



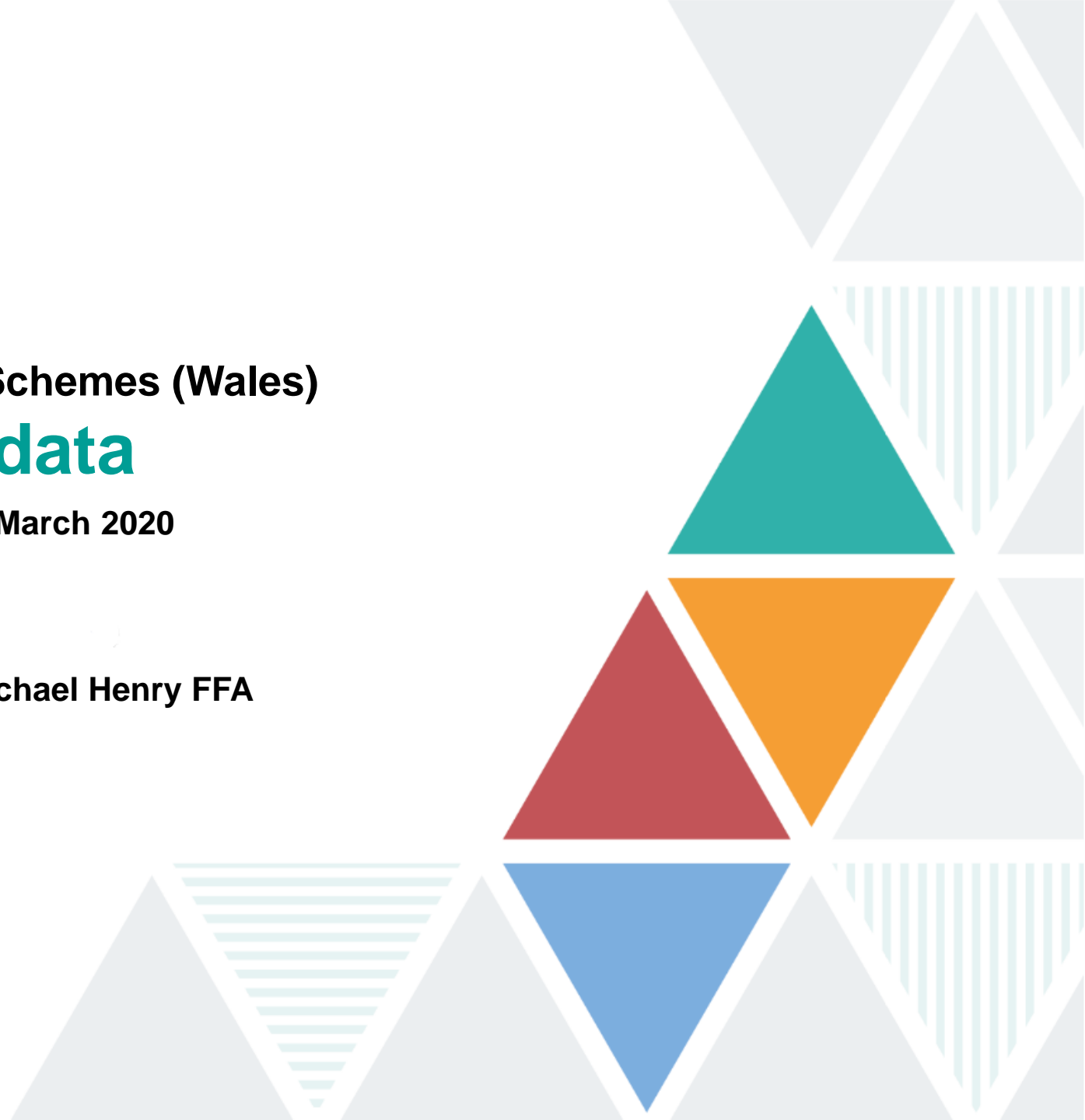
Government
Actuary's
Department

Firefighters' Pension Schemes (Wales) **Membership data**

Actuarial valuation as at 31 March 2020

Samantha Watts FIA and Rachael Henry FFA

31 January 2024



Highlights

Firefighters' Pension Schemes (Wales) valuation data

This report details the membership data for the members of the 1992 Scheme, 2007 Scheme and 2015 Scheme, referred to collectively as Firefighters' Pension Schemes (Wales).



7,296

Members as at
31 March 2020

+ 19.8% vs. 2016

Initial data quality

97.9%

Proportion of 'at 31 March 2020' records provided
which we are able to use

Deterioration vs. 99.1% in 2016

Key headlines

Overall, the quality of the Firefighters' Pension Scheme (Wales) valuation data as at 31 March 2020 is high with a slight deterioration in quality compared with the data used for the 2016 valuation.

In forming this opinion, we consider the proportion of individual records which passed our reasonableness checks and which could be used for the valuation. This proportion has decreased since the last valuation.

Data quality after checks and adjustments



After making the necessary adjustments detailed in this report, we conclude that the data is appropriate for the purpose of the 2020 Firefighters' Pension Scheme (Wales) valuation. However, a different approach to adjusting data could still lead to different valuation results.

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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.

1. Introduction

Who is this report for?

This report is addressed to Welsh Ministers. HM Treasury's Directions ('the Directions') require the scheme actuary to provide information about the scheme and data. The purpose of this report is to provide the data we will be using and to help readers be confident that the results of the valuation are fit for purpose.

Why has the data been collected?

This data is needed to carry out an actuarial valuation of the Firefighters' Pension Scheme (Wales) at 31 March 2020, in accordance with the Directions. This data will be used to set actuarial assumptions, and together the data and assumptions will be used to calculate valuation results.

Why is the data important?

The results of the valuation are critically dependent on the quality of the data used. Poor data could lead to employers making different decisions due to paying too high or too low a contribution rate, or to benefit changes being made unnecessarily.

This data is often used for other important work as well, including Local Financial Returns for the FRSs in Wales.

Results

Assumptions

Data

Data is the first and most important building block of an actuarial valuation.

2. Data as at 31 March 2020

Who provided the data?

This data was provided directly to GAD by the three individual Fire and Rescue Services ('FRSs') in Wales.

What is the data used for?

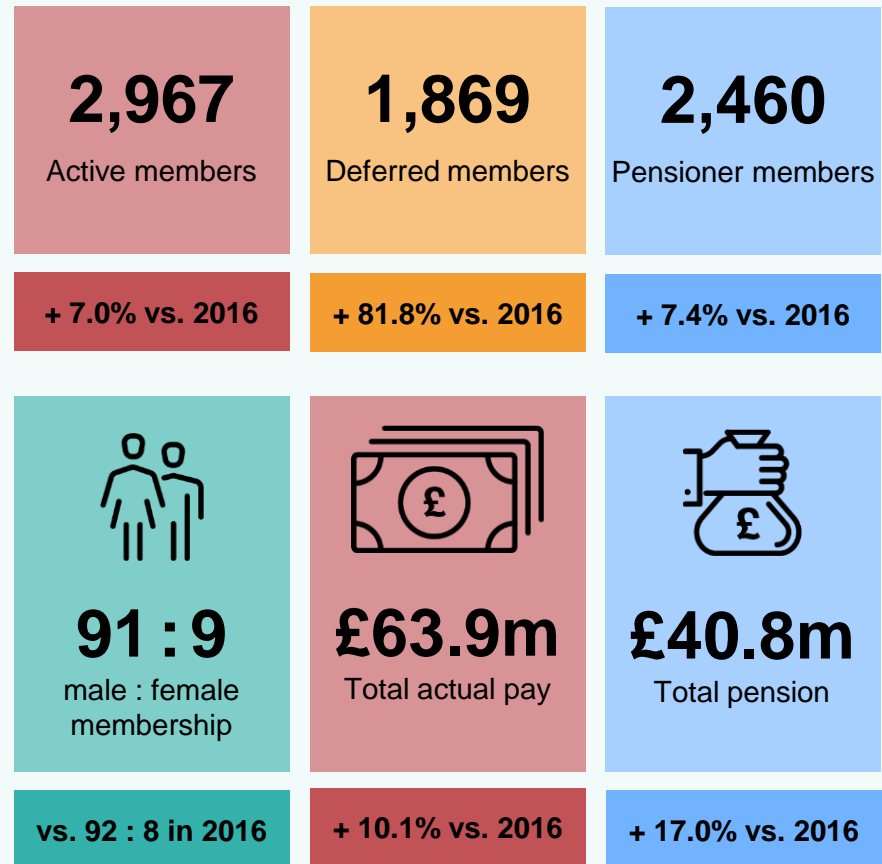
It will be used to calculate the results of the 2020 Firefighters' Pension Scheme (Wales) valuation, specifically:

- employer contribution rates due from 2024
- the cost cap cost of the scheme
- actuarial liabilities as at 31 March 2020.

Detailed data summaries are included in [Appendix A – Detailed summaries: data as at 31 March 2020](#).

The data discussed in the 'Main report' on pages 5 to 10 and Appendices A to D excludes the data in relation to Matthews, unless stated otherwise.

A separate data summary relating specifically to Matthews is detailed in [Appendix E – Matthews](#).



Pension amount includes the April 2020 pension increase.

3. Movements data

Where did the data come from?

This movements data for 2016 to 2020 was provided directly to GAD by the three individual FRSs in Wales.

What is movements data used for?

We requested movements data in order to review existing assumptions about the scheme membership and propose new assumptions where appropriate. Agreed assumptions are then used to carry out valuation calculations.

Membership reconciliation

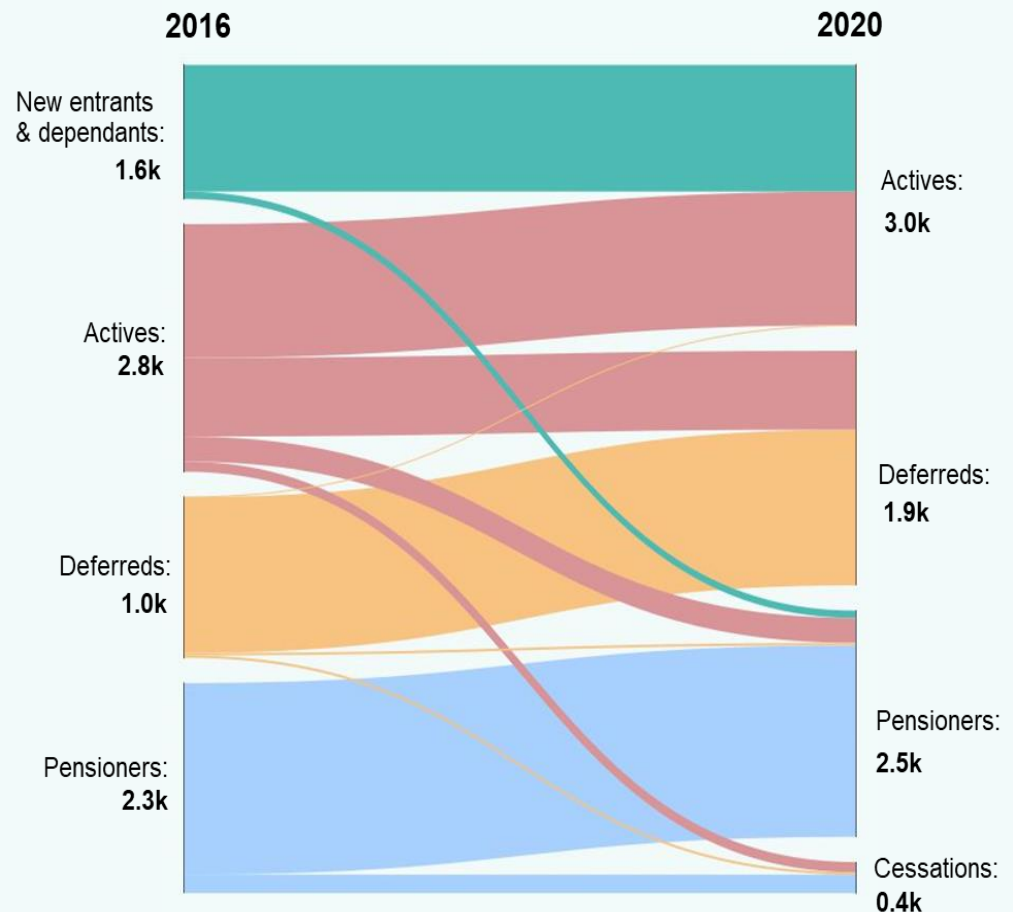
This movements data is used to perform a reconciliation which compares data as at 31 March 2016 and 31 March 2020 against movements occurring between this period to check that membership figures are in agreement.

Where can I find out more?

Detailed data summaries are included in [Appendix B – Detailed summaries: movements data](#).

What does the chart show?

This chart summarises movements between member categories from 2016 to 2020. The thicker the line, the greater the number of member movements occurring.



4. Checks and adjustments

Why is this data checked?

We carry out checks to ensure this data is fit for purpose for the valuation. These checks also help us to understand and describe limitations on the valuation results due to data omissions. This is also a professional actuarial requirement.

What checks are carried out?

We carry out checks on aggregated statistics produced from the data, and on a record by record basis. A simplified process diagram is shown to the right.

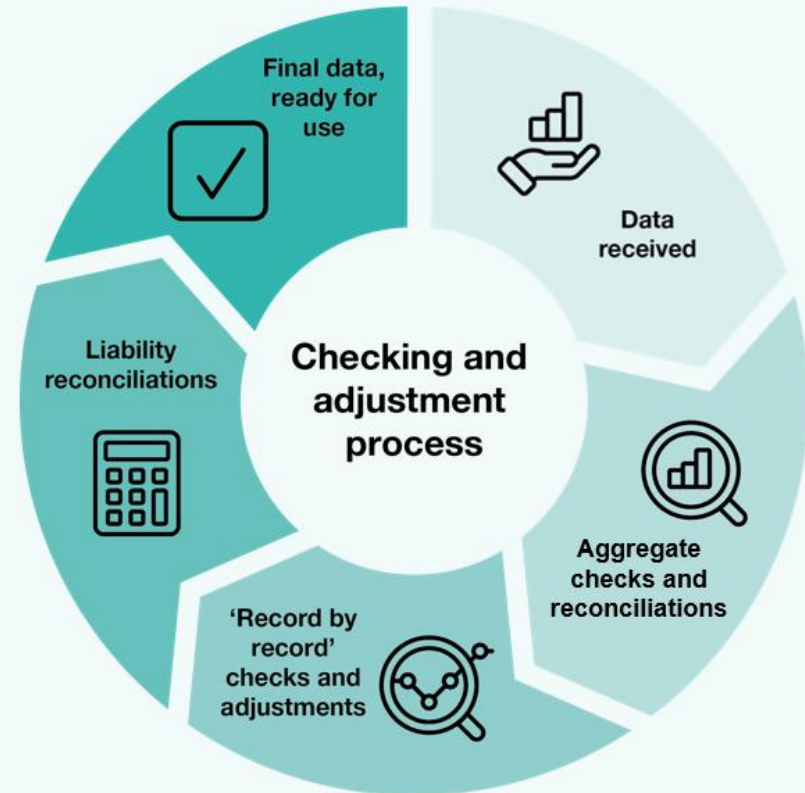
What happens to unreliable data?

Where our checks show that a data record seems to be unreliable, it is either excluded or adjusted. We do this to make sure the data is appropriate for calculating valuation results.

Where we exclude valid data records, we typically compensate for this by scaling up similar, included records.

Where can I find out more?

A detailed summary of what we've done is contained in [Appendix C – Checks, adjustments and uncertainty](#).



After checks & adjustments:

After finalising our checks and adjustments we will consider potential data improvements. We will engage with scheme managers on any issues we have identified to improve future data submissions, where possible and as appropriate.

5. Data quality

Who is responsible for data quality?

Scheme managers are responsible for ensuring appropriate data is provided in order to support the legislative requirement to perform a valuation.

It is the scheme managers' responsibility to ensure that data that is provided is in line with our specifications.

Was the data provided of good quality?

The percentage of data which was able to be used and not subject to exclusion is shown to the right. High percentages suggest good quality data.

In terms of the proportion of the records we are able to use, 97.9% is a slight deterioration on the 99.1% used for the 2016 valuation.

More detail on this deterioration is described on page 25.

Further information on the data quality of the [Matthews](#) data is detailed in [Appendix E – Matthews](#).

Can the data be used for the valuation?

Yes. After making the adjustments detailed in this report, we believe the data is appropriate for the purposes of the 2020 valuation.

Initial data quality

97.9%

Proportion of 'at 31 March 2020' records provided which we are able to use

Deterioration vs. 99.1% in 2016

99.3%

Actives

93.3%

Deferreds

100.0%

Pensioners

Improvement vs. 98.4% in 2016

Deterioration vs. 99.6% in 2016

Improvement vs. 99.7% in 2016

Data quality after checks & adjustments



After making the necessary adjustments detailed in this report, we conclude that the data is appropriate for the purpose of the 2020 Firefighters' Pension Scheme (Wales) valuation.

6. Impact of data limitations

Do data limitations cause uncertainty?

Yes. Our checks and adjustments aim to ensure that the data is appropriate for use in valuation calculations. However, our checks do not constitute a full audit of the data and our adjustments, although reasonable in our view, may not mean that the dataset adopted accurately reflects the true data of the scheme. This means that there is **residual data uncertainty**.

Is data uncertainty a significant issue?

Residual data uncertainty can potentially have an impact on valuation results, including for example on the cost cap cost of the scheme and any resulting impact on member benefits.

However, in large and complex data sets this uncertainty is normal and is not usually a cause for concern.

In our view, the residual uncertainty present in this data is not significant enough to dissuade users from taking actions recommended from this valuation.

Where can I find out more?

A more detailed summary of residual data uncertainty is set out in [Appendix C – Checks, adjustments and uncertainty](#).



7. Limitations

Data

In preparing this report, GAD has relied on data and other information supplied by the three individual FRSs in Wales as described in the report. GAD has not sought independent verification around the general completeness and accuracy of the data (beyond our comparisons with the cumulative cashflows recorded by individual FRSs in their accounts).

Separately, GAD has relied on data collated from an individual FRS in response to a survey carried out by GAD regarding [Matthews](#). More information on the limitations regarding this data is detailed in [Appendix E – Matthews](#).

Any checks that GAD has made are limited to those described in the report, including those relating to the overall reasonableness and consistency of the data. These checks do not represent a full independent audit of the data supplied.

Throughout this report, the totals given for summed data may not be exactly the same as the sum of the components shown due to rounding effects.

HM Treasury Directions

Throughout this report, in any place where we indicate the potential variability of valuation results - these take into account the HM Treasury [Directions](#) for the 2020 valuations.

Sharing

This report has been prepared for the use of Welsh Ministers. We are content for Welsh Ministers 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 Welsh Ministers, 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.

This report will be published by GAD as part of completing the 2020 valuation of the scheme.

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.

Appendix A

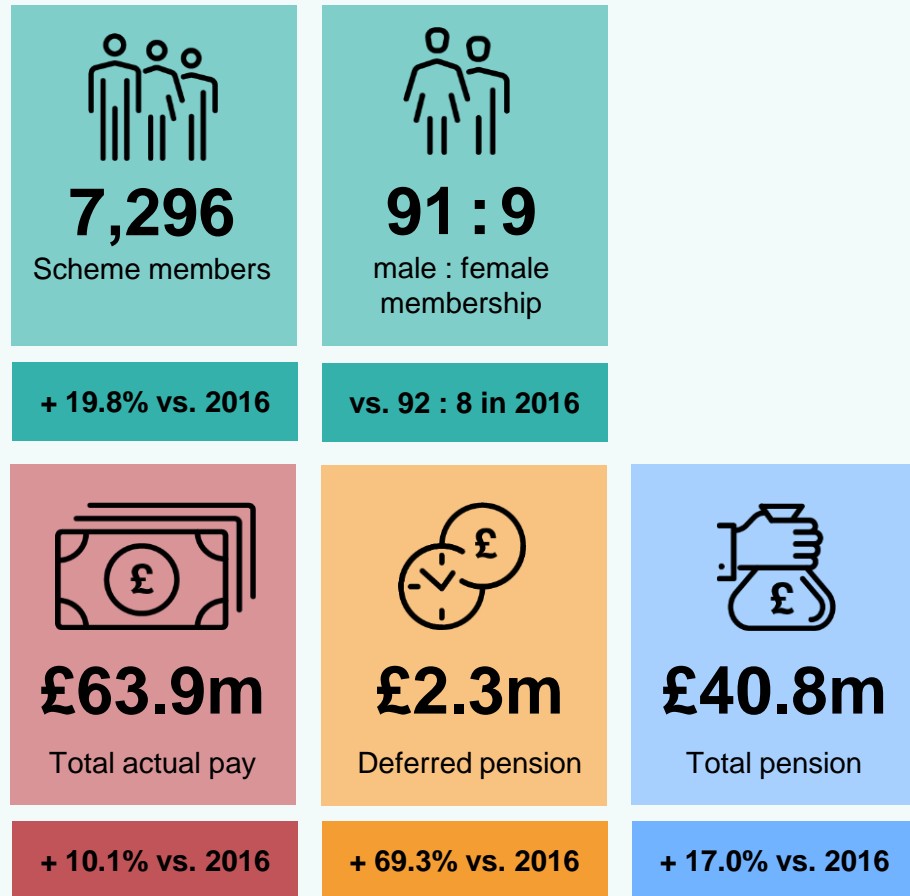
Detailed summaries: Data as at 31 March 2020



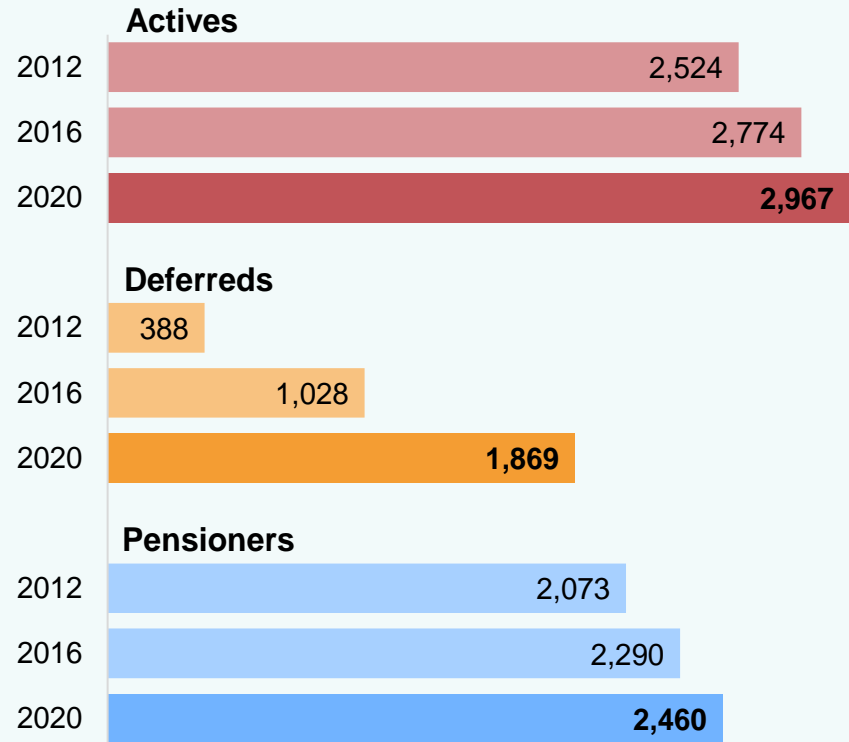
Scheme data

As at 31 March 2020

Summary statistics



Membership over time



Pension amounts include the April 2020 pension increase

Scheme membership

As at 31 March 2020

Overall, the headcount has increased from 2016 to 2020 for all membership types.

There are significantly more male than female members across all categories.

The numbers of pensioner/dependants begin increasing from around age 48 and peak between age 50 and 60 as expected.

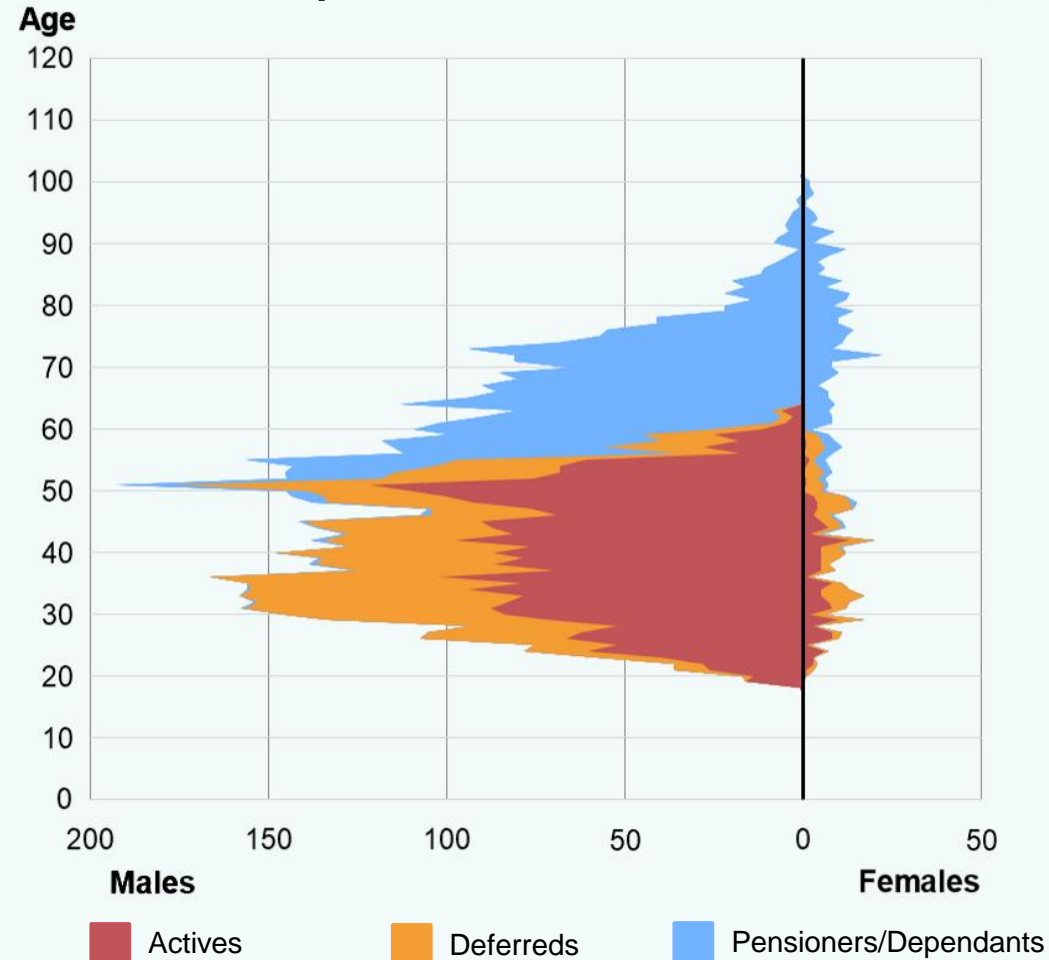
This corresponds with declining numbers of active members and deferred members, particularly over the latter half of this age range.

Some active and deferred members have still not claimed their pensions, despite being over normal pension age.

Where can I see more?

[Appendix D – Tables of summary statistics](#)

Membership distribution



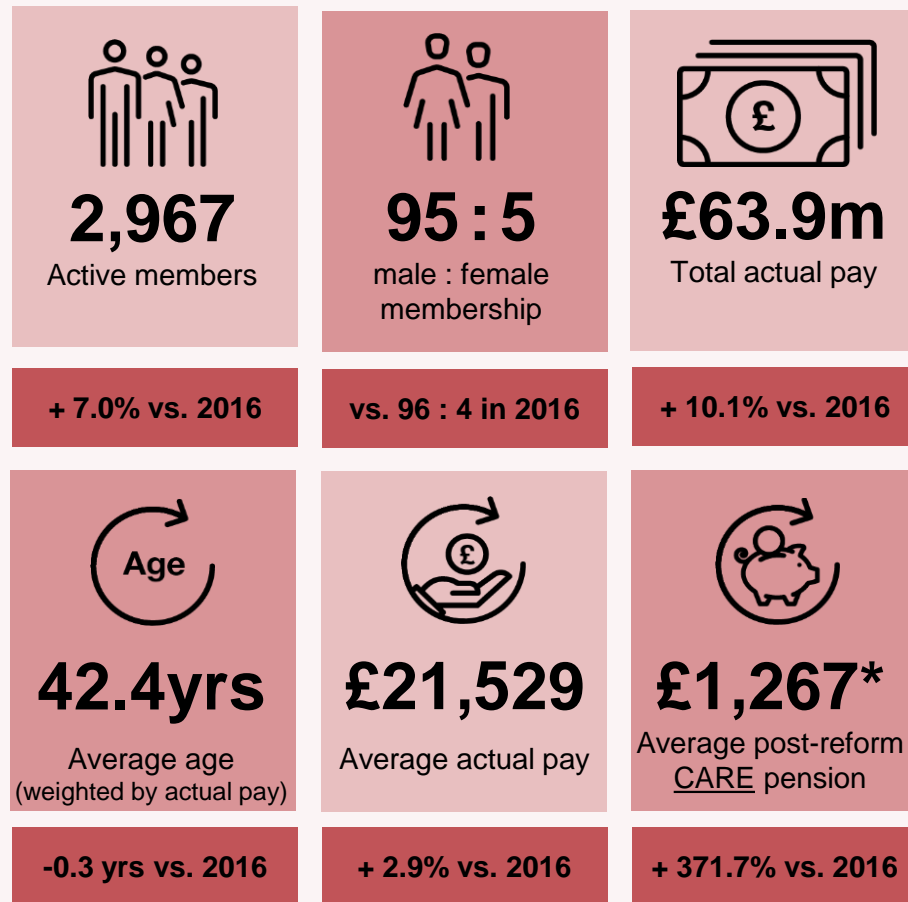
Actives



Actives data

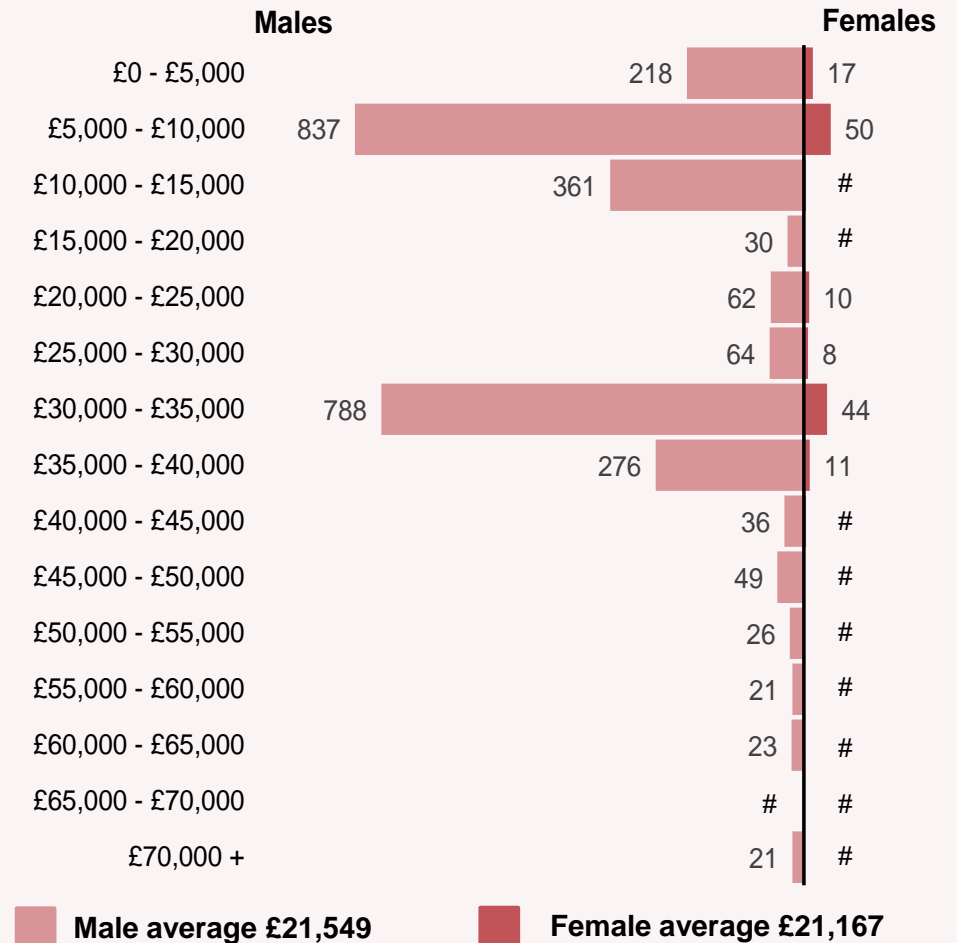
As at 31 March 2020

Summary statistics



*Average is only for members who have post reform CARE pension
Post reform CARE pension includes pension revaluation to April 2020

Actual pay distribution



represents groups of 5 or fewer individuals.

Active membership

As at 31 March 2020

For members with service before 2015, this shows the active members' legacy scheme at the valuation date.

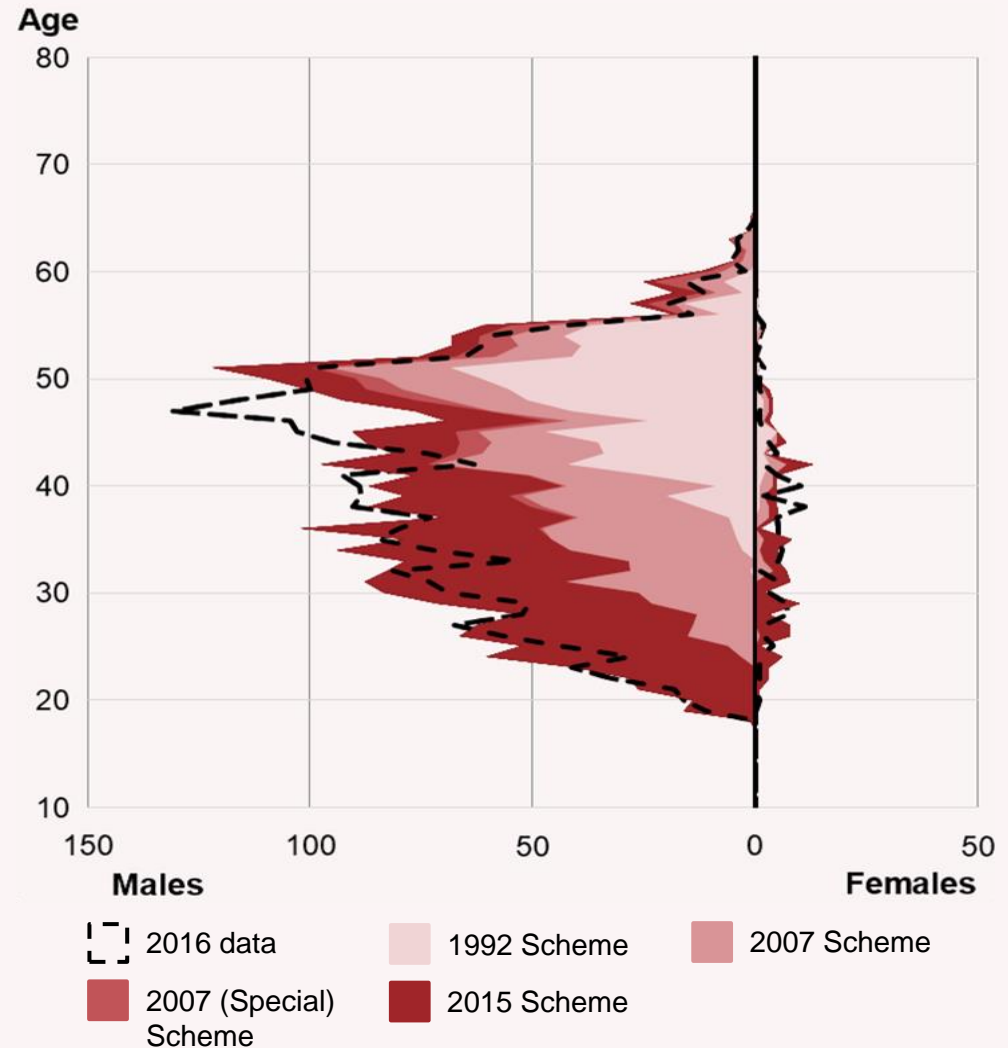
There are significantly more male than female members across all ages.

In general, as you move from younger to older ages:

- The vast majority of younger members are in the 2015 Scheme.
- In general, between ages 25 and 38, there are more members in 2020 compared with 2016 (as can be seen by the darkest shade of red falling outside of the dotted line at the bottom of the chart);
- There are a similar number of members from aged 50 onwards at 2020 compared with 2016.
- As the membership ages, the proportion of members with legacy scheme membership increases (as shown by the three lighter shades).

From 1 April 2022, all future service will be in the 2015 Scheme.

Membership distribution



Where can I see more?

[Appendix D – Tables of summary statistics](#)

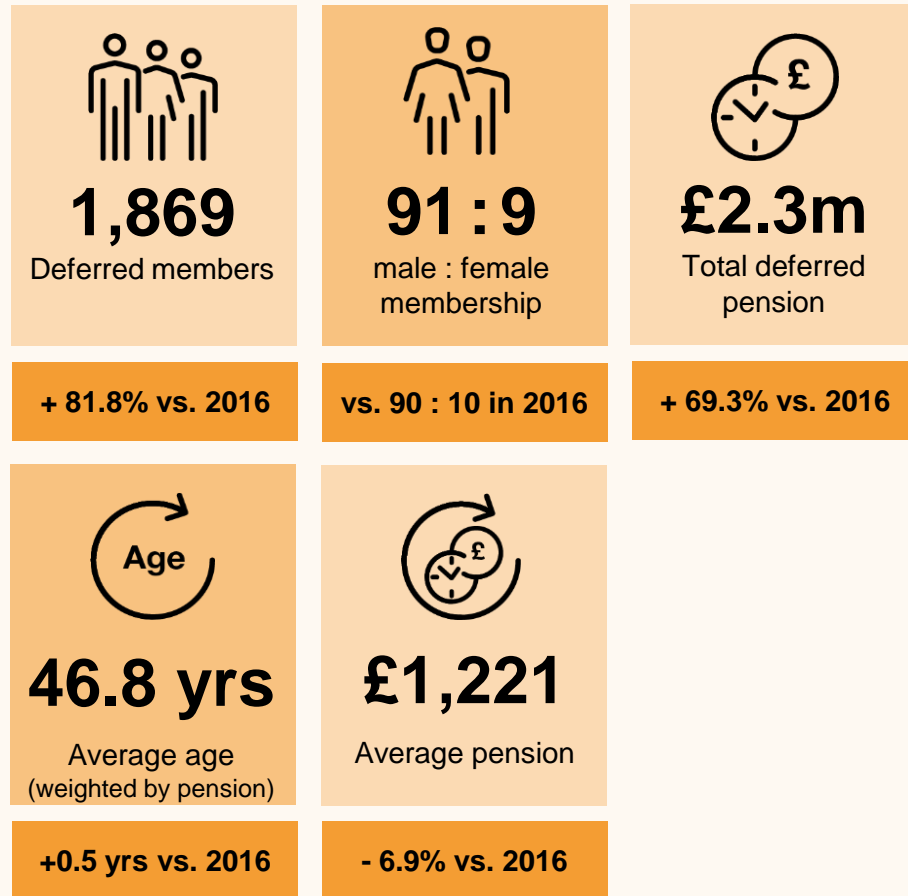
Defferreds



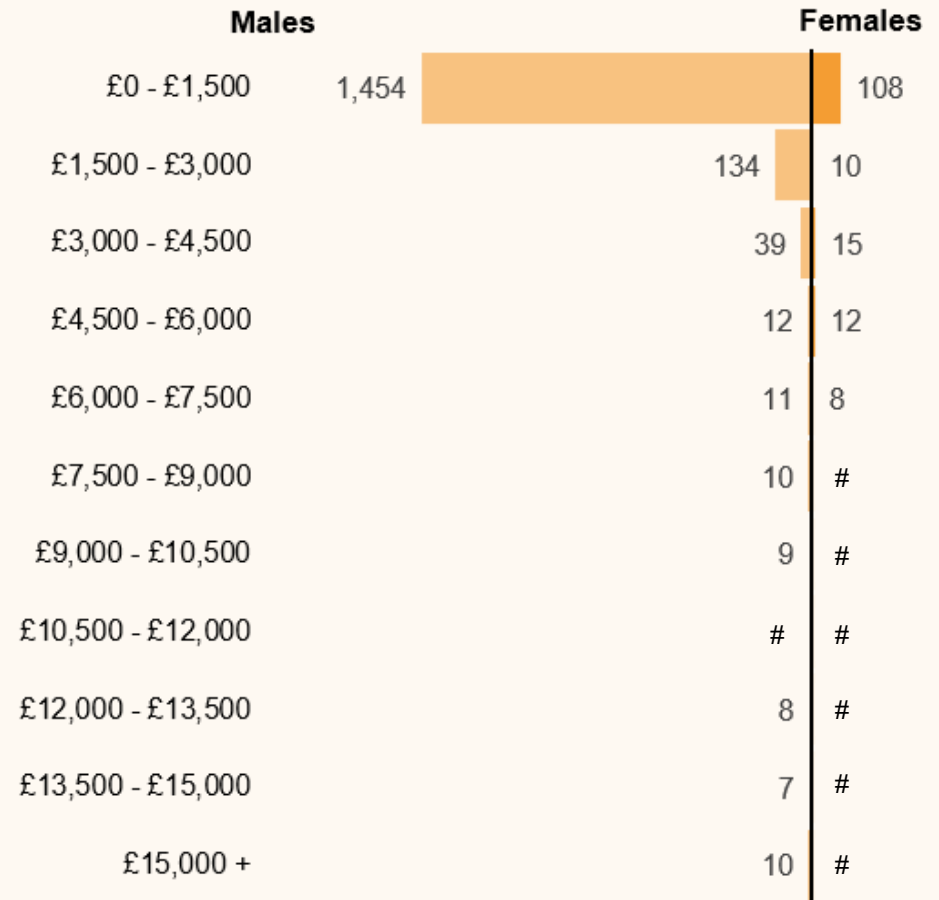
Deferreds data

As at 31 March 2020

Summary statistics



Deferred pension distribution



Male average £1,074 Female average £2,692

Pension amount includes the April 2020 pension increase

represents groups of 5 or fewer individuals.

Deferred membership

As at 31 March 2020

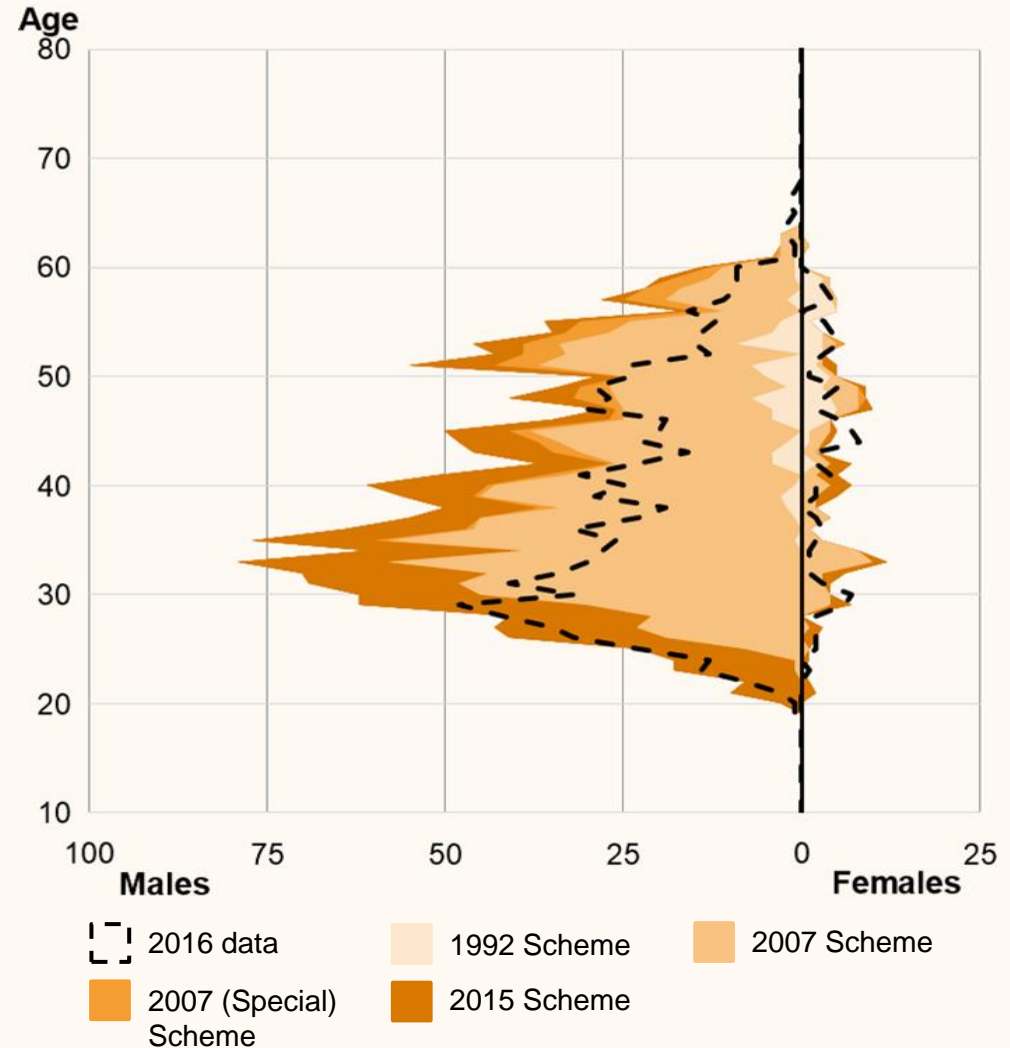
For members with service before 2015, this chart shows the members' legacy scheme at the valuation date.

There are more male than female deferred members at all ages, with the majority of members having legacy 2007 Scheme benefits (shown by the two mid-orange shades).

There are significantly more deferred members in 2020 compared to 2016 (as can be seen by the dotted line inside the shades of orange).

This is a result of increased withdrawals that have been seen over the inter-valuation period, and few deferred members reaching retirement age in the inter-valuation period (further details are shown on pages 24 and 25).

Membership distribution



Where can I see more?

[Appendix D – Tables of summary statistics](#)

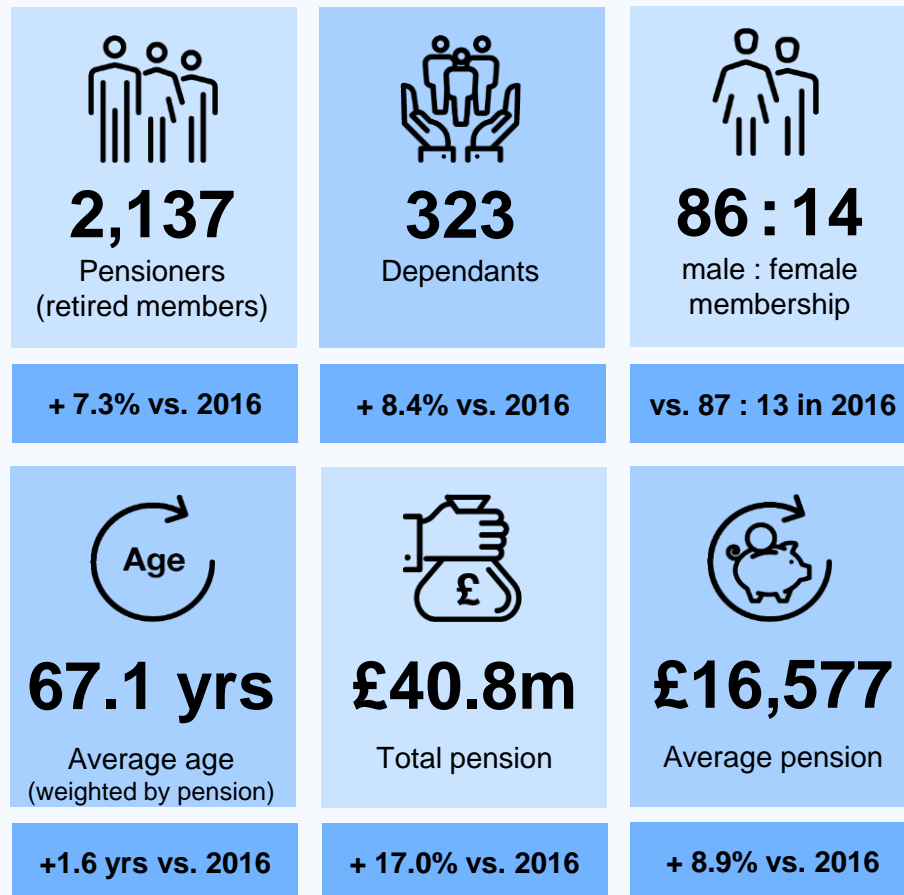
Pensioners



Pensioner data

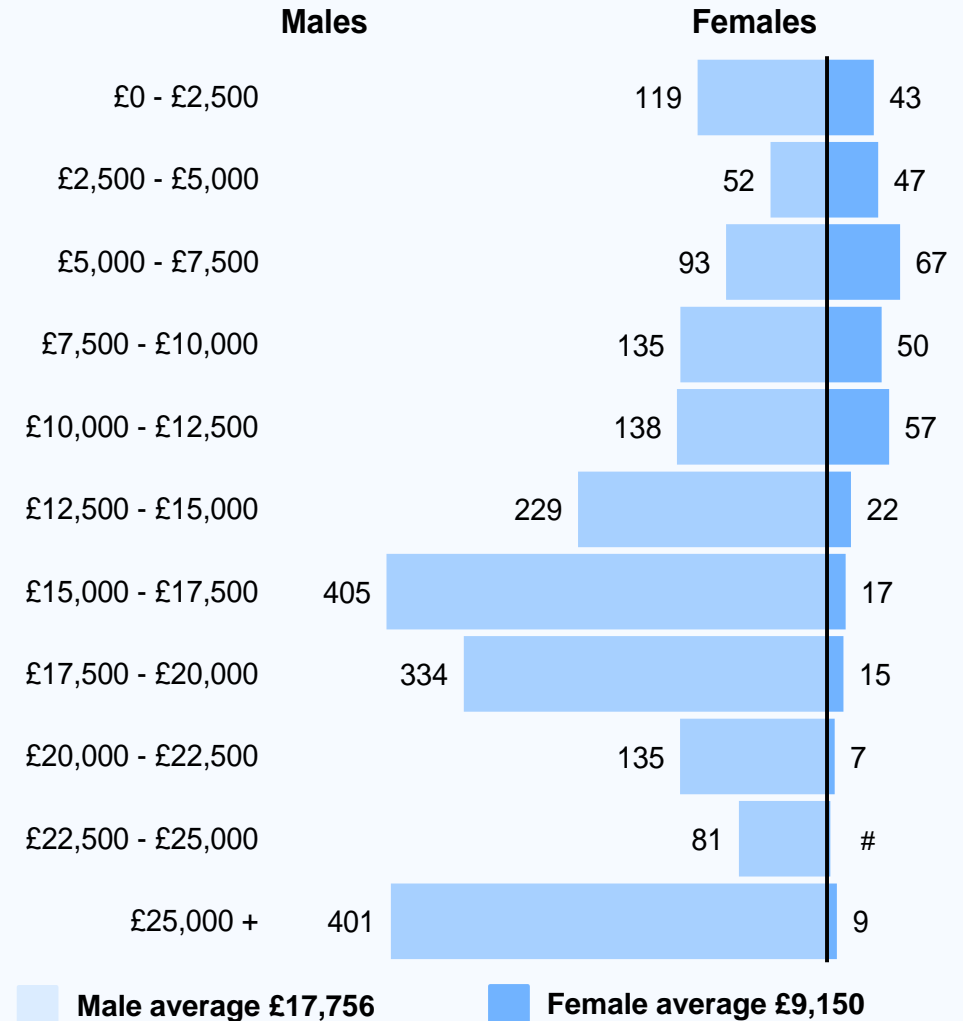
As at 31 March 2020

Summary statistics



Pension amount includes the April 2020 pension increase

Pensioner data pension distribution



represents groups of 5 or fewer individuals.

Pensioner membership

As at 31 March 2020

Membership distribution*

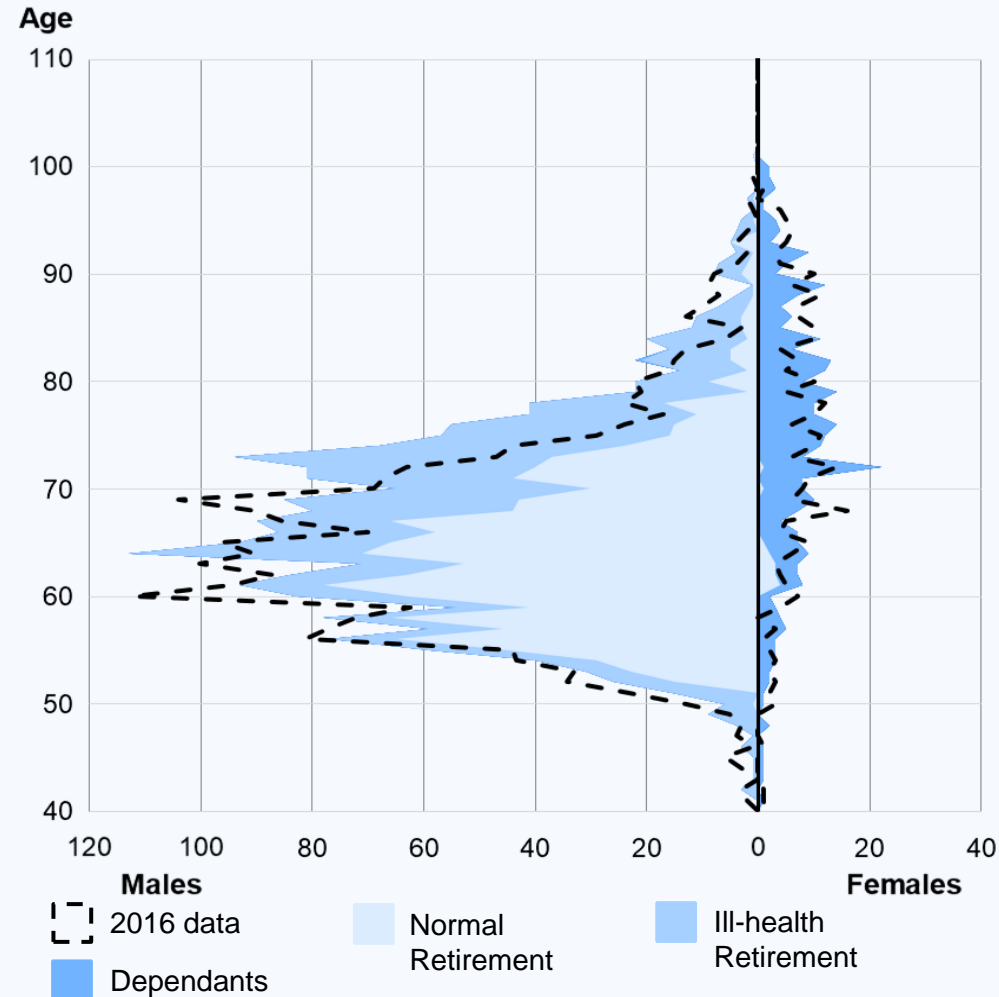
There are more male than female pensioners at all ages.

The majority of pensioners are those who retired in normal health (shown by the lightest shade).

There are relatively small groups of male members who retired in ill-health and female dependants.

The male dependant population is very small.

Overall, compared with 2016 (shown by the dotted black line) the pensioner population in general has aged.



Where can I see more?

[Appendix D – Tables of summary statistics](#)

*This chart does not show members aged below 40 years.

Appendix B

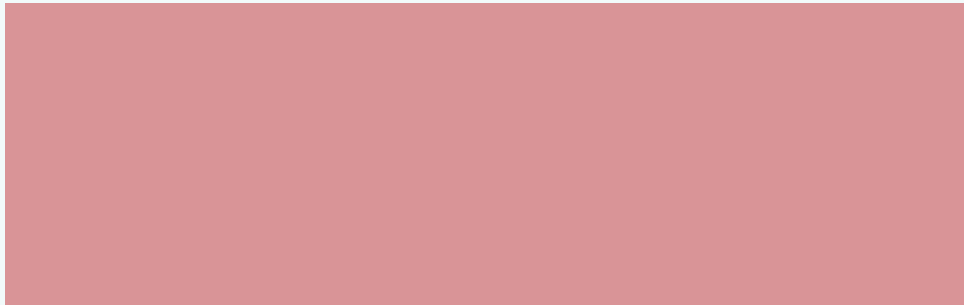
Detailed summaries: Movements data



Membership movements

31 March 2016 to 31 March 2020

Actives

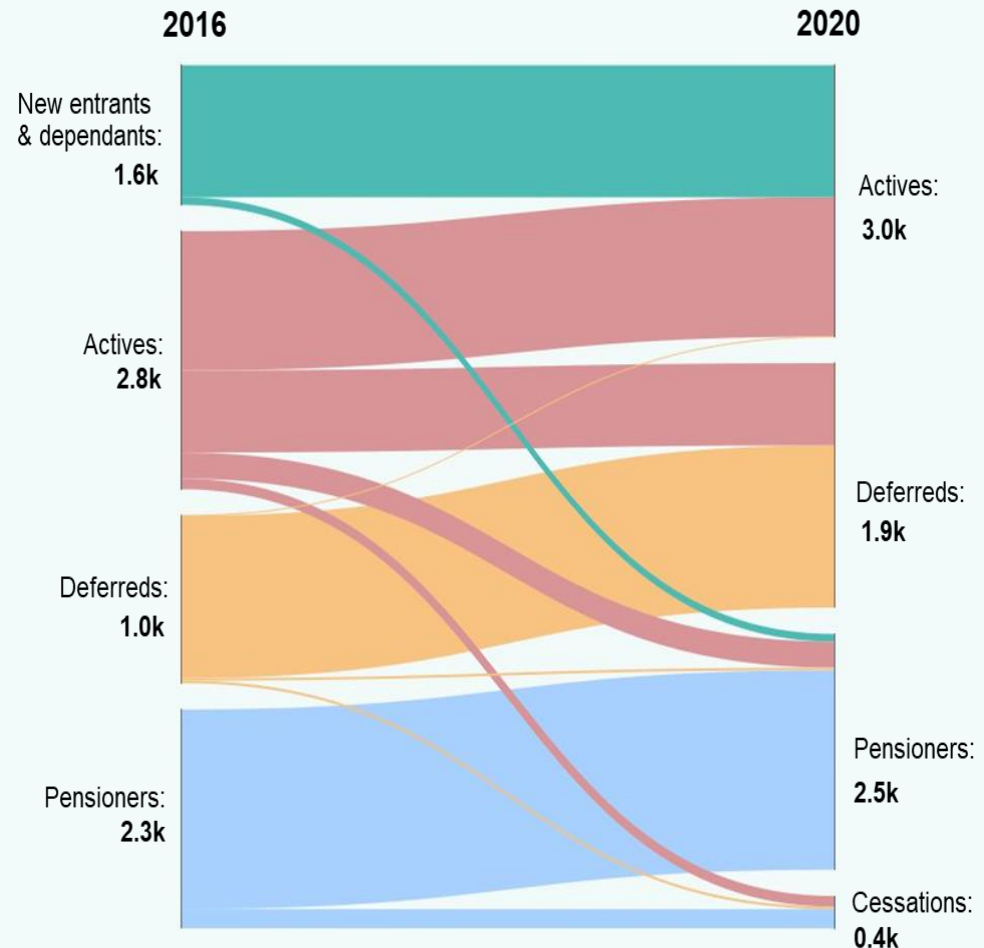


Deferreds

There has been a significant increase in the deferred population since 2016 (see next slide for more information).

Pensioners

Reasons for cessation from pensioner status include pensioner deaths and members no longer being eligible for a pension from Firefighters' Pension Scheme (Wales) – for example, child pensions ceasing at a certain age or on leaving education (see next slide for more information).



Membership movements

31 March 2016 to 31 March 2020

This table shows how the number of members in each category has changed over the period 31 March 2016 (top row) to 31 March 2020 (bottom row).

The intermediate rows summarise the membership movements provided over the period, as illustrated in the previous slide.

Reconciliation

The expected number of members in each category at 31 March 2020 is set out in the second last row of the table. This reflects the starting position at 31 March 2016 and the movements data provided.

There are a number of minor differentials between this expected position and the actual position at 31 March 2020.

- Actives: **40** members
- Deferreds: **-40** members
- Pensioners: **-20** members.

These differences are within our tolerance levels for a scheme of this size, so no further action needs to be taken.

~0 means the figure is too small to report

*The figure for 'Leavers from active service' in the actives column is calculated based on records of people who have left the actives population with 'deferral' given as the reason for leaving, whereas the corresponding figure in the deferreds column is calculated based on records of people who have entered the deferred population. Although these two calculations should in theory yield the same number, in practice there are inconsistencies between these two datasets as the numbers of members leaving active service may not equal the number of entrants to the deferred population. The same is true for 'Age related retirements' and 'Ill-health retirements'. In addition, there was an apparent omission of ~60 deferred records in 2016 data (date of leaving prior to 31 March 2016) which we have classified as leavers from active service in the deferreds column, but the members did not leave the actives population in the inter-valuation period therefore only contribute to the count of new deferreds and not active leavers.

Figures in intermediate rows are rounded to the nearest 10	Actives	Deferreds	Pensioners
Number at start of period:	2,774	1,028	2,290
New members:			
New entrants	1,500	-	-
New dependants	-	-	90
Movements between categories:			
Leavers from active service*	-930	940	-
Re-joiners and re-employed	-	~0	-
Age related retirements	-250	-20	260
Ill-health retirements	-50	-10	60
Cessations with no ongoing liability:			
Member deaths	-10	~0	-150
Dependant deaths	-	-	-70
Other exits	-120	-20	~0
Number expected at end of period:	2,930	1,910	2,480
Valuation data at end of period:	2,967	1,869	2,460
Difference:	40	-40	-20

Appendix C

Checks, adjustments and uncertainties



Checking and adjustment process



1. Data received

Our work starts when schemes provide data. This is collated and processed to remove any unnecessary personal information and to encrypt any personal information that needs to be retained.

All member data provided and discussed in this report was supplied to GAD by the three individual FRSs in Wales.

2. Aggregate checks and reconciliations

Initial checks carried out on the data are at an overall level, as opposed to an individual record basis.

Any unexpected changes compared to previous datasets are identified.

The data provided is then reconciled against that from a separate source (e.g. annual accounts) to check for any potential issues.

3. 'Record by record' checks and adjustments

If the data passes our initial checks, we then undertake a series of automated, record-by-record checks to remove records that are deemed unreliable. For example, duplicate records, or those with missing key data. Where individual records are excluded, remaining records with similar characteristics are typically rated up to compensate for this, where appropriate.

4. Liability reconciliation

At the final checking stage, we use the adjusted data to calculate actuarial liabilities and reconcile them against those calculated in 2016, adjusted for cashflow information.

5. Final data, ready for use

After completion of checks and adjustments, the dataset is ready for calculating valuation results. We then decide whether, in our opinion, it is fit for the purpose of making decisions based on the valuation results.

If we notice significant issues at any stage of our checking process, we request new or additional data from the scheme administrators in order to correct or allow for them.

‘Record by record’ checks and adjustments

Process, limitations & uncertainty

We exclude individual records that have missing or unreliable key data and rate up similar remaining records to replace them, where appropriate.

This process assumes that the membership profile of excluded records is consistent with the profile of the similar reliable records. However, to the extent that this is not the case, there is a degree of uncertainty in the valuation results. Further details are set out in the section of this appendix titled ‘Residual Data uncertainty’.

This summary excludes the data in relation to Matthews. A separate summary relating specifically to Matthews is detailed in [Appendix E – Matthews](#).

Overall, we believe this is a reasonable approach to take given the scarcity of alternative information.

Top 3 reasons for excluding records*

129	Deferred member's total pension is missing (<u>rate up</u> not applied)
10	Actual pay not in correct range in the <u>reformed scheme</u> (<u>rate up</u> applied)
7	Full time equivalent pay not in correct range in the <u>legacy schemes</u> (<u>rate up</u> applied)

* Some members may fail more than one exclusion check. Only one exclusion will apply in such cases. As a result, the total number of members failing a check can exceed the number of exclusions.

Summary of excluded records

21	132	1
Actives excluded	Deferreds excluded	Pensioners excluded
0.7%	6.6%	~0.0%
of total records	of total records	of total records
Improvement vs. the 1.6% 2016 exclusion	Deterioration vs. the 0.3% 2016 exclusion	Improvement vs. the 0.3% 2016 exclusion

Overall 2.1% of total records were excluded (deterioration compared with the 0.9% excluded in 2016).

~0 means the figure is too small to report

Further information

After finalising our checks and adjustments we will consider potential data improvements. We will engage with scheme managers on any issues we have identified to improve future data submissions, where possible and as appropriate.

Liability reconciliation

Summarised results

At the final data checking stage we carry out the following reconciliation.

Reconciliation against 2016 valuation results

This step assesses the expected versus calculated value of the scheme's actuarial liability as at 31 March 2020. The expected liability is calculated by adjusting the 2016 liabilities for cashflow information from the sum of cashflows shown in the three individual FRSs' annual accounts, allowing for known pension increases and salary awards since 2016. Differences between expected and calculated liabilities could imply missing or incorrect data.



This check is within our tolerance levels.

Tolerance levels and uncertainty

All reconciliations have a **tolerance level**, within which we accept any differences and move on. Our tolerance levels vary between checks, depending on the level of accuracy we believe appropriate.

If differences fall outside of the acceptable tolerance levels, further investigations are carried out before deciding whether to accept, adjust, or reject the data provided.

Limitations

The results of these checks are heavily dependent on the accuracy and completeness of the information contained in the three individual FRSs' annual accounts as at 31 March 2017, 2018, 2019 and 2020.

If any of this information is materially inaccurate the results of our checks will also be inaccurate. We believe this is a low risk, as the FRSs' annual accounts have been audited.

Other non-standard adjustments

Summary

In addition, we sometimes make adjustments to data provided to correct known data issues.

We only do this when requested, and when it is more efficient for us to make simple changes than to request new data from administrators.

The key adjustments we have made for Firefighters' Pension Scheme (Wales) are detailed below.

Actives:

- After initial investigations on the data, it was discovered that some of the FRSs provided the average salary over the year while others provided the salary at the valuation date. An adjustment was applied to take account of the inconsistent approach different administrators took to providing salary information.
- It was also discovered that some of the administrators provided the columns with final salary actual pay, pensionable pay and rate of pensionable pay in the wrong order. We therefore applied a simple column switch to correct this where appropriate.
- For some of the FRSs, the pro-rated actual salary was provided for those who joined in the last financial year before the valuation date ie after 31 March 2019. An adjustment was applied to annualise the salary.

- There were some active retained records which did not have a part-time proportion recorded. An adjustment was applied to allow for an average part time proportion for these members.

Deferreds:

- Some deferred pensions were provided as at date of leaving only. Where appropriate, an adjustment was made to apply relevant pension increases to these pensions so that they were consistent with the valuation date.

Pensioners:

- It was discovered that there where a number of members recorded as an 'unknown' pensioner type. Adjustments were made to reassign these members normal health retirement / ill-health retirement / dependants, depending on age at retirement.

Any non-standard adjustments relating specifically to Matthews are detailed in [Appendix E – Matthews](#).

Limitations and uncertainty

The extent to which the true data differs from the adjusted data we use in our calculations creates a degree of **uncertainty** in the valuation results. More details are set out in the section of this appendix titled 'residual data uncertainty'.

Residual data uncertainty

Summary

The previous sections of this appendix have described the checks and adjustments made to the data to ensure it is fit for the purpose of calculating valuation results.

However, there are risks that the adjustments we have made do not truly represent the underlying data of the scheme, or that the data provided did not truly represent the underlying data of the scheme and we have not made the necessary adjustments to ensure that it does.

Matthews

The Matthews second option exercise (or 'M2') is a programme to enable certain members to elect to buy historic service in the 2007 (Special) Scheme. M2 will begin on 1 February 2024 in accordance with [The Firefighters' Pension Schemes and Compensation Scheme \(Amendment\) \(Wales\) Order 2024](#).

It arises because of a November 2018 ruling in a legal case involving part-time judges ('O'Brien v MoJ') that effectively broadened the scope of an earlier ruling in the equivalent case for retained firefighters ('Matthews') and which had previously led to the first Matthews options exercise.

HM Treasury Directions require that all relevant liabilities are included within the valuation. Additional liabilities arising as a result of M2 are considered to be relevant.

More information on this is detailed in [Appendix E – Matthews](#).

Potential impact on valuation results

We are comfortable that the checks and adjustments that have been made are reasonable and that the data is appropriate for the purpose of the 2020 valuation. In our opinion, the potential impact of data uncertainty on the employer contribution rate and member outcomes (via the cost control mechanism) is:

Employer contribution rate: The uncertainty will be captured together with other experience and changes through the 2024 (or subsequent) valuations and the impact could be of the order of $\pm 2\%$ of pensionable pay.

Member Outcomes: No impact expected

The potential impact on the employer contribution rate noted above is largely due to the uncertainty surrounding the data for M2. We anticipate that the uncertainty in the data for the Firefighters' Pension Scheme (Wales) excluding the data for the Matthews would be of the order of $\pm 0.25\%$ of pensionable pay on the employer contribution rate.



After making necessary adjustments detailed in this report, we conclude that the data is appropriate for the purpose of the 2020 Firefighters' Pension Scheme (Wales) valuation.

Appendix D

Tables of summary statistics



Summary statistics – introduction

Categorisation

The membership data in this appendix is categorised by scheme. Where applicable, members are assigned to the legacy scheme that they have already accrued benefits in, even if they have now started to accrue benefits in the reformed scheme. This means that:

- Members who have legacy benefits only as at 31 March 2020 will be categorised under their respective legacy scheme.
- Members who have a combination of legacy and reformed benefits as at 31 March 2020 having transitioned from a legacy to reformed scheme will be categorised under their respective legacy scheme.
- Members who have reformed benefits only as at 31 March 2020 will be categorised under the reformed scheme.

The summary statistics in this appendix exclude the data in relation to Matthews.

A separate data summary relating specifically to Matthews is detailed in [Appendix E – Matthews](#).

Interpretation

The rest of this appendix summarises the scheme data, after adjustments, into a series of tables. An example is shown below.

The first number in each section of the table, in bold text, shows data as at 31 March 2020. The second number, in standard text, shows the change from data as at 31 March 2016 to data as at 31 March 2020.

Positive changes show increases between 2016 and 2020 and negative changes show decreases.

The totals given for summed data may not be exactly the same as the sum of the components shown due to rounding effects.

Example table

Scheme	Males	Females	Total
Legacy scheme 1	100 +10	100 +10	200 +20
Legacy scheme 2	100 +10	100 +10	200 +20
Reformed scheme	100 +10	100 +10	200 +20
All schemes	300 +30	300 +30	600 +60

Summary statistics – actives

As at 31 March 2020

Number of members

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	741	28	769
	- 270	- 4	- 274
2007 Scheme (Regular)	242	22	264
	+ 10	+ 1	+ 11
2007 Scheme (Retained)	554	13	567
	- 424	- 23	- 447
2007 Scheme (Special Retained)	122	0	122
	- 14	- 1	- 15
2015 Scheme (Regular)	428	35	463
	+ 295	+ 23	+ 318
2015 Scheme (Retained)	726	56	782
	+ 556	+ 44	+ 600
All members	2,813	154	2,967
	+ 153	+ 40	+ 193

Average age* (years)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	48.2	46.4	48.1
	+ 2.2	+ 3.8	+ 2.2
2007 Scheme (Regular)	40.5	39.0	40.4
	+ 3.6	+ 4.9	+ 3.7
2007 Scheme (Retained)	40.1	41.4	40.2
	+ 2.5	+ 6.5	+ 2.6
2007 Scheme (Special Retained)	50.8	-	50.8
	+ 2.9	-	+ 3.0
2015 Scheme (Regular)	35.2	31.8	35.0
	+ 1.8	- 1.5	+ 1.5
2015 Scheme (Retained)	35.0	31.9	34.8
	- 0.1	+ 0.4	- 0.1
All members	42.6	38.5	42.4
	- 0.3	+ 0.5	- 0.3

* weighted by actual pay

The first number in each section, in bold text, shows the value as at 31 March 2020. The second number, in standard text, shows the change from data as at 31 March 2016 to data as at 31 March 2020. Positive changes show increases between 2016 and 2020 and negative changes show decreases.

Summary statistics – actives

As at 31 March 2020

Total full-time equivalent pay* (£m pa)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	28 - 20.0%	1 - 1.8%	29 - 19.4%
2007 Scheme (Regular)	8 + 15.8%	1 + 15.3%	9 + 15.7%
2007 Scheme (Retained)	18 - 38.1%	~0 - 61.0%	18 - 38.9%
2007 Scheme (Special Retained)	4 - 13%	- -	4 - 14%
2015 Scheme (Regular)	- -	- -	- -
2015 Scheme (Retained)	- -	- -	- -
All members	58 - 23.1%	2 - 21.3%	61 - 23.1%

Total actual pay (£m pa)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	28 - 22.1%	1 - 1.8%	29 - 21.5%
2007 Scheme (Regular)	8 + 12.7%	1 + 10.1%	9 + 12.5%
2007 Scheme (Retained)	5 - 30.6%	~0 - 51.1%	5 - 31.2%
2007 Scheme (Special Retained)	1 - 17%	- -	1 - 17%
2015 Scheme (Regular)	13 + 361%	1 + 282%	14 + 354%
2015 Scheme (Retained)	6 + 452.5%	~0 + 552.9%	6 + 457.8%
All members	61 + 8.8%	3 + 42.1%	64 + 10.1%

*The total full-time equivalent pay is calculated only for those members where the information has been provided (only in respect of members with final salary benefits)

~0 means the figure is too small to report

Summary statistics – actives

As at 31 March 2020

Average full-time equivalent pay* (£ pa)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	37,973 + 9.2%	37,515 + 12.4%	37,957 + 9.3%
2007 Scheme (Regular)	33,866 + 10.8%	34,343 + 12.1%	33,905 + 10.9%
2007 Scheme (Retained)	32,426 + 9.2%	31,690 + 8.4%	32,409 + 9.2%
2007 Scheme (Special Retained)	33,523 - 3.2%	- -	33,523 - 3.0%
2015 Scheme (Regular)	- -	- -	- -
2015 Scheme (Retained)	- -	- -	- -
All members	35,194 + 9.2%	35,212 + 13.5%	35,195 + 9.3%

Average actual pay (£ pa)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	37,339 + 6.3%	37,515 + 12.4%	37,345 + 6.5%
2007 Scheme (Regular)	33,158 + 7.9%	34,334 + 7.1%	33,255 + 7.8%
2007 Scheme (Retained)	9,681 + 22.5%	8,655 + 36.0%	9,658 + 23.0%
2007 Scheme (Special Retained)	11,076 - 7.7%	- -	11,076 - 7.3%
2015 Scheme (Regular)	29,602 + 43.2%	27,910 + 31.5%	29,473 + 42.3%
2015 Scheme (Retained)	7,627 + 29.3%	6,584 + 40.8%	7,552 + 29.8%
All members	21,549 + 2.8%	21,167 + 5.7%	21,529 + 2.9%

*The average full-time equivalent pay is calculated only for those members where the information has been provided (only in respect of members with final salary benefits)

Summary statistics – actives

As at 31 March 2020

Average reckonable service* (years)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	19.3 - 0.7	15.2 + 0.8	19.2 - 0.7
2007 Scheme (Regular)	7.3 + 0.3	7.5 + 0.9	7.3 + 0.4
2007 Scheme (Retained)	1.4 + 0.1	1.3 + 0.2	1.4 + 0.1
2007 Scheme (Special Retained)	5.5 + 1.1	- -	5.5 + 1.1
2015 Scheme (Regular)	- -	- -	- -
2015 Scheme (Retained)	- -	- -	- -
All members**	10.6 + 0.5	9.6 + 2.5	10.5 + 0.5

*Unweighted (shown for final salary sections only).

**The 2016 data report included the 2015 Scheme in the overall average reckonable service, meaning that differences will not reconcile with the 2016 report.

Total post-reform CARE pension*** (£000's)

Scheme (type of member)	Males	Females	Total
1992 Scheme (Regular)	1,472 + 529.2%	66 + 452.8%	1,538 + 525.5%
2007 Scheme (Regular)	631 + 476.0%	60 + 517.4%	691 + 479.3%
2007 Scheme (Retained)	389 + 254.9%	9 + 141.9%	398 + 251.3%
2007 Scheme (Special Retained)	74 + 2,280%	- -	74 + 2,280%
2015 Scheme (Regular)	450 + >1000%	31 + >1000%	481 + >1000%
2015 Scheme (Retained)	194 + >1000%	11 + >1000%	206 + >1000%
All members**	3,212 + 553.5%	177 + 550.7%	3,389 + 553.4%

***Pension amount includes the April 2020 pension revaluation

Summary statistics – deferreds

As at 31 March 2020

Number of members

Scheme	Males	Females	Total
1992 Scheme	68 + 1	51 + 5	119 + 6
2007 Scheme	1,068 + 274	81 + 23	1,149 + 297
2007 Scheme (Special)	88 + 40	2 + 1	90 + 41
2015 Scheme	475 + 461	36 + 36	511 + 497
All members	1,699 + 776	170 + 65	1,869 + 841

Average age* (years)

Scheme	Males	Females	Total
1992 Scheme	49.3 + 3.0	52.8 + 0.6	50.5 + 1.8
2007 Scheme	42.4 + 2.0	42.0 + 4.1	42.4 + 2.1
2007 Scheme (Special)	51.5 + 0.0	52.1 + 8.1	51.5 + 0.1
2015 Scheme	36.9 + 6.9	38.6 -	37.0 + 7.0
All members	45.8 + 1.4	51.0 - 0.2	46.8 + 0.6

* weighted by pension

The first number in each section, in bold text, shows the value as at 31 March 2020. The second number, in standard text, shows the change from data as at 31 March 2016 to data as at 31 March 2020. Positive changes show increases between 2016 and 2020 and negative changes show decreases.

Summary statistics – deferreds

As at 31 March 2020

Total deferred pension (£000's pa)

Scheme	Males	Females	Total
1992 Scheme	769 + 43.7%	384 + 12.2%	1,153 + 31.4%
2007 Scheme	754 + 100.6%	63 + 143.6%	816 + 103.3%
2007 Scheme (Special)	175 + 156.8%	3 + 500.4%	178 + 159.4%
2015 Scheme	126 >1000%	9 -	135 >1000%
All members	1,825 + 86.2%	458 + 24.5%	2,283 + 69.3%

Average deferred pension (£ pa)

Scheme	Males	Females	Total
1992 Scheme	11,312 + 41.6%	7,521 + 1.2%	9,687 + 24.8%
2007 Scheme	706 + 49.1%	772 + 74.2%	711 + 50.8%
2007 Scheme (Special)	1,992 + 40.1%	1,579 + 200.2%	1,983 + 41.2%
2015 Scheme	266 + 350.9%	246 -	265 + 348.6%
All members	1,074 + 1.1%	2,692 - 23.2%	1,221 - 6.9%

Pension amounts includes the April 2020 pension increase

Summary statistics – pensioners

As at 31 March 2020

Number of members

Type	Males	Females	Total
Normal Health Retirement	1,219 + 173	15 + 15	1,234 + 188
Ill-health Retirement	903 - 43	0 + 0	903 - 43
Dependants*	1 + 1	322 + 24	323 + 25
All members	2,123 + 131	337 + 39	2,460 + 170

Average age** (years)

Type	Males	Females	Total
Normal Health Retirement	# #	# #	64.6 + 1.7
Ill-health Retirement	70.3 + 2.3	- -	70.3 + 2.3
Dependants*	# #	# #	74.5 + 0.7
All members	66.6 + 1.7	74.0 + 0.2	67.1 + 1.6

*Includes pension credit members

#Splits not shown for dependants and ill-health pensioners to avoid disclosing information on single individuals.

**weighted by pension

The first number in each section, in bold text, shows the value as at 31 March 2020. The second number, in standard text, shows the change from data as at 31 March 2016 to data as at 31 March 2020. Positive changes show increases between 2016 and 2020 and negative changes show decreases.

Summary statistics – pensioners

As at 31 March 2020

Total pension (£000's pa)

Type	Males	Females	Total
Normal Health Retirement	24,773 + 24.4%	144 -	24,917 + 25.2%
III-Health Retirement	# #	# #	12,915 + 2.9%
Dependants*	# #	# #	2,947 + 22.2%
All members	37,695 + 16.1%	3,084 + 27.9%	40,779 + 17.0%

Average pension (£ pa)

Type	Males	Females	Total
Normal Health Retirement	20,323 + 6.8%	9,595 -	20,192 + 6.1%
III-Health Retirement	# #	# #	14,302 + 7.8%
Dependants*	# #	# #	9,124 + 12.8%
All members	17,756 + 9.0%	9,150 + 13.1%	16,577 + 8.9%

Pension amounts includes the April 2020 pension increase

*Includes pension credit members

#Splits not shown for dependants and ill-health pensioners to avoid disclosing information on single individuals.

Appendix E

Matthews



Matthews data



Data provided

The dataset we have been provided is from two surveys of all three FRSs in Wales carried out in September 2022 and January 2023.

This survey data collated in September 2022 was used solely to inform the assumption on the number of eligible firefighters.

In January 2023, one of the three FRSs, Mid and West Wales Fire and Rescue Service ('MAWWFRS'), submitted additional data which was used in the actuarial liability calculations.

The data included:

- those current scheme members who are still in service
- those members who have left service before retirement age
- those members who have already retired
- those firefighters who did not join the Scheme at any point, however, are eligible to be given the opportunity to join the Scheme retrospectively ('non-members')
- those firefighters who would have been eligible for remedy but have since deceased before they were given the opportunity to purchase service. We have excluded these members from our analysis to simplify the modelling and because the change to the actuarial liability would not be material.

The data in the January 2023 survey has been summarised in pages 44, 45 and 46.

Checks on data received

We carry out checks to ensure this data is fit for purpose for the valuation. These checks also help us to understand and describe limitations on the valuation results due to data omissions. This is also a professional actuarial requirement. Where our checks show that a data record seems to be unreliable, it is either excluded or adjusted. We do this to make sure the data is appropriate for calculating valuation results.

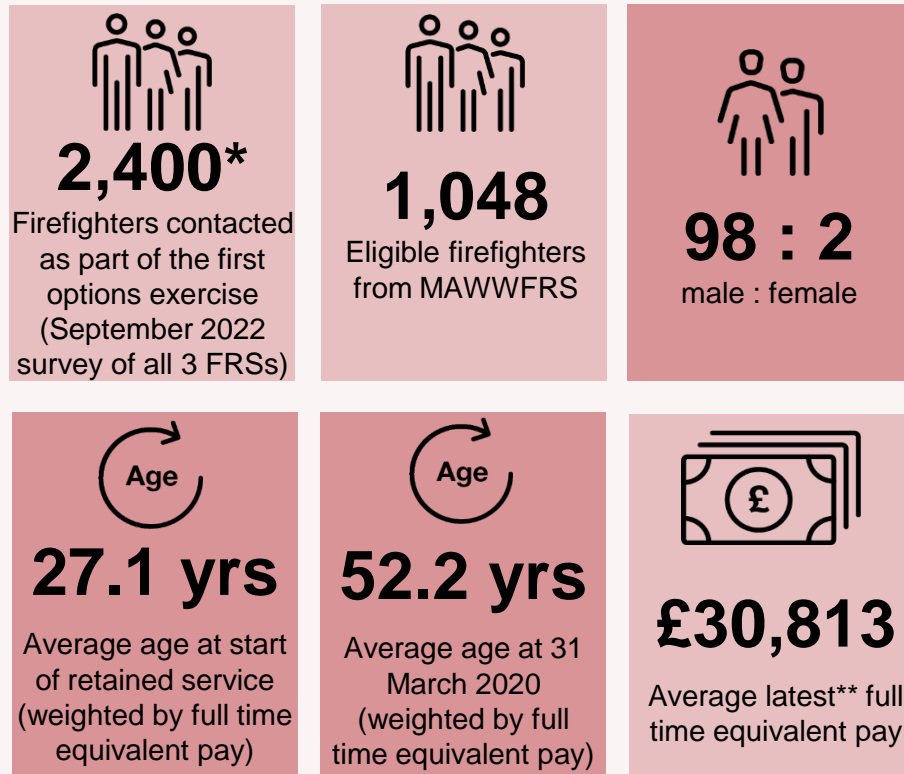
More information on the adjustments we have made to the data received are on page 47.

Since the FRSs are still in the process of collating data and because members are yet to make their decisions:

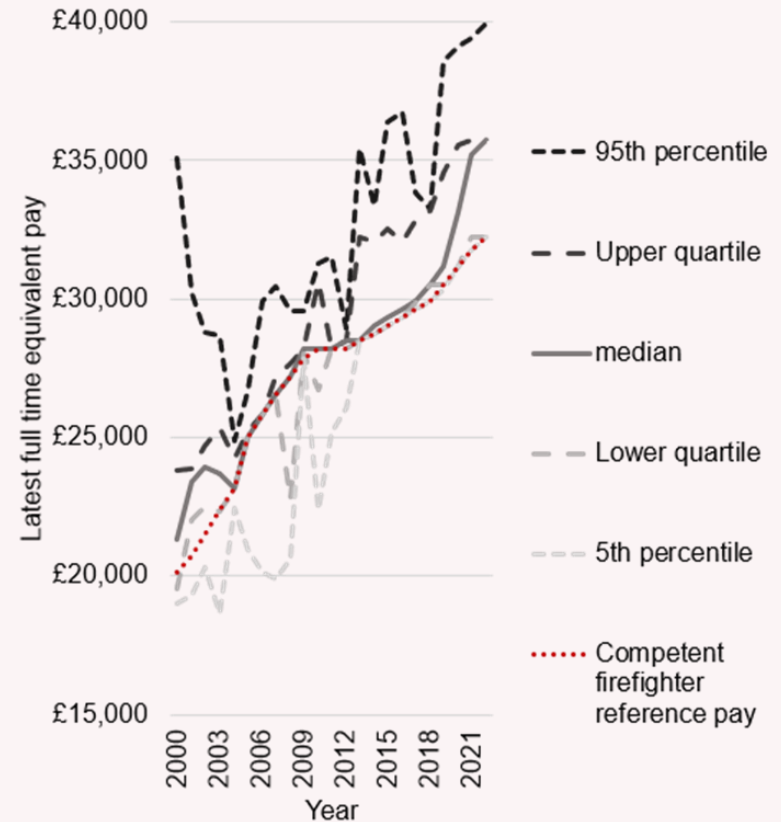
- there are no independent sources of data which can be used to validate this data
- overall, the quality of the data is relatively poor by comparison to the Scheme membership data.

Matthews data: summary statistics

Summary statistics



Full time equivalent pay**



* This number is rounded to the nearest 100 to reflect the reported accuracy of the figures we received from the employers.

**This is the latest full time equivalent pay provided (at date of leaving or January 2023, whichever is earliest).

Matthews data: employment start date

Employment start dates

The dataset collated from MAWWFRS was used to determine the employment start date for eligible firefighters.

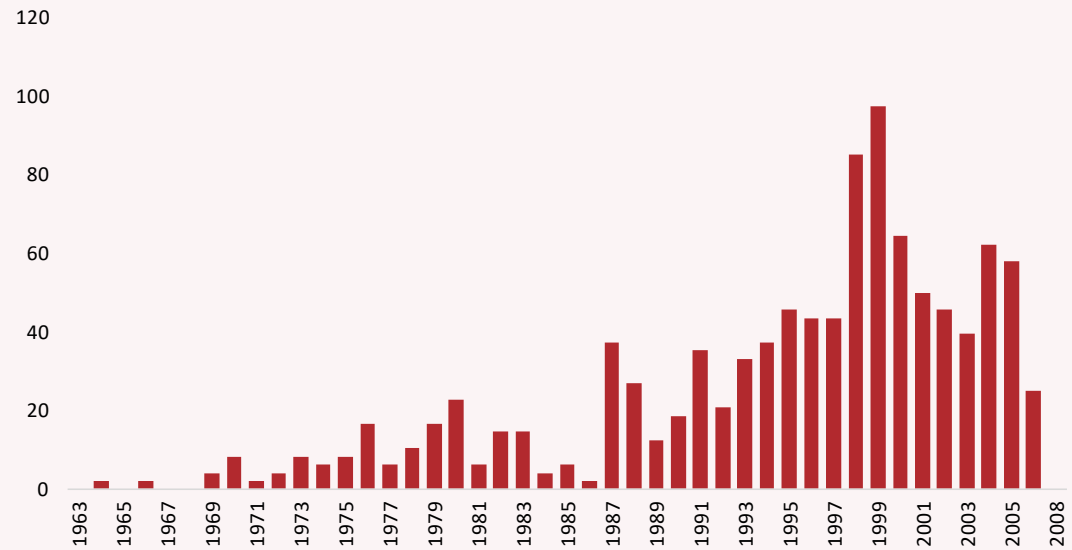
Those firefighters employed before 1 July 2000 are the main group eligible for M2.

The chart to the right shows the distribution of employment dates for eligible firefighters from the 1960s to the 2000s.

The majority of the eligible firefighters have employment start dates in the 1990s and 2000s.

The data shows that the average employment start date for an eligible firefighter is 1995.

Employment start date distribution



Matthews data: age

Age as at 31 March 2020

The dataset collated from MAWWFRS was used to determine age as at 31 March 2020 for eligible firefighters.

The chart to the right shows the distribution of ages as at 31 March 2020 for eligible firefighters (both non-member and members of the Scheme). The M1 optants shown only include those who are eligible for M2.

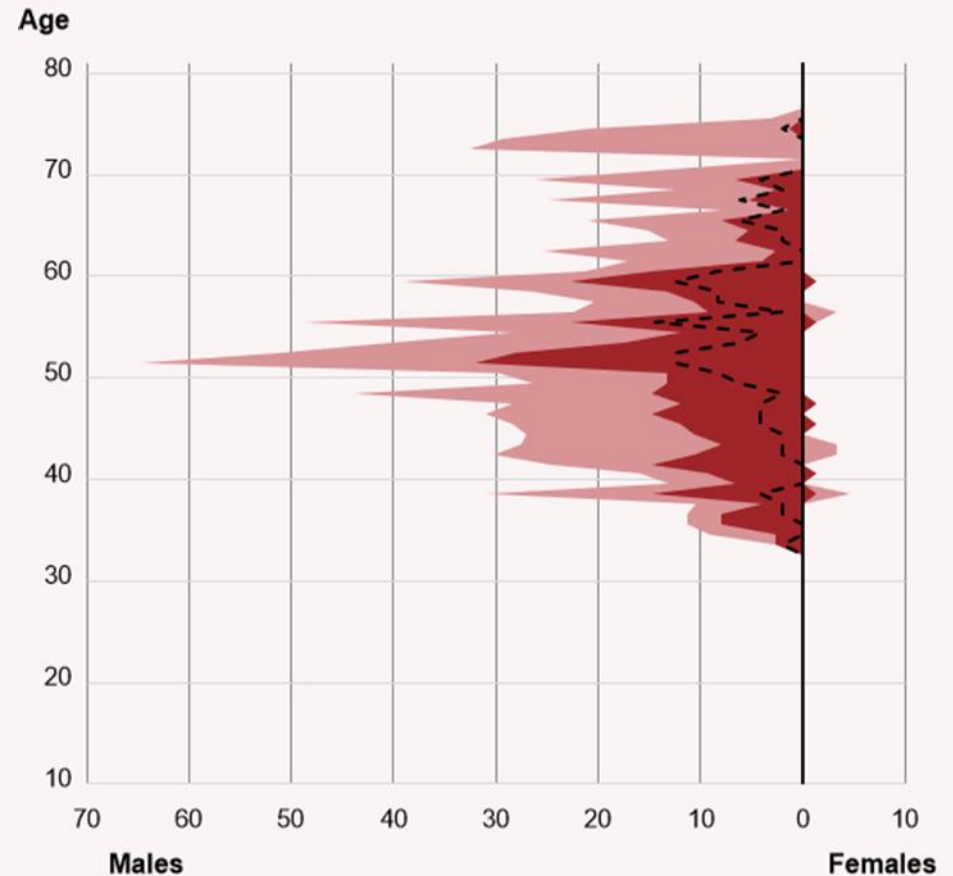
There are significantly more male than female eligible firefighters across all ages.

There are many eligible firefighters who are not currently members of the Scheme (as can be seen by the lighter shade of red on the chart).

The majority of the eligible firefighters are between ages 40 and 70.

The average age for those who opted into M1 is 54 years. This is only slightly older than those who are currently eligible for M2 who have an average age of 52 years.

Age distribution



M1 Optants
 Non-member
 Member

Matthews data: processing and adjustments

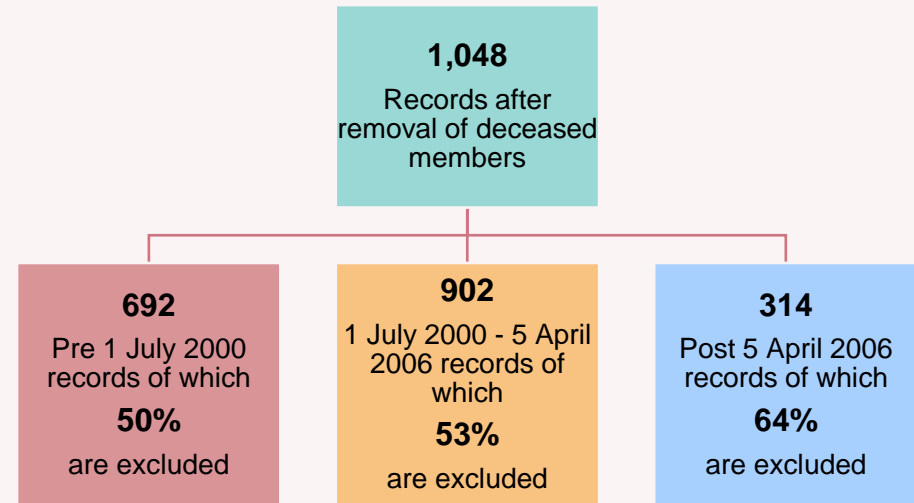
Data processing

The MAWWFRS dataset was used to estimate the service that each eligible firefighter has an option purchase split into:

- pre 1 July 2000 service
- 1 July 2000 to 5 April 2006 service and
- post 5 April 2006 service

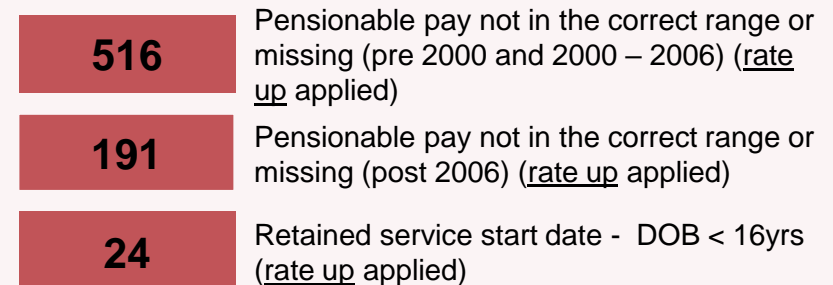
The number of records shown on the diagram on the right is the number of records used in each tranche of service. For example, if a firefighter had joined employment prior to 1 July 2000 and left on 1 April 2005, this firefighter record would have been used in both the pre 1 July 2000 and 1 July 2000 – 5 April 2006 tranches of service.

Summary of excluded records



Overall, 52% of total records were excluded

Top 3 reasons for excluding records*



* Some members may fail more than one exclusion check. Only one exclusion will apply in such cases. As a result, the total number of members failing a check can exceed the number of exclusions.

Data adjustments

We exclude individual records that have missing or unreliable key data and rate up similar remaining records to replace them, where appropriate.

This process assumes that the membership profile of the of the eligible firefighters which were excluded because of incomplete or inconsistent data is comparable to the profile of the similar reliable records. However, to the extent that this is not the case, there is a degree of uncertainty in the valuation results.

Overall, we believe this is a reasonable approach to take given the scarcity of alternative information on the eligible firefighters for M2.

Matthews data: impact of data limitations

What limitations exist in the M2 data?

- Small sample dataset of eligible firefighters from one FRS (MAWWFRS) scaled up which may not be representative of the entire eligible population across Wales.
- Some of the data received was incomplete and inconsistent. Exclusions and adjustments were made to the data. This process assumes that the membership profile of excluded records is consistent with the profile of the similar reliable records.
- There are no independent sources of data to verify the dataset received.

Do data limitations cause uncertainty?

Yes. Our checks and adjustments aim to ensure that the data is appropriate for use in valuation calculations. Although reasonable in our view, the dataset adopted may not accurately reflect the true data of those that choose to purchase benefits under M2. This means that there is **residual data uncertainty**.



Matthews data: residual data uncertainty

Is residual data uncertainty a significant issue?

Residual data uncertainty in relation to eligible firefighters could materially affect the valuation results.

With regards to the M2 data, data uncertainty can materially over or underestimate the part of the employer contribution rate which is in respect of the Matthews exercise (approximately 2% of pensionable pay as set out in our report titled 'Firefighters' Pension Scheme (Wales): Valuation Results' dated 31 January 2024).

There is no impact on member outcomes since Matthews is not included in the cost cap cost calculations.

Summary

The previous sections of this appendix have described the checks and adjustments made to the data to ensure it is fit for the purpose of calculating valuation results.

The cost of the benefits bought by members will only be known on conclusion of the options exercise. Data regarding the outcome of the options exercise is expected to be available at the time of the 2024 valuation of the scheme.

It is a requirement of Directions that there is an allowance for a best estimate assessment of the potential liabilities in respect of Matthews in the 2020 valuation. This requires us to use the available survey data.



After making necessary adjustments detailed in this report, we conclude that the M2 data is appropriate for the purpose of estimating the additional M2 liability in the Firefighters' Pension Scheme (Wales) 2020 valuation. Any surplus / deficit arising as a result of using this data will be recovered as part of the 2024 valuation.

Appendix F

Glossary



Glossary

Actuarial liability	The monetary amount assessed, in today's terms, as being required to meet all future payments due in respect of current benefit entitlements. It is dependent on assumptions about future financial conditions and membership changes.
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 <u>reformed scheme</u> (referred to as the 2015 Scheme in this report).
Cost cap cost	<p>A way of measuring the cost of benefits being provided from the 2015 Scheme, which is then compared to a 'target cost'. The Firefighters' Pension Scheme (Wales) target cost is set at 17.1% of pay.</p> <p>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 2015 Scheme (e.g., to the benefits provided) to bring the cost cap cost back to the target cost.</p>
Directions	<p>A document published by HM Treasury and referred to in The Public Service Pensions Act 2013, which sets out the process and requirements for carrying out valuations, including the results which need to be disclosed.</p> <p>Directions were first published in 2014 and have been updated several times since then.</p>
Employer contribution rates	<p>The percentage of scheme members' salaries which employers are required to pay in order to:</p> <ul style="list-style-type: none">• 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. <p>The result is heavily dependent on assumptions about future financial conditions and membership changes.</p>
Matthews	The Matthews second option exercise (or "M2") is a programme to enable certain members to elect to buy historic service in the 2007 (Special) Scheme. M2 will begin on 1 February 2024 in accordance with The Firefighters' Pension Schemes and Compensation Scheme (Amendment) (Wales) Order 2024 . It arises because of a November 2018 ruling in a legal case involving part-time judges ("O'Brien v MoJ") that effectively broadened the scope of an earlier ruling in the equivalent case for retained firefighters ("Matthews") and which had previously led to the first Matthews options exercise.

Glossary

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 <u>reformed and legacy schemes</u> .
Normal pension age	<p>The age at which a member in normal health is entitled to unreduced benefits. This age varies in different schemes:</p> <ul style="list-style-type: none"> • 1992 Scheme: Age 55 (or age 50 after completion of 25 years of service); Deferred pension age is 60. • 2007 Scheme (Special): Age 55; Deferred pension age is 60. • 2007 Scheme: Age 60 (with early retirement from age 55 subject to benefits being actuarially reduced); Deferred pension age is 65. • 2015 Scheme: Age 60 (with early retirement from age 55 subject to benefits being actuarially reduced); Deferred pension age equal to State Pension Age (‘SPA’).
Pension increase	Public service pensions are increased under the provisions of the Pensions (Increase) Act 1971 and Section 59 of the Social Security Pensions Act 1975.
Pension revaluation	The rate at which the <u>CARE</u> pension is revalued each year a member is an active member.
Professional actuarial requirements	<p>The professional requirements that we have complied with when completing this actuarial valuation include:</p> <ol style="list-style-type: none"> 1. Technical Actuarial Standards: TAS 100 and TAS 300, issued by the FRC 2. The Actuaries’ Code, issued by the Institute and Faculty of Actuaries (‘IFoA’) 3. The Civil Service Code. <p>GAD is also accredited under the IFoA’s Quality Assurance Scheme. More details can be found in our <u>terms of reference</u>.</p>

Glossary

Rate up	A term used to refer to any multiplicative adjustments made to data in order to correct for known issues. For example, if it appears that a group of members have been omitted from the data we've received and salaries are understated by 2% as a result, we might apply a 'rate up' of 2% to the salary data we actually hold as a correction. Although the term 'rate up' implies an increase, we might also 'rate down' if appropriate to do so.
Reformed and legacy schemes	The reformed scheme was set up in line with The Public Service Pensions Act 2013, and which came into force on 1 April 2015 (referred to as the 2015 Scheme in this report). All non-reformed sections are known as legacy schemes. This terminology is used in the McCloud judgment.
Regular Firefighter	Regular firefighters are full-time firefighters.
Retained Firefighter	Retained firefighters do not work as a firefighter full-time but operate 'on-call' and respond to emergency calls via a pager from their home or place of work at any time of the day or night.
Scheme	The membership data in Appendix D is categorised by scheme. Members who have legacy and reformed benefits, or legacy only benefits, will be categorised under the legacy schemes . Members who have reformed benefits only will be categorised under the reformed scheme .