Northern Ireland Civil Service Pension Scheme
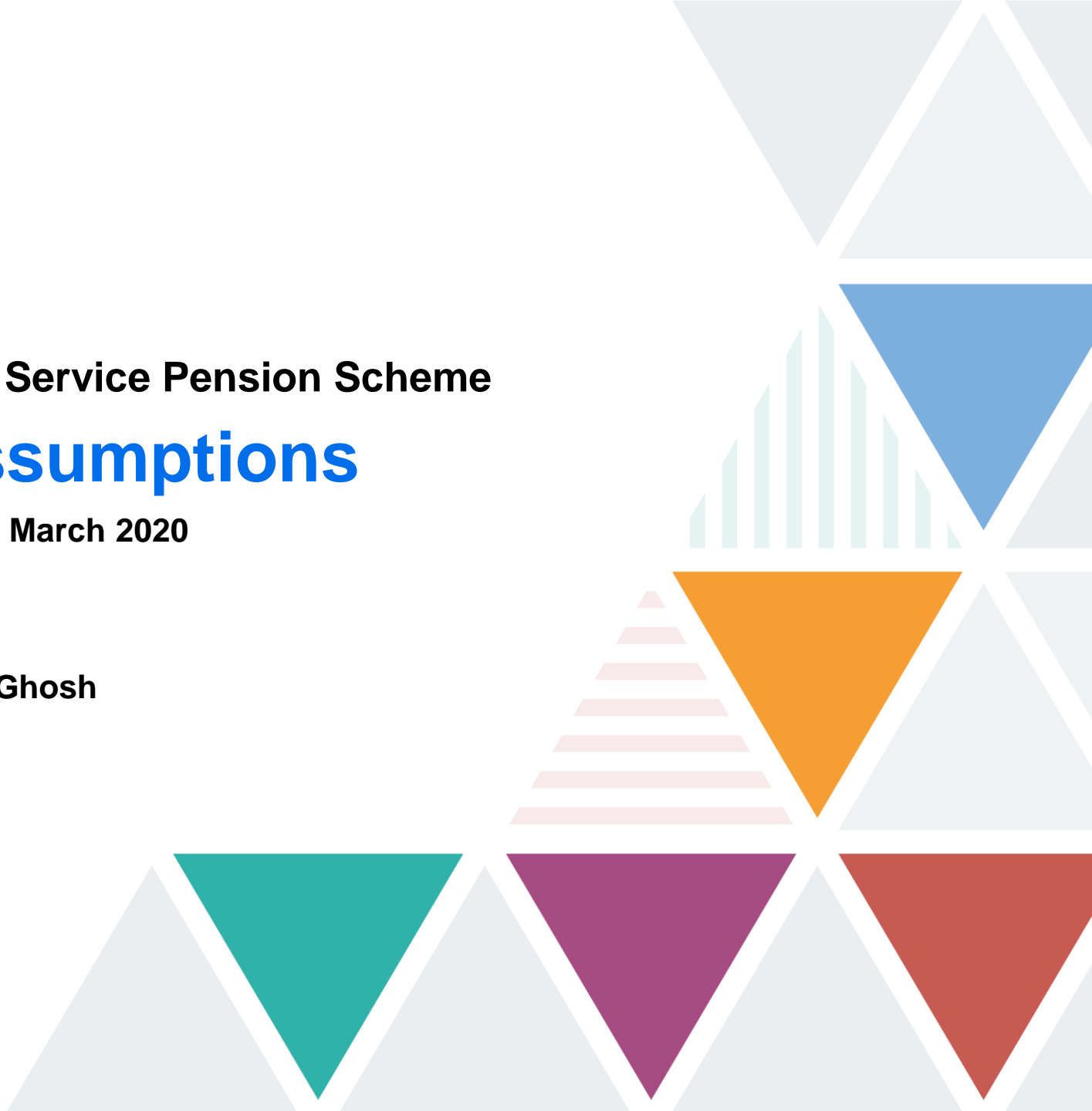
Advice on assumptions

Actuarial valuation as at 31 March 2020

Kenneth Starr and Joanne Ghosh

23 October 2023

Assumptions setting process

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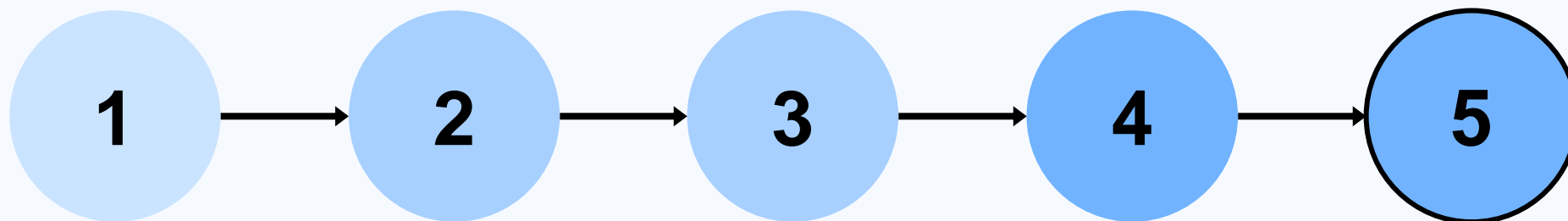
Current

GAD analyse experience data and prepare an initial set of recommended 'scheme-set' assumptions.

GAD discuss recommended assumptions with Northern Ireland Department of Finance (DoF NI).

GAD discuss recommended assumptions with the NICSPS Scheme Advisory Board.

GAD present final recommended assumptions to DoF NI.

DoF NI 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.

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

DoF NI 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		🔴 Large	⬇ Lower costs
Retirement ages	🟠 Average		🟢 Small	🚫 No impact
Rates of leaving service	🟠 Average		🟢 Medium	🚫 No impact
Promotional pay increases	🟠 Average		🟢 Small	🚫 No impact
Rates of ill-health retirement	🟢 Least		🟢 Small	🚫 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 DoF NI. 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 Northern Ireland Department of Finance (DoF NI). 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 Northern Ireland Civil Service Pension Scheme (NICSPS) as at 31 March 2020 as required.

This report is intended to help DoF NI:

- 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 NICSPS as at 31 March 2020, in accordance with DoF NI 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:

- DoF NI, as scheme manager, who is responsible for setting 'scheme-set' assumptions (after taking actuarial advice). These are usually demographic assumptions.
- DoF NI, in its role as setting public service pensions policy for the Northern Ireland public service pension schemes, who is 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.
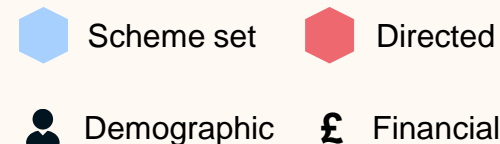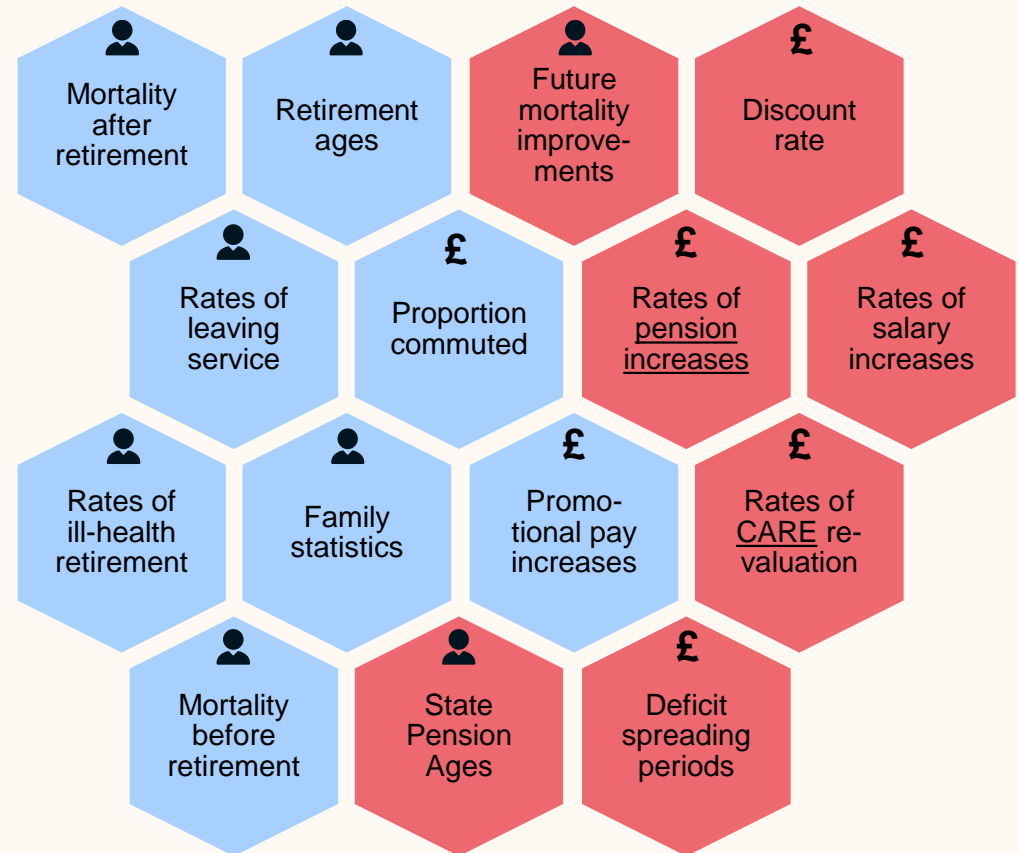
Demographic assumptions

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 DoF NI.

Legend:

- ⬜ Member status: **no benefits payable**
- 🟩 Member status: **benefits payable**
- 🔵 **Scheme set**
- 🔴 **Directed**

Start

Active member → Rates of leaving service → Deferred member

Retirement ages → State pension ages → Normal health pensioner → Mortality after retirement → Future mortality improvements

Rates of ill-health retirement → Ill-health pensioner

Mortality before retirement → Deceased member → Family statistics → Dependant's pension → Mortality after retirement → Future mortality improvements

Finish

End of scheme liability
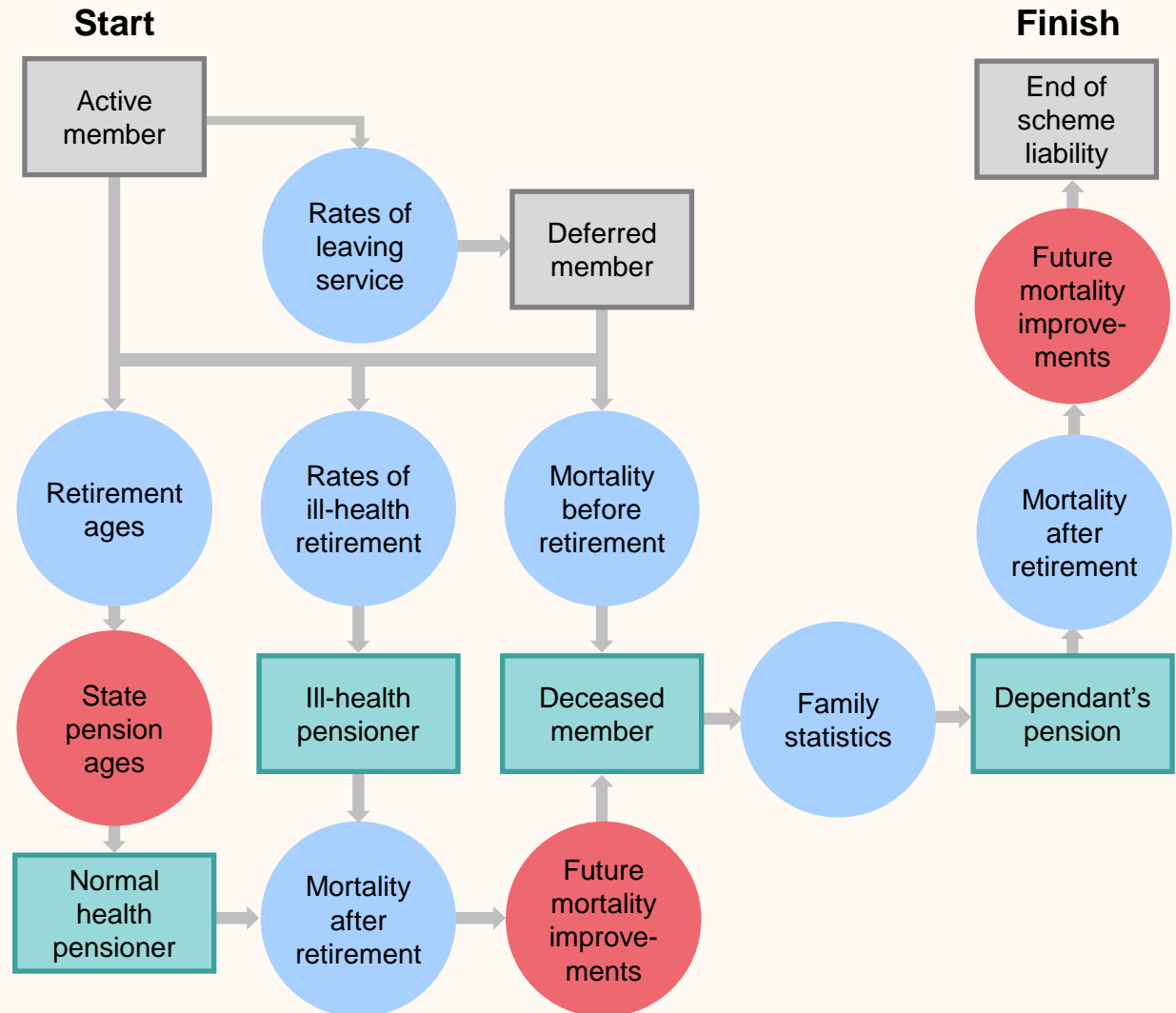
Financial assumptions

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.

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
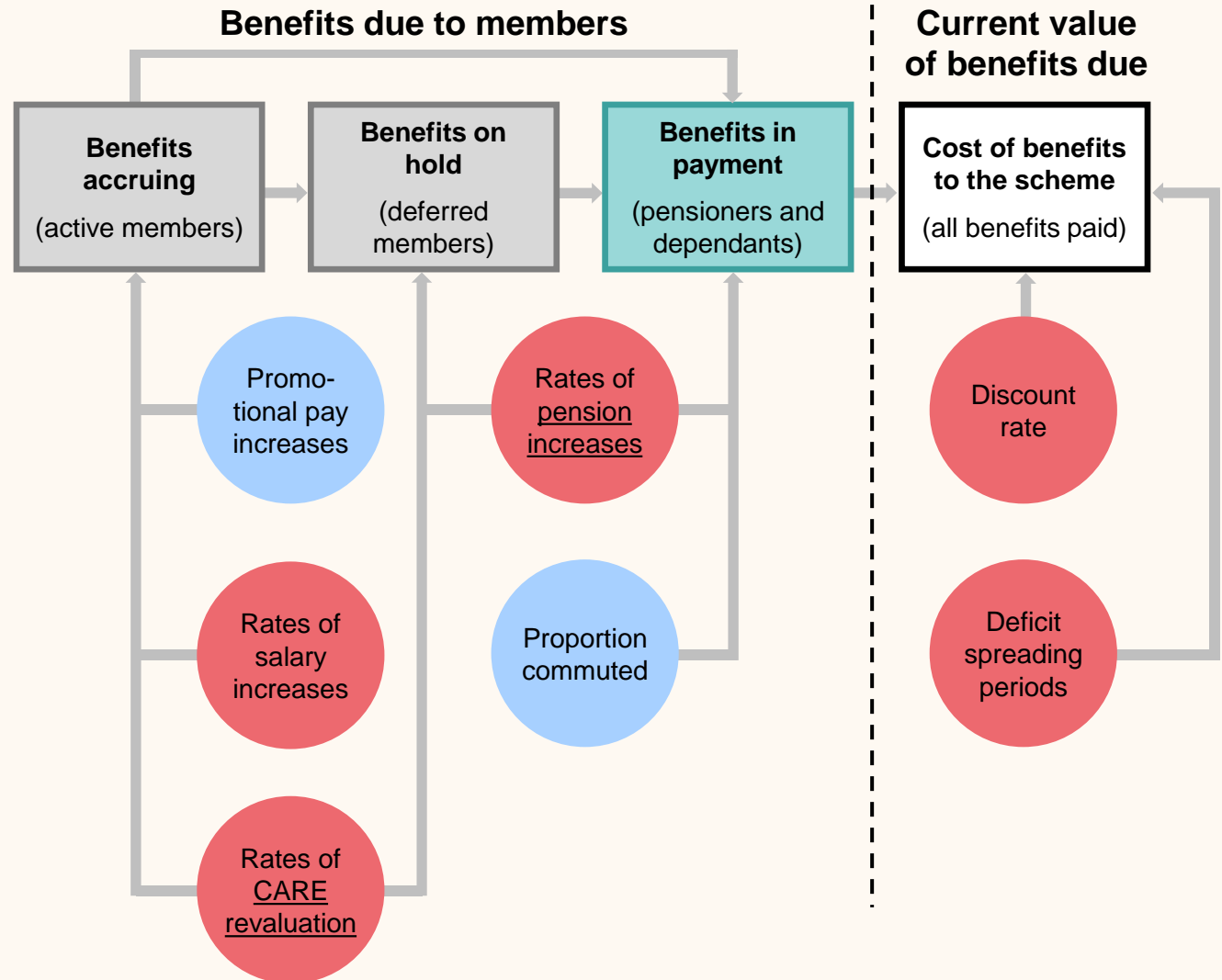
Setting assumptions

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.

Schemes in Northern Ireland typically have smaller populations and more volatile experience compared to the larger schemes for members in England and Wales or Great Britain. In setting assumptions, we have considered the experience in the larger scheme of the same workforce.

DoF NI then decides on the 'scheme-set' assumptions to be adopted, after considering GAD's advice.

What rules need to be followed?

DoF NI Directions specify that 'scheme-set' assumptions must be DoF NI'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 DoF NI

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.
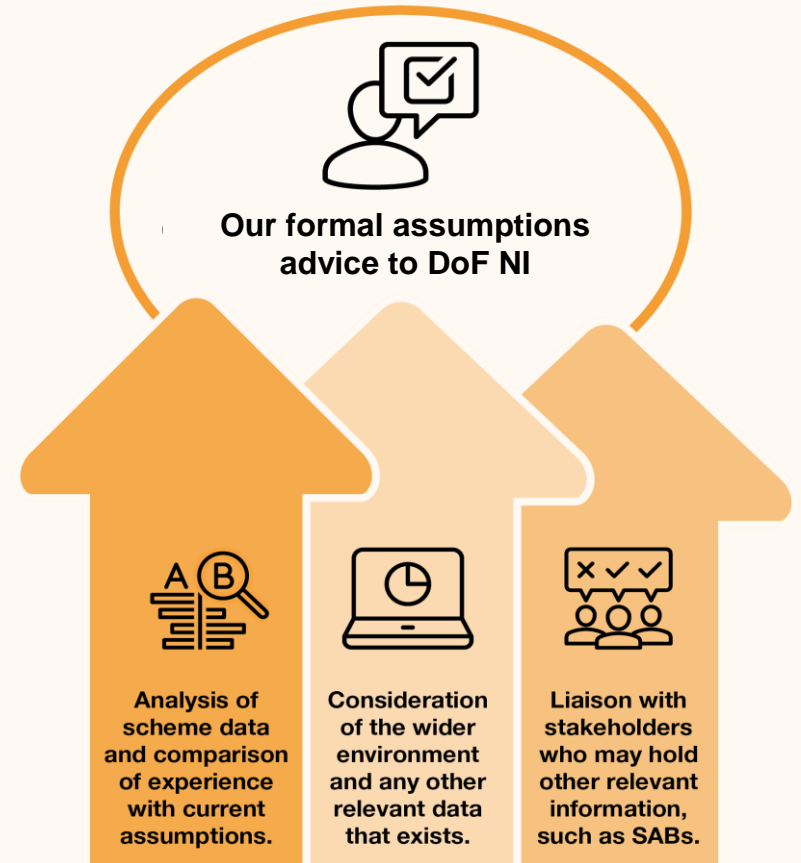
The assumptions are required to be best-estimate, including an allowance for expected future GDP growth and life expectancy progression.

In our Results report dated 23 October 2023 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 DoF NI.

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 average employer contribution rate is currently 29.8% of pensionable pay. In monetary terms, this was equivalent to employer contributions of around £280 million (including administration levies) in the financial year 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 cost cap cost can be very different to the significance of the same assumption on employer contribution rates. 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 cost cap cost of the scheme, which itself tends to be lower than the employer contribution rates. 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 employer contribution rate are:

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

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

For context, the current target cost of the scheme is 18.3% of pensionable pay.

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

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 DoF NI, as described in our report titled 'Membership data', dated 23 October 2023. 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 DoF NI. This report will be published as part of completing the 2020 valuation of the scheme, and we are content for DoF NI 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 DoF NI, 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	🔴 Large	⬇ Lower costs
Retirement ages	🟠 Average	🟢 Low	🟢 Small	🚫 No impact
Rates of leaving service	🟠 Average	🟢 Low	🟠 Medium	🚫 No impact
Promotional pay increases	🟠 Average	🔴 High	🟢 Small	🚫 No impact
Rates of ill-health retirement	🟢 Least	🟢 Low	🟢 Small	🚫 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 DoF NI. 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 employer contribution rates (ECR) and the cost cap cost (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 employer contribution rates (ECR) and cost cap cost (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 ECR **or** CCC by more than 1%. 🟠 **Average** An assumption with an impact in between most and least. 🟢 **Least** An assumption that could plausibly impact both the ECR **and** the CCC 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** ECR and CCC likely to be higher. ⬇️ **Lower** ECR and CCC likely to be lower. ✛ **Uncertain** Likely impact on the ECR and CCC is still uncertain. For example, if assumptions for different categories move in different directions. 🚫 **No impact** Likely to be no material impact on the ECR or CCC.

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**

Retirement ages **S**

Proportion commuted **L**

Rates of leaving service **S**

Promotional pay increases **N**

Rates of ill-health retirement **S**

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 typically 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

For the 2016 valuation, the assumptions were set by applying a 6% uplift to the mortality rates adopted for the GB scheme. For this valuation, we recommend setting assumptions based on analysis of the NICSPS experience. We recommend updating the baseline mortality rates for pensioners and female dependants, using an equal allowance for recent NICSPS experience and the 2016 assumption to help smooth out volatility. This leads to shorter life expectancies than continuing with the 6% uplift to the GB scheme assumptions.

There is insufficient data to set the baseline mortality rates for male dependants. We recommend setting the percentage adjustment to the standard tables to give the same change in life expectancy as female dependants members, a reduction of 1.7 years at age 65.

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. However, our approach of fitting the tables to the scheme's experience negates this issue.

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 **third column** for males and females is the assumptions we recommend for the 2020 valuation and the **fourth column** for males and females is the assumptions we recommend for the 2020 valuation for the GB scheme.

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	2020 valuation recommendation (the GB scheme)	2016 valuation assumption	2016 assumption updated	2020 valuation recommendation	2020 valuation recommendation (the GB scheme)
Current pensioners, age 65	86.9	86.1	86.1	86.6	88.6	88.0	87.1	88.0
Future pensioners, age 45	88.9	87.8	87.9	88.3	90.5	89.6	88.8	89.6

Recommendations in detail

NICSPS Category		2016 Assumptions			2020 Recommendations		
		Standard table	Adjustment	Based on	Standard table	Adjustment	Based on
Pensioners (Current & Future; Normal health & ill health	Male	S2NMA	110%	GB Scheme experience	S3NMA_H	86%	Scheme experience
	Female	S2NFA	110%	GB Scheme experience	S3NFA_H	107%	Scheme experience
Dependants	Male	S2NMA	124%	GB Scheme experience	S3DMA	100%	Scheme experience
	Female	S2DFA	106%	GB Scheme experience	S3DFA	116%	Scheme experience

GB Scheme Category		2016 Assumptions			2020 Recommendations		
		Standard table	Adjustment	Based on	Standard table	Adjustment	Based on
Pensioners (Current & Future; Normal health & ill health	Male	S2NMA	104%	GB Scheme experience	S3NMA_M	100%	Scheme experience
	Female	S2NFA	104%	GB Scheme experience	S3NFA_H	96%	Scheme experience
Dependants	Male	S2NMA	117%	GB Scheme experience	S3DMA	81%	Scheme experience
	Female	S2DFA	100%	GB Scheme experience	S3DFA	93%	Scheme experience

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 underlined 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.

We recommend using the experience data for NICSPS to set the mortality after retirement assumption, as this is now sufficiently robust to support a scheme-specific analysis. In addition, due to the larger dataset, we have also considered the corresponding analysis carried out for the GB scheme and assessed the likely difference between mortality for Northern Ireland relative to Great Britain.

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

Male (Combined health pensioners)   Female (Combined health pensioners)
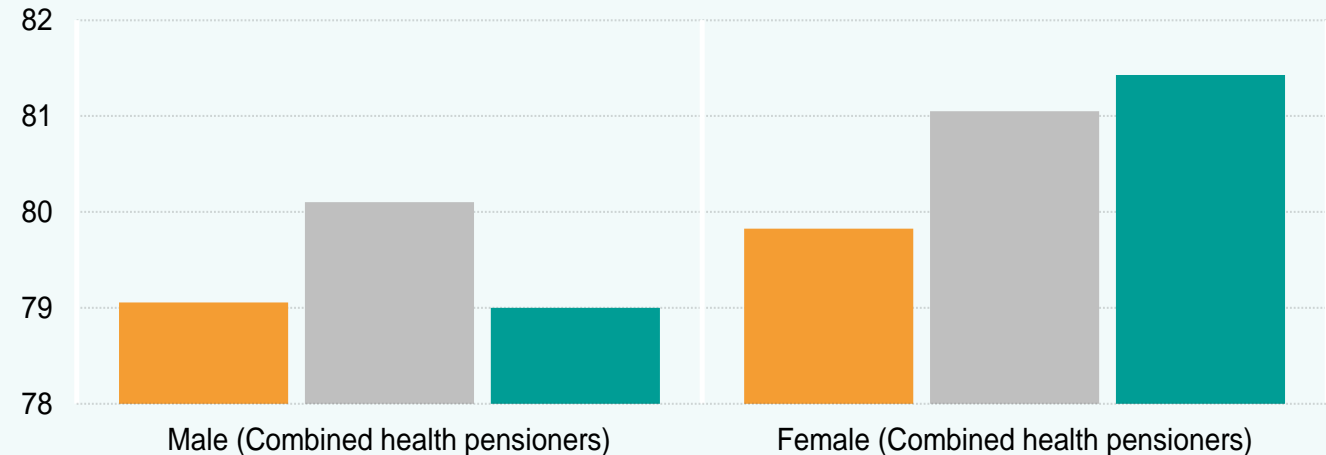
Summary

The 2016 assumptions and the 2020 recommendations are largely in line with the baseline mortality experience. 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.

The charts on the next page show that there is still relatively small amounts of experience data, with variations at certain ages. This supports including equal allowance for the 2016 assumption to help smooth out volatility.

The chart above shows the average age at death for females is slightly closer to the actual using the 2016 valuation assumption. However, the recommended assumption gives a closer fit to the expected amount of pension ceasing on death once we apply the 107% adjustment to the standard table.

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.

Scheme experience: in detail

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

Male - Combined health pensioners
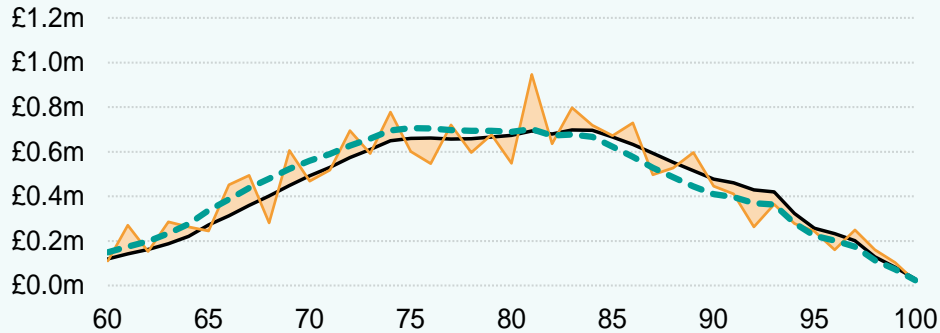
Female - Combined health pensioners
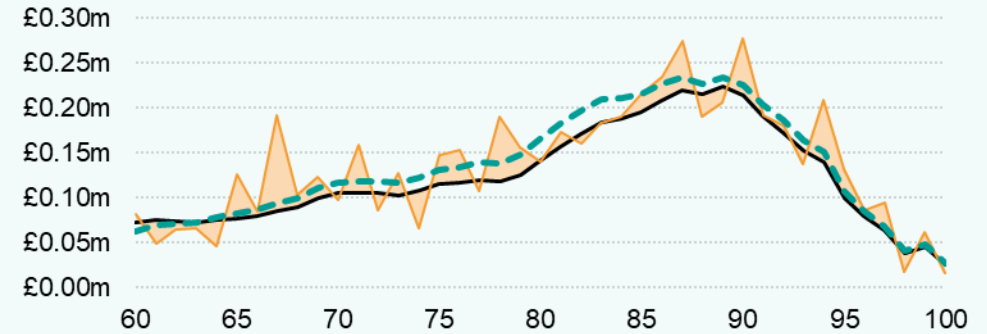
Female - Dependants
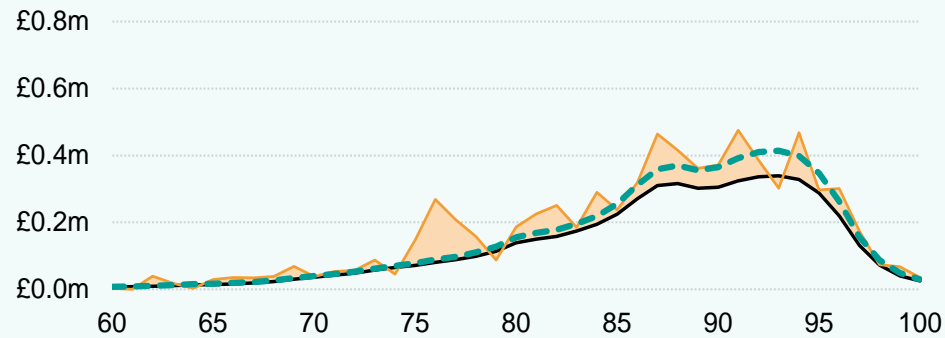
Key: ——— **2016 assumptions** - - - - **2020 recommendations** ▬ **Experience** (line) and difference from 2016 assumptions (shaded area)

Scheme experience: in numbers

The table shows the experience data for NICSPS together with the corresponding figures for the GB scheme. This shows the larger dataset available for the GB scheme.

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
Combined health pensioners	Male	£19.4 m	£18.5 m	105%	£18.9 m	103%
	Female	£6.1 m	£5.3 m	115%	£5.7 m	107%
Dependants	Male	Insufficient data	Insufficient data	Insufficient data	Insufficient data	Insufficient data
	Female	£7.4 m	£5.6 m	134%	£6.5 m	114%
Corresponding figures for GB scheme						
Combined health pensioners (GB)	Male	£369 m	£395 m	93%	£391 m	94%
	Female	£132 m	£137 m	96%	£141 m	93%
Dependants (GB)	Male	£3 m	£3 m	109%	£3 m	114%
	Female	£104 m	£117 m	89%	£117 m	89%

The experience figures for the GB scheme exclude around 15,000 suspected deaths not recorded in the core data. A separate adjustment was made in our analysis to incorporate these suspected deaths.

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

Comparison with England and Wales mortality

Population mortality data

We have considered the most recent analysis of differences between aggregate population mortality rates.

The charts on this page show the ratios of Northern Ireland population mortality rates to those for England & Wales over different time periods. These are taken from the ONS National Life Tables.

Northern Ireland mortality rates are generally higher than England & Wales rates, though at some ages are lower. The differences have been relatively stable over time.

Similar differentials were observed for the 2012 and 2016 valuations. In the 2016 valuation, it was noted that the aggregate population mortality rates were slightly higher for Northern Ireland compared to England & Wales. It was also noted that it was reasonable to expect greater similarity in the mortality rates in retirement for healthy, working individuals across the geographical regions than for the population as a whole.

The 2016 valuation highlighted that the workforce for the civil service is less homogeneous than other public service workforces and therefore less weight was put on similarities across working individuals. More weight was put on differences between the aggregate population mortality rates in Northern Ireland and Great Britain, maintaining consistency with the approach taken in the 2012 valuation.

Ratio of Northern Ireland to England & Wales population mortality rates, males
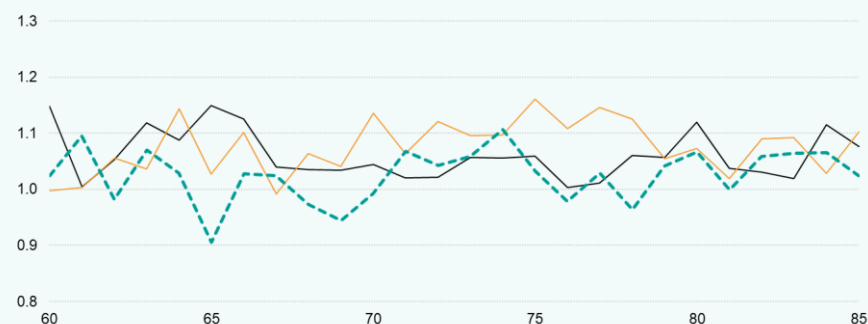
Ratio of Northern Ireland to England & Wales population mortality rates, females

Key:
- — — — 2018 - 2020
- ——— 2010 - 2012
- ——— 2000 - 2002

Comparison with England and Wales mortality (2)

Range of differences

The updated comparison indicates that a reasonable range for the excess of Northern Ireland population mortality over that for England & Wales population mortality, for determining the mortality after retirement assumptions, is unchanged from previous valuations (when considering the same occupations in Northern Ireland as in England and Wales). This is up to around 3% for males and 5% for females.

NICSPS analysis

Using NICSPS analysis to set the mortality assumptions provides for higher assumed mortality than that for the GB scheme and therefore shorter life expectancies. The NICSPS male mortality is around 9% higher than that for the GB scheme and the female mortality around 11% higher.

This is a larger difference than the general population differences analysed on the left and the +6% adopted at the 2016 valuation.

Firstly, the population mortality differences are based on an analysis of the entire population; this includes groups different to those in the NICSPS and therefore the analyses are not directly comparable.

We believe it is reasonable that the NICSPS analysis can result in larger differences compared to the GB scheme than is observed in other public service workforces. For example, average pay is lower in the NICSPS compared to the GB scheme. We typically expect higher paid members to have longer life expectancy.

Furthermore, the mortality assumption is a combined normal and ill-health assumption. The NICSPS has historically experienced a larger number of ill-health retirements so we would expect the combined life expectancy to be slightly lower for NICSPS than the GB scheme.

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
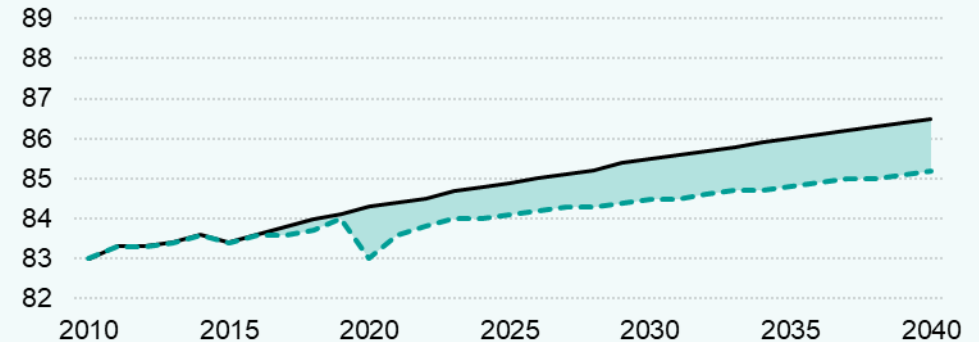
Life expectancies for UK females, aged 65
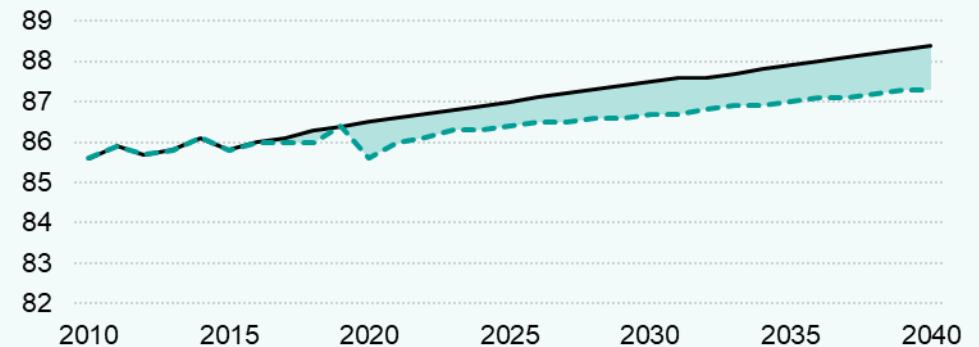
Key: ———— Based on **ONS 2016 projections**, which were adopted for the 2016 valuation

- - - - 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	🔴 Large	⬇ Lower costs

Our recommendations and rationale

We recommend an increase to each of the assumed commutation proportions. We were not able to carry out an experience analysis of CS NI for this assumption given the size of the data set. Therefore, we have considered the analysis carried out for CS GB given it is a larger data set of a similar workforce. This is consistent with the 2016 valuation approach.

For the **Classic scheme**, we recommend increasing the assumed commutation proportion to 9% for all members (+3.6%). This is due to continued higher commutation proportions in the CS GB since 2016, which reduces the employer contribution rate.

For the **non-Classic schemes (Premium and Nuvos)**, we recommend increasing the assumed commutation proportion to 20% for all members (+2.5%). As there are relatively few retirements over the period in the CS GB analysis, this is based on the CS GB experience combined with experience from other large schemes (NHS EW, TPS EW and LGPS EW).

For the **2015 scheme (alpha)**, we recommend increasing the assumed commutation proportion to 20% for all members (+2.5%). There are too few 2015 scheme retirements in the CS GB to set an assumption, so we looked to the non-Classic schemes assumption to inform our recommendation.

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 **middle line** (▬▬) shows the impact of the assumptions adopted for the 2016 valuation.

- The **bottom line** (▨▨▨) shows the impact of the assumptions we recommend for the CS GB scheme valuation.

Lump sum for a member starting with a £20,000 pension

Classic scheme	Additional lump sum	£21,600 / £12,960 / £21,600
	Pension Remaining	£18,200 / £18,920 / £18,200
Non-Classic schemes	Lump sum	£48,000 / £42,000 / £48,000
	Pension Remaining	£16,000 / £16,500 / £16,000
2015 scheme	Lump sum	£48,000 / £42,000 / £48,000
	Pension Remaining	£16,000 / £16,500 / £16,000
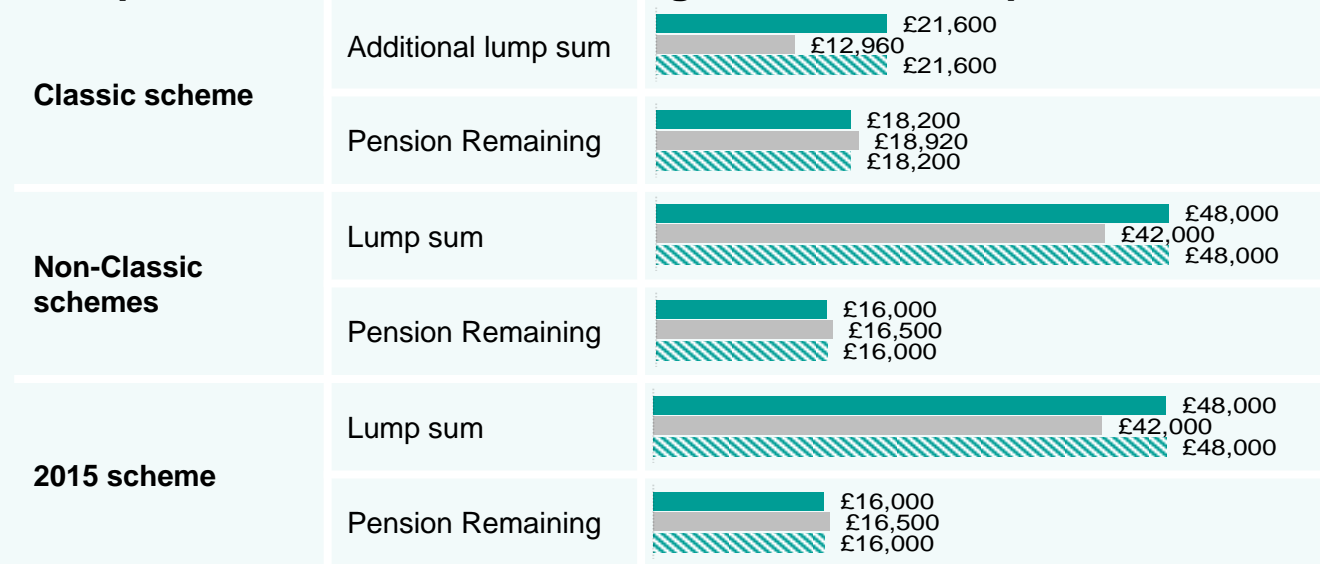
In the Classic scheme, members also receive an automatic lump sum equal to three times pension.

Our approach

Analysis

There is insufficient CS NI scheme experience available to carry out a credible analysis. We have relied on the analysis of the CS GB scheme's commutation experience over the period 1 April 2016 to 31 March 2020. We have considered accounting data of the two schemes to check the reasonableness of the reliance on the CS GB assumption.

The CS GB 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. (We have relied on the CS GB data for the purposes of recommending suitable CS NI commutation assumptions.)

- 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.

For the CS GB analysis of the Classic and Premium schemes, we remove all deferred members from the analysis as a reasonable simplification to exclude many historic deferred members who have no commutation rights in the scheme.

In the CS GB analysis, the Classic Plus members have benefits which are split across Classic and Non-Classic scheme sections. From the data provided, we cannot split the benefits across these two sections. Therefore, these members are not included in the analyses. Classic Plus pensions represent less than 5% of the total pensions coming into payment over the inter-valuation period and this is not expected to be material to the analyses carried out.

Scheme experience: overall

Considerations for setting assumption

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.

For the 2016 valuation, the commutation assumptions were the same as those adopted for the equivalent valuation of the CS GB scheme.

We have recommended increases to the assumed proportions commuted for the CS GB scheme 2020 valuation and recommend the same changes to the CS NI assumptions.

Annual accounting data: lump sum payments as a proportion of total pension

Lump sum payments as a proportion of total pensions

Key: ——— CS GB
- - - - CS NI

Summary of CS GB experience

For the CS GB scheme analysis:

The **Classic scheme** has seen a higher proportion of commutation in recent years compared to the 2016 assumption. Updating for this experience will reduce the employer contribution rate, but will have no impact on the cost cap.

The **non-Classic schemes** have seen a higher proportion of commutation in recent years compared to the 2016 assumption. However, this is over a small number of retirements. Considering both the non-Classic schemes and other large schemes commutation experience the proportion of commutation has been 20% on average.

No analysis was carried out on the **2015 scheme** due to low rates of retirement.

Reasonableness check on CS GB assumptions

This information has been extracted from the annual scheme accounts. It should be recognised that this is a crude analysis which does not allow for differences in the underlying populations, such as age and gender profile.

The chart shows total lump sums as a proportion of total pensions in payment in each year for both the CS NI and CS GB schemes, as provided in scheme accounts. This shows CS NI has had a slightly higher commutation rate but similarly shaped pattern as CS GB, tending closer to the GB experience in recent years. This supports the adoption of the same commutation assumptions for CS NI as for CS GB.

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
Classic scheme (*)	£21 million	£3 million	14.8%	5.4%	9.0%
Non-Classic schemes (*)	£2.4 million	£0.6 million	23.2%	17.5%	20.0%
GB Classic scheme	£477 million	£41 million	8.7%	5.4%	9.0%
GB Non-Classic schemes	£121 million	£23 million	19.0%	17.5%	20.0%
GB 2015 scheme (*)	N/A	N/A	N/A	17.5%	20.0%
Other large public service schemes (***)	£134 million	£27 million	20.2%	17.5% (****)	20.0%

* There is insufficient data to produce a robust analysis and the figures are provided for information only.
** In the CS GB data, there were around 3.5k 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.
*** Other large public service schemes data includes data from the National Health Service Pension Scheme (England and Wales) – 2008 section, Teachers' Pension Scheme (England and Wales) – NPA 65 section and Local Government Pension Scheme (England and Wales) – Post 2008 section.
**** This assumption was previously HMT directed at the 2016 valuation

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	Small	Uncertain

Our recommendations and rationale

For the **Legacy schemes**, we recommend aligning the assumptions with those for Salary Band 2 members in the GB Scheme. The CS NI 2016 assumptions included an explicit allowance for early retirement whilst there was also an implicit allowance for early retirement embedded within the withdrawals rates. Aligning the retirement and withdrawal rates with those for the GB scheme simplifies the approach. Observed early retirements have been below those expected, and are similar to those assumed in the GB scheme.

This has a knock-on effect on the retirement assumptions for those with mixed service i.e. those members with service in both a legacy schemes and the 2015 scheme. The impact of this is to change the expected pattern of early retirements which will only impact employer contributions marginally.

It is too early to have meaningful data on retirements in the 2015 scheme to test the current assumptions. In any case, early retirement is on cost neutral terms so any change would have an immaterial impact on the employer contribution rates. Therefore, we recommend retaining the existing assumption.

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 **middle line** (⬛) shows the impact of the assumptions adopted for the 2016 valuation.

- The **bottom line** (▨) shows the impact of the assumptions we recommend for the GB scheme 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

All Members	Male	60.8
		61.5
		60.8
	Female	60.6
		60.6
		60.6

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.

- Due to the larger dataset, we have also considered the corresponding analysis carried out for the GB scheme and assessed the likely difference between experience for Northern Ireland relative to Great Britain.

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 for members with legacy benefits

Summary

The **Legacy schemes**, for both males and females, has seen members retiring at younger ages compared to the 2016 assumption, as shown above. This is affected by early retirements being implicitly allowed for in the 2016 leaving service assumption. The recommended 2020 assumption produces an assumption more in line with experience, as shown on the next page.

There is currently insufficient information to explicitly test the impact on those with **mixed service.** However, the changes to the **Legacy schemes'** retirement rates are incorporated to some extent into the **mixed service** rates so there will be more expected early retirement for these members also.

There is insufficient information to test the impact on the **2015 scheme**.

Scheme experience: in detail

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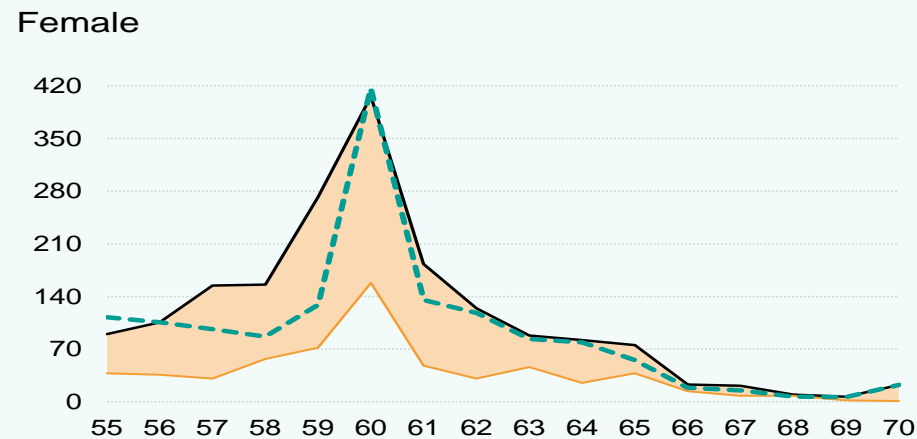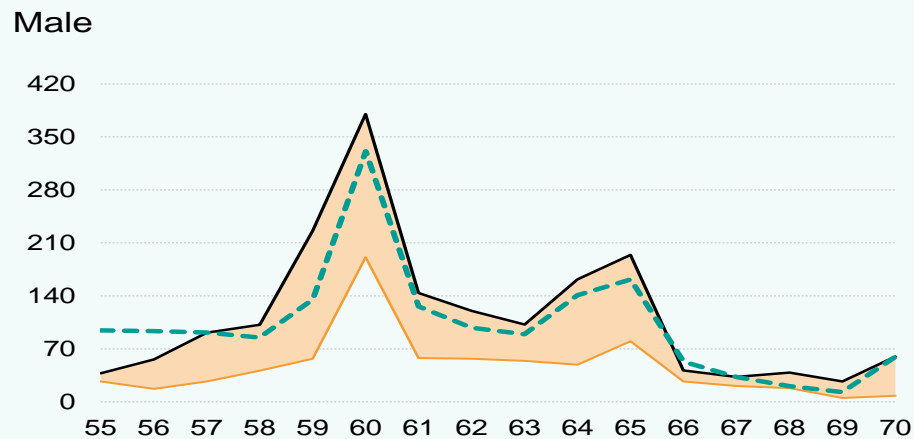
Male

Female

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

GB & NI 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
Legacy protected members	**Male**	765	61.4	62.0	60.9
	Female	639	60.0	60.3	59.4
GB (Salary Band 2)	**Male**	14,572	60.9	63.9	61.3
	Female	13,717	59.6	62.6	60.1

There was insufficient data to produce a robust analysis for the 2015 scheme. The figures above relates to members with legacy benefits. The table also shows the corresponding figures for the GB scheme for comparison purposes and illustrates the larger dataset available for this scheme.

The number of retirements shown does not include partial retirements, consistent with the approach adopted for the GB scheme.

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

Wider environment: McCloud

McCloud judgment

The McCloud judgment could result in many members exchanging up to 7 years' service from the State Pension age-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 earlier retirements than 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.

We also analysed a hypothetical scenario for the McCloud judgment on member behaviour which suggested an immaterial impact on the 2020 valuation results.

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.

It is too early to speculate on the effect of this increased minimum age on member behaviours. Therefore, we do not propose to adjust the age retirement tables for this.

The effect of the 2022 Act should be kept under review at future valuations, when assumptions could be updated to ensure they mirror prevailing legislation.

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	🟠 Medium	🚫 No impact

Our recommendations and rationale

We recommend updating the 2016 assumptions to exclude the allowance for early retirements, with that allowance now being included within the 2020 age retirements assumptions. This also aligns with the approach for the Civil Service GB Scheme.

We do not recommend any other change to the rates of leaving service assumptions, due to experience being broadly in line with the updated 2016 assumptions.

The impact of this change on scheme costs is uncertain as changes are weighted towards older members where withdrawals may not result in a saving for the scheme. The impact is not expected to be material.

Practical implications

The chart to the right shows the likelihood of a member leaving service before retirement. For each category shown:

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

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

- The **bottom line** (▨) shows the impact of the assumptions we recommend for the GB scheme valuation.

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

Likelihood of leaving service before age 65 for member now aged 45

All Members		
Male	18.5%	
	25.6%	
	29.0%	
Female	19.8%	
	28.8%	
	30.9%	

Our approach

Analysis

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

We have excluded all leavers who rejoined within 5 years from our analysis because after rejoining these members are treated as if they had never left the scheme.

Re-entry of members to pensionable service has been modelled by a 'net' withdrawal assumption for active members. This explicitly allows for a proportion of those leaving active service to return and is based on analysis undertaken on relevant member behaviour. No further explicit allowance has therefore been made in the valuation for a proportion of those deferred at the effective date to subsequently rejoin.

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 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.

- Due to the larger dataset, we have also considered the corresponding analysis carried out for the GB scheme and assessed the likely difference between experience for Northern Ireland relative to Great Britain.

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.

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: number of leavers
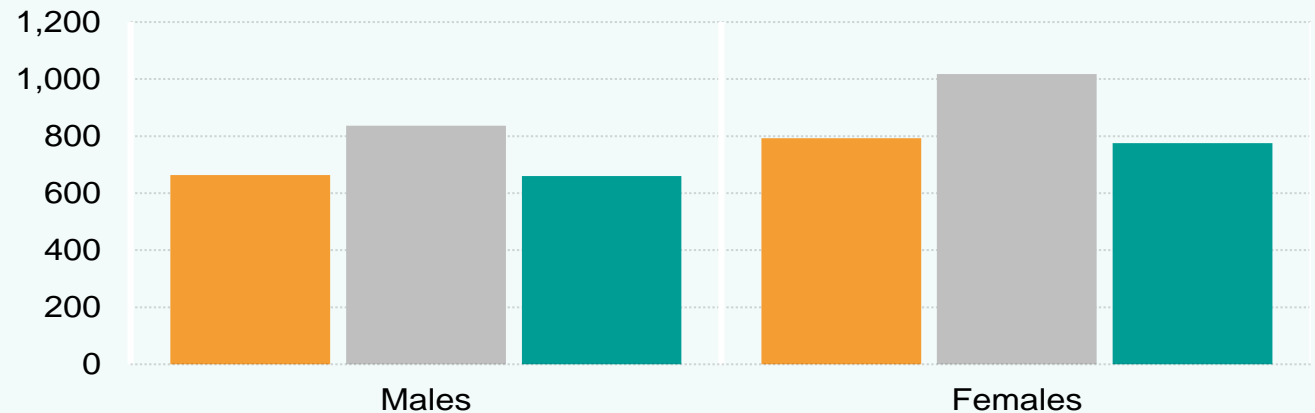
Summary

The scheme's 2016 assumptions assumed more members to leave service than was observed in the scheme's experience since 2016, as shown above. This is affected by the allowance for early retirements in the 2016 assumption. The recommended 2020 assumption produces an assumption more in line with experience, as shown on the next page. This is also aligned with the updated approach for the Civil Service GB scheme with a similar margin of a 40% deduction continuing to be applied to the Salary Band 2 rates.

Scheme experience: in detail

Number of leavers by age, split by category

Males

Females

Key: ——— **2016 assumptions** ----- **2020 recommendations** ▬ **Experience** (line) and difference from 2016 assumptions (shaded area)
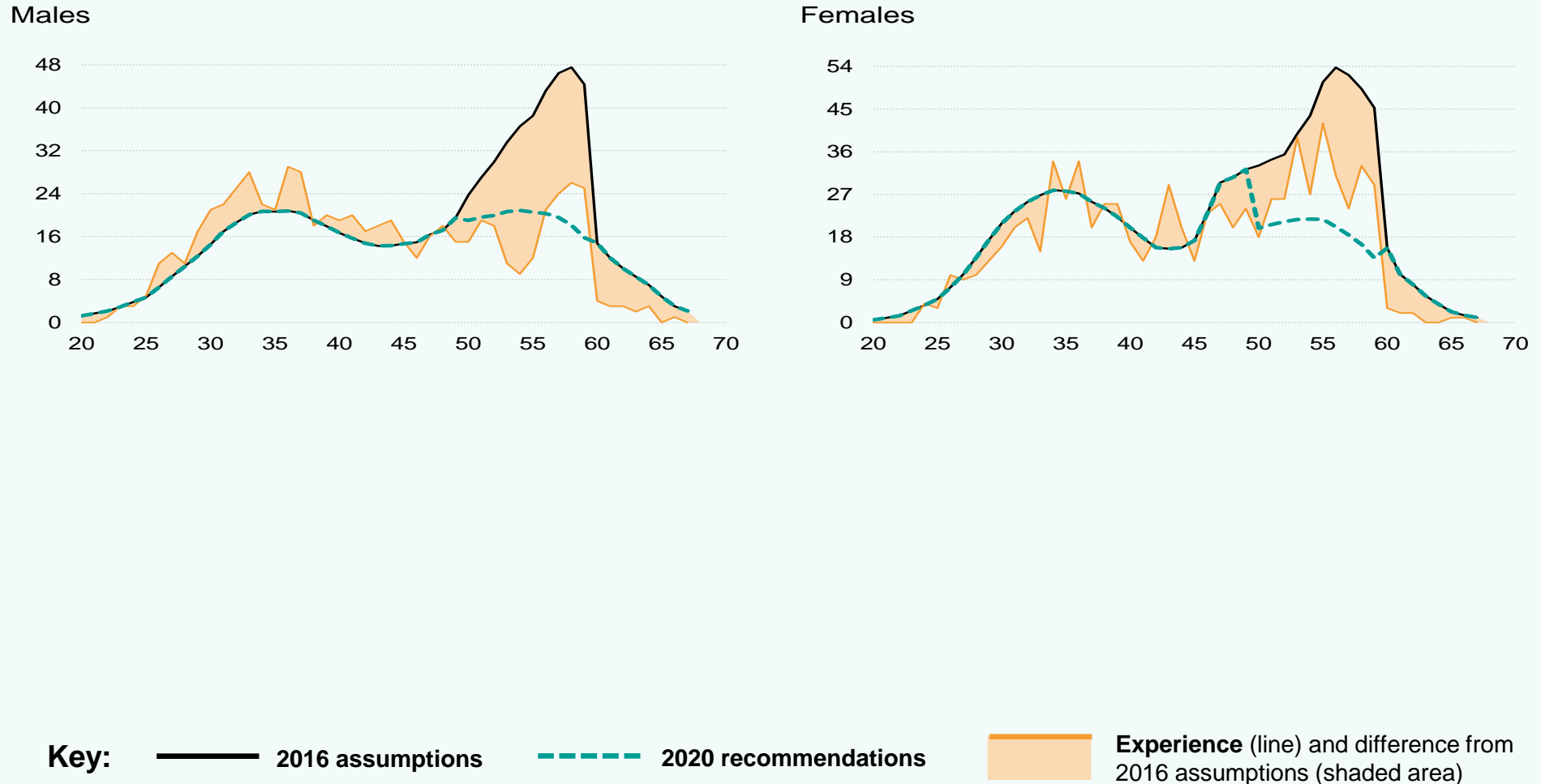
Scheme experience: in numbers

Category		Experience Number of leavers over 2016-2020	2016 Expectations Expected number of leavers under the 2016 assumptions	2020 Expectations Expected number of leavers under the 2020 assumptions
All members	**Male**	663	836	660
	Female	793	1,017	775
GB (Salary Band 2)	**Male**	11,482	13,583	11,090
	Female	11,490	16,578	13,175

The table above shows the expected and observed withdrawals of the scheme over the intervaluation period with the corresponding figures for the GB scheme for comparison purposes illustrating the larger dataset available for this scheme.

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	🟢 Small	🚫 No impact

Our recommendations and rationale

We recommend aligning the promotional pay assumptions with those for Salary Band 2 members in the GB Scheme.

For the GB Scheme we recommended that the eight sets of promotional pay increases assumptions adopted for the 2016 valuation, in respect of males and females in each of the four Salary Bands, were rationalised to two unisex sets of assumptions, one for Salary Bands 1 and 2 combined and one for Salary Band 3 and 4 combined.

Adopting the rationalised assumptions is not expected to 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 £30,000 a year.

For each category shown:

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

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

- The **bottom line** ( ) shows the impact of the assumptions we recommend for the GB scheme 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 £30,000

All Members		
Male		£31,721
		£32,684
		£31,721
Female		£31,721
		£31,592
		£31,721
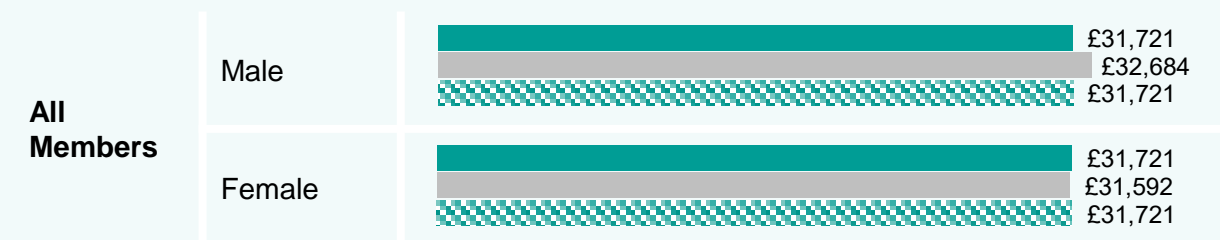
Our approach

Analysis

We have analysed the scheme's salary growth experience 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.

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
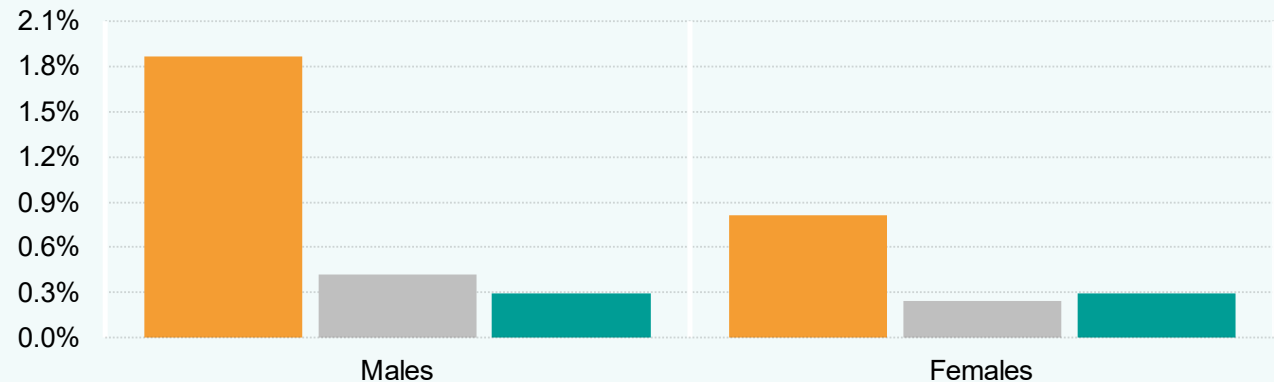
Summary

Both males and females have experienced higher promotional pay increases than expected, based on the 2016 assumptions. The shape of the experience is broadly in line with expectations and the absolute values are relatively small.

Adopting the rationalised CS GB Salary Band 2 assumptions is not expected to have a material effect on the valuation results. All future accrual is in the 2015 scheme where the promotional pay assumption has a minimal impact on the employer contribution.

Scheme experience: in detail

Annual promotional pay increases by age, split by category
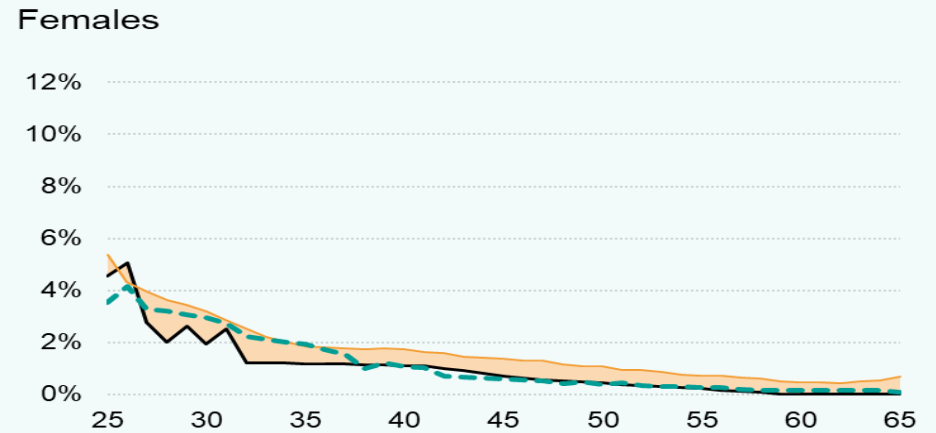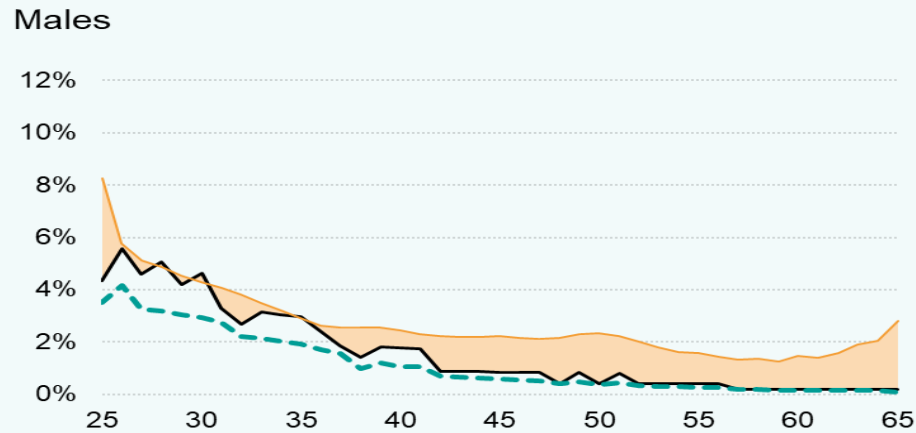
Males

Females

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

Scheme experience: in numbers

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
All Members	Male	£0.3 billion	£0.4 billion	1.9%	0.4%	0.4%
	Female	£0.4 billion	£0.4 billion	0.8%	0.2%	0.2%
GB (Salary Band 2)	Male	£3.1 billion	£3.5 billion	1.3%	0.4%	0.3%
	Female	£3.1 billion	£3.5 billion	1.5%	0.2%	0.3%

The table shows the corresponding figures for Salary Band 2 of the GB scheme.

The 2016 payroll figures above include an allowance for known general pay increases from 2016 to 2020 . 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	● Small	🚫 No impact

Our recommendations and rationale

We recommend to retain the 2016 assumption for the **incidence** of ill-health retirements. This is due to experience being broadly in line with the current 2016 assumptions in terms of likelihood looking across the age ranges.

Our experience runs to 31 March 2020, and as such misses most of the impact of COVID-19. There is anecdotal evidence to suggest that the number of ill-health cases may increase over the next valuation cycle. However, this is a long-term assumption and on grounds of materiality this suggests that maintaining the existing decrement tables is not unreasonable for the 2020 valuation.

For most members we are unable to reliably determine whether it was an **upper or lower tier** ill-health retirement. Whilst not material to the overall cost of benefits, we propose to simplify the current 2016 assumption to a 50 : 50 (upper : lower) tier split for both males and females. This also aligns with the change for the Civil Service GB Scheme.

We would not expect the McCloud judgement to impact the number of ill-health retirements directly. However, the tests for the eligibility of members to receive ill-health benefits may differ between the legacy and reformed schemes. We would not expect this to have a material impact on contribution rates and ill-health retirements under the legacy arrangements will have ceased from 1 April 2022.

Practical implications

The chart to the right shows the likelihood of members retiring in ill-health before retirement. For each category shown:

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

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

- The **bottom line** (▨▨) shows the impact of the assumptions we recommend for the GB scheme valuation.

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

Likelihood of member now aged 45 retiring in ill-health before age 65
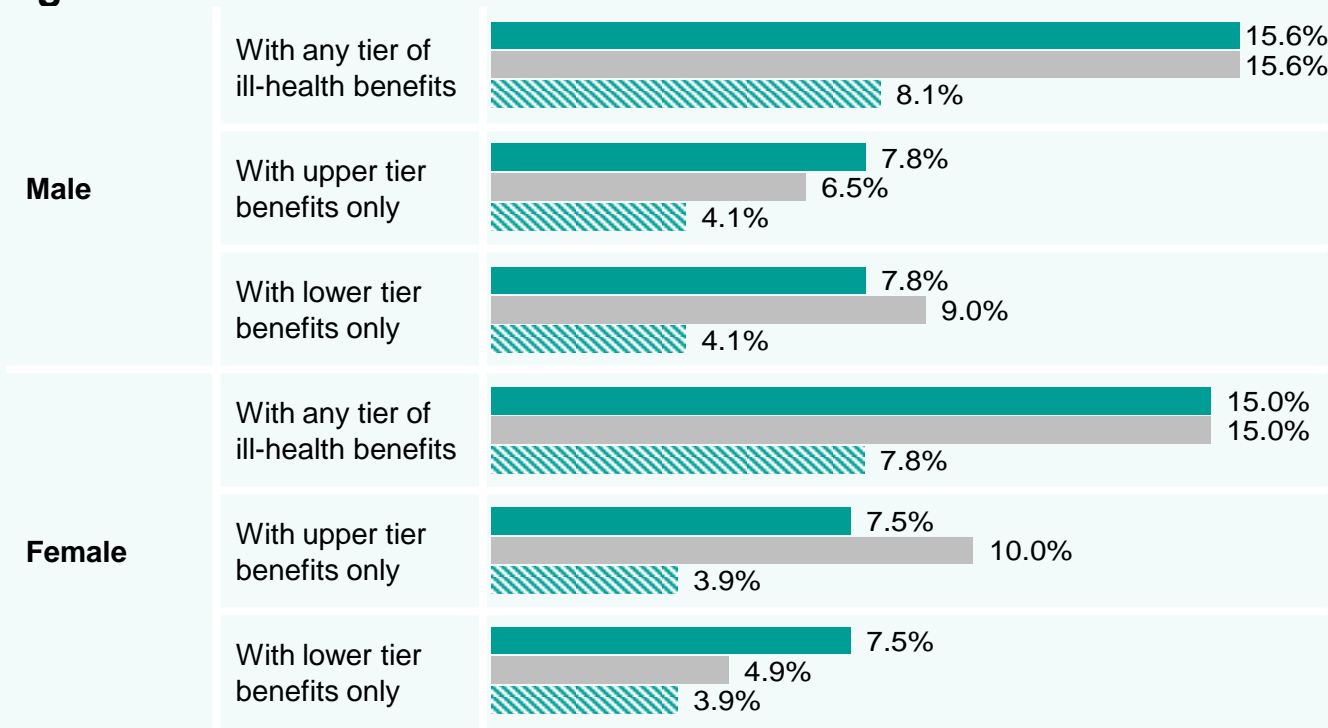
Male	With any tier of ill-health benefits	15.6% / 15.6% / 8.1%
	With upper tier benefits only	7.8% / 6.5% / 4.1%
	With lower tier benefits only	7.8% / 9.0% / 4.1%
Female	With any tier of ill-health benefits	15.0% / 15.0% / 7.8%
	With upper tier benefits only	7.5% / 10.0% / 3.9%
	With lower tier benefits only	7.5% / 4.9% / 3.9%

Our approach

Analysis

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

As ill-health criteria sometimes differ between schemes, there is a chance that experience might have been slightly different if members in scope for the McCloud remedy were in a different scheme to currently. We expect the overall impact of this to be immaterial and have made no allowance for this possibility.

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 retirement, 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.

- Due to the larger dataset, we have also considered the corresponding analysis carried out for the GB scheme and assessed the likely difference between experience for Northern Ireland relative to Great Britain.

Scheme experience: overall

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.

Considerations for setting assumption

For the 2016 and previous valuations, the ill health assumption was set at twice the Civil Service GB rates. There is still a generally higher observed rate of ill health retirements in Northern Ireland relative to GB rates as shown on the table overleaf.

No change was made to the rate of ill-health retirement assumption for the GB scheme and given the ratio of GB to NI rates appears stable we similarly recommend no change to the Northern Ireland Civil Service Pension Scheme assumption.

Summary

The scheme experience, for males and females, has overall broadly seen a similar level of ill-health retirements in recent years compared to the 2016 assumption, as shown on the table overleaf.

For the 2016 valuation 67% of females and 42% of males were assumed to retire with upper-tier benefits when leaving due to ill-health. There is insufficient information to test the impact on the upper : lower tier split. We recommend to update the assumption so that 50% of males and females are assumed to retire with upper tier benefits when leaving due to ill-health. This change would not (be expected to) have a material effect on the valuation results / employer contribution rate

Scheme experience: in numbers

Category	Average number of active members over 2016-2020	Number of ill health retirements over 2016-2020	Experience Proportion of active members ill health retiring per year	2016 Expectations Expected rate of ill health retirements under the 2016 assumptions	2020 Expectations Expected rate of ill health retirements under the 2020 assumptions
CS NI	c.29k	574	c. 0.5% p.a	Age 50: 0.41% (Men) 0.37% (Women)	Age 50: 0.41% (Men) 0.37% (Women)
CS GB	c.499k	2,714	c. 0.15% p.a.	Age 50: 0.20% (Men) 0.19% (Women)	Age 50: 0.20% (Men) 0.19% (Women)

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

We recommend no change to the 2016 assumptions for mortality before retirement. This is due to experience (albeit lower) not being materially different to the current 2016 assumptions.

Our experience runs to 31 March 2020, and as such misses most of the impact of COVID-19. It is accepted that COVID-19 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 impact of the assumptions we recommend for the 2020 valuation (⬛).

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

- The **bottom line** (▨) shows the impact of the assumptions we recommend for the GB scheme 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
- 4.2%
- 4.2%
- 4.2%

Females
- 3.1%
- 3.1%
- 3.1%

Our approach

Analysis

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

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.

- Due to the larger dataset, we have also considered the corresponding analysis carried out for the GB scheme and assessed the likely difference between experience for Northern Ireland relative to Great Britain.

Scheme experience: overall

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.

Considerations for setting assumption

For the 2016 valuation, the assumption was similar to the mortality rates for the GB scheme.

No change was made to the mortality before retirement assumption for the GB scheme and therefore we recommend no change to the Northern Ireland Civil Service Pension Scheme assumption.

Summary

The scheme experience, for males and females, has overall broadly seen a similar level of deaths in service in recent years compared to the 2016 assumption, as shown on the table overleaf.

Scheme experience: in numbers

Category	Average number of active members over 2016-2020	Number of deaths before retirement over 2016-2020	**Experience** Proportion of active deaths in service per year	**2016 Expectations** Expected rate of deaths in service under the 2016 assumptions	**2020 Expectations** Expected rate of deaths in service under the 2020 assumptions
CS NI	c.29k	98	c. 0.1% p.a	Age 50: 0.12% (Men) 0.10% (Women)	Age 50: 0.12% (Men) 0.10% (Women)
CS GB	c.499k	1,696	c. 0.1% p.a.	Age 50: 0.12% (Men) 0.10% (Women)	Age 50: 0.12% (Men) 0.10% (Women)

The table shows the corresponding figures for the GB scheme. This shows the larger dataset available.

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

We recommend no change to any of the family statistic assumptions which are the same as the CS GB assumptions.

For the **current pensioner proportion married** assumptions (applicable to Classic members), we recommend no change to the 2016 assumptions. This is due to experience being broadly in line with the current 2016 assumptions.

For the **current pensioner proportion married/partnered** assumptions (applicable to Non-Classic and 2015 scheme members), we recommend no change to the 2016 assumptions. There are too few deaths arising from the Non-Classic and 2015 scheme to test the suitability of this assumption, so we considered the ONS married and married/partnered assumptions.

For the **future pensioner proportion married and 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 considered the CS GB age difference experience, and we recommend no change to the 2016 assumptions.

Practical implications

The chart to the right shows the likelihood that an eligible partner exists when a member dies. The likelihoods shown depend 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 impact of the assumptions we recommend for the 2020 valuation (⬛).

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

Likelihood of an eligible partner existing at time of death*, for normal health pensioner who retired at age 65

Classic members	Male	48% / 48%
	Female	12% / 12%
Non-Classic members	Male	48% / 48%
	Female	12% / 12%
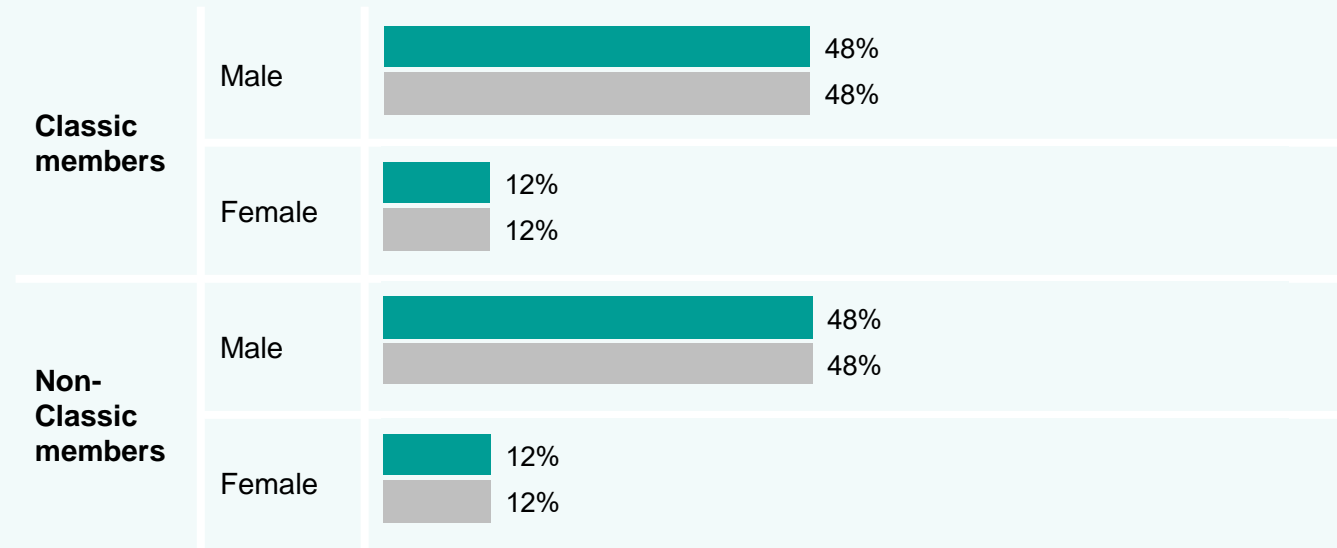
*Assumed age at death for normal health male pensioners is 86 and for females is 87, using the life expectancy assumption we recommend for the 2020 valuation.

Our approach

Analysis

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

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 and age differences 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. (We have considered the CS GB age difference analysis.)

- 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 using an equal allowance for recent experience and the 2016 valuation 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.

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 or married/partnered at death
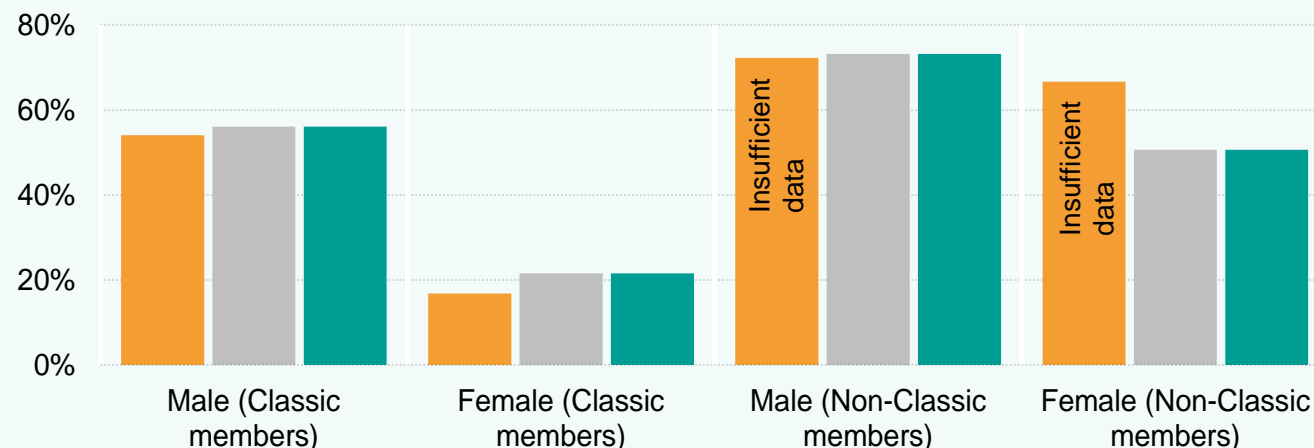
Summary

The **Classic scheme**, for both males and females, has seen a similar proportion married in recent years compared to the 2016 assumption, as shown above. The charts on the next page show that the age profile of the proportion married for recent deaths broadly match the 2016 assumptions for the Classic scheme.

There is insufficient information to test the impact on the **Non-Classic and 2015 schemes**, due to low rates of deaths. Therefore, the output above and on page 78 is for information only. However, ONS married and married/partnered statistics were considered when informing whether the married/partnered assumption remained appropriate. The ONS data supported no change to the gap between the married and married/partnered assumption.

Scheme experience: in detail

Proportion married at death by age, split by category

Classic members (Male)
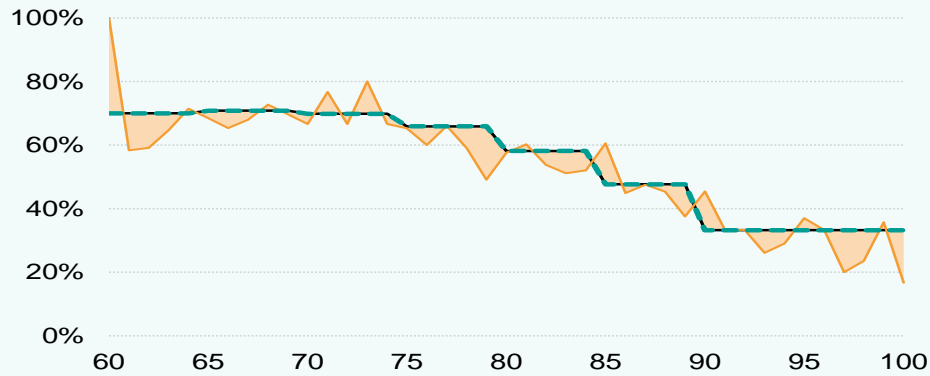
Classic members (Female)
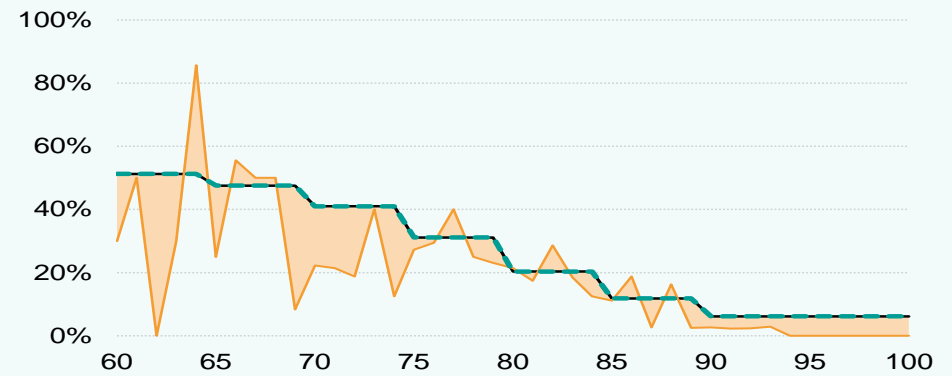
Key: ——— **2016 assumptions** - - - - **2020 recommendations** ▬ **Experience** (line) and difference from 2016 assumptions (shaded area)

Scheme experience: in numbers

Proportion married or married/partnered at death, by age and category

Category		**Experience** Number of member deaths over 2016-2020	**Experience** Actual number of dependant's pension coming into payment over 2016-2020, as a percentage of how many could have come into payment if every member who died had an eligible dependant	**2016 Expectations** Expected proportion married or married/partnered at death under the 2016 recommendations	**2020 Expectations** Expected proportion married or married/partnered at death under the 2020 recommendations
Classic members	**Male**	1,853	54%	56%	56%
	Female	915	17%	22%	22%
Non-Classic members (*)	**Male**	18	72%	73%	73%
	Female	9	67%	51%	51%

* There was insufficient data to produce a robust analysis and therefore, the output included in the table above is for information only.

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

Scheme experience: overall

Considerations for setting assumption

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.

In the absence of CS NI age difference experience data, we have considered the age difference experience analysis carried out on the equivalent valuation of the CS GB scheme.

Summary

For the 2016 valuation, the age difference assumptions were the same as those adopted for the equivalent valuation of the CS GB scheme.

No change was made to the age difference assumption for the CS GB scheme and therefore we recommend no change to the CS NI age difference assumption.

Summary of CS GB age difference experience

For the CS GB analysis:

The **male scheme experience**, has seen a similar average age difference at death in recent years compared to the 2016 assumption.

The **female scheme experience**, is not as close to the 2016 assumption. However, we do not recommend a change to this assumption on the grounds of materiality.

Scheme experience: in numbers

Age difference between member and spouse or partner, by age and category

| Category | Experience
Number of member deaths over 2016-2020 | Experience
Average age difference between member and eligible spouse or partner at date of death | 2016 Expectations
Expected age difference between member and eligible partner or spouse under the 2016 assumptions | 2020 Expectations
Expected age difference between member and eligible partner or spouse under the 2020 assumptions |
|---|---|---|---|---|
| **Males** | N/A | N/A | 3 | 3 |
| **Females** | N/A | N/A | -2 | -2 |
| **Males (GB)** | 18,000 | 4.0 | 3 | 3 |
| **Females (GB)** | 4,171 | -0.9 | -2 | -2 |

The table shows the corresponding figures for the CS GB scheme. This shows the larger dataset available.

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

The Goodwin legal challenge was brought against The Department for Education (DfE) in respect of survivor's benefits provided in the Teachers' Pension Scheme. The Goodwin challenge follows on from the Walker case (which ruled in 2017 that to treat same-sex spouses/civil partners less favourably than their opposite-sex equivalents constituted unlawful discrimination). TPS provided survivor's benefits to male widowers of female members based on service from 6 April 1988, whereas same-sex partners of male members were provided benefits based on service from 1 April 1972 (or 6 April 1978 if the marriage was after the last day pensionable service). Some other public service schemes have similar provisions and we previously identified that this could have a material effect for those schemes.

The Government announced in July 2020 that it had concluded that changes are required to the Teachers' Pension Scheme (England & Wales) to address this discrimination. The government believes this difference in treatment will also need to be remedied in other UK public service pension schemes with similar provisions.

Cabinet Office have concluded that the impact of Goodwin on the Civil Service GB scheme is immaterial. We understand the position is likely to be consistent for the NICSPS.

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
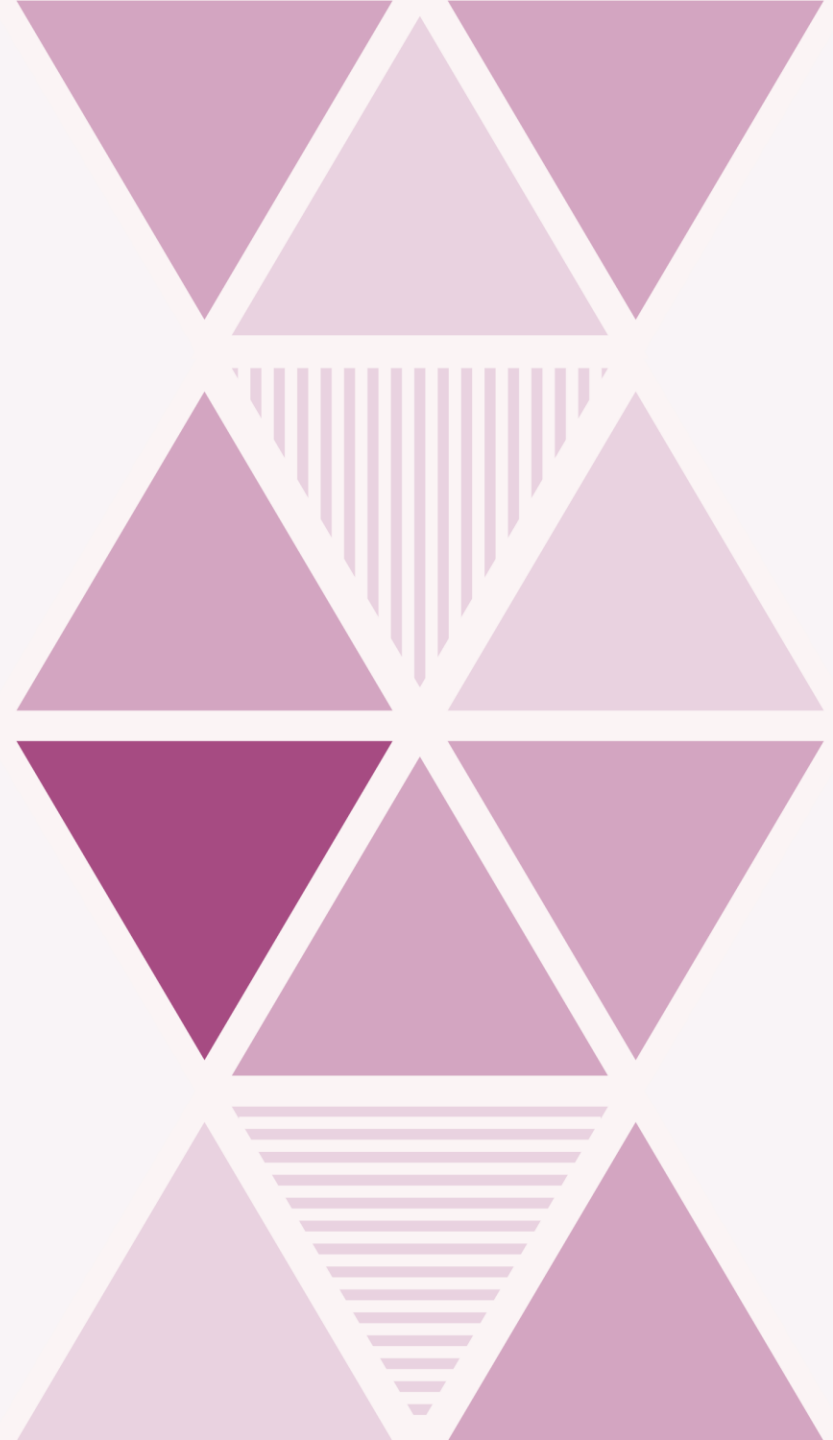
C1. Directed assumptions 1

Annual financial assumptions
Taken from Directions dated 3 October 2023.

Discount rate, net of assumed pension increases
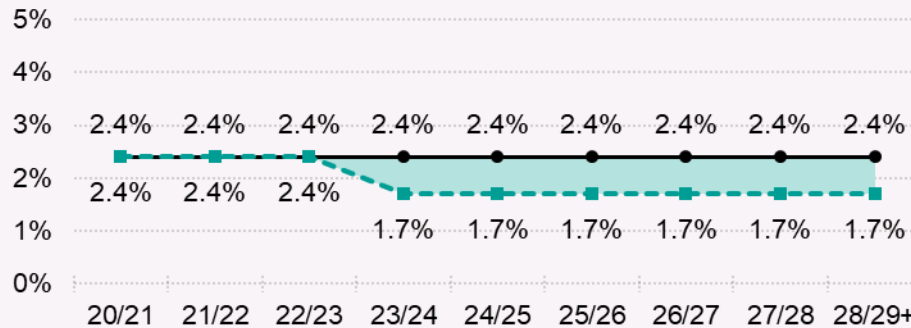
Rates of pension increases

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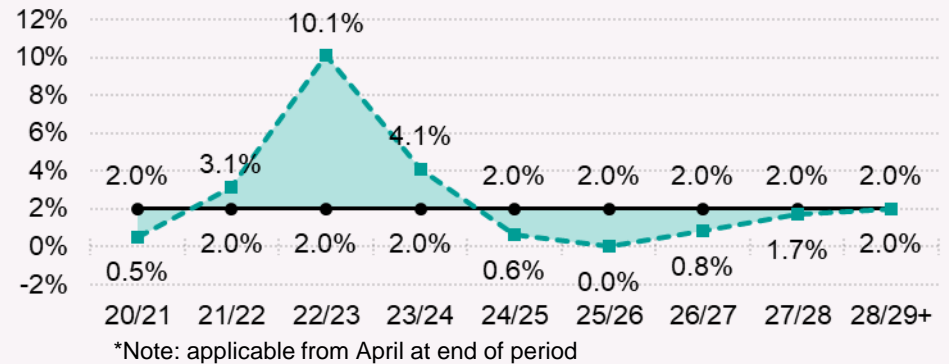
Rates of CARE revaluation
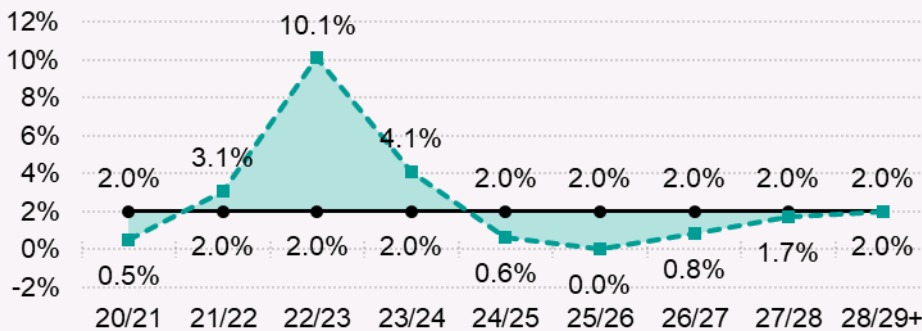
*Note: applicable from April at end of period

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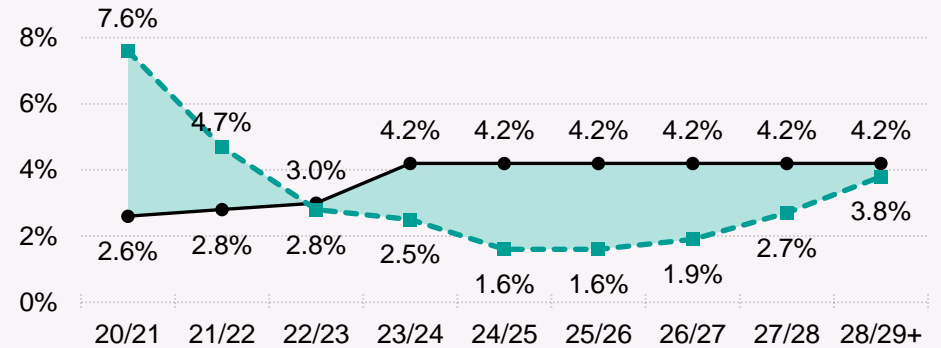
Key: ━━●━━ **2016 assumptions**   ▬ ▬ ■ ▬ ▬ **2020 assumptions** (dotted line) and difference from 2016 assumptions (shaded area)

C1. Directed assumptions 2

Other directed assumptions
Taken from Directions dated 3 October 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 the reformed section 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 each section/scheme (i.e. NPA 60, NPA 65 or alpha), protection status (i.e. protected, tapered or unprotected), salary band and based on the following criteria.

• Age: age nearest

• Gender

• Service

Payroll projection

For the purposes of spreading any past service surplus or deficit, the 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 5.6% of pensionable pay. This compares to a target yield of 5.6% of pensionable pay.

C2. Other minor assumptions 3

McCloud calculation approach

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

- When benefits become payable, eligible members can select to receive them 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 the reformed scheme 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).

C3. 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 measure of the cost of benefits being provided from the reformed scheme, which is then compared to a 'target cost'. The NICSPS target cost is set at 18.3% of pay. If the results of the valuation 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 reformed scheme (e.g., to the benefits provided) to bring the cost cap cost back to the target cost.
Directions	A document published by DoF NI and referred to in Public Service Pensions Act (Northern Ireland) 2014 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.

C3. 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.
Normal pension age	The age at which a member in normal health is entitled to unreduced benefits. This age varies in different scheme sections: • Age 60 for benefits in the Classic or Premium schemes. • Age 65 for benefits in the Nuvos scheme. • Ages 65 to 68 for benefits in the alpha scheme but 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 (Northern Ireland) 1971 and Section 59 of the Social Security Pensions (Northern Ireland) Order 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.

C3. Glossary 3

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 Public Service Pensions Act (Northern Ireland) 2014, 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.