavier mortality than pensioners who retire on the grounds of age.)

We compared the actual number of deaths in the data supplied by the Authorities with the number of deaths that we would have expected during the period, based on standard mortality tables known as the "PNA00" series tables.

The “PNA00” tables, released by the actuarial profession, were compiled using age retirement pensioner mortality data collected between 1999 and 2002 from pension schemes insured with life insurance offices. These tables are widely used by actuaries to value defined benefit pension schemes in the UK. Note that it is usually easier and more practical to use standard mortality tables, such as the PNA00 tables, for an actuarial valuation rather than using tables of mortality derived from actual scheme experience. One reason for this is that the mortality experience of most schemes will be somewhat limited, particularly at the older ages, and this could lead to unreliable results.

We allowed for mortality improvements between the construction of the tables and 2005 (the mid-point in the 2003 – 2007 range) by projecting pensioner longevity forward to 2005 broadly in line with improvements in national population longevity over the period, as assumed by the Office for National Statistics in their (then latest) 2006-based principal UK population projections.

Our analysis showed that the Scheme experience was slightly heavier than the standard tables over the period 2003 to 2007. We therefore adjusted the standard tables to reflect the experience of Firefighter pensioners over the period 2003 to 2007. Overall our analysis, as set out in the attached chart, showed that an adjustment of plus one year of age on the standard tables provided a reasonable match to the experience of the Scheme – i.e. that pensioners are assumed to be one year older than their actual age. We therefore adopted this age rating to the standard table to value both age and ill-health pensioner liabilities. (Note that this does not necessarily mean the retired Firefighters experienced heavier mortality than the standard tables because the Scheme experience related to both age and ill-health pensioners, whereas the standard tables only relate to age retirements.)

The PNA00 tables with a plus one year age adjustment therefore formed the “base table” from which projections were made for future improvements in pensioner longevity – both for existing pensioners and for Firefighters who had not yet retired.

The table below shows the life expectancy of Firefighters retiring in March 2007, compared to the general UK population and the unadjusted standard tables (which are derived from data for pensioners insured under life office pension schemes).

Age at retirement in 2007	UK population longevity	PNA00 tables unadjusted. Age retirements only	PNA00 tables with a +1 year age adjustment – ie the expected longevity of Firefighter pensioners. Age and ill-health retirements combined
50 (male)	34.7	37.2	36.3
55 (male)	29.9	32.5	31.6
60 (male)	25.1	27.9	27.0
50 (female)	37.9	39.0	38.0
55 (female)	32.8	34.2	33.3
60 (female)	27.9	29.5	28.6

For many years, pensioner longevity has been on an increasing trend, as observed in actuarial analysis and studies of the population of the UK and abroad. In line with common actuarial practice, we assumed that this trend will continue in the future, and to reflect this we adopted longevity improvements for pensioners projected to each year the pensioner is expected to survive. The improvements we adopted are in line with the ONS population projections.

Comment on ill-health retirements

As noted above, only about one-third of authorities provided satisfactory data separately on age and ill health deaths and we therefore carried out a combined analysis of the mortality of age and ill-health pensioners. It is also generally expected that ill-health retirees will tend to suffer higher mortality than members who voluntarily retire on age grounds.

The incidence of ill-health retirements amongst Firefighters has, historically, been high compared to other public sector schemes – we understand the rate of ill-health retirements was at one time as high as 70% of all retirements. However, and unlike other schemes where ill-health retirement is generally determined on the basis of illness or incapacity, many of these Firefighter ill-health retirements may have occurred as a consequence of fitness requirements and the absence of alternative work. Consequently, there may not have been as wide a gap between ill-health and age retirement mortality amongst Firefighter pensioners as might be expected in other schemes.

The experience of the Scheme over the period 2003 to 2007 has shown that the number of ill-health retirements has declined significantly over recent years. One effect of this is that the gap between ill-health and age retirement mortality amongst Firefighter pensioners might be expected to widen. Therefore the average age adjustment of +1 year to the standard table which we have used for current Firefighter pensioners may not, given the current proportion of ill-health retirements, be appropriate for a combined group of future ill-health and age retirees. Therefore, for Scheme members not yet in retirement we have assumed no age rating to the base tables for future normal health age retirements and an age adjustment +3 years for future ill-health retirements.

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Actual rates of Firefighters' mortality compared with expected mortality from standard actuarial tables

