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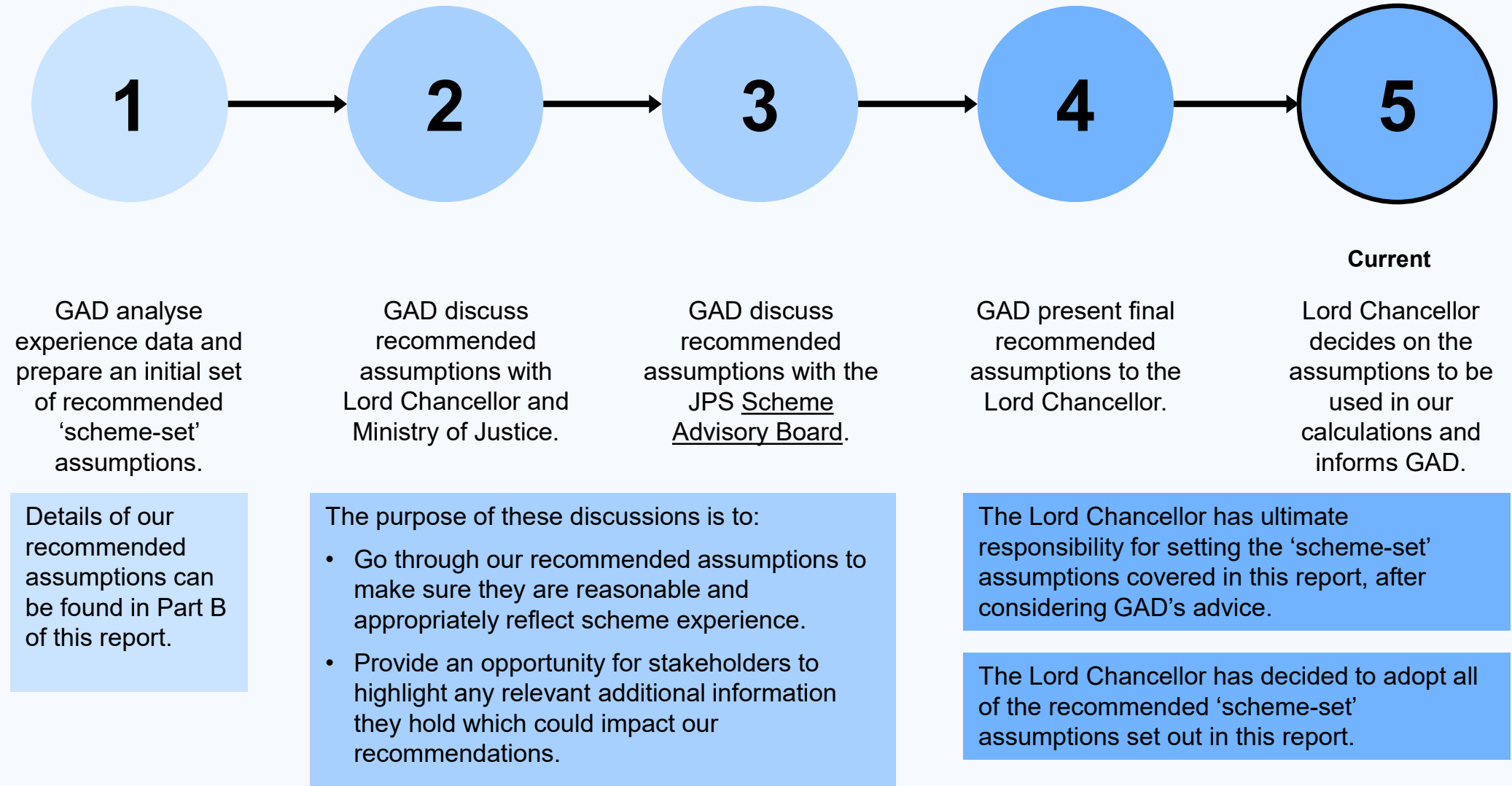
Judicial Pension Schemes (JPS)

Advice on assumptions

Actuarial valuation as at 31 March 2020

Ken Starr and Joanne Ghosh

7 February 2024

Assumptions setting process

1	2	3	4	5
				Current
GAD analyse experience data and prepare an initial set of recommended 'scheme-set' assumptions.	GAD discuss recommended assumptions with Lord Chancellor and Ministry of Justice.	GAD discuss recommended assumptions with the JPS Scheme Advisory Board.	GAD present final recommended assumptions to the Lord Chancellor.	Lord Chancellor decides on the assumptions to be used in our calculations and informs GAD.

Details of our recommended assumptions can be found in Part B of this report.

The purpose of these discussions is to:

- Go through our recommended assumptions to make sure they are reasonable and appropriately reflect scheme experience.

- Provide an opportunity for stakeholders to highlight any relevant additional information they hold which could impact our recommendations.

The Lord Chancellor has ultimate responsibility for setting the 'scheme-set' assumptions covered in this report, after considering GAD's advice.

The Lord Chancellor has decided to adopt all of the recommended 'scheme-set' assumptions set out in this report.

Highlights

Scheme-set assumptions		Our recommendations			
	Importance relative to scheme-set assumptions		Size of recommended changes		Impact of recommended changes on scheme costs
Mortality after retirement	🔴	Most	🟢	Small	⬇ Lower costs
Proportion commuted	🟠	Average	🟠	Medium	✛ Uncertain
Retirement ages	🟠	Average	🟢	None	🚫 No impact
Rates of leaving service	🟠	Average	🟢	None	🚫 No impact
Promotional pay increases	🟠	Average	🟢	None	🚫 No impact
Rates of ill-health retirement	🟢	Least	🟢	None	🚫 No impact
Mortality before retirement	🟢	Least	🟢	None	🚫 No impact
Family statistics	🟢	Least	🟢	None	🚫 No impact

This table provides a summary of the 'scheme-set' assumptions and their likely bearing on the valuation results. It is intended to highlight areas of potential focus to aid with the process of deciding on the scheme set assumptions to be adopted.

These assessments are indicative, rather than precise. More information on the approach used can be found in **Section B1**.

Be aware that several of the most important valuation assumptions do not appear in this table as they will be directed by HM Treasury. The impact of these 'directed' assumptions could be much greater than that of the impact of 'scheme-set' assumptions.

Advice on assumptions

Contents

Any terms that appear in this report in underlined text are defined in the Glossary.

At the Government Actuary's Department (GAD), we seek to achieve a high standard in all our work. We are accredited under the Institute and Faculty of Actuaries' Quality Assurance Scheme. Our website describes **the standards** we apply.

Part A: Background
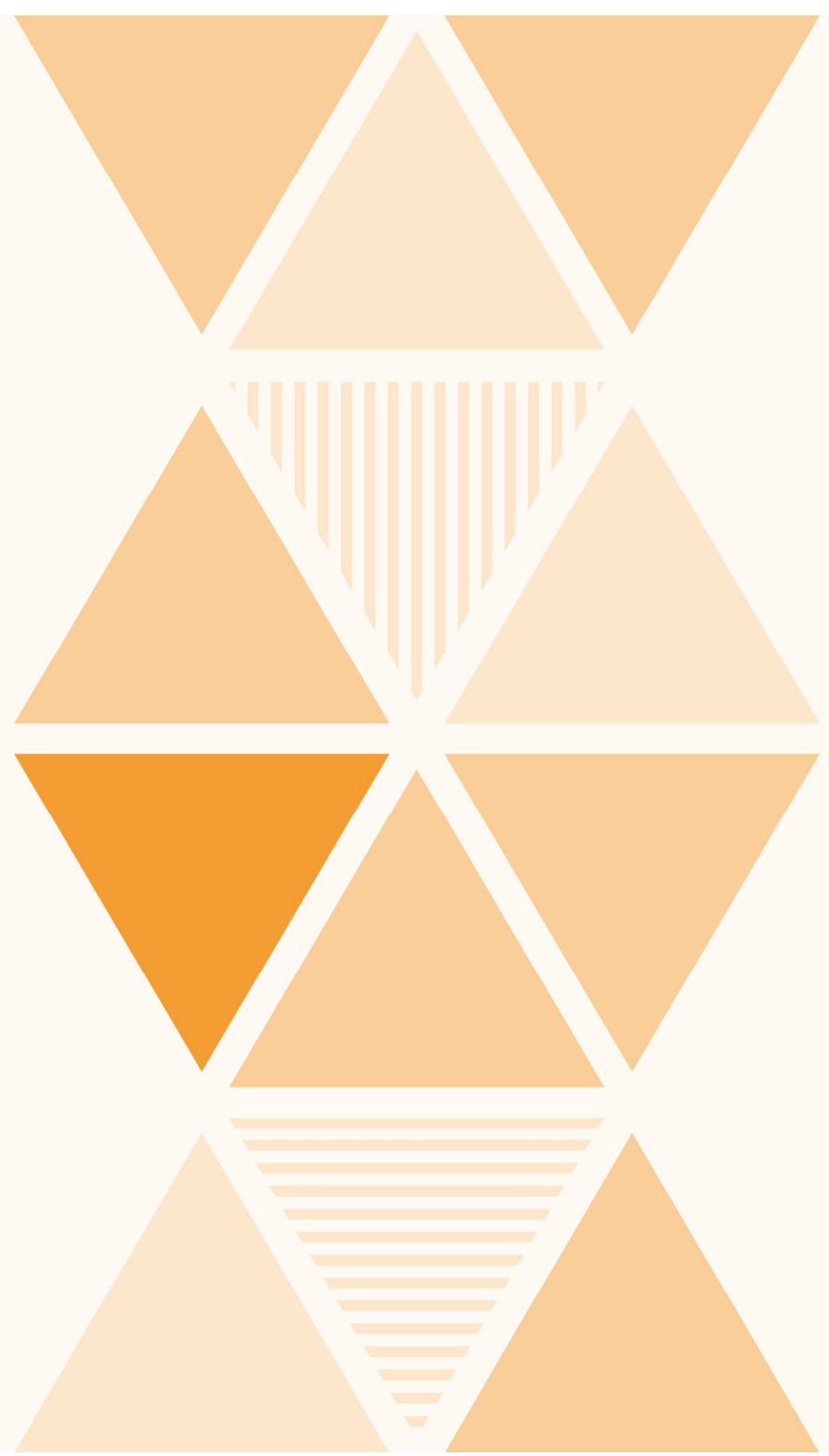
Introduction

Who is this report for?

This report is addressed to the Lord Chancellor. The Directions require the scheme actuary to carry out a robust analysis of the demographic experience of the scheme. The purpose of this report is to provide our analysis, advice and recommendations on the 'scheme-set' assumptions to be adopted for the actuarial valuation of the JPS as at 31 March 2020 as required.

This report is intended to help the Lord Chancellor:

- understand the key assumptions about the future that need to be made in order to carry out the valuation

- understand the impact those assumptions can have on the valuation results

- decide on the 'scheme-set' assumptions to be adopted.

Why are assumptions important?

Assumptions are estimates of uncertain variables needed to carry out the actuarial valuation of the JPS as at 31 March 2020, in accordance with HM Treasury Directions.

The results of the valuation are critically dependent on the assumptions adopted. If what actually happens in the future turns out to be significantly different to these assumptions, employers could end up having over- or under-paid contributions, or benefit changes could be made when they otherwise wouldn't be.

Results

Assumptions

Assumptions about the future are used, together with data, to calculate valuation results.

Data

Types of assumptions

What assumptions are needed?

There are 2 main types of assumption:

- **Demographic assumptions.** These focus on member characteristics and help to determine when and for how long benefits are expected to be paid.

- **Financial assumptions.** These focus on financial factors and help to determine how much is expected to be paid to members.

Together these assumptions determine how much needs to be set aside now, in order to meet future payments.

Who is responsible for assumptions?

There are 2 parties responsible for setting assumptions:

- The Lord Chancellor, who is responsible for setting 'scheme-set' assumptions (after taking actuarial advice). These are usually demographic assumptions.

- HM Treasury, who are responsible for setting 'directed' assumptions through legislation. These are usually financial assumptions.

In this report we focus on 'scheme-set' assumptions, but directed assumptions are included for context. Directed assumptions are shown in Appendix C1.

Mortality after retirement

Retirement ages

Future mortality improvements

Discount rate

Rates of leaving service

Proportion commuted

Rates of pension increases

Rates of salary increases

Rates of ill-health retirement

Family statistics

Promotional pay increases

Rates of CARE re-valuation

Mortality before retirement

State Pension Ages

Deficit spreading periods

Scheme set

Directed

Demographic

£ Financial

Demographic assumptions

How are the assumptions used?

Demographic assumptions are used to predict what will happen to the status of members in the future, until their liability in the scheme is extinguished.

The chart to the right shows a simplified set of paths that an active member could follow. Demographic assumptions (shown in circles) are used to determine the likelihood that the member follows any given path.

Most demographic assumptions are set by the scheme, rather than directed by HM Treasury.

Legend:
- Member status: **no benefits payable**
- Member status: **benefits payable**
- **Scheme set**
- **Directed**

Start

Finish

- Active member
- Rates of leaving service
- Deferred member
- End of scheme liability
- Future mortality improvements
- Retirement ages
- Rates of ill-health retirement
- Mortality before retirement
- Mortality after retirement
- State pension ages
- Ill-health pensioner
- Deceased member
- Family statistics
- Dependant's pension
- Normal health pensioner
- Mortality after retirement
- Future mortality improvements
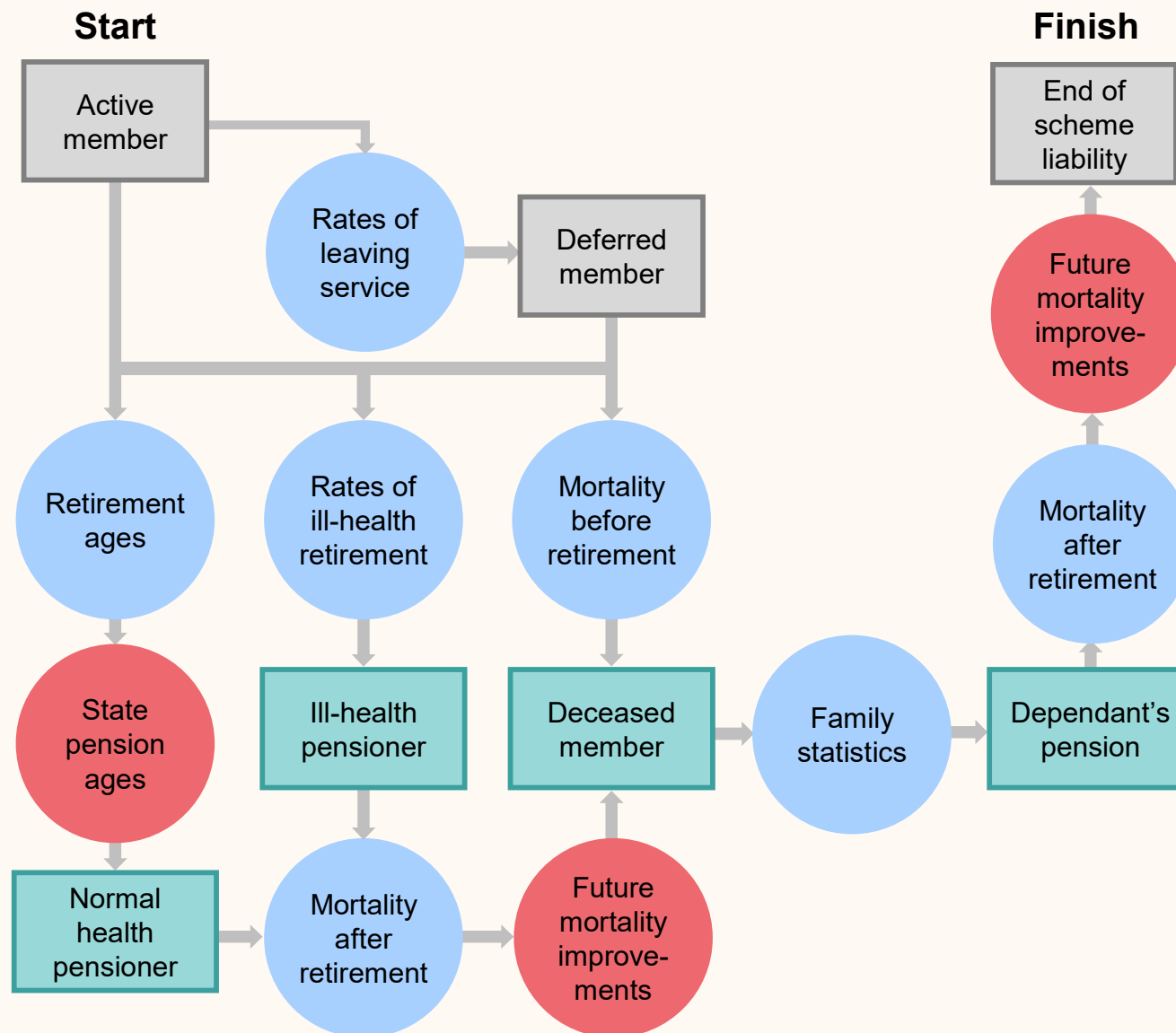
Financial assumptions

How are the assumptions used?

Financial assumptions are used to predict:

- the size of future benefits due to members
- the current cost of those benefits to the scheme.

The chart to the right shows a simplified summary of how these assumptions are applied.

The only financial assumptions set by the scheme are:

- promotional pay increases
- commutation proportions.

Legend:
- Member status: **no benefits payable**
- Member status: **benefits payable**
- **Scheme set**
- **Directed**

Benefits due to members

Current value of benefits due

- **Benefits accruing** (active members)
- **Benefits on hold** (deferred members)
- **Benefits in payment** (pensioners and dependants)
- **Cost of benefits to the scheme** (all benefits paid)

- Promo-tional pay increases
- Rates of salary increases
- Rates of CARE revaluation
- Rates of pension increases
- Proportion commuted
- Discount rate
- Deficit spreading periods
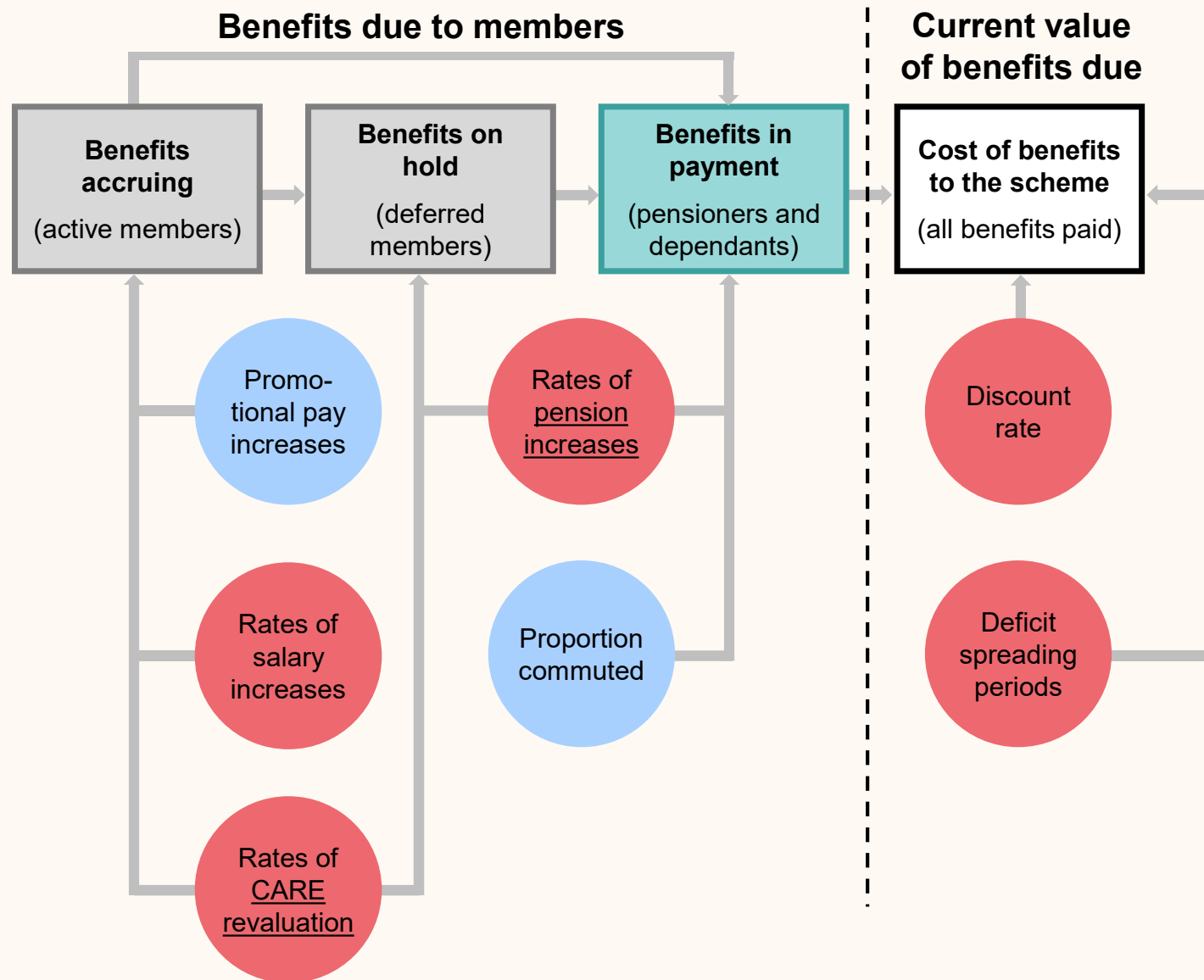
Setting assumptions

How are the assumptions decided?

We recommend 'scheme-set' assumptions after considering all relevant information. The picture to the right summarises the 3 main inputs.

The Lord Chancellor then decides on the 'scheme-set' assumptions to be adopted, after considering GAD's advice.

What rules need to be followed?

HM Treasury Directions specify that 'scheme-set' assumptions must be the Lord Chancellor's best estimates of future experience. This means they cannot include any margins for prudence or optimism.

The Directions also require that assumptions must consider:

- previous valuation assumptions
- an analysis of demographic experience, where there is enough data to perform such an analysis
- any other relevant data, including anything that only became available after the date of the valuation
- any emerging evidence about historic or expected future long-term trends.

Our formal assumptions advice to the Lord Chancellor

Analysis of scheme data and comparison of experience with current assumptions.

Consideration of the wider environment and any other relevant data that exists.

Liaison with stakeholders who may hold other relevant information, such as SABs.
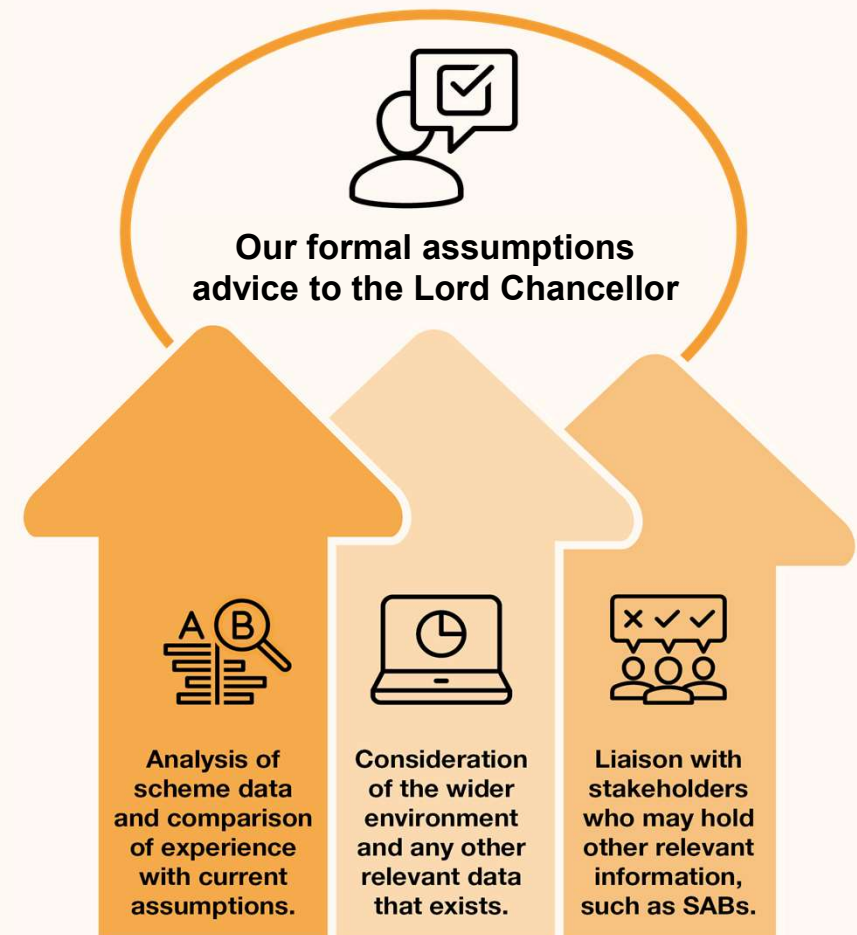
The assumptions are required to be best-estimate, including an allowance for expected future GDP growth and life expectancy progression.

In our Results report 7 February 2024 we also consider three future climate scenarios; their potential impact on valuation assumptions; and how these in turn might impact on the cost of future benefits payable from the scheme.

Impact on employer contribution rates

Which assumptions are most important for setting employer contribution rates?

The chart to the right shows the importance of each assumption on employer contribution rates, relative to that of other assumptions. This shows that:

- there is a large degree of variation in the significance of each assumption

- the more significant assumptions tend to be directed by HM Treasury.

For example, the discount rate is shown as very highly significant compared to mortality before retirement. This means that even if the discount rate changes by a small amount, the impact on employer contribution rates could be very large compared to a fairly large change in mortality before retirement.

For context, the employer contribution rate is currently 51.1% of pensionable pay (excluding the administration charge). In monetary terms, this was equivalent to employer contributions of £211m in 2022/2023.

The rankings shown are approximate and are based on the relative significance of each assumption only. They are intended as an illustration and are not a prediction of potential future changes.

This comparison considers all assumptions and therefore differs to the earlier Highlights summary and the later Summary statistics.

Importance relative to all assumptions

Assumption	Importance
Mortality after retirement	Medium
Promotional pay increases	Medium
Proportion commuted	Low
Retirement ages	Low
Rates of leaving service	Low
Family statistics	Low
Rates of ill-health retirement	Very low
Mortality before retirement	Very low
Discount rate	Very high
Rates of pension increases	Very high
Future mortality improvements	High
Rates of CARE revaluation	High
State pension ages	Medium
Deficit spreading periods	Medium
Rates of salary increases	Medium

Scheme set assumptions **Directed assumptions**

Impact on the scheme's cost cap cost

Are the same assumptions important for calculating the cost cap cost?

The significance of each assumption on the <u>cost cap cost</u> can be very different to the significance of the same assumption on <u>employer contribution rates</u>. This is because the cost cap process was designed to exclude certain costs.

The chart to the right shows the significance of each assumption on the <u>cost cap cost</u> of the scheme, which itself tends to be lower than the <u>employer contribution rates</u>. This excludes the effect of the economic check.

It's important to be aware that even a small change in an assumption with low significance could result in cost cap thresholds being breached and member benefits being adjusted.
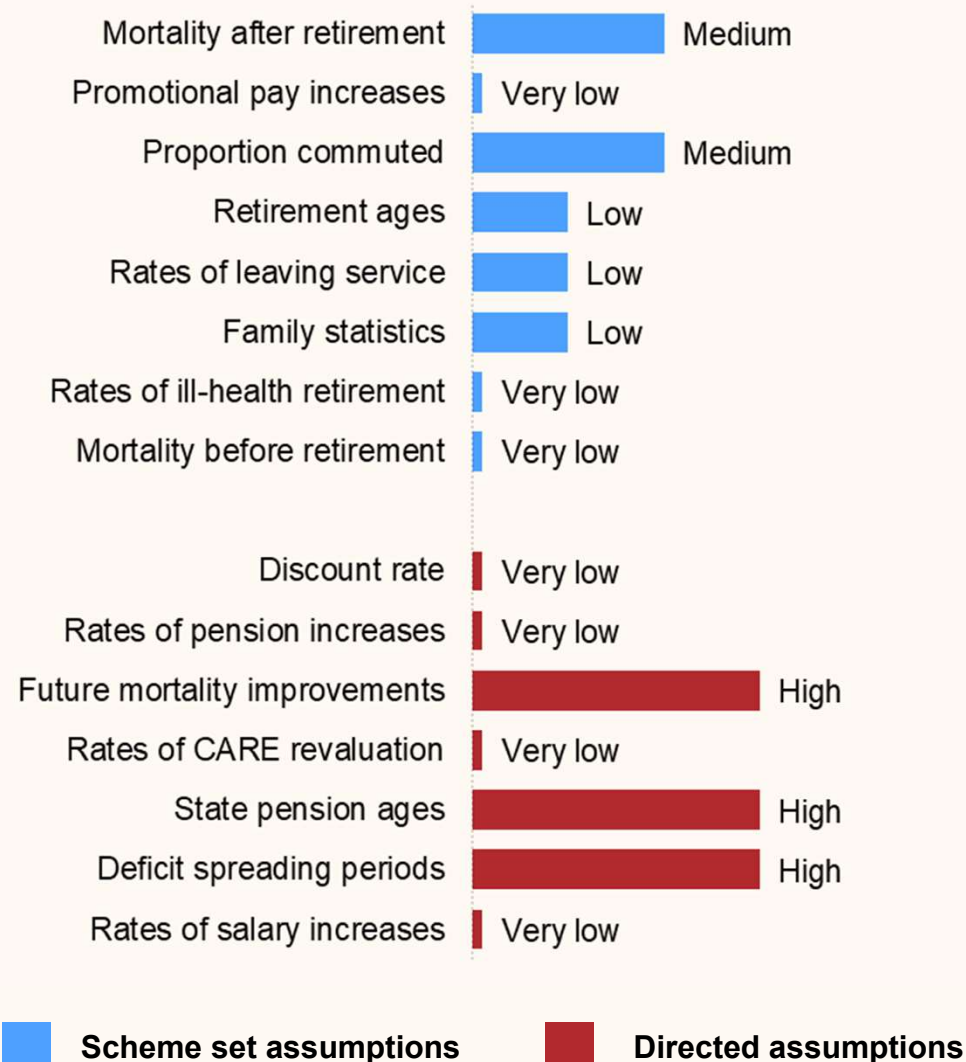
The main differences when compared to the significance of assumptions on the <u>employer contribution rate</u> are:

- Most financial assumptions, such as the discount rate, are not very significant to the <u>cost cap cost</u>

- The significance of directed assumptions (relative to scheme set assumptions) tends to be lower for the <u>cost cap cost</u> than for <u>employer contribution rates</u>.

As before, the rankings shown are approximate and are intended as an illustration, not a prediction of potential future changes.

Following the implementation of the 2022 scheme, the Employer Cost Cap rate has been recalculated using assumptions consistent with 2012 valuation, further details are set out in Appendix C3.

Importance relative to all assumptions

Assumption	Importance
Mortality after retirement	Medium
Promotional pay increases	Very low
Proportion commuted	Medium
Retirement ages	Low
Rates of leaving service	Low
Family statistics	Low
Rates of ill-health retirement	Very low
Mortality before retirement	Very low
Discount rate	Very low
Rates of pension increases	Very low
Future mortality improvements	High
Rates of CARE revaluation	Very low
State pension ages	High
Deficit spreading periods	High
Rates of salary increases	Very low

■ Scheme set assumptions   ■ Directed assumptions

Limitations

Data

In preparing this report, GAD has relied on data and other information supplied by XPS. This is described in more detail in our data report issued on 7 February 2024. The limitations set out in that report apply equally to this report.

Unless stated otherwise, all data adjustments mentioned in that report apply equally to the data used for setting assumptions. Any additional data adjustments made solely for the purpose of setting assumptions are detailed in this report.

Assumptions

We have used the data provided to analyse the scheme experience and develop our recommended assumptions.

When considering appropriate assumptions, experience usually provides the most reliable evidence.

However, robust analysis of scheme experience will only be possible where there is both sufficient quality, and quantity, of data. The level of reliance that can be placed on assumptions derived from the analysis will also vary depending on these two factors.

Our recommended assumptions are long term and are not suitable for predicting short term future experience.

Sharing

This report has been prepared for the use of the Lord Chancellor and the Ministry of Justice. This report will be published as part of completing the 2020 valuation of the scheme. We are content for the Lord Chancellor and the Ministry of Justice to release this report to third parties, provided:

- It is released in full;
- The advice is not quoted selectively or partially;
- GAD is identified as the source of the report, and;
- GAD is notified of such release.

Other than the Lord Chancellor and the Ministry of Justice, no person or third party is entitled to place any reliance on the contents of this report, except to any extent explicitly stated herein. GAD has no liability to any person or third party for any action taken or for any failure to act, either in whole or in part, on the basis of this report.

Compliance statement:

This report has been prepared in accordance with the applicable Technical Actuarial Standards: TAS 100 and TAS 300 issued by the Financial Reporting Council (FRC). The FRC sets technical standards for actuarial work in the UK.

Part B:
Recommendations

B1. Summary

Summary statistics

Scheme-set assumptions	Assumption information		Our recommendations	
	Importance relative to scheme-set assumptions	**Volatility of experience and unreliability of data**	**Size of recommended change**	**Impact of recommended changes on scheme costs**
Mortality after retirement	🔴 Most	🟢 Low	🟢 Small	⬇ Lower costs
Proportion commuted	🟠 Average	🟠 Medium	🟠 Medium	✥ Uncertain
Retirement ages	🟠 Average	🟢 Low	🟢 None	🚫 No impact
Rates of leaving service	🟠 Average	🟢 Low	🟢 None	🚫 No impact
Promotional pay increases	🟠 Average	🔴 High	🟢 None	🚫 No impact
Rates of ill-health retirement	🟢 Least	🟢 Low	🟢 None	🚫 No impact
Mortality before retirement	🟢 Least	🟢 Low	🟢 None	🚫 No impact
Family statistics	🟢 Least	🟠 Medium	🟢 None	🚫 No impact

This table provides a summary of the 'scheme-set' assumptions and their likely bearing on the valuation results. It is intended to highlight areas of potential focus to aid with the process of deciding on the scheme set assumptions to be adopted.

These assessments are indicative, rather than precise. More information on the approach used can be found on the next page.

Be aware that several of the most important valuation assumptions do not appear in this table as they will be directed by HM Treasury. The impact of these 'directed' assumptions could be much greater than that of the impact of 'scheme-set' assumptions.

Interpretation of summary statistics

	Importance relative to scheme-set assumptions	Volatility of experience and unreliability of data	Size of recommended changes	Impact of recommended changes on scheme costs
What does it show?	The importance of this assumption on <u>employer contribution rates</u> (ECR) and the <u>cost cap cost</u> (CCC) of the scheme, relative to other 'scheme-set' assumptions	The variability of experience and unreliability of data observed in the past. This can impact the weight we place on current experience.	The size of change we recommend, relative to the assumptions used at the last valuation.	The likelihood of our recommendations leading to higher or lower <u>employer contribution rates</u> (ECR) and <u>cost cap cost</u> (CCC) of the scheme
What is it based on?	Our actuarial judgement and the sensitivity analysis carried out at the last valuation.	Public service pension scheme experience at previous valuations	Assumptions recommended at this valuation and those used at the last valuation.	Our actuarial judgement and the sensitivity analysis carried out at the last valuation.
What are the possible ratings?	🔴 **Most** An assumption that could plausibly impact the <u>ECR</u> **or** <u>CCC</u> by more than 1%. 🟠 **Average** An assumption with an impact in between most and least. 🟢 **Least** An assumption that could plausibly impact both the <u>ECR</u> **and** the <u>CCC</u> by less than 0.2%.	🔴 **High** A current or previous lack of credible data, or large changes in member behaviour. 🟠 **Medium** Volatility of experience or unreliability of data classified in between high and low. 🟢 **Low** A large pool of credible data that doesn't tend to change much.	🔴 **Large** An average change in assumption of over 25%. 🟠 **Medium** An average change in assumption of between 10% and 25%. 🟢 **Small** or **None** An average change in assumption of between 0% and 10%.	⬆ **Higher** <u>ECR</u> and <u>CCC</u> likely to be higher. ⬇ **Lower** <u>ECR</u> and <u>CCC</u> likely to be lower. ✛ **Uncertain** Likely impact on the <u>ECR</u> and <u>CCC</u> is still uncertain. For example, if assumptions for different categories move in different directions. 🚫 **No impact** Likely to be no material impact on the <u>ECR</u> or <u>CCC</u>.

Significance, volatility and size of changes

The diagram to the right shows, for the scheme set assumptions:

- **Relative importance of assumption.** It's important to pay regard to the more significant assumptions, as any changes can have a big impact. Assumptions placed higher up the page are those that are more significant.

- **Volatility of experience and unreliability of data.** Assumptions placed further to the right of the page are also important to consider, as they are more volatile or have uncertain experience. This means that they are more likely to change substantially.

- **Size of recommended changes.** Larger changes are key as they are more likely to have a large impact on valuation results (although this also depends on how significant the assumption is). The coloured circles signify the size of our recommended change, as specified in the key below.

Key: Size of recommended changes

L Large   **M** Medium   **S** Small   **N** None

Importance

Mortality after retirement **S**

Proportion commuted **M**

Retirement ages **N**

Rates of leaving service **N**

Promotional pay increases **N**

Rates of ill-health retirement **N**

Mortality before retirement **N**

Family statistics **N**

Volatility and unreliability

B2. Mortality after retirement

Mortality after retirement

What does this assumption represent?

Mortality assumptions are a series of probabilities which represent the likelihood of a member dying at any given age. Different assumptions usually apply to different groups, e.g., for males and females, or normal health or ill-health retirees.

Baseline mortality rates are a 'scheme-set' assumption and are the focus of this section.

Future mortality improvements are a directed assumption, and act to reduce baseline mortality rates in future years. They are directed to be in line with the improvements underlying the ONS-2020 population projections, which reflect the latest views on the long-term effect of the COVID-19 pandemic. The rate of improvements can be negative.

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
Most	Low	Small	Lower costs

Our recommendations and rationale

We recommend updating the baseline mortality rates for males, using an equal allowance for recent experience and the 2016 assumption to help smooth out volatility. This is consistent with the approach used for the 2016 valuation.

For females, we recommend setting the percentage adjustment to the standard tables to give the same change in life expectancy as that for male members. This is a change in the approach used for the 2016 valuation.

The ONS-2020 population projections allow for the impact of the COVID-19 pandemic, so it would be inappropriate to adjust the baseline mortality assumptions.

Baseline mortality rates are set by adjusting the 'S3' standard mortality tables issued in December 2018 by the Continuous Mortality Investigation (CMI). These tables are derived from a larger amount of public service data, and so are more appropriate for the scheme than the 'S2' tables adopted at the 2016 valuation.

There is a known issue with the unadjusted 'S3' standard tables over-estimating life expectancy. This affected the NHS 2012-2016 experience, which was used to help set the JPS 2016 assumptions. However, our approach of fitting the tables to the scheme's experience negates this issue with the 'S3' tables for the 2016-2020 experience.

Practical implications

Mortality assumptions can be used to estimate the life expectancy of individual members. Higher life expectancies mean a higher cost of providing benefits, as benefits must be paid for longer periods of time.

The table below shows the impact of our recommended assumptions. For each category shown:

- The **first column** for males and females is the assumption adopted for the 2016 valuation.

- The **second column** for males and females is the 2016 assumption, but updated to use a valuation date of 2020 and ONS-2020 improvements.

- The **last column** for males and females is the assumptions we recommend for the 2020 valuation.

The changes between the first and second columns show the impact of directed changes to future mortality improvements and the normal passage of time. The changes between the second and third columns show the impact of our recommended changes to baseline mortality assumptions.

All numbers shown are cohort life expectancies that have been calculated allowing for future mortality improvements.

Life expectancies for normal health pensioners

	Males			Females		
	2016 valuation assumption	2016 assumption updated	2020 valuation recommendation	2016 valuation assumption	2016 assumption updated	2020 valuation recommendation
Current pensioners, age 65	89.4	88.5	88.5	91.1	90.4	90.2
Future pensioners, age 45	91.3	90.1	90.0	93.0	92.0	91.6

Recommendations in detail

Category		2016 Assumptions			2020 Recommendations		
		Standard table	Adjustment	Based on	Standard table	Adjustment	Based on
All members	**Males**	S2NMA_L	92%	Wider experience of TPS and NHS	S3NMA_L	97%	Wider experience of TPS and NHS
	Females	S2NFA	80%	Wider experience	S3NFA_L	93%	Change in male life expectancy

"_L" refers to the SAPS Light table, which reflects a sub-group of the tables for members with lighter than average mortality. The Light group in the S3 Tables is for individuals with pensions in excess of £20,000 p.a. for males and £8,000 p.a. for females.

We recommend that the same mortality assumptions are adopted for salary-paid and fee-paid members of the JPS.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

Our approach

Analysis

We have analysed the scheme's mortality experience over the period 1 April 2016 to 31 March 2020.

Our analysis has been carried out on an 'amounts' basis (as opposed to a 'lives' basis).

An 'amounts' analysis gives more weight to members with larger pensions, better reflecting the impact they have on scheme costs. A 'lives' analysis on the other hand gives an equal weighting to every member being analysed.

As members with higher pensions tend to live longer, an 'amounts' analysis usually results in lighter mortality assumptions than a 'lives' analysis would, based on the same data.

Setting recommended assumptions

We recommend that all baseline mortality assumptions are based on the 'S3' series of standard tables.

Our general approach is:

- Identify groups of members we would expect to have different life expectancies, for example by gender and by health at retirement.

- Identify the most appropriate 'S3' table for each group. Where we have enough scheme experience, we carry out a series of statistical tests to find tables which best fit recent experience. This is approximate, so we apply judgement to select the most appropriate table.

- The last four years of experience may not accurately reflect the longer-term, so we generally 'smooth out' any excess volatility by setting adjustments based on an equal allowance for recent experience and the 2016 valuation assumptions, which were set using pre-2016 experience.

- Where there is not enough scheme experience, we look at assumptions from other groups of members or other schemes which may have similar experience, adjusted to allow for any available information.

For JPS, there is insufficient scheme experience to robustly set the mortality assumption. As in previous valuations, we have considered the mortality experience of male Normal Health pensioners in the Teachers' Pension Scheme (TPS) and the NHS Pension Scheme with high pension amounts (more than £30k a year) and aged over age 67. There were too few females in the TPS and NHSPS with pensions of more than £30k a year to conduct a credible analysis, so the analysis was undertaken for male members only.

Scheme experience: overall

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

The chart to the right and those on the following pages compare:

- **actual experience** (   ) on the left – what has happened over the last 4 years.

- **2016 assumptions** (   ) in the middle – what we thought would happen, based on the baseline mortality assumptions adopted for the 2016 valuation. Uses ONS-2020 mortality improvements.

- **2020 recommendations** (   ) on the right – what we would have expected to happen, had our recommended baseline mortality assumptions been adopted for the 2016 valuation. Uses ONS-2020 mortality improvements.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Experience vs expectations: average age at death
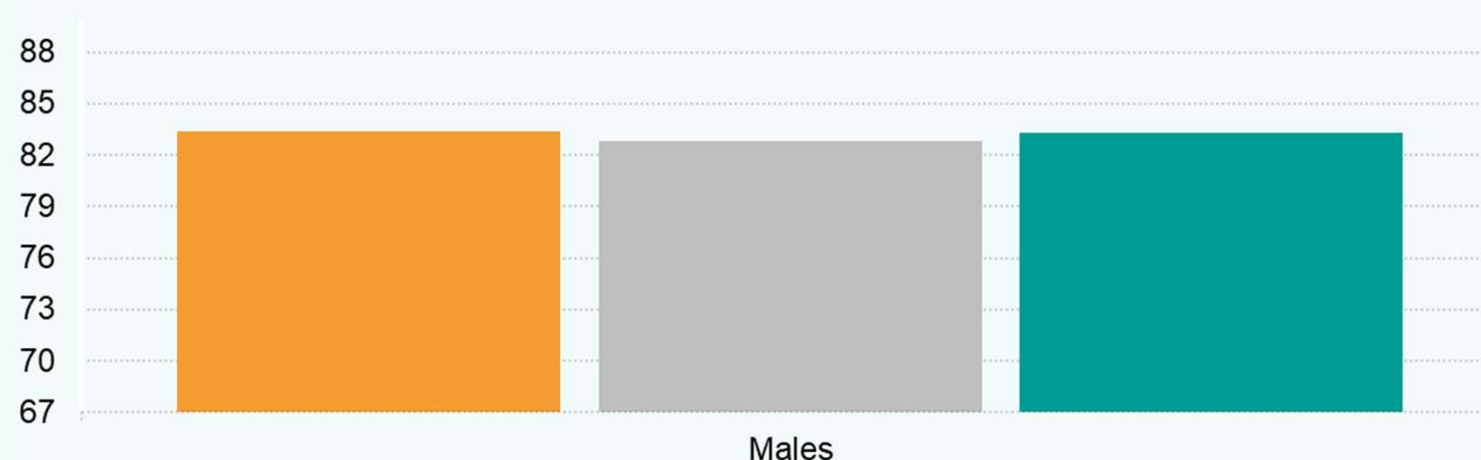
Summary

The 2016 assumptions and the 2020 recommendations are largely in line with the baseline mortality experience for high-pension male members of TPS and NHS. This can be seen through the average age at death on the chart above and the distribution of deaths by age shown on the next page.

Updating the baseline mortality assumption has a relatively small effect on the life expectancies, shown previously, which have reduced due to directed future mortality improvements.

No analysis has been undertaken for female members.

Scheme experience: in detail

Pension ceasing as a result of death by age, split by category

Males
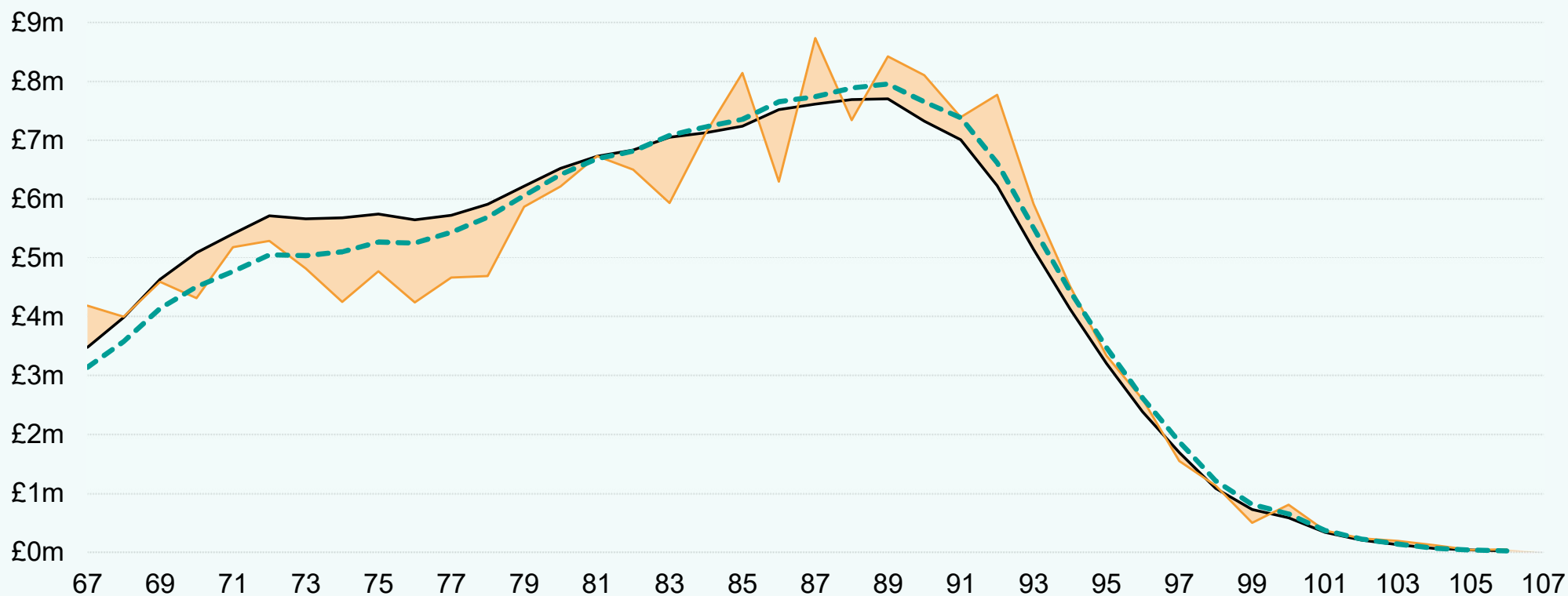
Mortality experience of Teachers' Pension Scheme (TPS) and the NHS Pension Scheme members with high pension amounts (more than £30k a year).

Key: ——— **2016 assumptions** ----- **2020 recommendations** ▮ **Experience** (line) and difference from 2016 assumptions (shaded area)

Scheme experience: in numbers

Category		Experience Actual pension ceasing due to death over 2016-2020	2016 Expectations Pension expected to cease under the 2016 assumptions	Experience ÷ 2016 Expectations	2020 Expectations Pension expected to cease under the 2020 recommendations	Experience ÷ 2020 Expectations
All members	Males	£177 m	£181 m	97.6%	£179 m	98.8%
	Females	N/A	N/A	N/A	N/A	N/A

The above table shows the experience for high-pension male members of TPS and NHS. There were too few females in the TPS and NHSPS with pensions of more than £30k a year to conduct a credible analysis.

The experience of the JPS was insufficient to carry out a robust analysis. Over the period 2016 to 2020 there were 287 deaths for JPS males and 185 deaths for JPS females. This compares to a total of 3,797 male TPS and NHS members with an average pension of c.£47k at date of death.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

Wider environment: COVID-19

No explicit allowance has been made for the COVID-19 pandemic in our recommended assumptions for **baseline mortality rates**. Our recommendations are based on scheme experience up to 2020 so will only have included deaths from the very start of the pandemic. We do not expect these deaths to have had a material impact on our recommendations.

However, an explicit allowance is included in assumed **future mortality improvements**. These are directed to be in line with the improvements underlying the ONS-2020 population projections.

When deriving the ONS-2020 projections, a panel of mortality experts gave their views on the impact of COVID-19 pandemic on mortality rates in the short term. Based on this, short term adjustments were made to the 2019 to 2024 period to allow for estimated deaths in 2021 and an averaging of the experts' views on estimated improvements by age group over this period. Long term rates of future mortality improvement are not projected to change as a result of COVID-19.

The charts on this page show the impact of the ONS-2020 projections on future life expectancies for a typical UK male and UK female, aged 65. There is a clear drop in life expectancies in 2020 as result of the COVID-19 pandemic. In the longer term, even though mortality is expected to start improving again, the 2020 drop means we start from a lower baseline and the impact of COVID-19 will be with us long into the future.

Life expectancies for UK males, aged 65
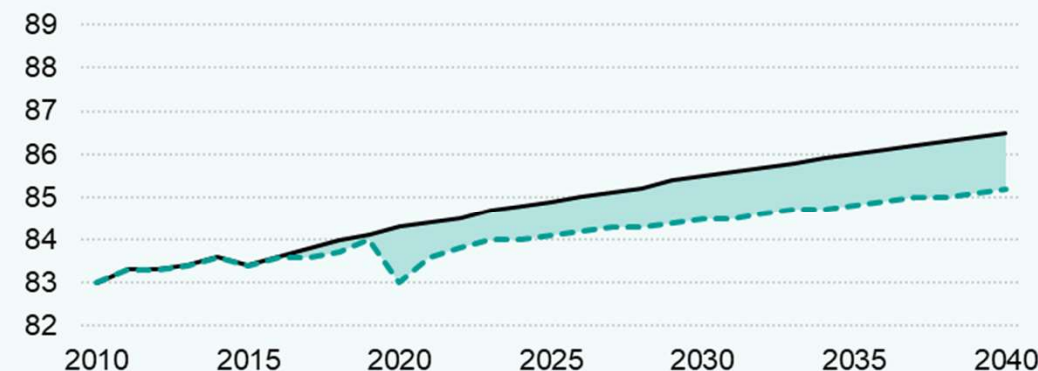
Life expectancies for UK females, aged 65
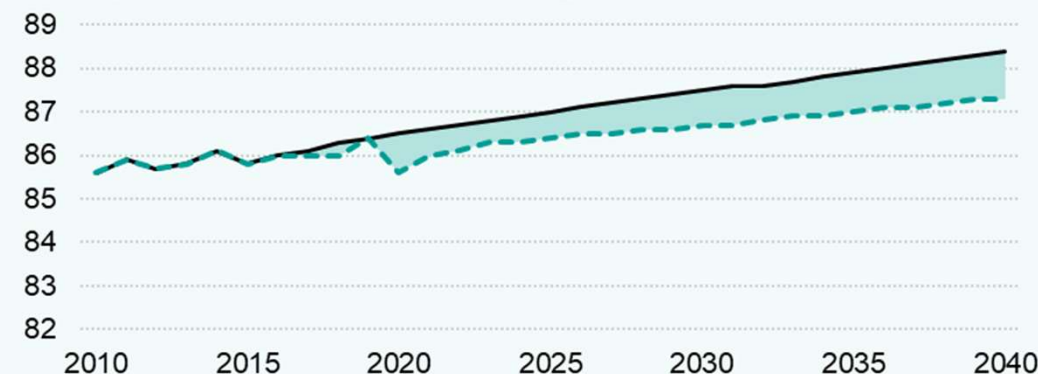
Key:

—— Based on **ONS-2016 projections**, which were adopted for the 2016 valuation

----- Based on **ONS-2020 projections** (dotted line) and difference from the 2016 projections (shaded area)

B3. Proportion commuted

Proportion commuted

What does this assumption represent?

The proportion commuted represents the fraction of pension that members give up at retirement, in return for a single tax-free lump sum payment (subject to HMRC tax limits).

Commutation is a 'scheme-set' assumption for this valuation. In the 2016 valuation, it was 'scheme-set' for some groups of members and directed for other groups.

The proportion commuted is an important assumption because the value of the lump sum received is often less than the value of the pension given up. Higher proportions commuted therefore tend to lead to lower scheme costs.

The lump sum is typically calculated using a commutation rate of £12 lump sum for every £1 of annual pension given up. The commutation rate is not being reviewed in this valuation.

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
● Average	● Medium	● Medium	✛ Uncertain

Our recommendations and rationale

For the 2015 scheme, we recommend increasing the assumed commutation proportion to 20% for all members (compared with a HMT directed assumption of 17.5% at the 2016 valuation). There are too few 2015 scheme retirements to set an assumption. Therefore, this is based on the average experience from other large public service schemes (CS GB, NHS EW, TPS EW and LGPS EW), which has shown higher commutation proportions commuted since 2016. This change will reduce the employer contribution rate.

For the 2022 scheme, we recommend a commutation proportion of 20% for all members. There are no scheme retirements to set an assumption. Therefore, this is based on the average experience from other large public service schemes (CS GB, NHS EW, TPS EW and LGPS EW). The impact of this change on the employer contribution rate is uncertain due to changes in other assumptions and the level of the taxation supplement varying by individual.

We recommend that fee paid members in the 2015 and 2022 schemes are assumed to commute the same proportion of pension as salaried members since we are not aware of any information that would suggest that fee paid members commute different proportions to salaried members.

The 1981, JUPRA and FPJPS Judicial Pension Schemes do not allow commutation of pension for cash at retirement. Instead, all members receive a lump sum at retirement.

Practical implications

Commutation can drastically alter the timing and amount of benefit payments for individual members.

Members choose whether to commute based on their own individual circumstances. For example, their:

- Assessment of their future life expectancy

- Tax circumstances

- Preferences for higher future income vs an immediate lump sum.

The chart to the right shows the impact on assumed benefits of our recommended assumptions. For each category shown:

- The **top line** ( ) shows the impact of the assumptions we recommend for the 2020 valuation.

- The **bottom line** ( ) shows the impact of the assumptions adopted for the 2016 valuation.

Lump sum for a member starting with a £50,000 pension

2015 scheme	Additional lump sum	£120,000
		£105,000
	Pension remaining	£40,000
		£41,250
2022 scheme	Additional lump sum	£120,000
	Pension remaining	£40,000

The 1981, JUPRA and FPJPS Judicial Pension Schemes do not allow commutation of pension for cash at retirement. Instead, all members receive a lump sum at retirement.

The assumptions are the same for both salaried members and fee-paid members in the 2015 scheme and 2022 scheme. The chart shows the lump sum the member will receive after tax for both the registered 2015 and the 2022 scheme where the lump sum is taxed but a supplement is payable.

There is no comparable 2016 valuation assumption for the 2022 scheme.

Our approach

Analysis

We have insufficient data to carry out a credible analysis using the scheme's own data. Therefore, we have used the analysis carried out on the other large public service pension schemes commutation experience over the period 1 April 2016 to 31 March 2020.

Our analysis considered total pension that came into payment and total pension that was commuted and was carried out separately for groups expected to behave differently.

This approach places more weight on members with larger pensions, reflecting the bigger impact they can have on scheme costs.

Setting recommended assumptions

Our general approach is:

- Identify groups of members we would expect to commute in different ways, for example by gender, pension amount and scheme section.

- Compare recent commutation experience against the 2016 valuation assumptions.

- Where there is not enough scheme experience, we look at assumptions from other groups of members or other schemes which may have similar experience, adjusted to allow for any available information

- Recommend a change to the assumption only if evidence points to a material change to the valuation results. In these cases, our recommendation is to fully align the assumption to recent experience, as there is limited evidence for in-year volatility.

- We make no explicit allowance for HMRC limits, which already influence member behaviours, or for the McCloud judgment as this is unlikely have a significant impact on members' commutation choices.

Scheme experience: in numbers

Category	Total pension coming into payment over 2016-2020 (before commutation)	Total pension commuted over 2016-2020	**Experience** Proportion of pension commuted over 2016-2020 (weighted by pension amount)	**2016 Expectations** Proportion of pension expected to be commuted under the 2016 assumptions	**2020 Expectations** Proportion of pension expected to be commuted under the 2020 assumptions
2015 scheme	N/A	N/A	N/A	17.5%*	20.0%
2022 scheme	N/A	N/A	N/A	N/A	20.0%
Other large public service schemes	£255 m	£50 m	19.6%	17.5%*	20%

*This assumption was previously HMT directed at the 2016 valuation.

There were 17 retirements over 2016-2020 from the 2015 scheme which is insufficient to produce a robust analysis. Therefore, we have not included any output in the table above.

In the absence of any other JPS scheme information, we looked at the average experience from other large public service schemes over 2016-2020. Other large public service schemes data includes data from National Health Service Pension Scheme (England and Wales) – 2008 section, Civil Service Pension Scheme (GB) – Non-Classic schemes, Teachers' Pension Scheme (England and Wales) – NPA 65 section and Local Government Pension Scheme (England and Wales) – Post 2008 section.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

B4. Retirement ages

Retirement ages

What does this assumption represent?

Retirement age assumptions are a series of probabilities which represent the likelihood of a member retiring and claiming their pension at any given age.

Different assumptions usually apply to groups who are expected to behave differently, e.g., for members with different Normal Pension Ages.

Retirement age affects:

- The benefits members receive e.g. earlier retirement ages for active members means lower benefits, as members will have built up those benefits over a shorter period of time.

- The length of time benefits will be paid for – although in most schemes this impact is offset by early retirement reductions and late retirement uplifts.

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
🟠 Average	🟢 Low	🟢 None	🚫 No impact

Our recommendations and rationale

We recommend no changes to the 2016 assumptions, as these are close to recent experience for the legacy sections.

It is not yet possible to test the suitability of the 2015 scheme assumption, and we recommend that the existing assumption is retained. In addition any retirements over the period may have been heavily influenced by the McCloud Judgement.

For members impacted by the McCloud judgment we recommend no change to the retirement assumptions for members who will have benefits in both the new 2022 scheme and the legacy sections. This judgment is likely to result in many members exchanging up to 7 years' service from the SPa-linked 2015 scheme to earlier legacy arrangements. However, from 1 April 2022 members will accrual benefits in the 2022 scheme which has a SPa-linked retirement age so we therefore recommend retaining the existing 2015 scheme retirement assumptions for this scheme due to that similarity in the benefits.

Practical implications

The chart to the right shows the impact of our recommended assumptions. For each category shown:

- The **top line** (⬛) shows the impact of the assumptions we recommend for the 2020 valuation.

- The **bottom line** (⬛) shows the impact of the assumptions adopted for the 2016 valuation.

The numbers shown in this example assume that members retire from active service. No allowance is made for the possibility of ill-health retirement, leaving service before retirement, or death in service. These assumptions are covered in other sections.

Expected retirement age for members now aged 45

JUPRA scheme	Males	67.0 / 67.0
	Females	67.0 / 67.0
2015 scheme	Males	68.5 / 68.5
	Females	68.5 / 68.5
FPJPS	Males	69.0 / 69.0
	Females	69.0 / 69.0
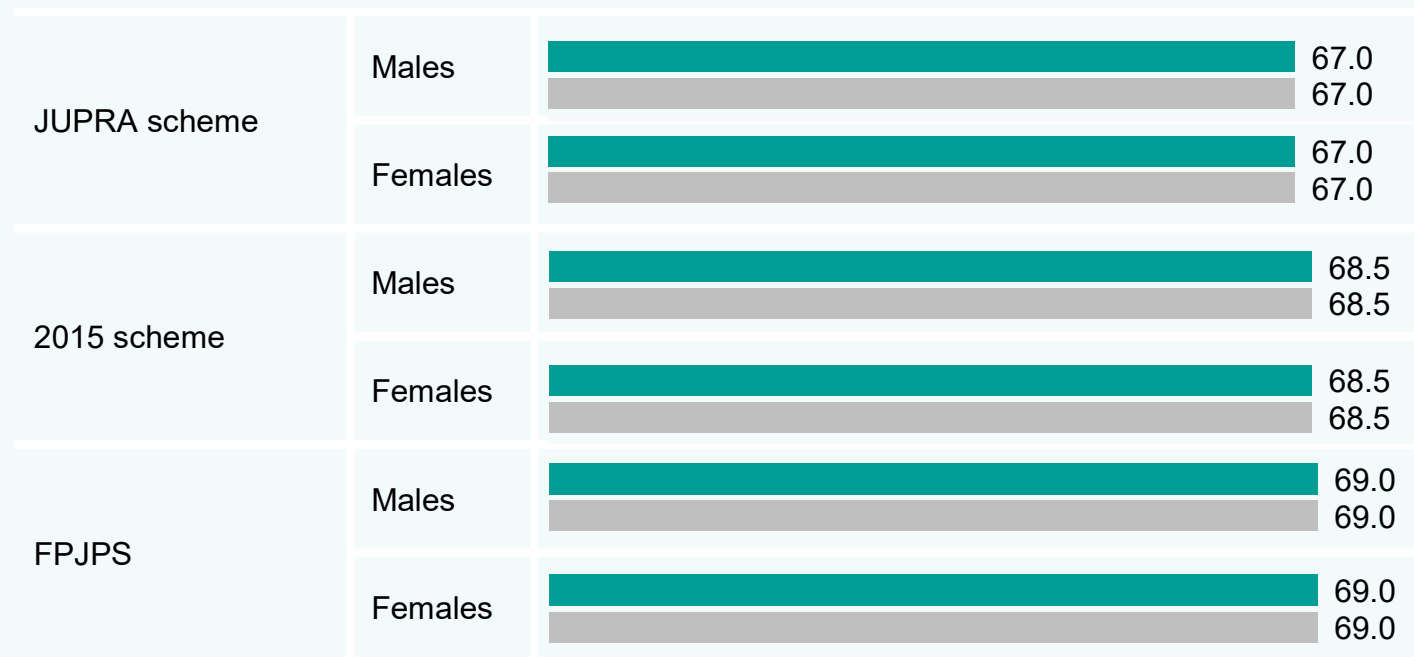
Our approach

Analysis

We have analysed the scheme's retirement experience over the period 1 April 2016 to 31 March 2020.

This analysis is based on active members of the scheme. Deferred members are not analysed and assumed to retire at their <u>Normal Pension Age</u>.

Setting recommended assumptions

Our general approach is:

- Identify groups of members we would expect to have different retirement patterns, for example by gender and scheme section.

- Compare recent retirement experience against the 2016 assumptions.

- Where there is not enough scheme experience, we look at assumptions from other groups of members or other schemes which may have similar experience, adjusted to allow for any available information.

- Recommend that the assumption is updated only if evidence points to a material change to the valuation results.

- We typically only recommend a change to the assumed number of retirements, leaving the age profile of the existing assumption unaltered. We only recommend a change to the age profile if we see evidence of a material and non-temporary step change in membership behaviour.

- The last four years of experience may not accurately reflect the longer-term, so if we recommend a change we generally 'smooth out' any excess volatility by basing our recommendation on an equal allowance for recent experience and the 2016 valuations assumptions, which were in turn set using pre-2016 experience.

Scheme experience: overall

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

- **actual experience** ( ) on the left – what has happened over the last 4 years.

- **2016 assumptions** ( ) in the middle – what we thought would happen, based on the assumptions adopted for the 2016 valuation.

- **2020 recommendations** ( ) on the right – what we would have expected to happen, had our recommended assumptions for the 2020 valuation been adopted for the 2016 valuation.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Experience vs expectations: average retirement ages
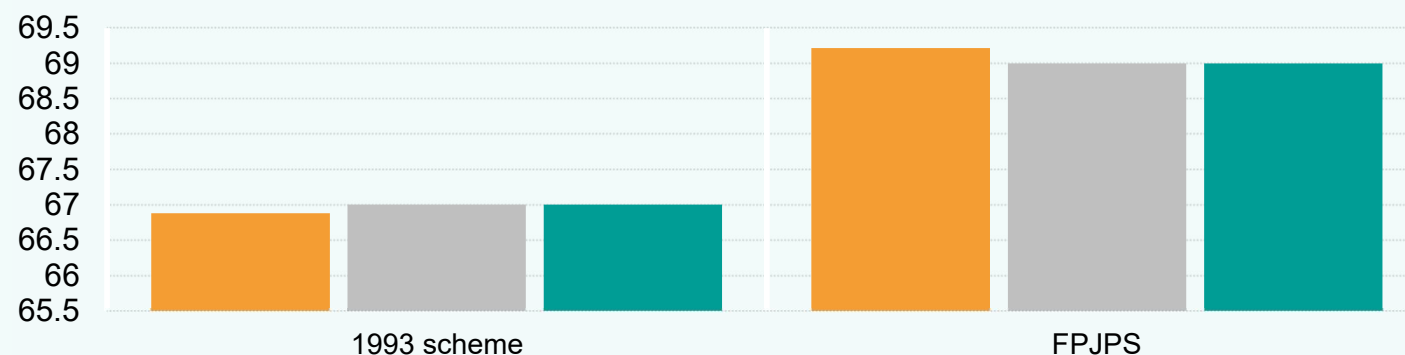
Summary

There was insufficient data to carry out any analysis for the 2015 scheme due to low rates of retirement from the 2015 scheme in the 2016-2020 period.

The average age of recent retirements in the JUPRA and FPJPS schemes are close to the 2016 assumptions, as shown in the chart above.

The number of retirements in these schemes are also close to the 2016 assumptions, as shown on the next page.

Scheme experience: in detail

Number of retirements by age, for members with accrued pension in the specified scheme, split by category

JUPRA
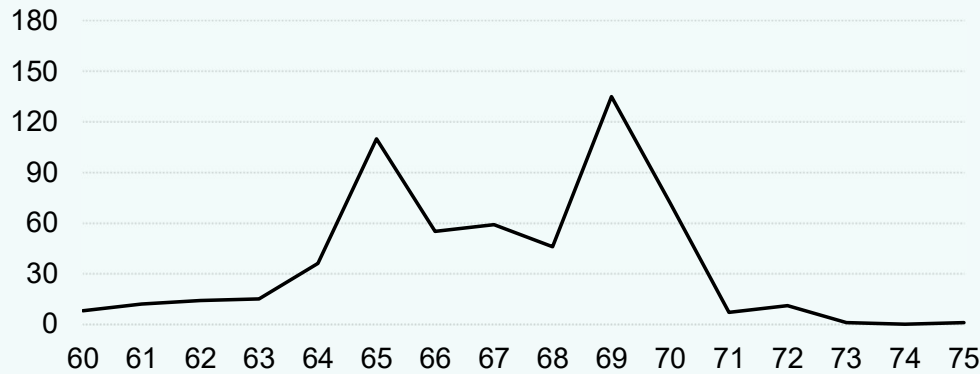
FPJPS Scheme
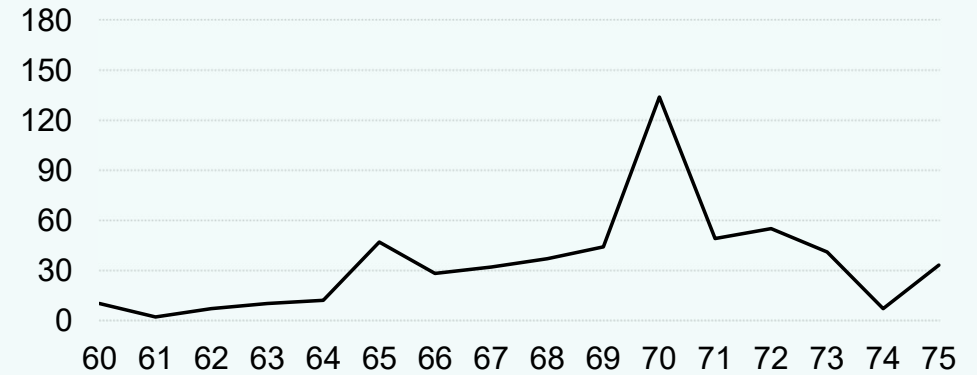
All members of the 1981 Scheme are assumed to retire at age 70.

All members of JUPRA are assumed to retire at age 67.

Salaried Members of the 2015 scheme are assumed to retire at the mid-point of their SPa and the compulsory retirement age of 70, with those with SPa of 65, assumed to retire at age 67.

All fee-paid members (both in the FPJPS and the 2015 scheme) are assumed to retire at age 69.

Key: ———— **Experience**

Scheme experience: in numbers

Category	Gender	**Data** Number of retirements over 2016-2020	**Experience** Average age at retirement for retirements over 2016-2020	**2016 Expectations** Expected average age at retirement under the 2016 assumptions	**2020 Expectations** Expected average age at retirement under the 2020 assumptions
1981 scheme	**Males**	12	70.8	70.0	70.0
	Females	2	72.0	70.0	70.0
JUPRA scheme	**Males**	480	67.3	67.0	67.0
	Females	108	65.1	67.0	67.0
2015 scheme	**Males**	12	63.0	68.5	68.5
	Females	8	58.1	68.5	68.5
FPJPS	**Males**	451	69.6	69.0	69.0
	Females	99	67.7	69.0	69.0

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

Wider environment

McCloud judgment

The McCloud judgment could result in many members exchanging up to 7 years' service from the SPa-linked 2015 scheme to earlier NPA legacy arrangements.

We have not made any allowance for this judgment in our recommendations, in line with the decisions taken for the 2016 cost control valuations which were issued in 2022.

The additional service in the legacy schemes may lead to changes in retirement behaviour to that previously assumed. However, the magnitude of any change is by no means clear, if it occurs at all. There are many other factors that might be working in the other direction which may influence member behaviour, such as changes in the State Pension age.

Normal Minimum Pension Age

The Finance Act 2022 sets out that the minimum age at which most members can be permitted to draw their pension benefits will rise from 55 to 57 with effect from April 2028, to coincide with the rise of State Pension age to 67.

Very few (if any) judges retire at these ages, so this change is not expected to have a material impact on the JPS.

Judicial mandatory retirement age

The Public Service Pensions and Judicial Offices Act 2022 increased the Judicial mandatory retirement age (MRA) from age 70 to age 75, following a public consultation launched in 2020.

The MRA is the upper age at which judicial office holders, including judges, tribunals' non-legal members, magistrates, and coroners, are required to vacate office. The MRA does not prevent judicial office holders from resigning or retiring earlier should they wish to.

A consequence of the change to MRA is that judges, who would have previously been require to vacate office at age 70, now work later into their seventies. This change of behaviour would have minimal financial impact on the 2015 scheme and 2022 scheme (which provide uplifts to pension on retirement after State Pension age), but may impact JUPRA and FPJPS.

We have not made any allowance for the potential impact of the change in MRA at this valuation, because the impact is uncertain, and there are other factors that may work in the opposite direction (McCloud, expansion of Sitting in Retirement).

The effect of the increase to the MRA and other changes should be kept under review at future valuations.

B5. Rates of leaving service

Rates of leaving service

What does this assumption represent?

Rates of leaving service (sometimes referred to as withdrawal rates) are a series of probabilities which represent the likelihood of a member voluntarily leaving service (without retiring) at any given age.

Different assumptions are usually adopted for groups who are expected to behave differently, e.g., for males and females, or members with pensions in different sections of the scheme.

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
● Average	● Low	● None	⃠ No impact

Our recommendations and rationale

There were fewer than 200 withdrawal during the period 2016 to 2020, which is less than 2% of the active population, implying a withdrawal rate of less than 0.5% each year. Deferred members constitute less than 1.5% of the total scheme membership which indicates that rates of withdrawal are trivial for valuation purposes.

The small number of withdrawals means there is not sufficient data to undertake any in depth analysis. The 2016 valuation adopted an assumption of nil withdrawal. We recommend that the assumption for rates of withdrawal remains at nil at all ages for all schemes.

There is not sufficient evidence to demonstrate that the previous valuation assumption is materially inappropriate and / or on which to base an alternative credible assumption which would give a materially different valuation result.

Our approach

Analysis

We have considered the scheme's experience over the period 1 April 2016 to 31 March 2020. We did not undertake any in depth analysis due to the small number of withdrawals.

Setting recommended assumptions

Our general approach is:

- Identify groups of members we would expect to have different rates of leaving service, for example by gender and scheme section.

- Compare recent withdrawal experience against the 2016 assumptions.

- Where there is not enough scheme experience, we look at assumptions from other groups of members or other schemes which may have similar experience, adjusted to allow for any available information.

- Recommend that the assumption is updated only if evidence points to a material change to the valuation results.

- We typically only recommend a change to the assumed number of withdrawals, leaving the age profile of the existing assumption unaltered. We only recommend a change to the age profile if we see evidence of a material and non-temporary step change in membership behavior.

- The last four years of experience may not accurately reflect the longer-term, so if we recommend a change we generally 'smooth out' any excess volatility by basing our recommendation on an equal allowance for recent experience and the 2016 valuations assumptions, which were in turn set using pre-2016 experience.

Scheme experience

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Active members	Experience	Rate per year	2016 Expectations	2020 Expectations
Average number of active members over 2016-2020	Number of leavers over 2016-2020	Proportion of active members leaving per year	Expected withdrawal rate under the 2016 assumptions	Expected withdrawal rate under the 2020 assumptions
9,227	140	0.4%	Nil	Nil

Summary

The small number withdrawals over the intervaluation period means that it is not possible demonstrate that the expected withdrawal is significantly different to zero. Therefore, we recommend retaining the existing assumption of nil withdrawals at all ages for all schemes on grounds of materiality.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

B6. Promotional pay increases

Promotional pay increases

What does this assumption represent?

Promotional pay assumptions are a series of pay increases that members are assumed to receive **in addition to** normal annual salary increases. The assumptions are usually tied to a member's age or length of service.

Promotional pay increases are a 'scheme-set' assumption. **Salary increases** are a directed assumption and are not covered in this section.

Promotional pay increase assumptions are important as they help determine the value of 'final salary' benefits which make up a high proportion of scheme costs. The final salary proportion will reduce over time as more CARE benefits are built up in the reformed scheme, which are less dependent on promotional pay increases.

Costs of the McCloud remedy are highly sensitive to promotional pay increase assumptions

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
🟠 Average	🔴 High	🟢 None	🚫 No impact

Our recommendations and rationale

We recommend that the promotional pay increases assumptions adopted for the 2016 valuation are retained for the 2020 valuation. We recommend that the same promotional pay increases assumptions are adopted for both salaried members of the scheme and fee-paid members of the scheme.

The experience has been higher than assumed for the 2016 valuation for younger members and lower than was assumed for the 2016 valuation for older members. The differences have generally been very small.

Adjusting the assumptions for recent experience for these members would not have a material effect on the valuation results.

Practical implications

The number and size of promotional pay increases can dramatically affect member benefits. This is especially true for final salary benefits (which are based on salary at retirement), but also true for career average benefits (which are based on earnings over a member's working lifetime in the scheme).

The chart to the right shows the potential salary at age 65 of a member currently aged 45 and paid £125,000 a year.

For each category shown:

- The **top line** (▬▬) shows the impact of the assumptions we recommend for the 2020 valuation.

- The **bottom line** (▭▭) shows the impact of the assumptions adopted for the 2016 valuation.

General (non-promotional) salary increases are set to be zero in the chart so that the impacts of different promotional pay assumptions can be seen more clearly.

Salary at age 65 for a member now aged 45, and paid £125,000

Males & Females	Salaried		
		▬▬▬▬▬▬▬▬▬▬	£131,158
		▭▭▭▭▭▭▭▭▭▭	£131,158

Our approach

Analysis

We have analysed the scheme's salary growth experience for salaried members over the period 1 April 2016 to 31 March 2020 by identifying members who appear in the data used for both the 2016 and 2020 valuations and analysing their pay growth over the 2016-2020 period. This is known as an "annual increase" analysis.

We have stripped out an allowance for known general pay increases in order to isolate the promotional elements of pay changes.

We have made no allowance for members moving between categories.

There was not sufficient robust data to separately analyse the experience for fee-paid members of the scheme.

Setting recommended assumptions

Our general approach is:

- Identify groups of members where we see different levels of promotional increases. This has included gender in the past, and we continue to examine whether gender differences exist.

- Compare recent levels of promotional increases against the 2016 valuation assumptions

- Where there is not enough scheme experience, we look at assumptions from other groups of members or other schemes which may have similar experience, adjusted to allow for any available information.

- Recommend a change to the assumption only if evidence points to a material change to the valuation results.

- We typically only recommend an overall adjustment to the assumed promotional increases, leaving the age profile of the existing assumption unaltered. We only recommend a change to the age profile if we see evidence of a material and non-temporary change in membership behaviour.

- The last four years of experience may not accurately reflect the longer-term, so if we recommend a change we generally 'smooth out' any excess volatility by basing our recommendation on an equal allowance for recent experience and the 2016 valuations assumptions, which were in turn set using pre-2016 experience.

Scheme experience: overall

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

The chart to the right and those on the following pages compare:

- **actual experience** ( ) on the left – what has happened over the last 4 years.

- **2016 assumptions** ( ) in the middle – what we thought would happen, based on the assumptions adopted for the 2016 valuation.

- **2020 recommendations** ( ) on the right – what we would have expected to happen, had our recommended assumptions been adopted for the 2016 valuation.

All numbers exclude general (non-promotional) salary increases.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Experience vs expectations: average annual increases from age 45 to 65

Salaried (Male & Female)
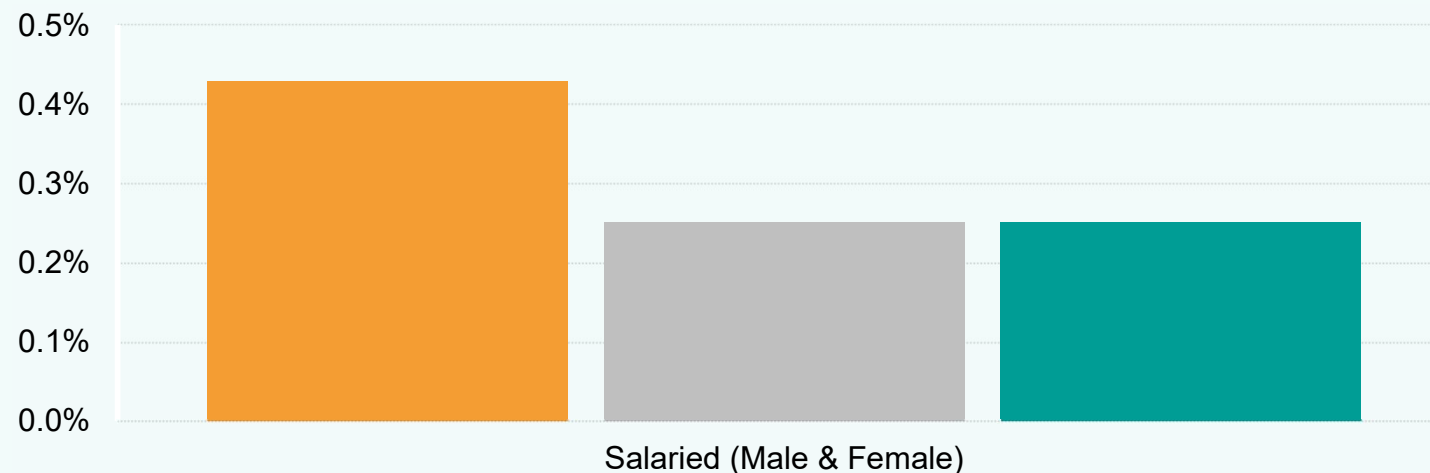
Summary

Overall, members have experienced higher promotional pay increases than expected, based on the 2016 assumptions, but the size of the difference is small.

The differences is concentrated in members aged under 50, with good agreement at ages 50 and above. As younger members will have smaller liabilities in the final salary schemes, it is appropriate to place more weight on the experience at older ages.

Adjusting the assumptions for recent experience would not be expected to have a material effect on the valuation results.

Scheme experience: in detail

Annual promotional pay increases by age, split by category

Male & Female - Salaried
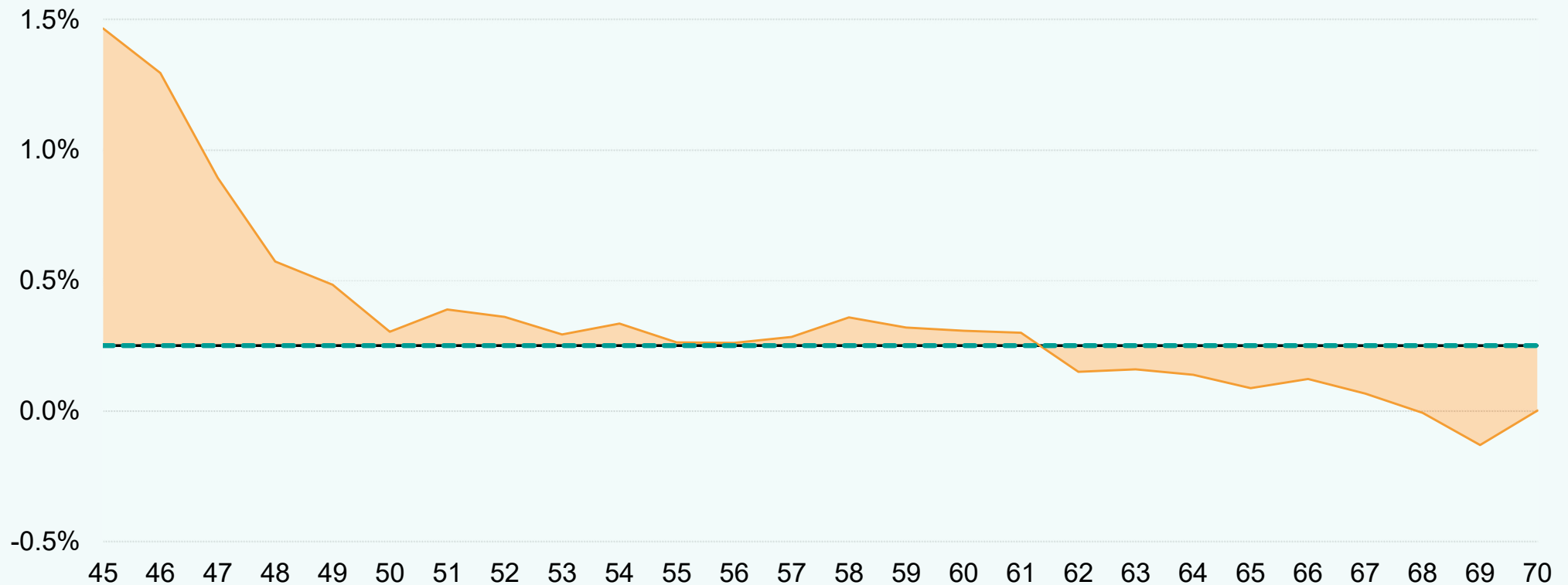
Key:

———— **2016 assumptions**

‑ ‑ ‑ ‑ **2020 recommendations**

▬ **Experience** (line) and difference from 2016 assumptions (shaded area)

Scheme experience: in numbers

Category	2016 payroll of analysed members	2020 payroll of analysed members	**Experience** Implied annual promotional pay increase, after removal of general salary increases	**2016 Expectations** Expected annual promotional pay increase under the 2016 assumptions	**2020 Expectations** Expected annual promotional pay increase under the 2020 assumptions
Salaried	£159 million	£161 million	0.43%	0.25%	0.25%

The 2016 payroll figures above include an allowance for known general pay increases from 2016 to 2020 (1%, 1%, 2%, 2%). The Experience and Expectations figures shown in the table above show the annual promotional pay increases to age 65 for a member now aged 45. Different rates would apply for different current age and retirement age combinations.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

B7. Rates of ill-health retirement

Rates of ill-health retirement

What does this assumption represent?

Rates of ill-health retirement are a series of probabilities which represent the likelihood of a member retiring in ill-health at any given age.

Members are eligible for either upper-tier or lower-tier ill-health benefits, depending on the severity of their illness.

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
🟢 Least	🟢 Low	🟢 None	🚫 No impact

Our recommendations and rationale

There were 23 ill-health retirements during the period 2016 to 2020, which is about 0.2% of the active population, implying an ill-health retirement rate of less than 0.05% each year. Ill-health pensioners constitute 1.8% of the total pensioner population which indicates that ill-health retirements are trivial for valuation purposes.

The small number of ill-health retirements means there is not sufficient data to undertake any in depth analysis. The 2016 valuation adopted an assumption of nil ill-health retirements. We recommend that the assumption for rates of ill-health retirements remains at nil at all ages for all schemes.

There is not sufficient evidence to demonstrate that the previous valuation assumption is materially inappropriate and / or on which to base an alternative credible assumption which would give a materially different valuation result.

Our approach

Analysis

We have considered the scheme's experience over the period 1 April 2016 to 31 March 2020. We did not undertake any indepth analysis due to the small number of withdrawals.

Setting recommended assumptions

Our general approach is:

- Identify groups of members we would expect to have different rates of ill-health retirement, for example by gender.

- Compare recent ill-health retirement experience against the 2016 assumptions.

- Where there is not enough scheme experience, we look at assumptions from other groups of members or other schemes which may have similar experience, adjusted to allow for any available information.

- Recommend that the assumption is updated only if evidence points to a material change to the valuation results.

- We typically only recommend a change to the assumed number of ill-health retirements, leaving the age profile of the existing assumption unaltered. We only recommend a change to the age profile if we see evidence of a material and non-temporary step change in membership outcomes.

- The last four years of experience may not accurately reflect the longer-term, so if we recommend a change we generally 'smooth out' any excess volatility by basing our recommendation on an equal allowance for recent experience and the 2016 valuations assumptions, which were in turn set using pre-2016 experience.

- The same approach applies to the proportions of ill-health retirements across the different severity tiers.

Scheme experience

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Active members	Experience	Rate per year	2016 Expectations	2020 Expectations
Average number of active members over 2016-2020	Number of ill health retirements over 2016-2020	Proportion of active members ill health retiring per year	Expected rate of ill health retirements under the 2016 assumptions	Expected rate of ill health retirements under the 2020 assumptions
9,227	46	0.1%	Nil	Nil

Summary

The small number ill-health retirements over the intervaluation period means that it is not possible demonstrate that the expected ill-health assumption is significantly different to zero. Therefore, we recommend retaining the existing assumption of nil ill-health retirements at all ages for all schemes on grounds of materiality.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

Wider environment: McCloud

McCloud judgment

We would not expect the McCloud judgment to impact the number of ill-health retirements directly. However, the tests for the eligibility of members to receive ill-health benefits can differ between the legacy and reformed schemes.

Therefore, there may be an increased rate of ill-health retirement for in scope members, who may be reassessed under different rules. We would not expect this to have a material impact on contribution rates.

In addition, this ceased to apply from 1 April 2022 when all members moved into the reformed scheme.

B8. Mortality before retirement

Mortality before retirement

What does this assumption represent?

Mortality assumptions are a series of probabilities which represent the likelihood of a member dying at any given age. Different assumptions usually apply to males and females.

Mortality after retirement assumptions are used after members are assumed to retire and these and these are covered in Part B2.

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
🟢 Least	🟢 Low	🟢 None	🚫 No impact

Our recommendations and rationale

Deaths before retirement have been reasonably close to the 2016 assumptions, so we recommend no changes to the current assumptions.

The analysed experience runs to 31 March 2020, and as such misses most of the impact of the COVID-19 pandemic. There is anecdotal evidence that the pandemic has increased the number of deaths before retirement. However, we have made no allowance for this, as it is unlikely to have any material impact on the valuation results.

Practical implications

The chart to the right shows the likelihood of dying before retirement. For each category shown:

- The **top line** (■■■■) shows the likelihood under the assumptions we recommend for the 2020 valuation.

- The **bottom line** (▭▭▭) shows the likelihood under the assumptions adopted for the 2016 valuation.

The numbers shown assume that members either die or remain in service until age 65. No allowance is made for the possibility of early retirement, leaving service, or ill-health retirement. These assumptions are covered in other sections.

Likelihood of member now aged 45 dying in service before age 65

Males
3.5%
3.5%

Females
2.1%
2.1%
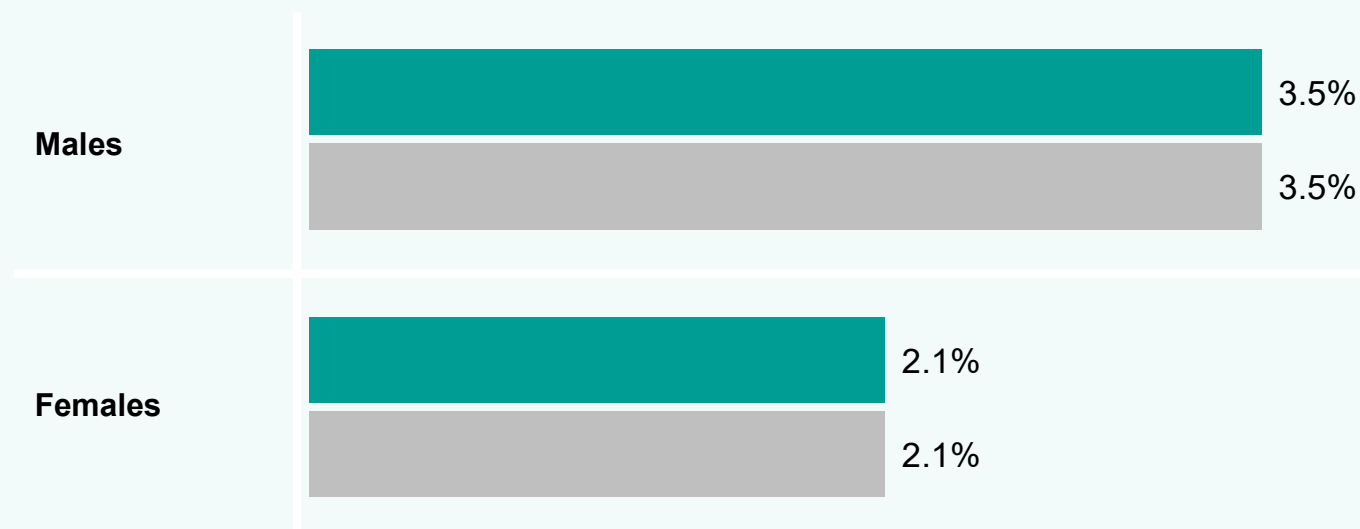
Our approach

Analysis

We have considered the scheme's pre-retirement mortality experience over the period 1 April 2016 to 31 March 2020. We did not undertake any indepth analysis due to the small number of deaths before retirement.

Setting recommended assumptions

Our general approach is:

- Identify groups of members we would expect to have different rates of death before retirement, for example by gender.

- Compare recent pre-retirement death experience against the 2016 assumptions.

- Where there is not enough scheme experience, we look at assumptions from other groups of members or other schemes which may have similar experience, adjusted to allow for any available information.

- Recommend that the assumption is updated only if evidence points to a material change to the valuation results.

- We typically only recommend a change to the assumed number of pre-retirement deaths, leaving the age profile of the existing assumption unaltered. We only recommend a change to the age profile if we see evidence of a material and non-temporary step change in membership outcomes.

- The last four years of experience may not accurately reflect the longer-term, so if we recommend a change we generally 'smooth out' any excess volatility by basing our recommendation on an equal allowance for recent experience and the 2016 valuations assumptions, which were in turn set using pre-2016 experience.

Scheme experience

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Active members	Experience	Rate per year	2016 Expectations	2020 Expectations
Average number of active members over 2016-2020	Number of deaths before retirement over 2016-2020	Proportion of active members deaths per year	Expected number of deaths before retirement under the 2016 assumptions	Expected number of deaths before retirement under the 2020 assumptions
9,227	68	0.2%	Age 60: 0.25% (Men) 0.15% (Women)	Age 60: 0.25% (Men) 0.15% (Women)

Summary

The small number deaths before retirement over the intervaluation period means that it is not possible demonstrate that the expected mortality before retirement assumption is significantly different to the existing assumption. Therefore, we recommend retaining the existing mortality before retirements rates at all ages for all schemes on grounds of materiality.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

B9. Family statistics

Family statistics

What does this assumption represent?

The term 'family statistics' covers several assumptions, including:

- the probability that an eligible partner exists

- the average age of that partner, compared to the member.

The assumptions are used to estimate the likelihood of a dependant's pension coming into payment when a member dies, and how long that pension will be paid.

For existing pensioners, we consider the likelihood of members having an eligible partner on 31 March 2020. For future pensioners, we consider the likelihood of members having an eligible partner at retirement, or earlier death.

Mortality assumptions apply independently to the member and assumed partner.

Summary statistics

Relative importance of assumption	Volatility of experience and unreliability of data	Size of recommended change	Impact of recommended changes on scheme costs
🟢 Least	🟠 Medium	🟢 None	🚫 No impact

Our recommendations and rationale

For the current pensioner proportion married/partnered assumptions (applicable to 1981, JUPRA and 2015 schemes), we recommend no change to the 2016 assumptions. This is due to experience being broadly in line with the current 2016 assumptions. We also considered the ONS married and married/partnered assumptions to inform our recommendation.

For the future pensioner proportion married/partnered assumptions, we recommend no change to the 2016 assumptions.

For the age difference assumptions, we do not have the experience data to test the auditability of this assumption. We recommend no change to the 2016 assumptions.

For the minor assumptions such as minor dependants' pensions, dependants' gender and remarriage, we recommend no change to the 2016 assumptions.

We recommend that the same assumptions are adopted for fee-paid members as we are not aware of any information that would suggest that the family statistic assumptions for fee-paid members is sufficiently different to salaried members.

We also recommend, in the absence of any experience data, that the same family statistic assumptions are adopted for the new 2022 scheme.

Practical implications

The chart to the right shows the likelihood that an eligible partner exists at time of retirement. The likelihood of a partner existing at death depends on:

• Assumptions about the existence of an eligible partner and that partner's age (discussed in this section)

• Assumptions about the member and partner's mortality (discussed in the mortality after retirement section).

For each category shown:

• The **top line** ( ) shows the likelihood under the assumptions we recommend for the 2020 valuation.

• The **bottom line** ( ) shows the likelihood under the assumptions adopted for the 2016 valuation.

Likelihood of an eligible partner existing at time of retirement, for normal health pensioner who retired at age 65 at the valuation date

Males	90%
	90%
Females	80%
	80%
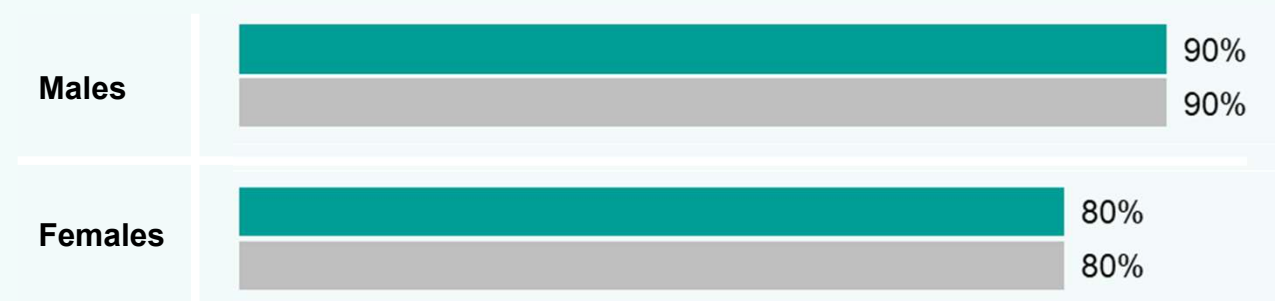
Our approach

Analysis

Our analysis is based on the active data as at 31 March 2020 using the marital status indicator to identify those that are married/partnered. Our analysis includes members from all schemes.

Our analysis has been carried out on an 'lives' basis reflecting data available.

Setting recommended assumptions

Our general approach is:

- Identify groups of members we would expect to have different family statistics, for example by gender, and by section of the scheme, where there are differences in eligibility.

- Compare recent proportion married for members against the 2016 assumptions.

- Where there is not enough scheme experience, we look at assumptions from national statistics, other groups of members or other schemes which may have similar experience, adjusted to allow for any available information.

- Recommend that the assumption is updated only if evidence points to a material change to the valuation results.

- Recommend that the proportion married/partnered assumption remains aligned to the proportion married assumption in the absence of any experience data or evidence that would justify changing the proportion married/partnered assumption.

- We typically only recommend a change to the overall assumed proportion married or married/partnered, leaving the age profile of the existing assumption unaltered. We only recommend a change to the age difference if we see evidence of a material and non-temporary step change in membership behavior.

- The last four years of experience may not accurately reflect the longer-term, so if we recommend a change we generally 'smooth out' any excess volatility by basing our recommendation on an equal allowance for recent experience and the 2016 valuations assumptions, which were in turn set using pre-2016 experience.

Scheme experience: overall

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

The chart to the right and those on the following pages compare:

- **actual experience** (███) on the left – based on active data as at 31 March 2020.

- **2016 assumptions** (███) in the middle – what we thought would happen, based on the assumptions adopted for the 2016 valuation.

- **2020 recommendations** (███) on the right – what we would have expected to happen, had our recommended assumptions been adopted for the 2016 valuation.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Experience vs expectations: proportion married/partnered at retirement
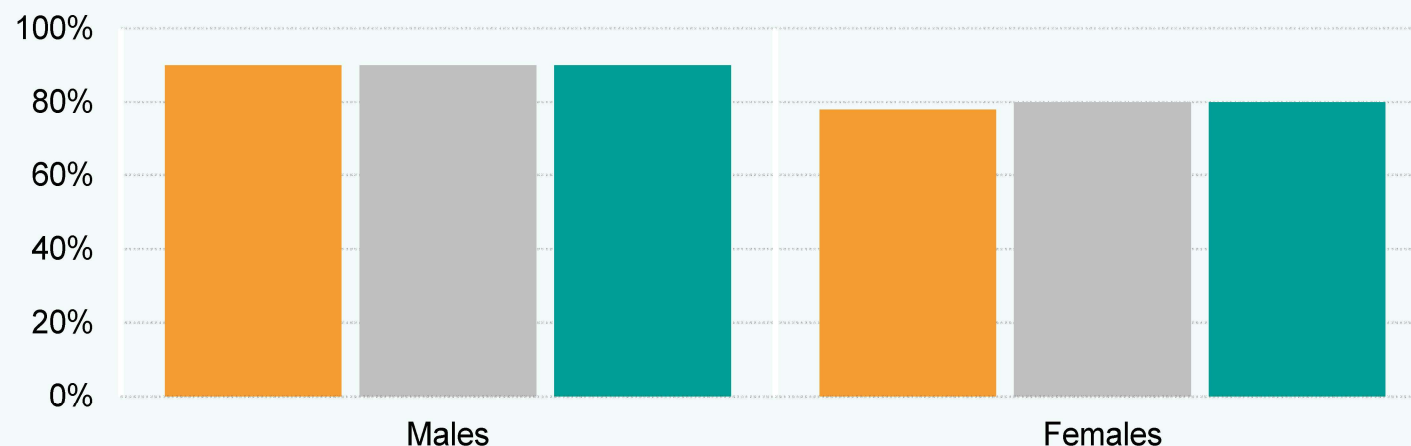
Summary

For both males and females, we have seen a similar proportion married/partnered in recent years compared to the 2016 assumption, as shown above. However, the analysis only covered 34% of active member data (after excluding invalid marital status data).

ONS 2020 statistics were also considered when informing whether the married/partnered assumption remained appropriate. The differential between married and married/partnered ONS 2020 rates remain relatively small at the older ages thus supporting the simplified approach of a single proportion married/partnered assumption rather than a separate proportion married assumption for JUPRA / FPJPS and a proportion married/partnered assumption for the 2015 scheme / 2022 scheme.

Scheme experience: in detail

Proportion married or partnered at retirement by age, split by category
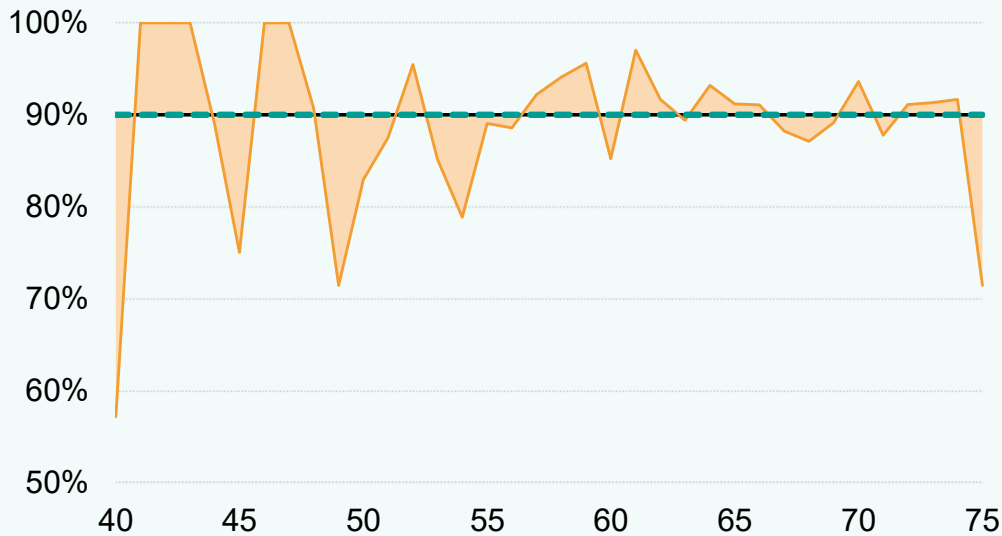
Males

Females
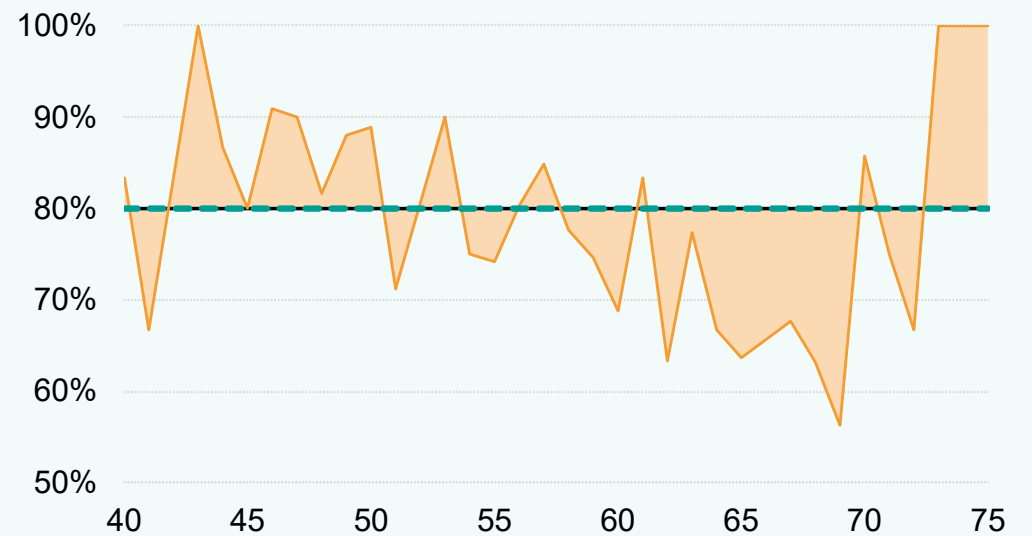
Key: ——— **2016 assumptions**   - - - - **2020 recommendations**   ▬ **Experience** (line) and difference from 2016 assumptions (shaded area)

Scheme experience: in numbers

Proportion married or partnered at retirement, by age and category

Category	Experience (*) Number of active records as at 31 March 2020 with a valid marital status	Experience (*) Actual number of active member records with an eligible partner as a proportion of total number of active records	2016 Expectations Expected proportion married / partnered at retirement under the 2016 recommendations	2020 Expectations Expected proportion married / partnered at retirement under the 2020 recommendations
Males	2,077	90%	90%	90%
Females	1,286	78%	80%	80%

* This analysis has been carried out on approximately 34% of active members since around 6.7k were excluded from the analysis due to invalid marital status.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

Scheme experience: age difference at death

Experience versus expectations show how accurate the assumptions have been in the past and can help inform setting future assumptions.

It should be noted that experience can be a very volatile measure for groups with small amounts of data, which then impacts the reliance we place on it.

Summary

There is no scheme experience to analyse the age differences between members and their spouse / partner. We do not expect these assumptions to have a material impact on the valuation. We recommend that the 2016 assumptions, of males members being three years older than their spouse/partner and female members being two years younger than their spouse/partner, are retained.

ONS statistics broadly support the existing age difference assumptions.

Details of our 2020 recommendations are set out in a separate document that will be published alongside this report.

Wider environment and other assumptions

Walker & Goodwin

MoJ has concluded that the JPS Schemes are not affected by the Walker and Goodwin litigation, regarding the equalisation of survivor benefits.

Minor dependants' pensions

No allowance has been taken for short term dependants' pensions or childrens' pensions (other than those already in payment), on grounds of immateriality.

Dependants' gender

All dependants are assumed to be the opposite sex of the member, on the grounds of materiality.

Remarriage

No allowance is made for remarriage on the grounds of materiality.

In each case, the approach is the same as that adopted for the 2016 valuation.

Part C: Appendices
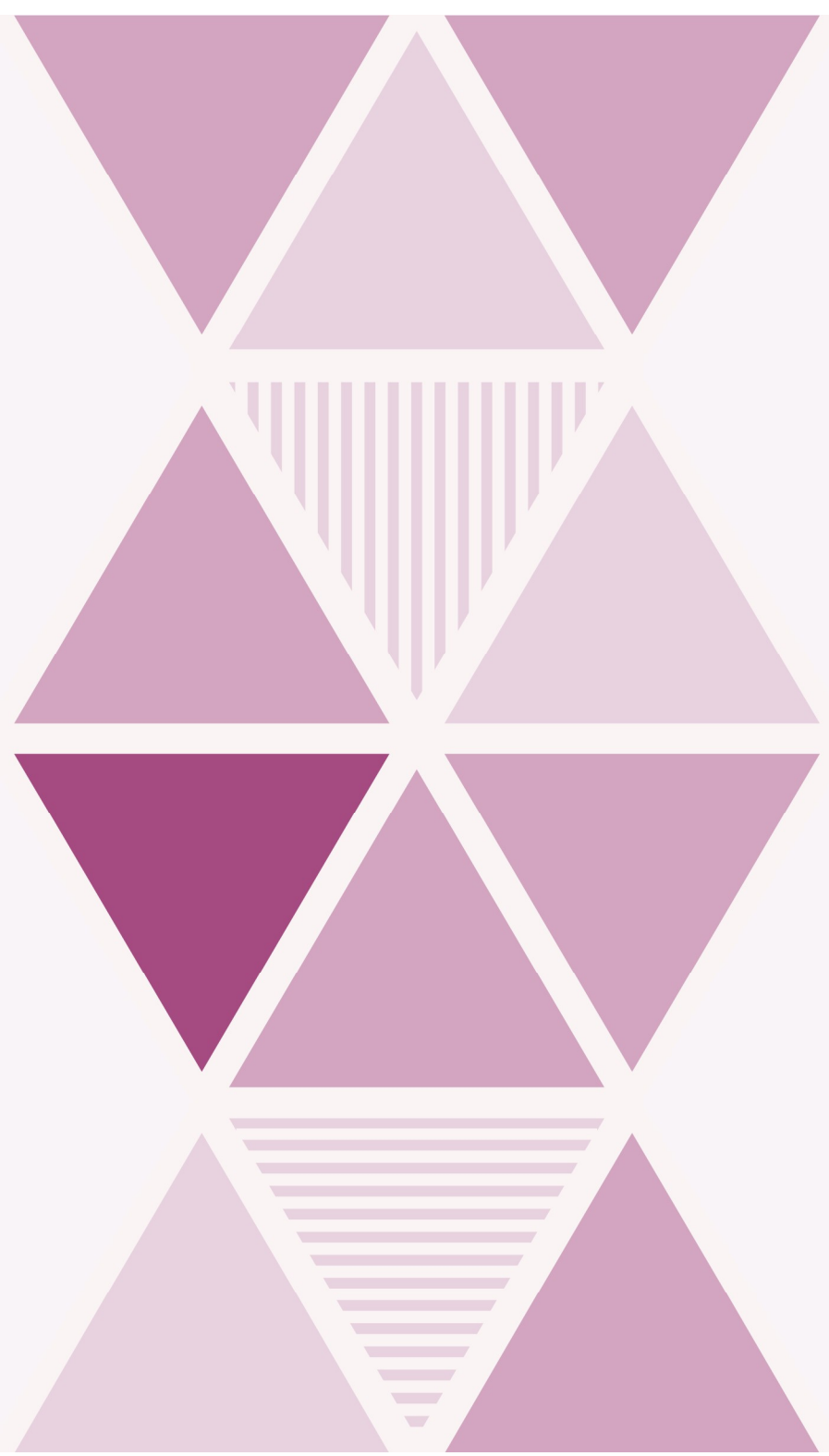
C1. Directed assumptions 1

Annual financial assumptions

Taken from Directions dated 30 August 2023.

Discount rate, net of assumed pension increases

Rates of pension increases
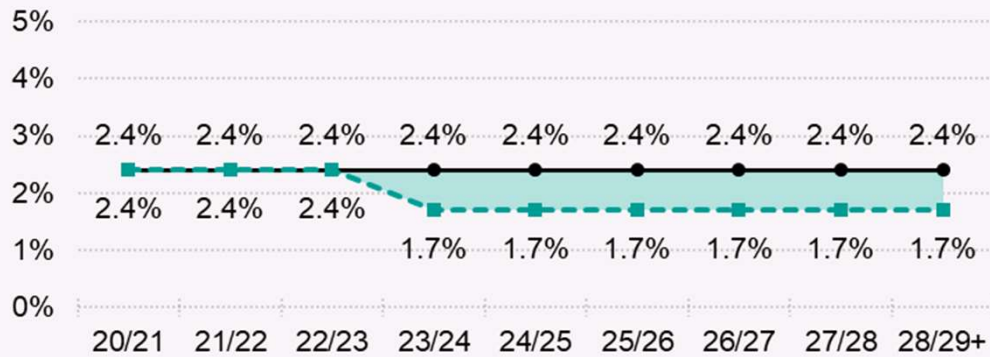
*Note: applicable from April at end of period
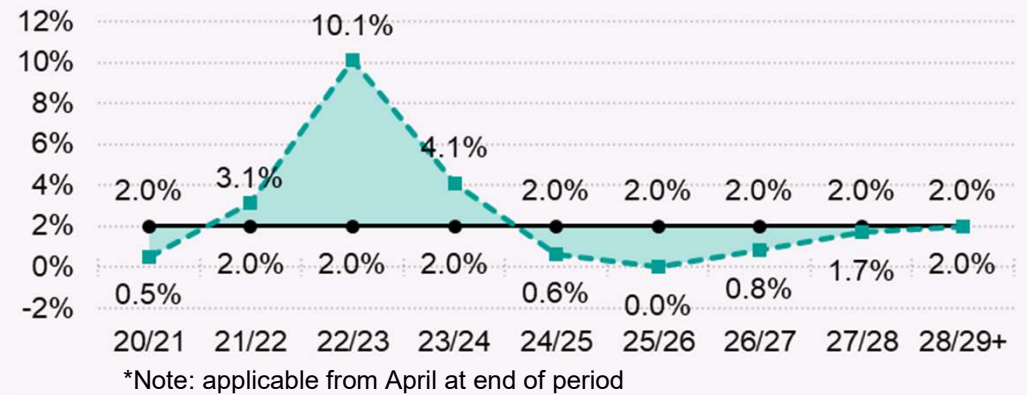
Rates of CARE revaluation
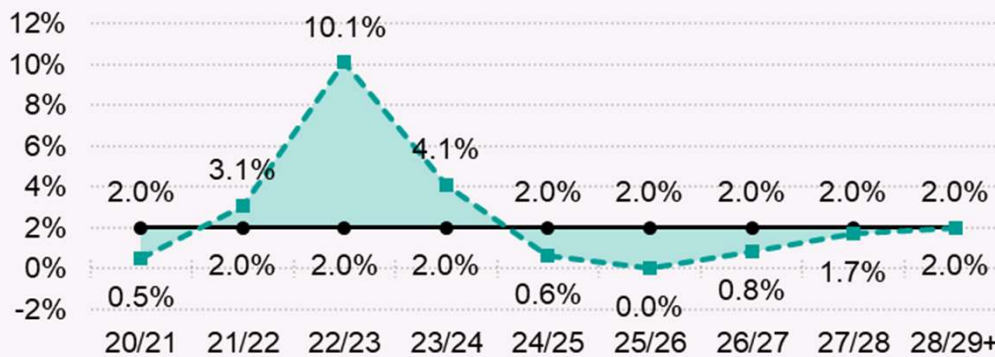
*Note: applicable from April at end of period

Rates of salary increases
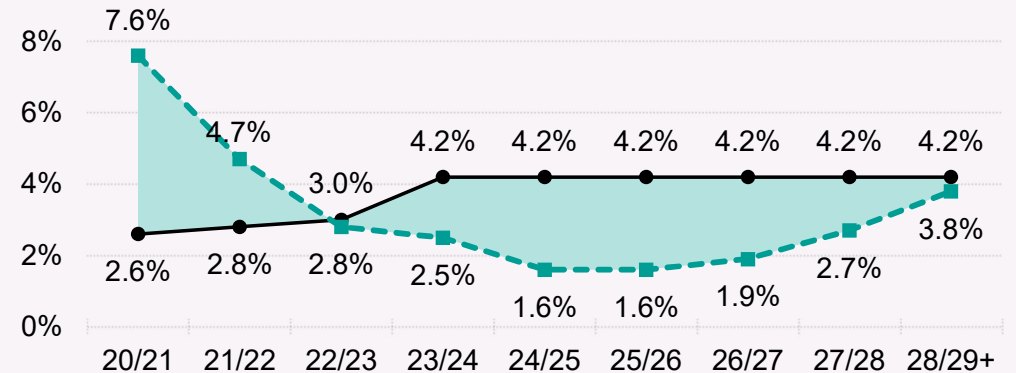
Key: ——●—— **2016 assumptions**   - - ■ - - **2020 assumptions** (dotted line) and difference from 2016 assumptions (shaded area)

C1. Directed assumptions 2

Other directed assumptions
Taken from Directions dated 30 August 2023.

Assumption name	2016 assumption	2020 assumption
Deficit spreading periods	15 years	15 years
Future mortality improvements	In line with 2016-based ONS projections	In line with 2020-based ONS projections
State Pension ages	As legislated for in the Pensions Act 1995, Pensions Act 2007, Pensions Act 2011 and Pensions Act 2014	As legislated for in the Pensions Act 1995, Pensions Act 2007, Pensions Act 2011 and Pensions Act 2014

C2. Other minor assumptions 1

Active membership projections

Direction 12 requires the actuary to use the 'projected unit methodology' to calculate the valuation results. The valuation results require the calculation of the cost of benefit accrual over periods after the effective date (31 March 2020). This implicitly requires the actuary to estimate the membership to future dates in order to determine the valuation results.

Members of the legacy sections ceased to accrue benefits in these sections at 31 March 2022 and future accrual for all members is in Judicial Pension Scheme 2022 from 1 April 2022.

The expected cost of accruing benefits over periods after the effective date have been determined by assuming an overall stable population (age and pay profile) to the end of implementation period.

The approach incorporates the following assumptions:

- Members with past service in the legacy sections are assumed to retire in line with recent experience. This provides for some legacy section members to remain in active service in the reformed scheme beyond 2022 due to late retirement.

- The overall profile of the membership in terms of average age and pay distribution is assumed to remain constant over the period.

- The overall active membership will be in receipt of pensionable pay for each relevant year equal to that assumed for forecasting purposes.

- The State Pension age in the projected populations is assumed to be determined by the implied dates of birth and so the State Pension age mix changes over time despite the assumed stable population. This allows for the membership accruing benefits to change over the implementation period.

- Mortality is assumed to be projected forward to the relevant year of use in all cases.

C2. Other minor assumptions 2

Grouping of individual active member records

Individual active members have been grouped together for the purposes of calculating liabilities. This grouping is necessary to accommodate the volume of data within our valuation system. The approach taken to grouping the data has been tested to ensure it does not result in any distortion of the valuation results. The groupings are made for previous protection status (ie protected, tapered or unprotected), section/scheme (ie JUPRA, 2015 Scheme), Salaried or Fee-paid status, age, gender, State Pension age and service.

Payroll projection

For the purposes of spreading any past service surplus or deficit, the payroll projections take account of known figures published to 31 March 2023. Future payroll estimates are assumed to be projected forward (only) in line with valuation earnings assumptions

Member contribution yield over implementation period

The average member contribution yield assumed to apply over the implementation period is 4.26% of pensionable pay. This is in line with the target yield and the default member contribution option. From 1 April 2025 all active members will need to pay contributions at this rate.

Judicial Pension Scheme 2022 commutation supplement

An additional lump is payable at retirement from which is intended to compensate members for the tax treatment of lump sums in an unregistered pension scheme. It has been assumed that members marginal tax rate at retirement is 45% for this calculation.

Judicial Pension Scheme 2022 lower accrual rate option

Members have an option to accrue pension at a lower rate of accrual (2.32%) than the default rate (2.50%) and pay a lower member contribution (3.0% vs 4.26%) until 2025. On grounds of materiality no allowance has been made for this member option.

C2. Other minor assumptions 3

McCloud calculation approach

The outcome of the remedy required to address the McCloud judgement is twofold:

- Eligible members will be given an option to receive benefits from either the reformed or legacy sections for the period 1 April 2015 to 31 March 2022.
- All active members still in the legacy scheme were transferred to Judicial Pension Scheme 2022 from 1 April 2022.

Members are likely to choose the option that provides them with the highest benefits. This impact was also allowed for in the 2016 cost cap valuation and we have followed the same approach for the 2020 valuation.

To allow for the McCloud remedy in our calculation methodology we have valued the 'better' benefits for groups of members when comparing benefits in their reformed and legacy sections.

Benefits are valued in each contingency (eg retirement or death), at each future date and for each eligible individual, using the same demographic assumptions (eg retirement ages) for both the reformed and legacy section calculations.

In determining which benefits members will choose, we have taken account of the member's pension after commutation (valuing £1 pa pension as £20) and lump sum (both commuted lump sum and any automatic lump sum).

The chosen benefit structure is then valued using the valuation assumptions (ie pensions are not valued using the 20:1 factor in the final results and explicit allowance is made for contingent survivor pensions).

O'Brien 2 & Miller calculation approach

The O'Brien 2 and Miller remedy is in the process of implementation and the data for O'Brien 2 and Miller is still developing. In our calculations we have assumed the following:

- We have made approximate allowance for certain judges whose benefits could be identified as being lower than that which would ultimately be due, and calculated the additional retirement lump sum and pension arrears which will be due.

- Contributions due for service prior to 1 April 2017 were estimated based on service histories, current salaries and a typical rate of salary increase.

C3. JPS 2022: revised Employer Cost Cap

Methodology for revised Employer Cost Cap

On 1 April 2022, the Judicial Pension Scheme 2022 (JPS 2022) replaced the New Judicial Pension Scheme 2015 (NJPS 2015) for all active Judges.

JPS 2022 is more generous and therefore more expensive than NJPS 2015. Therefore, the Cost Control Mechanism needed to be adapted to allow for this. The decision was taken to set the revised employer cost cap for JPS 2022 using the assumptions in force at the 2012 valuation and which were the same used to set the NJPS 2015's employer cost cap. When the Cost Control Mechanism is subsequently tested at future valuations the assessment of cost will be calculated using assumptions in force at the time of that future valuation and then will be compared against the target, as normal. This will ensure the Cost Control Mechanism will operate for JPS 2022 in a consistent manner as with other public service pension schemes.

NHS Mortality data issue

As part of the work on the 2020 valuations, an issue was identified with the data supplied to GAD for previous valuations of the NHS (England and Wales) Pension Scheme. As the mortality assumptions set for the JPS 2012 valuation were set considering the NHS mortality assumption (amongst other factors), the identified issue had potential implications for the assumptions used in the calculation of the revised employer cost cap. As the directions at the time referenced the 2012 assumptions for the setting of the employer cost cap and the NHS employer cost cap remained unchanged. Therefore, retaining the 2012 assumptions for the JPS employer cost cap maintains consistency with other public service pension schemes. Further details of the NHS mortality data issue can be found in the NHS assumptions advice report:

[The NHS Pension Scheme: Actuarial valuation as at 31 March 2020 Advice on assumptions](#)

Full details of how the Cost Control Mechanism will operate in relation to the JPS 2022 scheme can be found in MoJ's document:

[Public service pensions: cost control mechanism consultation](#)

Full details of the JPS 2012 valuation assumptions can be found in our assumptions advice report:

[The Judicial Pension Scheme: Actuarial valuation as at 31 March 2012 Advice on assumptions](#)

C4. Glossary 1

CARE	CARE stands for Career Average Revalued Earnings and refers to a methodology whereby earnings over a member's working lifetime in the scheme are used in the calculation of their benefits in the reformed scheme.
CARE revaluation	The rate at which the CARE pension is revalued each year a member is an active member.
Cost cap cost (CCC)	A way of measuring the cost of benefits being provided from the 2022 section of the scheme, which is then compared to a 'target cost'. The JPS target cost will need to be recalculated for the implementation of the new 2022 Section. If the results of subsequent valuations show that the cost cap cost is more than 3% of pensionable pay away from the target cost, and the cost of the scheme still results in a breach once the impact of the economic check is taken into account, changes must be made to the 2022 section (e.g., to the benefits provided) to bring the cost cap cost back to the target cost.
Directions	A document published by HM Treasury and referred to in the Public Service Pensions Act 2013, which sets out the process and requirements for carrying out valuations, including the results which need to be disclosed. Directions were first published in 2014 and have been amended several times since then.
Employer contribution rates (ECR)	The percentage of scheme members' pensionable salaries which employers are required to pay in order to: • meet the costs of benefits currently being built up by active members • make good any shortfall in the notional amounts set aside to cover benefits already built up. The result is heavily dependent on assumptions about future financial conditions and membership changes.

C4. Glossary 2

McCloud	McCloud refers to a legal judgment made in December 2018. The England and Wales Court of Appeal judgment upheld claims of age discrimination brought by some firefighters and members of the judiciary against 'transitional protection' rules. These rules determined the date on which some members would move between reformed and legacy sections of the scheme.
Reformed and legacy sections	The reformed section of the scheme is the section that was set up in line with the Public Service Pensions Act 2013, and which came into force on 1 April 2015. All non-reformed sections are known as legacy sections. This terminology is used in the McCloud judgment.
Scheme Advisory Board	The Board set up in line with section 7 of the the Public Service Pensions Act 2013, with responsibility for providing advice on potential changes to the scheme and other matters relating to the efficient administration and management of the scheme. Scheme Advisory Board is commonly shortened to 'SAB'.
Standard table	The standard tables used for the mortality after retirement assumption are the SAPS tables. These are published by the Continuous Mortality Investigation (CMI) and based on the experience of defined benefit self-administered pension schemes. The 'S2' series are based on experience over the period 2004 to 2011. The S3 series of tables were published by CMI in December 2018 and these updated mortality tables cover experience between 2009 and 2016. The S3 series include tables for pensioners retiring in normal health (S3NXA), in ill health (S3IXA) and all pensioners (S3PXA), as well as for dependants (S3DXA). The tables are also split into "Heavy", "Middle", "Light" and "Very Light" subsets according to pension amount, as well as a table covering all amounts. The "Very Light" tables reflect the highest pension amounts.

C4. Glossary 3

Normal pension age	The age at which a member in normal health is entitled to unreduced benefits. This age varies in different scheme sections: • 1981 Scheme: Higher Judiciary: On completion of 15 years' service or age 70; Lower Judiciary: Age 65 and on completion of 15 years' service • JUPRA Scheme: 65 or on completion of five years' service (if later) • 2015 & 2022 schemes: Ages 65 to 68, linked to state pension age (but with a minimum of age 65), so could change in the future.
Pension increase	Public service pensions are increased under the provisions of the Pensions (Increase) Act 1971 and Section 59 of the Social Security Pensions Act 1975.
Professional actuarial requirements	The professional requirements that we have complied with when completing this actuarial valuation include: 1. Technical Actuarial Standards: TAS 100 and TAS 300, issued by the Financial Reporting Council (FRC) 2. The Actuaries' Code, issued by the Institute and Faculty of Actuaries (IFoA) 3. The Civil Service Code. GAD is also accredited under the IFoA's Quality Assurance Scheme. More details can be found in our terms of reference.

C4. Glossary 4

JUPRA	The JUPRA (Judicial Pension and Retirement Act 1993 or 1993 scheme) was introduced from April 1995, providing benefits for the salaried judiciary. Similar to other legacy public sector pension schemes benefits have a fixed accrual for each year of service and linked to a members final salary at retirement.
FPJPS	The FPJPS (or 2017 scheme) was introduced from April 2017, with benefits backdated to provide a scheme for the fee-paid judiciary analogous to the JUPRA scheme for salaried judiciary. The FPJPS has the same transitional arrangements as the other "pre-2015" schemes.
NJPS 2015	A reformed Scheme, the New Judicial Pension Scheme ('NJPS') or 'JPS 2015' or '2015 Scheme', was introduced from 1 April 2015. The main differences compared to the previous arrangements were to provide benefits on a career average basis with normal pension age linked to State Pension age, and it was tax registered.
JPS 2022	A reformed Scheme, the Judicial Pension Scheme 2022 ('JPS 2022') or '2022 Scheme', was introduced from 1 April 2022. Similar to the previous NJPS arrangements providing benefits on a career average basis with normal pension age linked to State Pension Age, however, with a more generous accrual rate and tax unregistered.

C4. Glossary 5

O'Brien and Miller	O'Brien and Miller refers to a series of legal judgments where the UK courts and tribunals found that a historic lack of pension and other specified benefits amounted to less favourable treatment of some fee-paid judicial office holders in comparison to salaried judges doing the same or broadly similar work. This led to a commitment by the Ministry of Justice to implement a retrospective remedy – a Fee-Paid Judicial Pension Scheme ('FPJPS').
O'Brien 1	The term 'O'Brien 1' refers to the 2013 Judgment which entitles eligible fee-paid judges to pension benefits in respect of service after 6 April 2000.
O'Brien 2	The term 'O'Brien 2' refers to the November 2018 Judgment which entitles eligible fee-paid judges to pension benefits in respect of service before 7 April 2000.
Miller	The term 'Miller' refers to the December 2019 Judgment which expands the number of fee-paid judges eligible for FPJPS benefits. In particular, to include Salaried judges active in 2013 which were originally out of scope of O'Brien 1.