Australian Government

Australian Government Actuary

Military Superannuation Schemes

Review of long-term costs
As at 30 June 2023

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Background and overview

This Report sets out estimates as at 30 June 2023 of the long-term costs of superannuation benefits payable in respect of the members of the four defined benefit superannuation schemes that cover the majority of the Australian Defence Force (ADF) personnel. The previous report was prepared using data as at 30 June 2020.

The schemes covered in this Report are:

- the ADF Cover scheme which provides insurance type benefits to new ADF personnel from 1 July 2016;
- the Military Superannuation and Benefits Scheme (MSBS) which commenced on 1 October 1991 and which closed to new ADF personnel from 1 July 2016;
- the Defence Force Retirement and Death Benefits Scheme (DFRDB) which commenced on 1 October 1972 and which has been closed to new members since the commencement of the MSBS; and
- the Defence Forces Retirement Benefits Scheme (DFRB) which commenced on 1 July 1948 and only covers those who were in receipt of a pension at the time DFRDB commenced, or their reversionary dependants.

Changes in assumptions since the previous report

The assumptions adopted and changes since the previous report are discussed in Sections 4 to 7.

Section 4 – Economic assumptions

The only significant change was the reduction in the assumed rate of future general salary growth from 4.0 per cent per annum to 3.7 per cent per annum. This also applies to the assumed pension indexation rate for DFRDB and DFRB for pensioners aged 55 or more. This follows the reduction by Treasury of its longstanding estimate of the level of future productivity gains within the Australian economy.

Section 5 – Projection ADF population

In recent years the number of serving ADF personnel has reduced to around 59,000, down from the level of 60,500 in 2020. As Defence has a published target of 80,000 ADF personnel by 2040, I have introduced two scenarios of future growth in the number of ADF personnel covered by the schemes. The first is that numbers will increase in line with the projected growth of the Australian population. This scenario has been adopted as the baseline projection for this report. A second scenario provides a 1.8 per cent per annum growth rate until the 80,000 target is achieved, at which point growth reverts to population growth rates. This second scenario has been included in the Sensitivity Analysis in Appendix F.

Section 6 – Invalidity exit rates

The most significant assumption change is the increase in invalidity exit rates adopted for MSBS contributors and ADF Cover. Invalidity pensions are payable for life and the benefit formula includes prospective service to age 60. Increases in the number of invalidity exits and the proportion of the larger invalidity A pensions have a significant impact on the underlying costs.

While material increases in the assumptions for these exit rates were adopted for the 2020 report, subsequent experience has seen a further increase in the numbers of new invalidity pensions commencing amongst the MSBS membership. The observed growth has been concentrated among other ranks, and almost exclusively in the larger invalidity A pensions. Around 97 per cent of new invalidity pensions are now classified as invalidity A. Further, many invalidity B pensions in the course of payment are being reclassified to invalidity A pensions and this trend is expected to continue.

There has been a change in the approach to modelling invalidity exits. Previously, exits were modelled by age. For this report they are modelled by service duration. This new approach allows us to better consider the degree to which the increase in the rate of invalidity exits from MSBS is explained by the increase in the average length of service of MSBS contributors, due to the closure of MSBS to new members in 2016. The higher invalidity exit rates for MSBS are also partly explained by the evolving incidence of mental health related exits.

This new duration-based approach also allows us to consider the emerging experience in ADF Cover. This scheme is a relatively new scheme and as such most members have served for less than 7 years. As a consequence, there is a reduction in the number of new invalidity pensions predicted in the short term in this report, with new pensions increasing over time as the scheme matures.

There has also been a significant increase in the number of retrospective MSBS invalidity pensioners, and more recently retrospective DFRDB and ADF Cover invalidity pensioners. For MSBS, these are individuals who were MSBS preserved members but who, at some stage after exiting from the ADF, had their mode of exit retrospectively changed to invalidity. This commences an invalidity pension that is backdated to their date of exit from the ADF. Backdated payments can provide a large lump sum payment soon after the pension becomes payable.

The significant increase in retrospective invalidities has occurred alongside a growth in advocacy and support groups. Assumptions of retrospective invalidities from prior year incidents have been updated to reflect this experience. The provision for future retrospective invalidity pensions for those that have already exited the ADF, now constitutes around 9 per cent of the MSBS unfunded liability.

In addition, there will be future retrospective invalidities from incidents which occur in the future, but where a claim is not made until some years after the date of exit from the ADF. An increase in the rate of invalidity exits for ADF personnel has been made to capture anticipated future retrospective invalidity claims.

Section 7 – Other demographic assumptions

Changes in these assumptions that have had a material impact on the projected unfunded liabilities include a deferral of the age at which contributory members and preservers are electing to receive their retirement benefit, and an increase in the rates of mortality at ages greater than 85. Both changes have led to a decrease in the projected unfunded liability.

The relative impacts of these changes on the unfunded liability for each Scheme are set out in Section 8, with a broad summary provided in Appendix E.

Notional employer contribution rates

For MSBS and DFRDB, the notional employer contribution rate is the estimated employer contribution rate that would be required to fund the defined benefits accruing to serving ADF members over the next three years, expressed as a percentage of superannuation salary. The contribution rate is sensitive to the economic assumptions adopted. For the purposes of this calculation, superannuation benefits are assumed to accrue uniformly over the period until a member exits from the scheme or reaches his or her maximum benefit limit, whichever occurs first.

Table 1 shows the notional employer contribution rates for the MSBS and the DFRDB as calculated for this report and the previous two reports as at 30 June 2020 and 30 June 2017. These rates include the employer 3 per cent productivity contributions but do not include the additional employer contributions resulting from the application of the OTE earnings base in calculating an employer's Superannuation Guarantee (SG) obligations from 1 July 2008. There is no contribution rate for the DFRB as this fund comprises only pensioner members.

A different approach is taken for ADF Cover. ADF Cover only provides insurance type benefits. The notional employer contribution rate for ADF Cover has also been calculated as a percentage of the superannuation salaries of scheme members. It represents the estimated contribution rate, on the assumptions made, that would be required to pay a notional premium for the insurance cover provided to those members in the current year.

Table 1: Notional employer contribution rate as a percentage of superannuation salary

Report as at	MSBS[1] (%)	DFRDB (%)	ADF Cover (%)
2017 Report	52.0	43.0	21.6
2020 Report	53.7	41.8	54.6
Current Report	**53.5**	**36.2**	**43.7**

For the 2020 report, there was a significant increase in the notional employer contribution rate for ADF Cover. This was primarily attributable to the significant increase in the level of expected invalidity benefits payable. Further analysis conducted for this report has resulted in the use of invalidity rates based on service duration. These service-based rates are lower for those with a shorter period of service but increase significantly with increased lengths of service.

The current average service period for those in ADF Cover is 2.7 years reflecting its more recent commencement date of 1 July 2016. The notional premium is intended as the premium required for the current year. The outcome under the new approach results in a lower cost whilst the average service duration is relatively low. As the average period of service increases, the notional employer contribution rate for ADF Cover is expected to increase towards a long-term stable rate of about 62 per cent by around 2040.

While not covered by this report, under the ADF Super arrangements, employer contributions at the rate of 16.4 per cent of ordinary time earnings are also paid to the superannuation fund of the individual's choice.

The MSBS notional employer contribution rate has decreased modestly for this report. There are three contributing factors to this:

- the calculation methodology results in a natural tendency to reduce the notional employer contribution rate as the age of the remaining contributors increases,
- the further increase in assumed invalidity rates will act to increase the contribution rate, and
- the reduction in the assumed level of salary growth, along with the deferral of age retirement have acted to reduce the contribution rate.

The reduction in the DFRDB notional employer contribution rate is attributable to lower salary growth and associated pension indexation assumptions, minor changes in the demographic assumptions and the ageing of the population in this closed scheme. This population ageing results in many individuals attaining the maximum period of superannuable service of 40 years.

Projection of employer cash costs

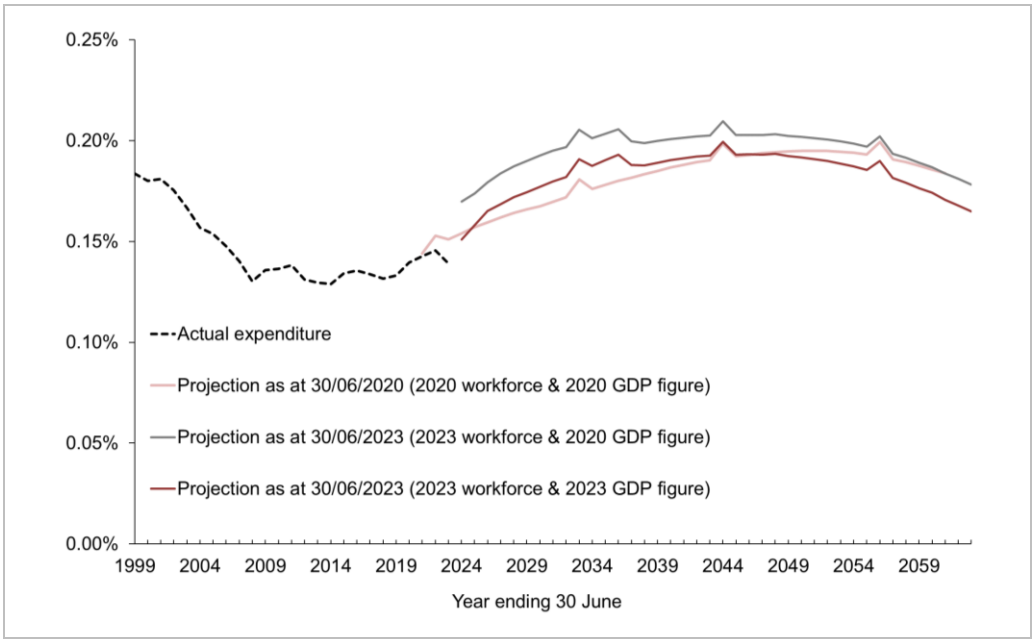
Direct Commonwealth outlays that will be required under the current method of funding benefits have been projected for the next 40 years and expressed as a percentage of Gross Domestic Product (GDP) so that the amounts of the cash outlays can be matched against a relevant base.

Figure 1 shows actual cash costs since 1999 and projected costs for the next 40 years, together with the cash costs that were projected in the Long-Term Cost Report as at 30 June 2020. Two projections as at 30 June 2023 are provided. One based on the projected GDP from the 2020 report and the other based on Treasury's most recent GDP projection. Note that the outlays do not include employer contributions under the ADF Super arrangements.

While outlays in this report for 2023–24 rise to 0.17 per cent of GDP under the GDP projection from the 2020 report, the material increase in projected GDP since 2020 brings this value down to approximately 0.15 per cent of GDP. On the basis of ADF workforce growth in line with general population growth, outlays using current GDP are expected to increase to around 0.19 per cent of GDP in the medium term before falling to around 0.17 per cent in the long term.

The current projections are higher than those from the 2020 report under both GDP measures due to the higher invalidity rates, but fall below the 2020 report in the longer term due to a combination of lower assumed salary growth, DFRDB pension indexation, and higher mortality rates.

Figure 1: Commonwealth outlays as a percentage of GDP



The factors leading to this result are further discussed in Section 10.

Present value of unfunded liabilities

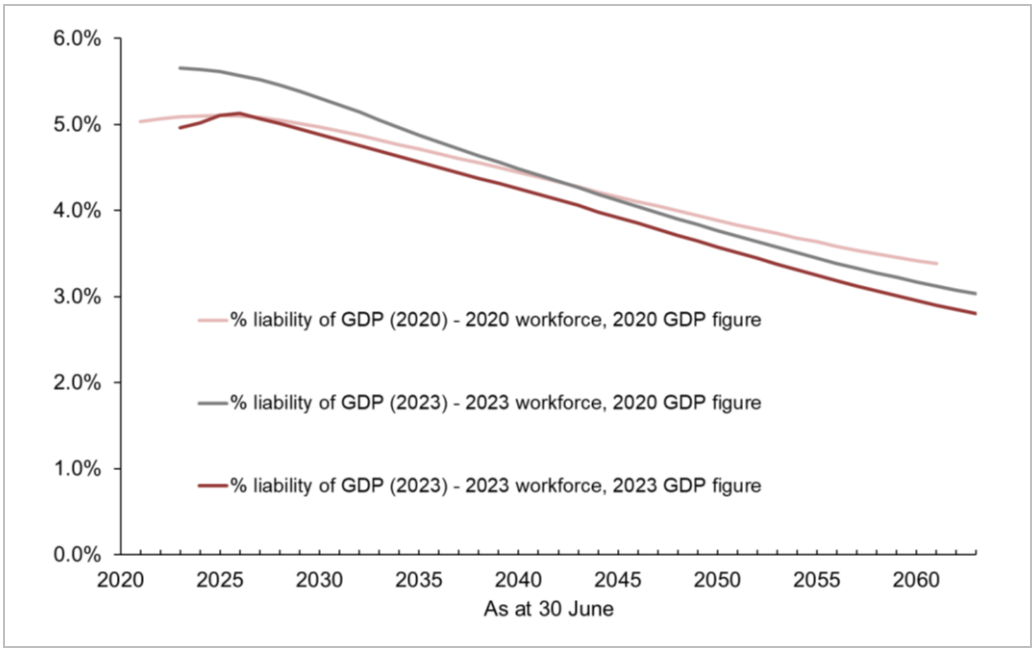
The unfunded liability in respect of benefits that have already accrued for current employees, former employees and pensioners has been estimated as $127.2 billion as at 30 June 2023 of which $0.2 billion relates to the DFRB, $31.8 billion to the DFRDB, $91.4 billion to the MSBS and $3.8 billion to ADF Cover. This is 5.0 per cent of GDP. This compares with the figure appearing in the 2020 report of $98.9 billion or 5.0 per cent of GDP as at 30 June 2020.

Figure 2 illustrates the projected reduction in the total unfunded liabilities as a percentage of GDP, again with both the 2020 and 2023 GDP projections being used for comparison purposes. The trend is clearly favourable with this measure of liabilities falling by around 40 per cent over the 40 year projection period.

Compared with the 2020 report results, and using the 2020 GDP projections, higher liabilities apply over the next 15 years before falling below the 2020 report results thereafter. This again reflects higher invalidity rates, particularly retrospective invalidities and reclassifications, despite the lower than expected ADF population. Over time, the lower salary growth rates and higher mortality rates lead to comparatively lower liabilities in the longer term.

The much higher 2023 GDP projection sees lower values as a percentage of GDP relative to the 2020 report for all future years.

Figure 2: Projected unfunded liabilities as a percentage of GDP



Scheme membership

Over the three years to 30 June 2023, the total number of serving ADF personnel covered by the schemes decreased to around 59,000 individuals, approximately 1,500 less than in 2020. The total number of pensioner members across all schemes has increased by around 7,000, with almost 82,000 pensioners being valued for the current review. The number of MSBS members with a preserved benefit increased by approximately 4,000 over the three years from 2020 to 2023, to around 119,000. The number of active ADF Cover members (28,533) is now just short of that for MSBS (30,032). More details on the current scheme membership, along with a projection of future active members and pensioners, are provided in Sections 3 and 4.

Section 1: Introduction

1.1 The purpose of this report is to provide estimates of the long-term costs of the military defined benefit superannuation schemes. The schemes covered are the Military Superannuation and Benefits Scheme (MSBS), the Defence Force Retirement and Death Benefits Scheme (DFRDB), the Defence Forces Retirement Benefits Scheme (DFRB) and ADF Cover. The estimates are based on scheme data supplied by the Commonwealth Superannuation Corporation (the schemes' administrator) as at 30 June 2023. This report does not cover ADF Super as it is a fully funded accumulation arrangement.

1.2 This report aids in the consideration of the changes in these costs over time due to changing demographic and economic experience. Estimates of the long-term costs of military superannuation have been provided by the Australian Government Actuary in a series of reports since the commencement of the DFRDB on 1 October 1972. The most recent estimate of the long-term costs of the military superannuation schemes was carried out using data as at 30 June 2020 and was presented in my report dated June 2021.

1.3 This report has been prepared by the Australian Government Actuary, Mr Guy Thorburn, FIAA, and members of his office, at the request of Defence.

1.4 This report has been completed in accordance with the principles recommended in the actuarial paper 'The Financing and Costing of Government Superannuation Schemes'.

1.5 Three measures of long-term costs are provided:

Notional employer contribution rate

This is the annual employer contribution rate that would be required to fund the defined benefits for the MSBS and the DFRDB accruing over the next three years, on the basis that superannuation benefits are accrued uniformly over the period until a member exits from the scheme or reaches his or her maximum benefit limit, whichever occurs first. It represents the estimated employment cost, based on the assumptions made, that arise from the superannuation schemes, and has been expressed as a percentage of the defined benefit superannuation salaries.

ADF Cover only provides insurance type benefits and the notional employer contribution rate represents the estimated contribution rate, on the assumptions made, that would be required to pay a notional premium for the insurance cover provided to those members in the coming year.

Projection of employer cash costs

This is a projection of the Commonwealth's expected annual cash outlays in respect of superannuation benefits for ADF personnel, excluding the employer superannuation contributions under ADF Super. The items included are set out in paragraph 2.23. The cost has been projected over the next 40 years in nominal dollars and expressed as a percentage of GDP.

Net present value of unfunded liabilities

This is the excess of the accrued Commonwealth liability for superannuation benefits in respect of service up to 30 June 2023 over the value of assets held by the schemes.

1.6 These measures represent the Commonwealth's direct costs for these superannuation arrangements. Incurring these costs should result in partial offsets to these costs in other Commonwealth programs. There is expected to be a consequential reduction in the Commonwealth's Age and Service Pension outlays. In addition, there may also be an increase in taxation receipts from the superannuation benefits being provided. I have not provided estimates of these savings in this report. Such estimates would be highly uncertain, involving assumptions about future Age Pension and taxation parameters as well as the private savings and spending behaviour of scheme members.

1.7 This triennial review assesses the financial position of the schemes over the long term. Estimates of the net present value of the unfunded liabilities have also been produced on an annual basis for inclusion in the Defence Financial Statements. These annual estimates are calculated in accordance with Australian Accounting Standard AASB 119 and are not directly comparable to the estimates provided here.

ADF Super and ADF Cover

1.8 From 1 July 2016, new ADF personnel are able to direct employer superannuation contributions of 16.4 per cent of Ordinary Time Earnings to the superannuation fund of the individual's choice. The default superannuation fund for new ADF personnel is ADF Super and is adopted if the member does not nominate an alternative "choice" fund or a fund cannot be located under the stapled super fund arrangements with the ATO. Insurance benefits for death and invalidity are provided by the associated ADF Cover scheme. All members of the permanent forces are covered by ADF Cover, regardless of their choice of superannuation scheme.

1.9 ADF Super and alternative funds chosen by individuals are fully funded accumulation arrangements. There is no residual unfunded liability or employer risk. As this report deals with defined benefit schemes where there is residual employer risk, projections of ADF Super arrangements have not been included in this report. ADF Cover is a defined benefit scheme with no advance funding. Accordingly, projections for ADF Cover have been included in this report.

Future Fund

1.10 In 2006, the Commonwealth established a Future Fund to offset unfunded superannuation liabilities, contribute to national savings and increase net worth. The Future Fund is intended to reduce calls on the budget to meet the liabilities of the Commonwealth's superannuation schemes when spending pressures associated with an ageing population are projected to emerge. However, since the assets of the Future Fund are not held by the schemes, the unfunded liabilities projected in this report have not been reduced to take account of the assets held by the Future Fund. Similarly, the projected outlays have not been reduced to take account of any drawdowns from the Future Fund. At the current time the Future Fund is not being drawn upon to meet superannuation benefits.

1.11 The current investment mandate for the Future Fund is to achieve a return, on average, over the long term of four to five percentage points higher than increases in the Consumer Price Index (CPI). This is higher than the interest rate assumed for this report of two and a half percentage points higher than CPI increases. If this report adopted an interest rate broadly consistent with the investment mandate for the Future Fund, such as 6 per cent per annum, the estimates of the notional employer contribution rates and the unfunded liabilities would be lower than the results calculated for this report. The sensitivity analysis in Appendix F can be used to gauge the impact of adopting a 6 per cent per annum interest rate.

Compliance with professional standards

1.12 The report has regard to the Institute of Actuaries of Australia Professional Standard 400 (Investigations of the Financial Condition of Defined Benefit Superannuation Funds) and complies with the Standard insofar as it deals with unfunded superannuation schemes. Professional Standard 400 is designed to primarily apply in the context of funded private sector defined benefit superannuation funds. The schemes under review in this report operate on an unfunded or substantially unfunded basis with an implicit Government guarantee.

Section 2: The Military Superannuation Schemes

2.1 Current and many former Australian Defence Force personnel, (other than Reservists who are not rendering continuous full-time service) are covered under one of four superannuation arrangements: the Defence Forces Retirement Benefits Scheme (DFRB); the Defence Force Retirement and Death Benefits Scheme (DFRDB); the Military Superannuation and Benefits Scheme (MSBS); and the combined ADF Super (or alternative "choice" fund) and ADF Cover arrangements. It is possible for individuals to have benefits in all of the DFRDB, the MSBS and the combined ADF Super (or alternative "choice" fund) and ADF Cover arrangements.

The Defence Forces Retirement Benefits Scheme

2.2 The DFRB was established under the *Defence Forces Retirement Benefits Act 1948*. It was closed on 1 October 1972. At that time, all contributory members were transferred to the DFRDB. Existing pensioners and their reversionary beneficiaries continue to receive pensions payable under the DFRB legislation. This scheme represents a very small proportion of the total liability.

2.3 The DFRB is a defined benefit scheme. It is unfunded since it does not hold any assets. The Scheme has no external insurance arrangements. Benefits are financed from Consolidated Revenue as they become due for payment. The Scheme is untaxed and no tax is levied on employer contributions. The Scheme is an exempt public sector superannuation scheme under the *Superannuation Industry (Supervision) Act 1993*.

The Defence Force Retirement and Death Benefits Scheme

2.4 Under the *Defence Force Retirement and Death Benefits Act 1973*, the DFRDB was deemed to have come into existence on 1 October 1972. The documents setting out the provisions of the DFRDB are the Act, as amended, together with the associated Regulations and the Defence Force (Superannuation) (Productivity Benefit) Determinations made under the *Defence Act 1903*. The DFRDB was closed to new members on 30 September 1991. Contributory members at that time were given the option of transferring to the MSBS under the transitional arrangements associated with the introduction of the new scheme.

2.5 The DFRDB is a defined benefit scheme. It is unfunded since it does not hold any assets. The Scheme has no external insurance arrangements. Benefits are financed from Consolidated Revenue as they become due for payment. The Scheme is untaxed and no tax is levied on employer contributions. The Scheme is an exempt public sector superannuation scheme under the *Superannuation Industry (Supervision) Act 1993*.

The Military Superannuation and Benefits Scheme

2.6 The Military Superannuation and Benefits Scheme was introduced on 1 October 1991. It was closed to new ADF personnel with effect from 1 July 2016. Former serving members with a preserved benefit can re-join MSBS on re-joining the ADF. The documents setting out the provisions of the MSBS are the *Military Superannuation and Benefits Act 1991* and the Trust Deed and Rules of the Scheme.

2.7 The MSBS is a defined benefit scheme. The Scheme has no external insurance arrangements. The Scheme is a complying superannuation fund under the *Superannuation Industry (Supervision) Act 1993*.

2.8 The MSBS has an ancillary section which provides fully funded accumulation benefits which arise from a number of sources. Contributions to the ancillary section include employer salary sacrifice contributions and employer Superannuation Guarantee contributions in respect of Ordinary Time Earnings (OTE) items that are not included in superannuation salary.

2.9 The employer provided defined benefit component of MSBS is largely unfunded, apart from the 3 per cent Productivity Benefit component which is funded. Generally, member financed accounts in MSBS are fully funded. Ancillary benefits in MSBS are fully funded. Any benefits that are not paid from MSBS Fund assets are financed from Consolidated Revenue as they become due for payment.

ADF Super and ADF Cover

2.10 The ADF Super (or alternative “choice” fund) and associated ADF Cover arrangements apply to new ADF personnel from 1 July 2016. The documents setting out the provisions of ADF Super are the *Defence Act 1903* and the *Australian Defence Force Superannuation Act 2015*. The documents setting out the provisions of ADF Cover are the *Australian Defence Force Cover Act 2015*.

2.11 ADF Cover is a defined benefit scheme. The Scheme has no external insurance arrangements. Benefits are financed from Consolidated Revenue as they become due for payment. The Scheme is untaxed and no tax is levied on employer contributions. The Scheme is an exempt public sector superannuation scheme under the *Superannuation Industry (Supervision) Act 1993*.

Overview of Benefits

2.12 The benefits payable under the MSBS, the DFRDB, ADF Super and ADF Cover are summarised in Appendices A, B and C respectively. They are described briefly below:

MSBS	A member financed benefit equal to member contributions accumulated with fund earnings plus an employer financed lump sum benefit based on a multiple of final average salary and total service. On age retirement, the employer financed lump sum may be wholly or partially converted to an indexed pension.
DFRDB	An indexed pension benefit based on a multiple of final salary and total service. Part commutation of the pension to a lump sum is permitted on age retirement.
ADF Super and ADF Cover	ADF Super provides for the payment of employer superannuation contributions of 16.4 per cent of the individual's Ordinary Time Earnings (OTE) to the accumulation superannuation fund of their choice. ADF Cover provides invalidity pensions and lump sum death benefits (which a surviving spouse can choose to convert into a pension) to all members of the permanent forces where eligible. ADF Cover eligibility ceases at age 60.

Funding and payment of benefits

2.13 In respect of the employer provided component of the MSBS defined benefit arrangements, after-tax 3% productivity superannuation contributions for serving ADF personnel are invested by Commonwealth Superannuation Corporation, the Trustee of MSBS, in a pool of assets. When employer provided defined benefits are first paid to a member, the accumulated productivity contributions in respect of the member are transferred from the MSBS Fund to the Consolidated Revenue Fund (CRF) and the employer benefit is financed from the CRF on an unfunded basis. In any given year, the unfunded benefits paid from the CRF will be the total amount of benefits paid less the transfers from the MSBS Fund relating to members who have exited in that year.

2.14 The unfunded component of employer financed benefits from the MSBS is untaxed and no tax is levied on employer contributions for this component of benefits. Employer contributions for the 3% productivity benefit are taxed at 15 per cent when received by the MSBS Fund.

2.15 In respect of the standard member (non-ancillary) account in MSBS, member contributions are invested in the MSBS Fund and are accumulated with interest at the actual investment earning rates of the MSBS Fund. When a benefit from the member account is paid, the payment is made directly to the individual, or the individual's nominated fund in the case of a roll over payment. Where an MSBS member has an unfunded component of his or her member account as a result of earlier membership of DFRDB, payment of that component of the benefit is made from the CRF.

2.16 Member contributions to the DFRDB are paid directly to the CRF and are not accumulated in a fund. All benefits from the DFRDB (and DFRB pensions) are provided from the CRF on an unfunded basis.

2.17 All benefits from ADF Cover are provided from the CRF on an unfunded basis.

2.18 Since 1 July 2008, employers with personnel in defined benefit schemes have been required to assess their Superannuation Guarantee (SG) obligations against ordinary time earnings (OTE). OTE for ADF personnel includes allowances which are not included in the schemes' definitions of superannuation salary.

2.19 To ensure compliance with SG obligations for DFRDB and MSBS, employer contributions of up to 10.5 per cent of certain allowances which do not form part of superannuation salary are currently being paid into the ancillary section of the MSBS for 2022–23. In determining the amount of employer superannuation contributions for an individual, the maximum earnings base for SG purposes is taken into account. The additional employer contributions apply for both DFRDB and MSBS members and amounted to approximately $32 million in 2022–23 based on the applicable SG rate of 10.5 per cent.

2.20 For the purposes of the projections in this report, it has been assumed that the OTE base for SG employer contributions will represent a steady proportion of ADF salaries of those in DFRDB and MSBS. A starting point of $32 million for 2023–24 has been used for projections of SG contributions based on the applicable SG rate of 11 per cent for 2023–24. The projections allow for the scheduled increases in the SG contribution rate from its current level to an eventual 12 per cent over the period to 1 July 2025.

2.21 Employer SG contributions in respect of certain allowances which do not form part of superannuation salary are taxed at 15 per cent when received by the MSBS Fund.

2.22 There are a number of other contributions made to the MSBS ancillary benefits section. Government co-contributions and low-income superannuation contributions for all superannuation schemes are made via the Australian Taxation Office (ATO) and accounted for via that program. Accordingly, no allowance has been made in the projections for the Commonwealth cash expenditure associated with government co-contributions and low-income superannuation contributions (for reference, these amounted to $0.3 million in 2022–23). Transfer amounts, personal, spouse and salary sacrifice contributions paid to the ancillary benefits section are made at an individual's discretion, rather than determined under scheme rules. They have not been included in the projections. Any employer contributions to the ancillary benefits section are taxed at 15 per cent when received by the MSBS Fund.

2.23 The estimates in Section 10 of this report relate to the actual employer cash cost payable by the Commonwealth, with the cost in each year being calculated as follows:

(i) MSBS

Funded 3 per cent productivity superannuation contributions paid to the MSBS Fund

plus

Unfunded benefits paid from the CRF (after netting off transfers from the MSBS Fund)

(ii) DFRDB

Benefits (entirely unfunded) paid from the CRF

less

Member contributions paid to the CRF

(iii) DFRB

Pensions (entirely unfunded) paid from the CRF

(iv) Superannuation Guarantee Contributions (OTE assessment)

Funded contributions paid to the ancillary section of the MSBS Fund

(v) ADF Cover

Benefits (entirely unfunded) paid from the CRF.

Section 3: Membership, data and assets

Data

3.1 This report is based on data supplied by the Commonwealth Superannuation Corporation (CSC) which administers the schemes. The data has been checked to ensure that it is sufficiently accurate for the purpose of the report.

3.2 Details of the main data checks are included below. These checks indicate that the data is substantially complete. I am satisfied that the data is sufficiently accurate for the purposes of this report.

3.3 Checks were also done on the internal consistency of individual records and, where necessary, queries were followed up with CSC. Where it could be established that the information on the data supplied was inaccurate, records were amended to enable a more accurate valuation.

Membership

3.4 A summary of the contributory membership valued is set out in Table 3.1.

3.5 The number of MSBS contributors valued is 30,032. This compares to 40,968 in the 2020 report. Data on MSBS contributors provided by Defence showed a total of 30,222 contributors as at the last payday of 2022–23 made up of 28,579 contributing members plus 132 non-effective members and 1,511 members not contributing. Superannuation salary related checks did not reveal any cause for concern. In my opinion, the MSBS contributor data valued was effectively complete.

3.6 The number of DFRDB contributors valued is 520. This compares to 987 in the 2020 report. Data on DFRDB contributors provided by Defence showed 521 contributors as at the last payday of 2022–23 made up of 447 contributors plus 74 members not contributing. Superannuation salary related checks did not reveal any cause for concern. In my opinion, the DFRDB contributor data valued was effectively complete.

3.7 The number of ADF Cover contributors valued is 28,533. This compares to 18,569 in the 2020 report. Data on ADF Cover contributors provided by Defence showed a total of 28,679 contributors as at the last payday of 2022–23 made up of 27,427 effective members and 2 non-effective members in ADF Super and 1,250 members who had exercised choice of fund and were not in the default fund, ADF Super. Superannuation salary related checks did not reveal any cause for concern. In my opinion, the ADF Cover contributor data valued was effectively complete.

Table 3.1: Contributors (as at 30 June 2023)

	Number	Salaries ($m pa)
DFRDB		
Male officers	187	33
Female officers	10	2
Male other ranks	312	38
Female other ranks	11	1
Total DFRDB	**520**	**75**
MSBS		
Male officers	8,353	1,295
Female officers	2,178	326
Male other ranks	16,472	1,714
Female other ranks	3,008	299
Cadets	21	2
Total MSBS	**30,032**	**3,636**
ADF Cover		
Male officers	3,354	363
Female officers	1,241	128
Male other ranks	16,979	1,348
Female other ranks	5,384	427
Cadets	1,575	94
Total ADF Cover	**28,533**	**2,359**
Total All Schemes	**59,085**	**6,070**

Note: Contributors include MSBS MBL members and DFRDB members who have ceased paying contributions.

3.8 A summary of the pensioners valued is set out in Table 3.2. There are also a number of children's pensions payable (refer footnote two, below).

3.9 At 30 June 2020 there were 74,543 pensioners made up of 20,849 MSBS pensioners with total annual pensions of $894 million, 51,416 DFRDB pensioners with total annual pensions of $1,552 million, 1,961 DFRB pensioners with total annual pensions of $35 million, and 317 pensioners for ADF Cover with total annual pensions of $13 million.

3.10 The 2022–23 CSC Annual Report has the number of MSBS pension accounts as 29,459 compared to the 29,208 pensioners valued. The corresponding figure for the DFRDB is 49,878 (including children's pensions).

Table 3.2: Pensioners (as at 30 June 2023)

	Number	Pensions[1] ($m pa)
DFRB		
Age pensioners	104	2
Invalid pensioners	404	10
Reversionary pensioners[2]	1,002	19
Associate pensioners[3]	–	–
Total DFRB	**1,510**	**31**
DFRDB		
Age pensioners	37,883	1,373
Invalid pensioners	2,263	123
Reversionary pensioners[2]	8,695	219
Associate pensioners[3]	811	13
Total DFRDB	**49,652**	**1,727**
MSBS		
Age pensioners	10,124	413
Invalid pensioners	18,062	1,119
Reversionary pensioners[2]	780	23
Associate pensioners[3]	242	4
Total MSBS	**29,208**	**1,559**
ADF Cover		
Invalidity pensioners	1,606	93
Reversionary pensioners[2]	1	0
Total ADF Cover	**1,607**	**93**
Total All Schemes	**81,977**	**3,411**

Note: Pension amounts may not add up to totals due to rounding.

1. The pension amounts include the July 2023 pension increase.
2. Reversionary pensions are pensions that are payable to the surviving spouse and any eligible children following the death of a pensioner or contributory member. The figures in the above table do not, as far as possible, include the pensions payable in respect of children.
3. Associate pensioners are pensioners who receive a pension as a result of a superannuation split following a Family Law settlement in respect of a pensioner in the MSBS, the DFRB or the DFRDB.

3.11 Checks were also done for the DFRB, the DFRDB, MSBS and ADF Cover by comparing the pensions valued with the CSC pension payroll figures for the last two pays of 2022–23. The payroll figures showed payments being made to 1,530 DFRB pensioners, 49,892 DFRDB pensioners, 29,354 MSBS pensioners, and 1,603 ADF Cover pensioners on the last pension payday of the 2022–23 financial year. The equivalent annual pension amounts paid were $30 million for the DFRB, $1,665 million for DFRDB, $1,562 million for MSBS, and $91 million for ADF Cover. These numbers include children's and orphan's pensions and exclude the 3.3 per cent pension increase applied on 1 July 2023 for MSBS, ADF Cover and DFRDB pensioners under age 55 and the 4.0 per cent increase applied for DFRDB and DFRB pensioners aged 55 or more.

3.12 Looking at pension payments over a financial year can be misleading relative to the total pensions payable as there are regular payments of backdated pensions following retrospective invalidity payments. To provide an additional check, analysis of the change in pension amounts between 1 July 2022 and 1 July 2023 was performed. This was to ensure that pensions increased by the expected amount based on the declared pension increases on 1 January and 1 July. For MSBS 99.7 per cent of pension changes were as expected or explainable, with an even higher percentage observed for DFRDB. Overall, this suggests that the pension data was complete and accurate.

3.13 Preserved benefits from the MSBS are payable on attaining age 55, although in certain limited circumstances they may be payable earlier. There were 118,656 preserved beneficiaries valued, with total nominal preserved benefits of $15,666 million valued. At 30 June 2020, there were 114,579 preserved beneficiaries with total nominal preserved benefits of $12,364 million.

3.14 At 30 June 2023, there were 3,555 non-pensioner associate beneficiaries in the MSBS with total associate benefit amounts, both funded and unfunded, of $620 million. Associate benefit accounts are set up in the MSBS as a result of superannuation splits following Family Law settlements. Non-pensioner associate benefits are accumulation style lump sum benefits.

Assets

3.15 The assets of the MSBS are invested in a wide range of investments including the short-term money market, Australian and overseas fixed interest, Australian and overseas equities, property trusts, private equity, infrastructure and hedge funds. Based on the Financial Statements as at 30 June 2023, the net assets of the MSBS amounted to $12,902 million. The equivalent figure as at 30 June 2020 was $10,313 million.

3.16 The net assets of the MSBS include an Operation Risk Reserve (ORR). The ORR is a requirement of the prudential regulator, the Australian Prudential Regulation Authority (APRA). It is a provision within a scheme's assets designed to provide the funds to cover corrective actions in the event of operational failures. The ORR at 30 June 2023 was $49 million. The equivalent ORR at 30 June 2020 was $40 million.

3.17 Most of the net assets relate to member accounts and the 3 per cent productivity employer account. However, aside from the ORR, approximately $1,681 million relates to the fully funded ancillary accounts.

3.18 The MSBS assets are unitised. Members have a number of investment options from which to choose. The investment strategy for the MSBS assets is structured to be consistent with the investment options chosen by members. As such, the investment policies of the MSBS Fund appear suitable.

3.19 For the MSBS, the total of the funded components from all individual records valued, plus the amount of ancillary benefits, was compared to the MSBS Fund as recorded in the Financial Statements. This check again suggested that the data was suitable for valuation purposes. It also suggests that the approach adopted by the MSBS Fund for allocating investment earnings to accounts is suitable.

3.20 The DFRDB, DFRB and ADF Cover are unfunded. They do not hold any assets.

Section 4: Serving membership assumptions

4.1 Estimates of future superannuation costs are, by necessity, based on assumptions about the future. These assumptions can be divided into three categories:

- those which are directly related to the number of serving ADF personnel in the schemes (termed serving membership assumptions);
- those which are related to the expected future economic environment (termed economic assumptions); and
- those which are based on the experience of the membership of the scheme (termed experience assumptions).

4.2 This section sets out the serving membership assumptions adopted for this report and comments on the changes made from the assumptions used in preparing the 2020 report.

4.3 Appendix F to this report provides a sensitivity analysis of the results to changes in key assumptions.

History of fund membership

4.4 The following table shows the numbers of serving ADF personnel valued, by membership of each scheme, since the 1993 review.

Table 4.1: Serving membership since 1993

Valuation year	MSBS[1]	DFRDB	ADF Cover[2]	Total
1993	36,933	26,595	-	**63,528**
1996	38,610	20,271	-	**58,881**
1999	37,041	14,511	-	**51,552**
2002	42,113	9,571	-	**51,684**
2005	44,491	7,072	-	**51,563**
2008	49,307	5,076	-	**54,383**
2011	55,769	3,728	-	**59,497**
2014	54,974	2,686	-	**57,660**
2017	52,371	1,740	5,839	**59,950**
2020	40,968	987	18,569	**60,524**
2023	30,032	520	28,533	**59,085**

1. Excludes those in DFRDB who only have an ancillary benefit in MSBS.
2. Covered for insurance only. Retirement benefits are provided under the fully funded ADF Super accumulation arrangements.

4.5 The progress of the total serving membership over the thirty years falls into several distinct periods. The first of these periods saw a significant fall in the combined MSBS and DFRDB membership from 1993 to 1999. This was followed by six years of relatively stable membership. From 2005 to 2011, there was strong growth in serving membership, particularly from 2008 to 2011. This period was one where the ADF was involved with significant overseas operations. After a fall in serving membership between 2011 and 2014, membership has been around 60,000 since 2017.

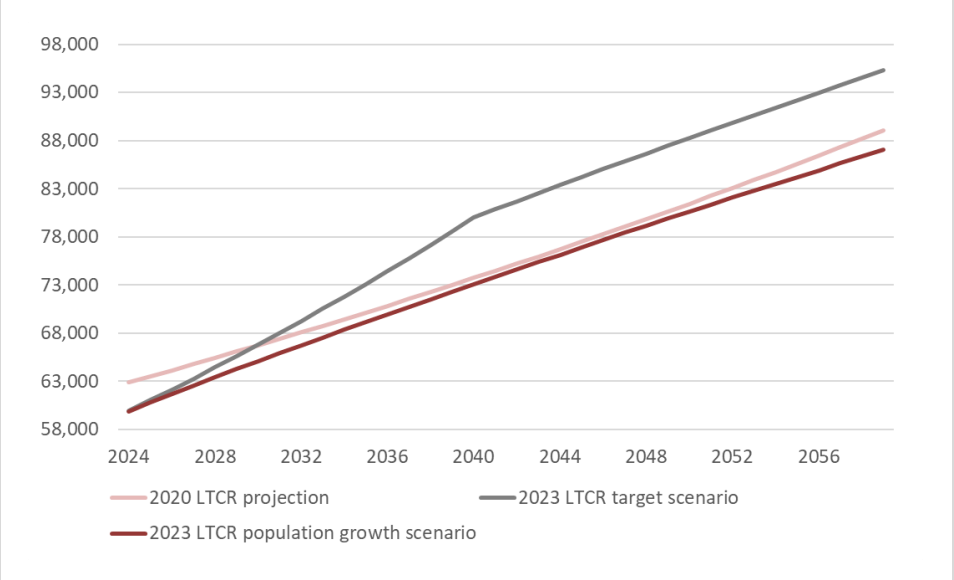
4.6 As would be expected, DFRDB serving membership has fallen significantly over the last 30 years. However, it is anticipated to be around another 10 years before DFRDB serving membership is close to zero. With the closure of MSBS to new ADF personnel with effect from 1 July 2016, the serving membership of MSBS is also in decline.

Assumed growth in future ADF serving membership

4.7 When projecting the total ADF serving membership over the long term, I have introduced two scenarios. The first is that the membership will increase in line with the projected growth of the Australian population. This projected annual growth rate is around 1.7 per cent initially, falling gradually over 40 years to around 1.1 per cent. The second has regard to Defence's published target of a ADF serving membership of 80,000 by 2040. This scenario requires a 1.8 per cent per annum growth rate to achieve this target, before reverting to population growth rates thereafter. It is assumed that all new entrants will be in ADF Cover.

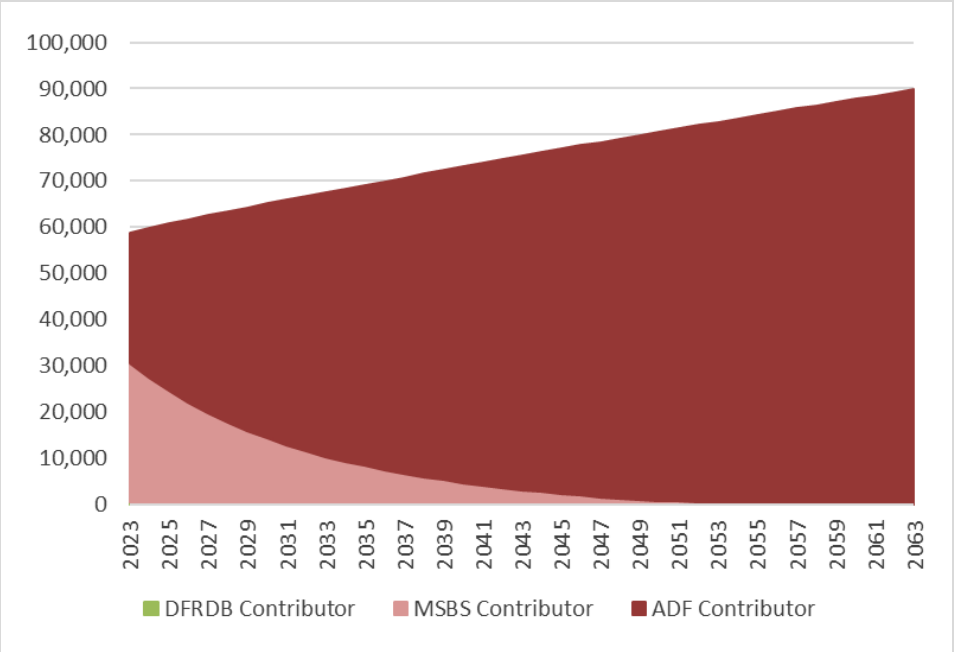
4.8 The 2020 report assumed that total serving membership would increase by around 1 per cent per annum over the long term. The revised assumption results in a higher projected serving membership compared to the 2020 report projections under the Defence target scenario but a slightly lower projected serving membership under the population growth scenario. Figure 4.1 below shows the membership projection based on the two scenarios adopted for this report, along with that projected from the 2020 report based on the 1 per cent per annum approach.

Figure 4.1: ADF serving membership projection



4.9 Figure 4.2 below splits the serving membership into the respective schemes. Using the Australian population growth scenario referred to above, ADF Cover will be the largest scheme (measured by serving members) in 2024, with the membership of the other schemes falling away over time. By 2040, there are still expected to be around 4,600 serving members in MSBS.

Figure 4.2: Serving membership by scheme

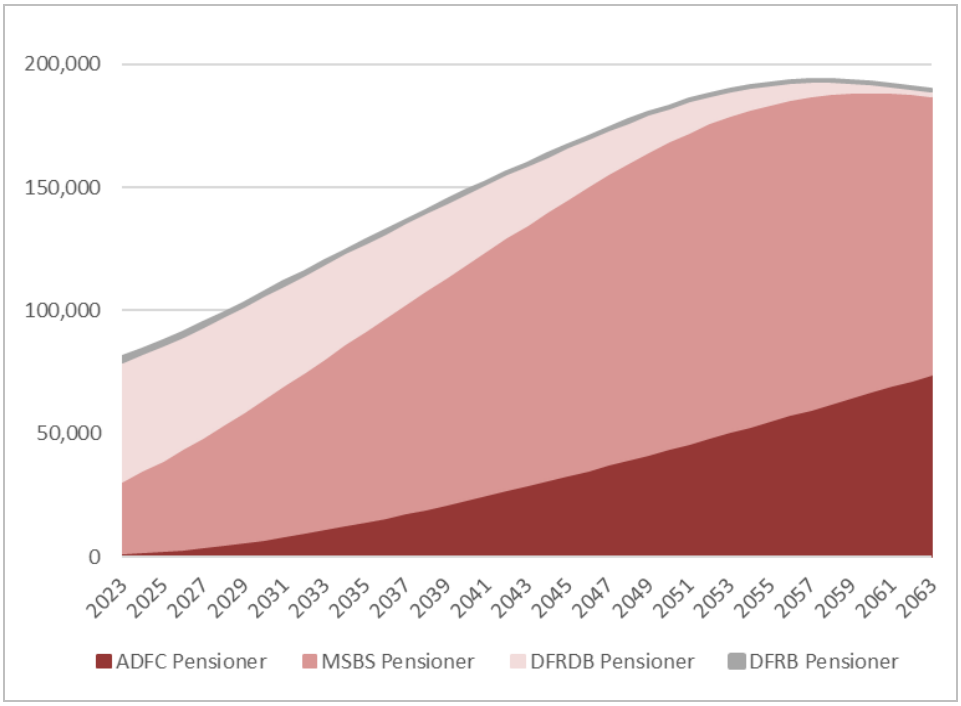


4.10 While the above projections show growing ADF serving membership, it has been difficult for Defence to retain the existing level of serving members in recent years. There is thus uncertainty in whether the growth in projected numbers eventuates.

Assumed growth in future pensioners

4.11 Figure 4.3 shows the projection of pensioners in each of the four schemes. MSBS takes over from DFRDB as the largest pensioner scheme in the next few years with ADF Cover pensioner numbers growing over the longer term.

Figure 4.3: Pensioner numbers by schemes



New entrant assumptions

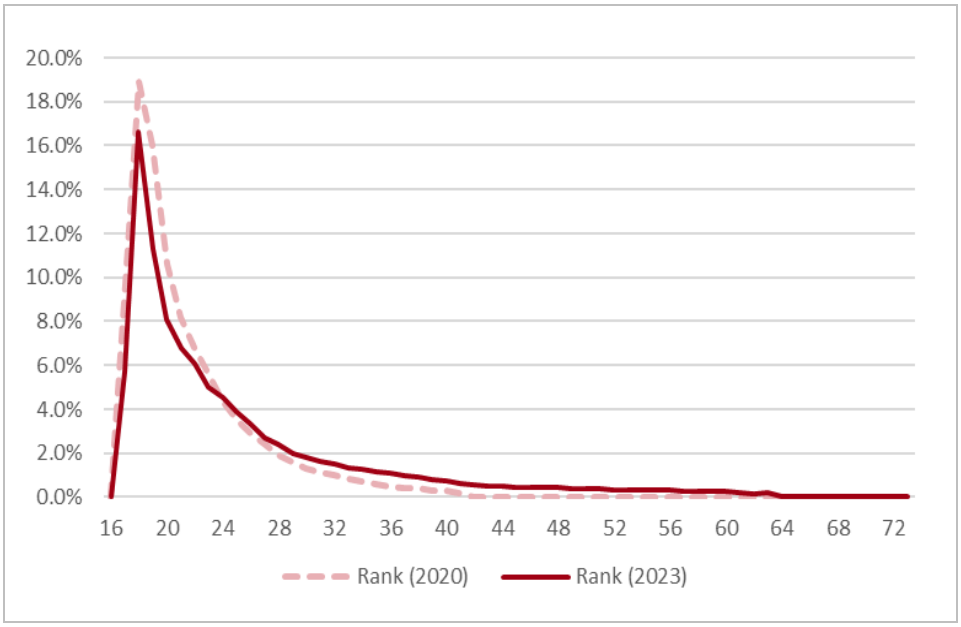
4.12 With the closure of MSBS to new ADF personnel on 1 July 2016, very few former MSBS contributors who were MSBS preserved members are re-joining MSBS. These numbers are small enough to be ignored for valuation purposes. It is assumed that there will be no further new contributor members of MSBS.

4.13 I have updated the ADF Cover new entrant distribution assumptions from the 2020 report to take account of more recent experience. For officers, the new entrant ages were more widely distributed with some new officers joining well into their 60s. There was a similar distribution for female officers, although fewer at the higher ages. For other ranks, new entrant ages have generally reduced since the 2020 report for younger ages with higher rates observed after age 24.

4.14 The new entrant age assumptions are set out below in Figures 4.4 and 4.5 for both male officers and male other ranks. A similar new entrant age distribution was observed for female other ranks, while female officers have fewer new entrants at older ages compared to male officers.

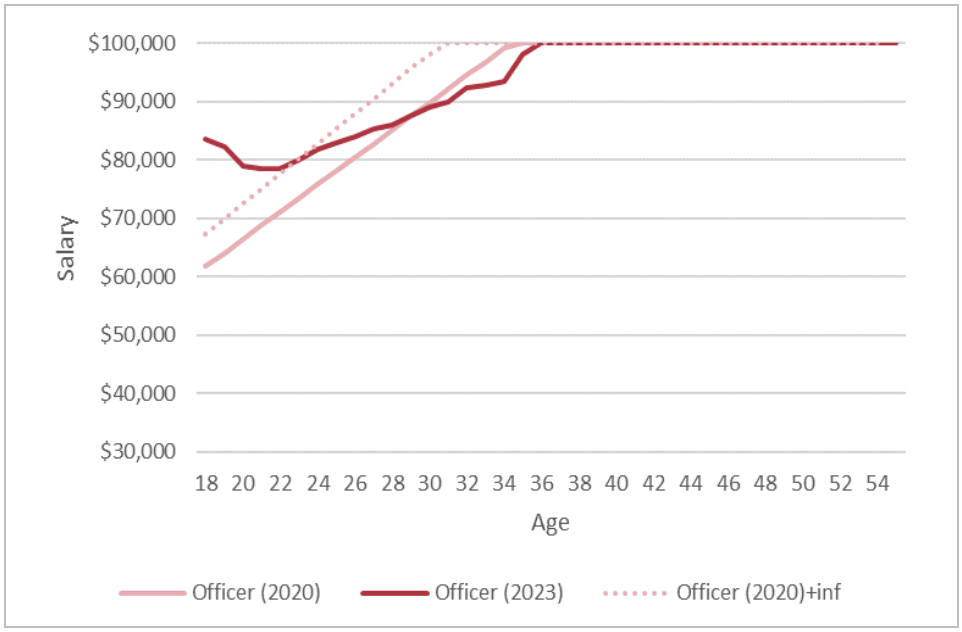
Figure 4.4: Male officer starting age distribution

Figure 4.5: Male other ranks starting age distribution



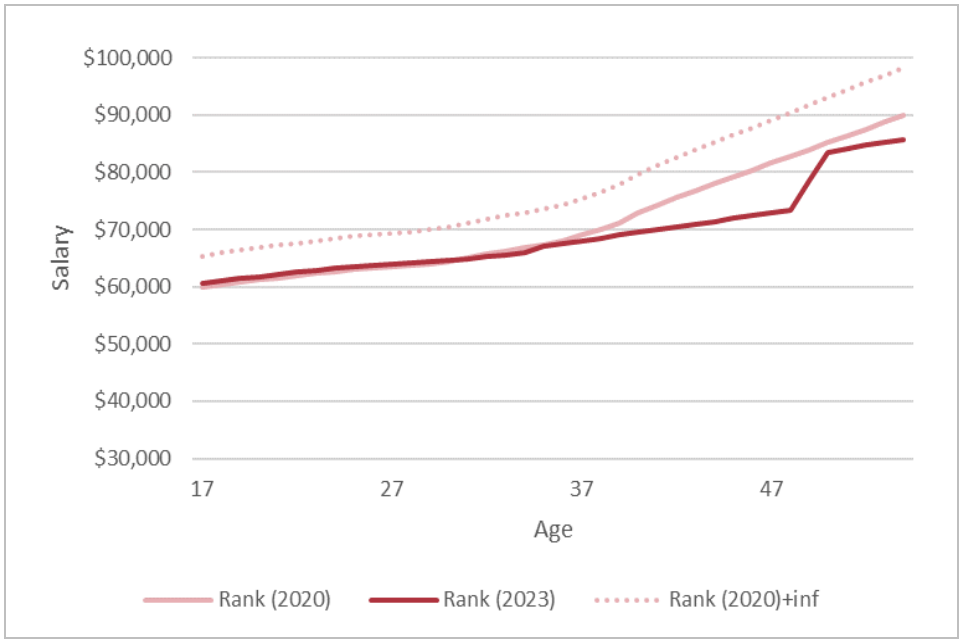
Commencement salaries in recent years were compared with the commencement salaries assumed in the 2020 report, increased with general ADF salary increases over the period. For officers, commencement salaries in recent years have been higher than expected at younger ages and lower than expected at higher ages. The updated values have been adopted for this report. This analysis is summarised in Figure 4.6.

Figure 4.6: Officer commencement salaries



4.15 For other ranks, there has been virtually no change to the starting salaries assumed in the 2020 report for the vast majority who join at younger ages, suggesting that those salaries where higher than the longer-term trend. No adjustment has been made to the starting salaries assumed in the 2020 report. This analysis is summarised in Figure 4.7.

Figure 4.7: Other rank commencement salaries



Section 5: Economic assumptions

5.1 This section sets out the economic assumptions adopted for this report and comments on the changes made from the assumptions used in preparing the 2020 report.

5.2 The significant economic assumptions made in assessing the long-term cost of the Commonwealth's military superannuation commitments are:

- the rate of future increases in those pensions and benefits which are linked to increases in the CPI;
- the level of future general increases in salaries (that is, increases other than those relating to promotion or length of service, etc). This is shown below as the excess of nominal wage growth over the increase in the CPI;
- the level of future pension increases for DFRB and DFRDB pensioners aged 55 or more. The methodology used to determine increases is such that, over the long term, pensions would be expected to increase in line with Male Full Time Average Weekly Earnings (MTAWE). MTAWE increases are expected to be similar to future general increases in salaries. This is also expressed as the excess over the increase in the CPI; and
- the rate of interest to be used to discount future cashflows to a present value, also expressed as the excess over the increase in the CPI.

5.3 The relationships between these rates affect the long-term cost estimates. Changes of equal magnitude in the absolute levels of each of the rates can have a major effect on nominal cashflows but will have only a minor effect on the reported unfunded liability and notional employer contribution rate. On the other hand, changes in the relationships between the rates can have quite substantial effects on the unfunded liability and notional employer contribution rate estimates. Care is therefore needed when setting the economic assumptions.

5.4 Considering the long-term purpose of this report, I have adopted the following financial assumptions:

CPI increases	2.5% per annum (base)
General salary increases and MTAWE increases	1.2% per annum (in excess of CPI) (3.7% nominal)
Interest rate	2.5% per annum (in excess of CPI) (5.0% nominal)

5.5 The CPI and interest rate assumptions are the same as those adopted in my 2020 report. The assumption that CPI will increase by 2.5 per cent per annum remains the mid-point of the Reserve Bank of Australia's target for average inflation over economic cycles. It is also consistent with Treasury's expectation for the long-term CPI inflation rate.

5.6 While stability of assumptions is desirable to avoid introducing unnecessary volatility into the results over time, it is also important that the results represent a best current estimate of the likely costs and liabilities. Inevitably, some judgement is required when setting the financial assumptions.

5.7 The general salary increase assumption has been reduced from 4.0 per cent per annum nominal to 3.7 per cent per annum nominal. This change has been made in response to Treasury reducing its expectation for the level of productivity growth in the Australian economy.

5.8 In Australia, historically, salary increases have averaged around 1.5 percentage points more than CPI increases over the longer term. This difference has not occurred in recent years. Further, Treasury reduced its expectation of long-term growth in productivity. Given this, we reduced our assumption of the expected level of population salary increases relative to CPI increases.

5.9 In isolation, the reduction in the salary increase assumption has resulted in a reduction in the total unfunded liabilities as at 30 June 2023 of about $1.6 billion, along with small reductions in the notional employer contribution rates.

5.10 The assumed long-term interest rate has next to no bearing on the future cash flows of the schemes. This assumption is used to determine the net present value of the liability and when calculating the Notional Employer Contribution Rate. This assumption is based on expectations of long run yields on government debt in the light of long-term relationships between inflation, GDP growth and productivity growth. I have elected to maintain this at the same level as previous reports to aid comparability with earlier results.

5.11 The assumed interest rate is also used as the assumed rate of investment return on the funded component of members' benefits, the rate earned on MSBS funded assets and the crediting rate applicable to unfunded lump sum accumulation benefits.

5.12 A potential reference point when considering the long-term interest rate assumption is provided by considering long term expectations for nominal GDP growth. GDP growth can be considered as the combined outcome of productivity growth, employment growth and underlying inflation. The Intergenerational Report anticipates long term productivity growth of 1.2 per cent per annum, employment growth of broadly 1.3 per cent per annum (noting employment growth is expected to fall over time due to the impact of ageing and slowing population growth on the labour force) and price inflation of 2.5 per cent per annum. This suggests that an expectation for long term nominal GDP growth is in the order of 5 per cent per annum.

5.13 Historically, there have been short periods where these relationships have deviated substantially from long term averages. Given the purposes of the report and given that the report has estimates covering the next 40 years, I have retained assumptions based on long term relationships for this report.

5.14 Assumptions regarding the rate of increase in GDP are also required. Treasury has produced a projection of annual GDP growth rates (included in Appendix D) which I have adjusted based on the above assumptions for inflation and wage growth. This projection is specifically for the purpose of this report and is not to be regarded as an official Commonwealth Treasury projection. The GDP growth rates incorporate the long-term effects of demographic and labour force change. The change to the GDP growth assumption has no effect on nominal dollar outlays. However, the variation in growth rates does affect the outlays and liabilities reported as a percentage of GDP.

5.15 Appendix F provides a sensitivity analysis of the results to changes in economic assumptions. This enables the impact of alternative scenarios around the future trajectory of the key macroeconomic parameters to be assessed. This includes a scenario illustrating the effect of including economic assumptions about the short term informed by known short term wage increases and inflation assumptions informed by Treasury forecasts.

Section 6: Invalidity assumptions

Introduction

6.1 New invalidity pensions are a significant cost to the Commonwealth. This is because the annual rate of pension payable is around 80 per cent to 90 per cent of the individual's superannuation salary, is CPI indexed, payable for life and generally commences at young ages. A new invalidity pension commencing at the current time would have a typical average capitalised value of around $1.5 million at commencement based on the valuation assumptions for this report.

6.2 Around 30 per cent of future exits from the ADF, are assumed to commence an invalidity pension on exit or retrospectively. Retrospective invalidity pensions occur where an individual exits the ADF and subsequently claims that they actually exited the ADF by reason of invalidity. If the claim is accepted, the individual is then deemed to have commenced an invalidity pension from the date of his/her exit from the ADF. As the pension is deemed to have commenced on exit from the ADF, an amount representing back payments of pension is paid upon the commencement of the pension.

6.3 The high average cost per invalidity pension combined with a significant proportion of exits resulting in the commencement of new invalidity pensions means that the costs associated with invalidity pensions are high. Consequently, the invalidity experience has a significant impact on the estimates of future cash flows and costs. Given this significance, this report presents a separate section to solely focus on setting invalidity experience assumptions. Other demographic assumptions are discussed in Section 7.

6.4 This section focuses on understanding the drivers of the invalidity experience and setting invalidity assumptions going forward. Further, with a reasonable body of experience now available for ADF Cover it is possible to now look at the experience of the two schemes separately.

6.5 Demographic assumptions are set having regard to the assumptions adopted in the previous report, the experience over the intervening period and the likely impact of any factors expected to affect future experience but not yet apparent in the data. Analysis of the invalidity experience was based on the four-year period from 2019–20 to 2022–23. Regard was given to earlier experience where applicable.

6.6 Analysis indicates that experience may differ according to scheme, gender, arm of service, and the rank of the member (whether officer, officer cadet or other rank). Assumptions have been set accordingly in relation to scheme and rank for this report without differentiating based on gender and arm of service. While the resulting projections remain appropriate for this report, further analysis has been recommended in relation to analysing experience by gender and arm of service with a view to potentially adopting separate rates in future. Details of the adopted invalidity assumptions are set out in Appendix D.

6.7 The analysis for this report examined the invalidity experience by both years of service completed and by the age of the member. Given the nature of military service, it would be expected that there would be some correlation between a member's age and a member's service. For previous reports invalidity exit rates had been set based on the member's age only. The analysis for this report suggested that a better approach was to model invalidity exits by service duration and this approach was adopted for this report. This revised approach has helped our understanding of some of the drivers behind the invalidity experience of MSBS with a view to better forecasting the future invalidity experience of ADF Cover.

6.8 We have also examined invalidity pensions commencing from active service and retrospective invalidities separately.

Summary of Results

6.9 Tables 6.1 and 6.2 below compare the cumulative projected retrospective and in-service invalidity pension commencements by scheme for the next 5 years using the 2023 assumptions with those using the 2020 assumptions.

Table 6.1: In-service invalidity pension projections (5 years cumulative)

Year	2023 LTCR assumptions				2020 LTCR assumptions			
	MSBS	DFRDB	ADFC	Total	MSBS	DFRDB	ADFC	Total
23–24	1,355	23	302	**1,681**	849	2	641	**1,491**
24–25	2,564	41	864	**3,470**	1,614	3	1,383	**3,000**
25–26	3,640	55	1,671	**5,366**	2,306	4	2,223	**4,532**
26–27	4,596	65	2,629	**7,290**	2,929	4	3,157	**6,091**
27–28	5,444	72	3,732	**9,248**	3,491	5	4,182	**7,678**

Table 6.2: Retrospective invalidity pension projections (5 years cumulative)

Year	2023 LTCR assumptions				2020 LTCR assumptions			
	MSBS	DFRDB	ADFC	Total	MSBS	DFRDB	ADFC	Total
23–24	825	88	48	**961**	300	–	–	**300**
24–25	1,710	188	120	**2,018**	550	–	–	**550**
25–26	2,529	282	216	**3,027**	750	–	–	**750**
26–27	3,266	371	300	**3,936**	900	–	–	**900**
27–28	3,850	442	372	**4,664**	1,000	–	–	**1,000**

6.10 The increase of the in-service MSBS invalidity pensioner projections in this report is partly due to more mental health claims than expected. While for the 2020 report, invalidity rates were increased by about 20 per cent in anticipation of this mental health impact, the actual impact, based on the observed change in claim application acceptance rates, represented about a 30 per cent increase.

6.11 Secondly, a formal allowance for retrospective invalidity claims in respect of those who are initially non-invalidity future exits roughly contributes a 10 per cent increase in the projected numbers.

6.12 There has been a further 35 per cent increase in the average invalidity exit rate. A significant contributor to this further increase recognises the increasing length of service of the MSBS serving population. As MSBS is a closed scheme and the invalidity exit rate increases as service years grow, the average rate of invalidity claims is also expected to grow. While in 2020 about 75 per cent of the MSBS population had service of seven or more years, this rate is now 100 per cent.

6.13 The decrease in the projected invalidity pension numbers for ADF Cover relative to those using the 2020 report assumptions is also a result of changing the invalidity assumptions from age-based to service-based. As ADF Cover is a newer scheme, it will take time for the average length of service to build up. Recognising this results in an initial decrease in annual pension numbers of about 50 per cent. As service increases over time, the cumulative decrease by 2028 is only about 10 per cent.

6.14 Retrospective MSBS invalidity pension numbers have increased materially over the past three years, with a peak in claims not expected for another two years, followed by a longer run-off period. Furthermore, a growing number of retrospective invalidity claims for DFRDB and ADF Cover in recent years has necessitated the inclusion of an allowance for further retrospective invalidity claims for these schemes.

6.15 The projections of new retrospective invalidity pensions assume that there is smooth processing of the relevant applications from those that exited the ADF some time ago. In reality, these new retrospective invalidity pensions will not commence as projected. This is because there has been such an increase in the overall numbers of applications for invalidity pensions that the Commonwealth Superannuation Corporation (CSC) is unable to process all of them in a timely manner. CSC has been giving priority to direct exits from the ADF and this has resulted in a backlog of retrospective invalidity applications, largely relating to 2022–23 applications.

6.16 Subject to CSC accessing additional resources to review applications, it is likely that there will be a further backlog build up. The assumptions in Table 6.2 above represent our view of the likely underlying experience ignoring any backlog build up. For modelling purposes, these assumptions have then been modified to take account of likely processing delays. The impact of these modified assumptions is illustrated in Table 6.11.

Exits from Active Service – MSBS

6.17 Table 6.3 shows the number of new MSBS invalidity pensions commencing directly from active service in each of the last 12 years and the underlying invalidity exit rate as a proportion of the MSBS serving population at the time.

6.18 While the total numbers of invalidity pension commencements have been set out, the more important indicator is the invalidity rate which is expressed as a percentage of the serving membership at the time. Over the period since 2016 when MSBS was closed to new personnel, the serving membership of MSBS has almost halved from around 57,000 to around 30,000.

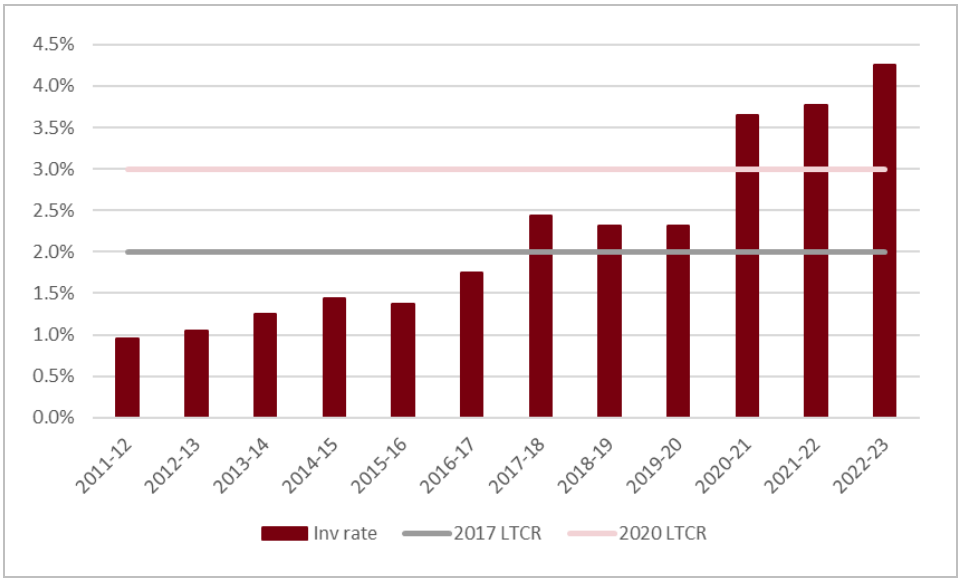
Table 6.3: New MSBS Invalidity Pension Commencements (direct exits)

Year	Total	Invalidity Rate %
2011–12	547	1.0%
2012–13	588	1.0%
2013–14	701	1.2%
2014–15	814	1.4%
2015–16	772	1.4%
2016–17	953	1.7%
2017–18	1,228	2.4%
2018–19	1,070	2.3%
2019–20	987	2.3%
2020–21	1,432	3.6%
2021–22	1,343	3.8%
2022–23	1,352	4.3%

6.19 The closure of MSBS to new personnel from 2016 means that there are no longer individuals with short periods of service. As invalidity rates tend to increase with length of service, this has contributed to higher average invalidity rates.

6.20 To put the information in the above table into more perspective, I have represented the trends graphically in Figure 6.1.

Figure 6.1: MSBS invalidity rates (direct exits)



6.21 To understand the significant increase in the invalidity rate, information regarding historical invalidity pension applications and the resulting number of invalidity pensions that were ultimately accepted since 2018/19 was obtained from CSC. Analysis of this information indicated that the acceptance rate of direct exit invalidity applications increased from around 60 per cent between 2018 and 2020, to around 80 per cent since 2020. Discussions with CSC indicated that the main driver of the increase in acceptance rate was the growth in mental health related claims.

6.22 This observation is consistent with the main factors noted in the 2020 report as contributing to the higher experience since the 2017 report, specifically:

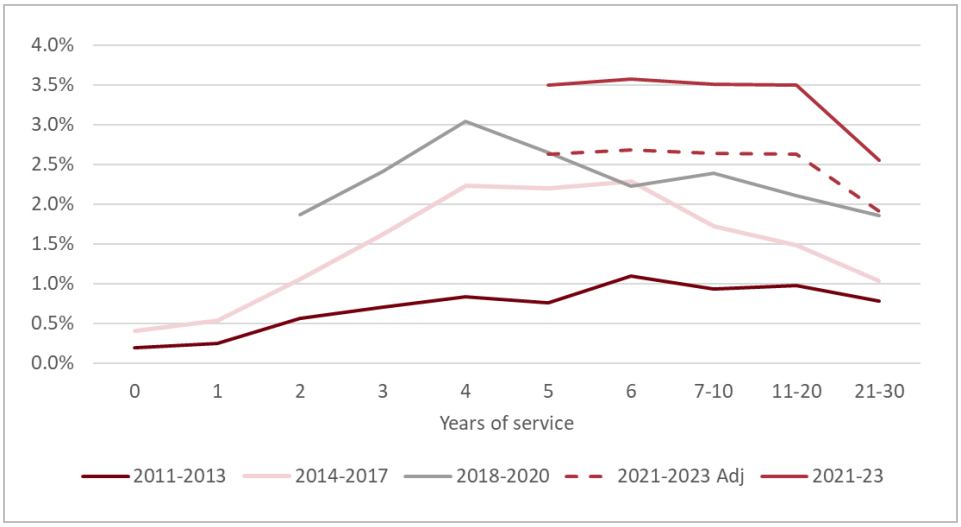
- A growing acknowledgment of Post-Traumatic Stress Disorder (PTSD) and other mental health conditions. The recent increase in claim acceptance rates from 60 per cent to 80 per cent suggests that this factor has now established itself as a permanent element of future experience; and
- Defence continues to encourage individuals in the ADF to report injuries, incidents and conditions that might affect their health earlier. Consequently, it has become culturally more acceptable for individuals to claim these benefits.

6.23 I also obtained data on new invalidity pension applications from CSC for the first nine months of the current financial year across all Schemes. Noting that commencements are seasonal, the total number of new invalidity applications is broadly in line with that observed in the same period of the 2022–23 year, which suggests that, assuming an unchanged acceptance rate, the current increase in the invalidity rate for MSBS may have plateaued, or at least that growth has paused this year to date.

6.24 On the face of it, Figure 6.1 suggests an ever-increasing invalidity rate with concerns as to where it may lead. However, if the focus of our analysis is changed from an overall invalidity rate to the different rates that apply based on the length of service of the individuals, a clearer picture emerges.

6.25 Analysis has been performed based on service periods in relation to each year of new MSBS direct exit invalidity pensioners between the years ending 30 June 2011 and 30 June 2023. To simplify the results, these 13 separate years have been combined into four successive periods. Figure 6.2 sets out the results.

Figure 6.2: MSBS invalidity rate by claim periods (direct exits)



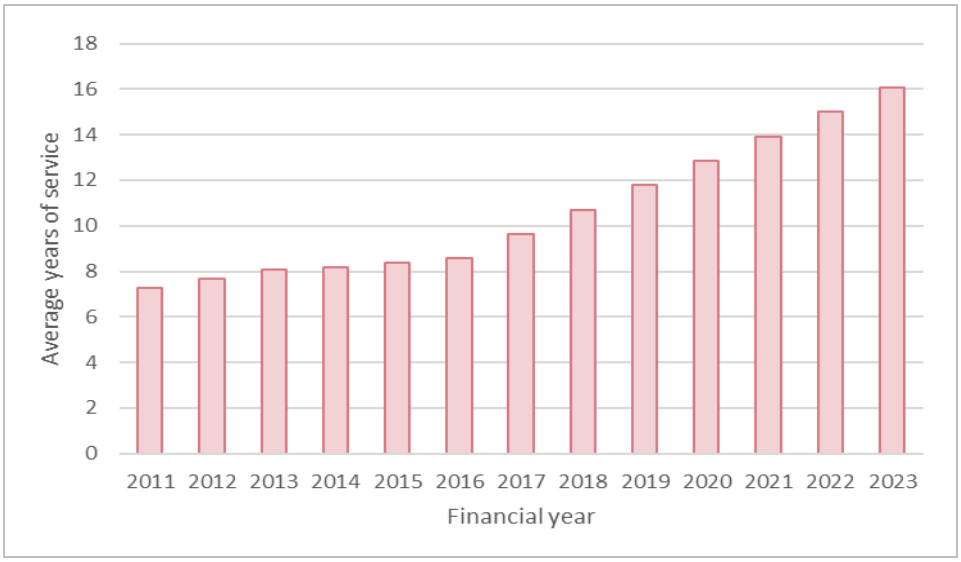
6.26 The following observations could reasonably be made about the above analysis:

- Invalidity rates generally increase with years of service before broadly stabilising after about 7 to 10 years of service, before falling again for those with very long periods of service.
- There was a significantly lower level of invalidity claims during 2011 to 2013, coinciding with a period with significant active service overseas. This may suggest a reluctance to claim until that service has been completed.

- For the other periods, there has been a steady rise in the longer term invalidity rates.
- The 2021–23 period is materially higher than other periods. This coincides with the change associated with increased acceptance of mental health claims. The dotted line represents the same experience excluding an estimate of the impact of mental health claims to ensure consistency with the earlier periods.
- Gradual increases in invalidity rates for shorter periods of service may be associated with Defence's increasing encouragement to report and keep a record of injuries incurred.

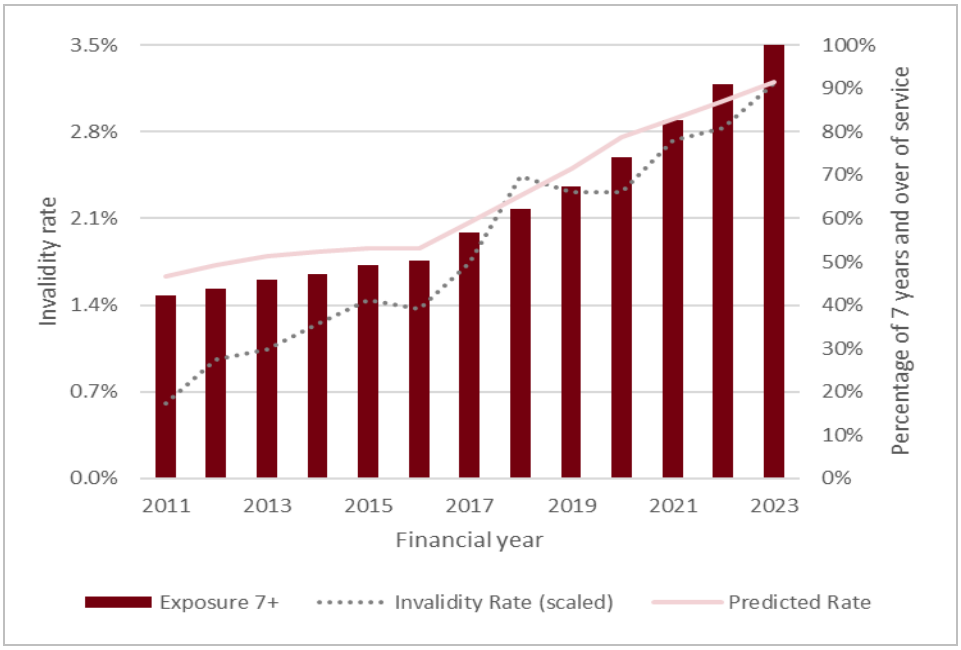
6.27 While Figure 6.3 below shows the change in the average service of MSBS contributors over this period, with material increases observed following the closure to new ADF personnel from 1 July 2016, of more explanatory interest to this analysis is the proportion of contributors in different service periods, particularly those with more than seven years of service.

Figure 6.3: Average years of service



6.28 Figure 6.4 plots the proportion of MSBS contributors with 7 or more years of service for each of the last 13 years, along with the actual invalidity rate for direct exits from Table 6.1 (scaled back over the last three years to remove the assumed recent increases due to the mental health element).

Figure 6.4: Modelled service based invalidity rate



6.29 Due to the scheme's closure to new ADF personnel from 1 July 2016, the proportion of MSBS members with less than 7 years of service has fallen from 50 per cent in 2016 to 9 per cent in 2022. Given that members that have recently joined the MSBS historically have a lower invalidity claim rate compared to their longer-serving peers, the observed reduction to this shorter serving cohort has driven an increased overall scheme invalidity rate.

6.30 In an attempt to generate the actual invalidity rate using a simplified formula, the different invalidity rates set out below for different service periods were applied:

- Zero to three years of service: 0 per cent
- Four to seven years of service: 1.5 per cent
- Seven or more years of service: 3.2 per cent

6.31 These simplified invalidity rates, presented as an aggregate average predicted rate in Figure 6.4, produces a relatively close match to the actual rate since the closure of the MSBS, and provides a useful insight into the approach to adopt for ADF Cover invalidity exits.

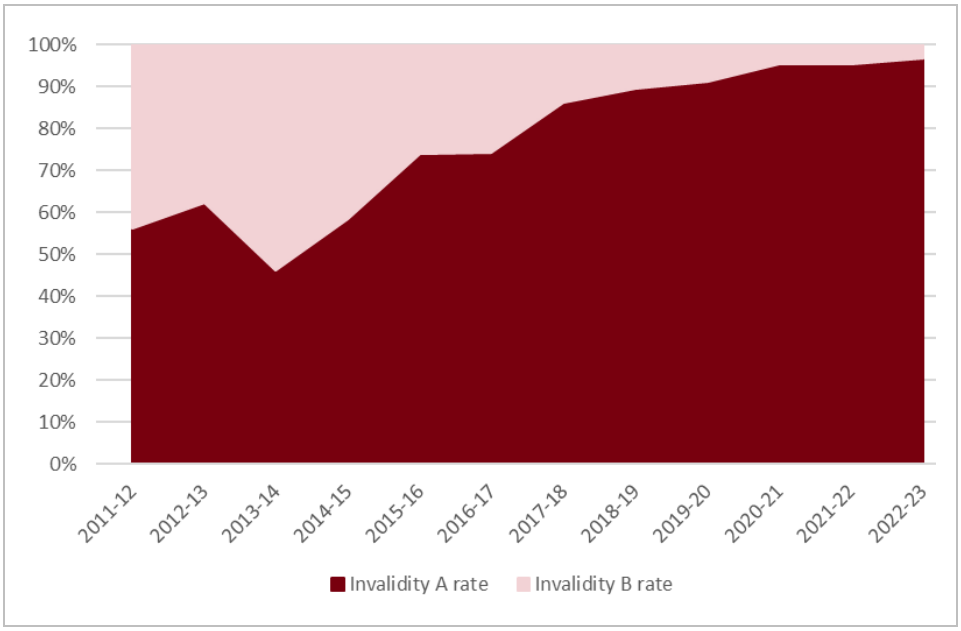
6.32 My office also met with both Defence and CSC personnel to try to obtain a better understanding of the current and future experience. There was an acknowledgement that recent levels of invalidity claim rates are unlikely to recede.

6.33 In this report, I have not attempted to predict whether the current observed rates of invalidity will continue to grow. This report assumes that the current rates of invalidity (by period of service) will continue. While there is a justifiable rationale for the current assumed invalidity exit rates, further changes may eventuate. Changes are particularly impactful on the ongoing cost for ADF Cover, which applies to a growing proportion of the ADF workforce. Appendix F provides an indication of the financial impact of further changes in the invalidity exit rates.

Invalidity A and Invalidity B – MSBS

6.34 There are two levels of invalidity that lead to ongoing pension payments. Invalidity A applies if the individual's incapacity is assessed as being 60 per cent or more, while invalidity B applies for an assessment of between 30 per cent and 59 per cent. Broadly, the invalidity A pension is twice that of the invalidity B pension.

Figure 6.5: MSBS Invalidity A and invalidity b proportions (direct exits)



6.35 Figure 6.5 shows an increasing trend in the proportion of new pensions commencing from direct exits that are the larger and more expensive invalidity A pensions. Invalidity A pensions now comprise almost 100 per cent of all recent successful invalidity claims. Furthermore, many historical invalidity B pensions are being reclassified as invalidity A pensions, with the number of such applications surging since 2021.

6.36 I have assumed that 99 per cent of new claims will be classified as invalidity A. Further, over the last two years about 6 per cent of historical invalidity B claims for MSBS have been reclassified as invalidity A. I have assumed that this rate of reclassification will continue until virtually all the current 4,000 MSBS invalidity B pensioners ultimately become invalidity A pensioners.

Retrospective Invalidities – MSBS

6.37 Before setting the ultimate rate of invalidity exits from active service, it is important to also consider that, in any year, a number of the new invalidity pensions that commence are in respect of individuals that left the Defence Forces quite some time before the pension commenced, in some instances many years before. I term these pensions retrospective invalidities. A retrospective invalidity benefit commences if it is agreed that, with the benefit of hindsight, the individual should have originally exited the Defence Forces with an invalidity benefit. Where this occurs, the pension is deemed to have commenced on exit from the Defence Forces and the individual receives a lump sum comprising the back payment of the pension along with periodic instalments of the future pension entitlement.

6.38 Retrospective pensions have been a feature of the experience for many years, typically representing around 10 per cent of the total number of new MSBS invalidity pensions commencing each year. Between 2017 and 2020 there was an increase in the numbers of new MSBS retrospective invalidity pensions to around 25 per cent of the new MSBS invalidity pensions. Between 2020 and 2023, they have increased further to around 33 per cent of new invalidity pensioners. This is an increasing proportion of an increasing number of invalidity pensions. Table 6.4 below shows the progression of retrospective invalidity pensions across all schemes over recent years, including the total applications made.

Table 6.4: New retrospective Invalidity Pension Commencements

	2018/19	2019/20	2020/21	2021/22	2022/23
Applications	384	489	681	914	1,123
Accepted	227	336	511	656	428
Acceptance Rate	59%	69%	75%	72%	38%

6.39 The increase in the number of applications and acceptance rate is clear from the above table. While the lower number of acceptances for 2022–23 might suggest the number of these pensions is reducing, CSC advise that this reflects a backlog of claim assessments. With the increasing number of total invalidity applications from both active service and retrospective applications, CSC is unable to process all claim applications in a timely manner and are prioritising active service applications. If an acceptance rate of 70 per cent is applied to the 2022–23 applications, the likely number of accepted claims for that year increases to around 790, with a backlog of unprocessed claims made in 2022–23 being around 360.

6.40 Both CSC and Defence have pointed out the growing awareness of retrospective invalidities amongst the former ADF population, along with the influence and profile of advocates from the legal profession in encouraging applications.

6.41 In the 2020 report, it was assumed that there would be a total of 450 new retrospective MSBS invalidity pensions assumed for 2020–21, dropping by 50 every year after that until it reaches 0 in 2029–30. This represented a total of 2,250 preserved benefits at that time that would ultimately become retrospective invalidity pensions. It is likely that this total will have been exceeded in the first half of the 2023–24 financial year.

6.42 Figures 6.6, 6.7 and 6.8 below examine the number of MSBS associated invalidity pensions approved in respect of prior financial years. Year 1 in each case represents retrospective invalidity claims granted one year after the year of exit from the ADF. Effectively, these values represent the number of years over which backdated payments are made to these claimants. The final value for each line represents the claims approved in 2022–23, which has been adjusted to reflect the expected claim numbers without the claims assessment backlog issue mentioned in 6.37.

Figure 6.6: MSBS approved Retrospective Claims (exit years 2001–2009)

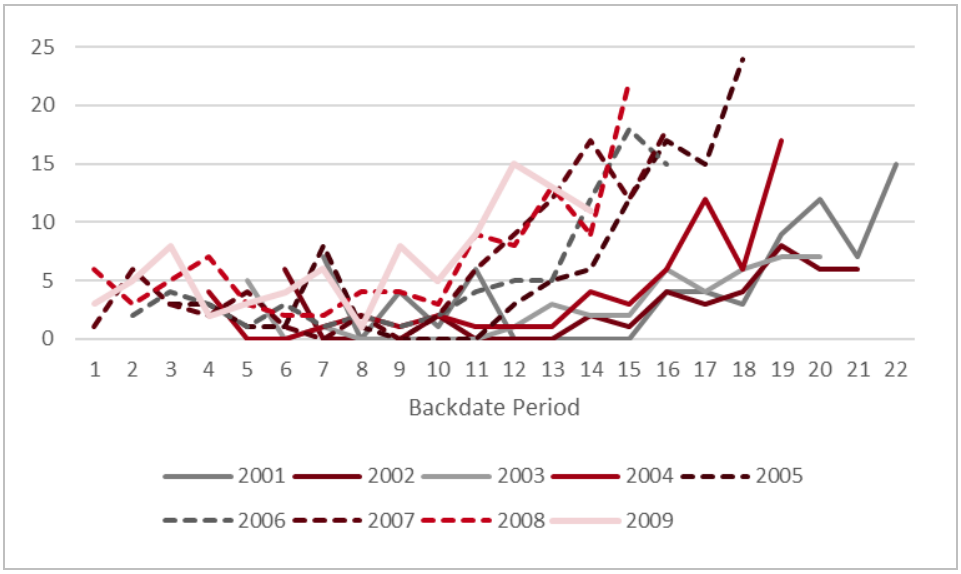


Figure 6.7: MSBS approved retrospective claims (exit years 2010–2017)

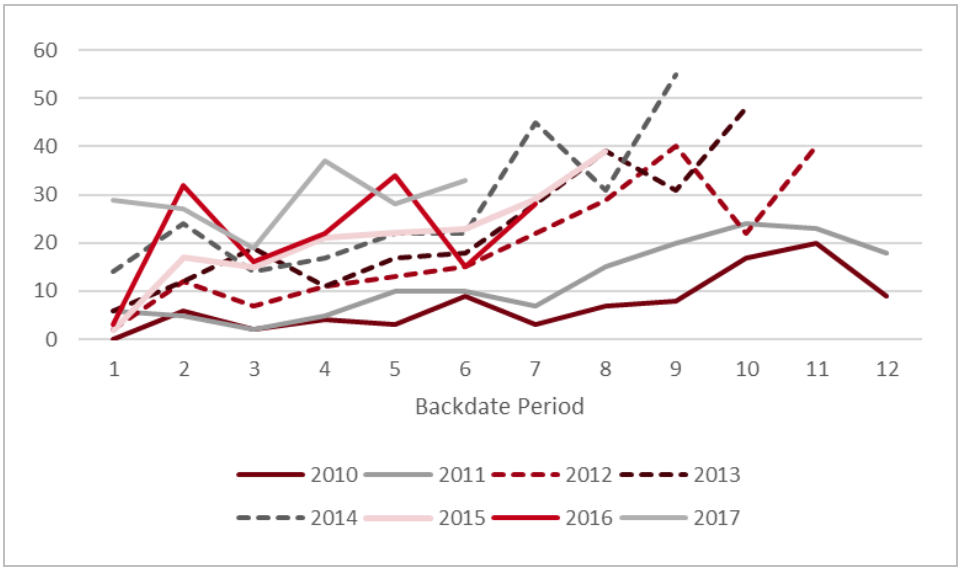
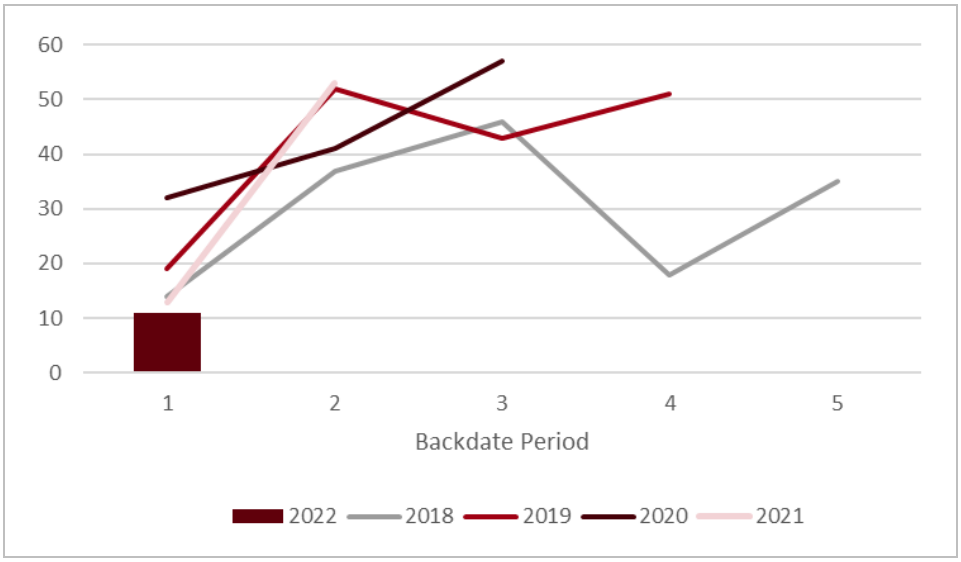


Figure 6.8: MSBS approved retrospective claims (exit years 2018–2022)



6.43 This data shows that there is ongoing growth in retrospective invalidity applications, and this is yet to peak. A closer look shows more pronounced spikes relating to exits in the mid-2000's and over the period 2012–14, periods where the ADF was more active in overseas deployments. There are also increases in respect of other service years, more likely as a result of the increased awareness of the current acceptance environment.

6.44 Figure 6.8 shows the experience for the more recent exit years where individuals exiting the ADF appear to be more likely to be aware of their rights to make a claim and are therefore more likely to make a retrospective invalidity claim relatively soon after exiting the ADF.

6.45 Given the above, I have assumed that the number of accepted retrospective invalidity claims will continue to increase before eventually reducing over a number of years. Based on observations from the Figures above and discussions with CSC and Defence, I have assumed that for the years 2017–18 to 2021–22, the peak in successful claim applications will occur 5 years after the exit year, with further claims being made over the following 6 years.

6.46 For earlier years, where there is a larger body of potential future claimants, I have assumed that the peak in successful claim applications will be reached in 2025, with a longer run-off of future claims until 2034. This results in approximately 5,000 further MSBS retrospective invalidity claims attributable to prior year exits.

6.47 Successful claim applications tend to grow in numbers over the first five years after exit before running off over time. The assumed run-off proportions of

successful claim applications six years after exit of the pre and post 2018 cohorts are set out in Figure 6.9, with future year successful claim applications expressed as a percentage of the 2023 successful applications. Figure 6.10 shows how, for selected years, these run-off proportions ultimately play out in relation to future retrospective claims.

Figure 6.9: Projected Retrospective Claims run off pattern

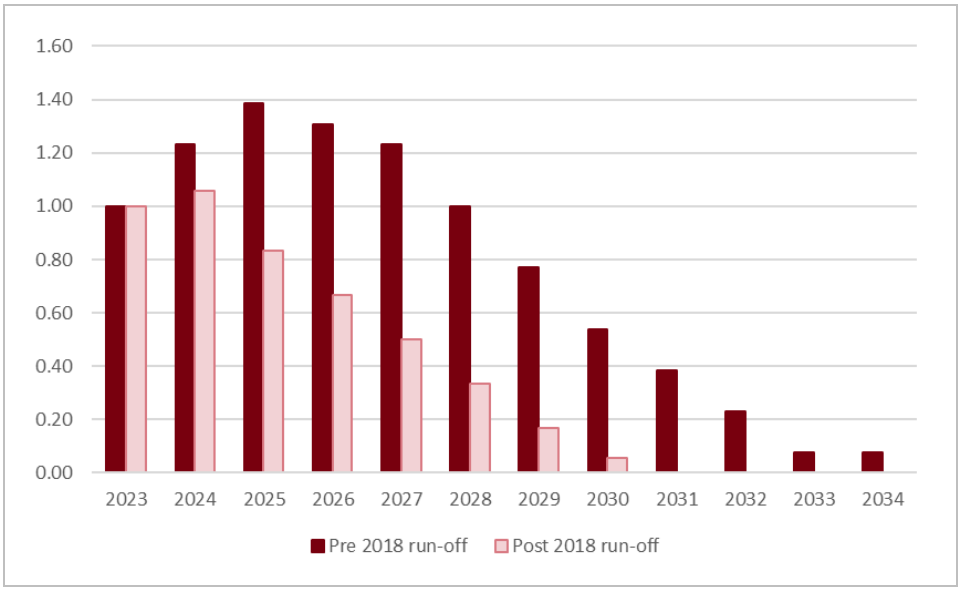
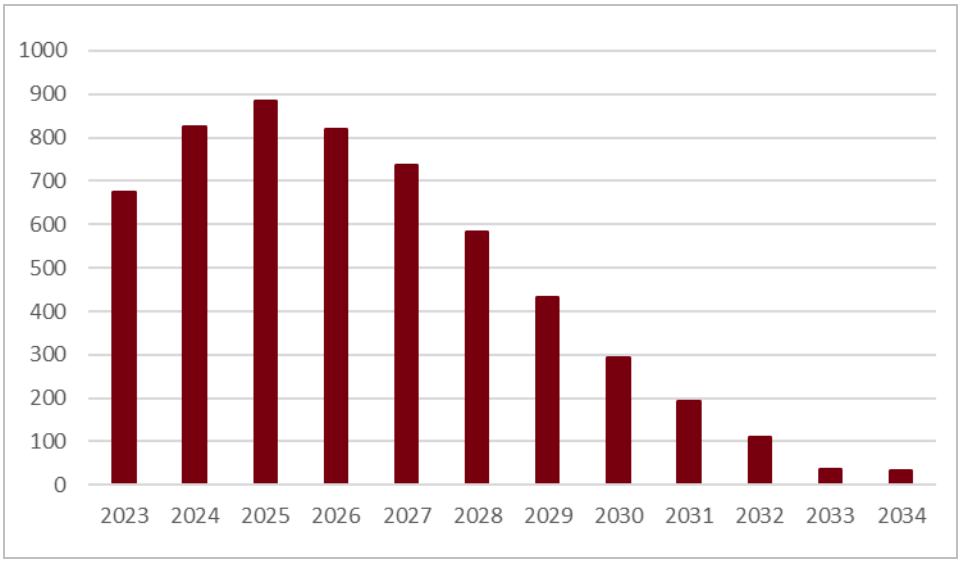


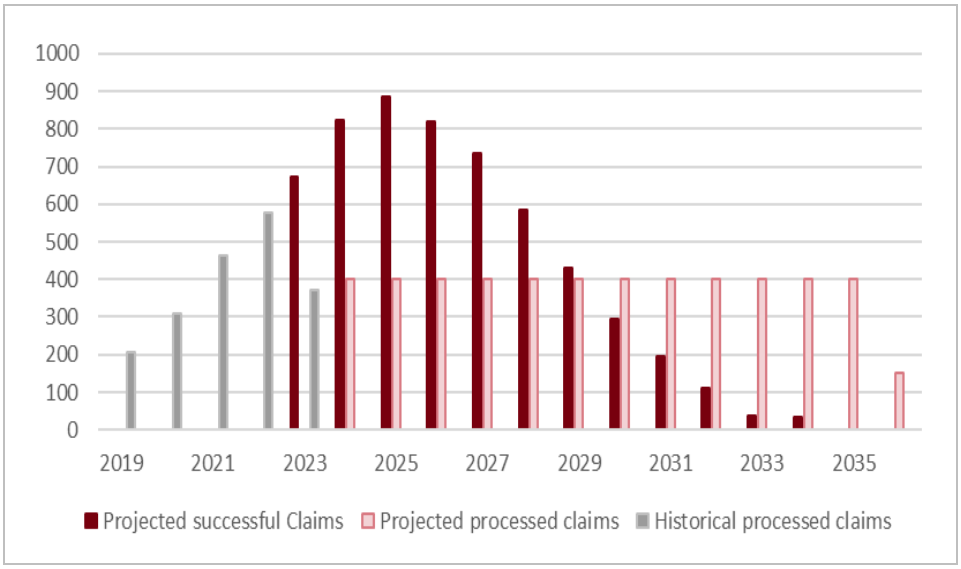
Figure 6.10: Projected total future Retrospective Claims for MSBS



6.48 The projected number of about 5,000 successful retrospective invalidity claims in respect of prior years of service needs to recognise that there are about 300 claims for MSBS in respect of the 2022–23 financial year that are yet to be assessed due to the claims assessment backlog at CSC. This backlog, if not addressed, can be expected to grow each year and push out the timing of when these future claims will actually be paid by a number of years.

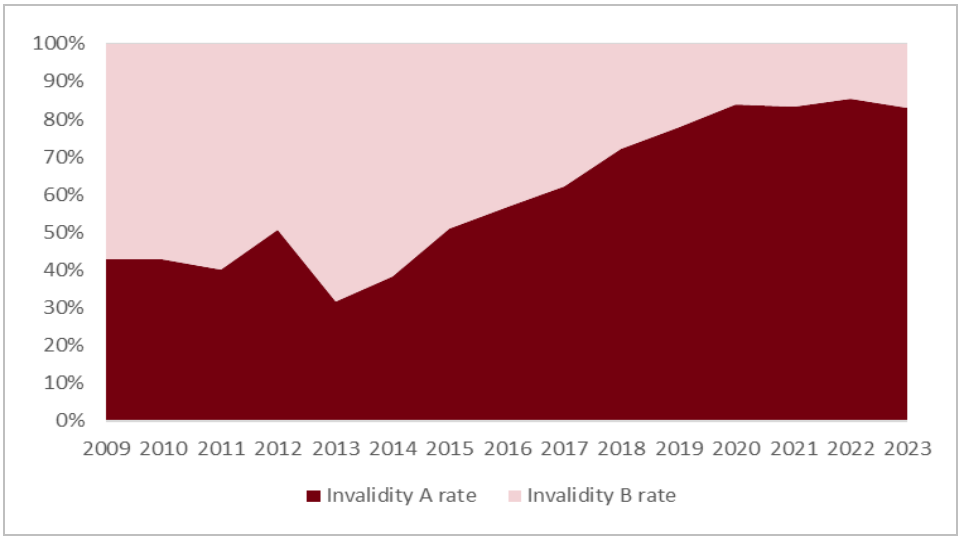
6.49 The impact of the backlog, along with historical retrospective claims is set out in Figure 6.11 below. This can be seen in the value for 2023, where the light grey bar represents the actual processed claims while the dark red bar represents the projected claims assuming no processing delays.

Figure 6.11: Projected MSBS retrospective claims with backlog



6.50 It is also informative to look at the proportion of retrospective invalidity claims that are the higher Invalidity A pensions. Figure 6.12 sets out the percentage of Invalidity A pensions of total retrospective invalidity pensions throughout the years. The retrospective invalidity A proportion has increased steadily since 2013 and has stabilised at around 85 per cent over the last 3 years.

Figure 6.12: Retrospective invalidity A pension proportion



6.51 In order to place a value on retrospective invalidity pensions in relation to prior periods of service, there are three key assumptions required which are effective at the date at which payments are backdated to, namely:

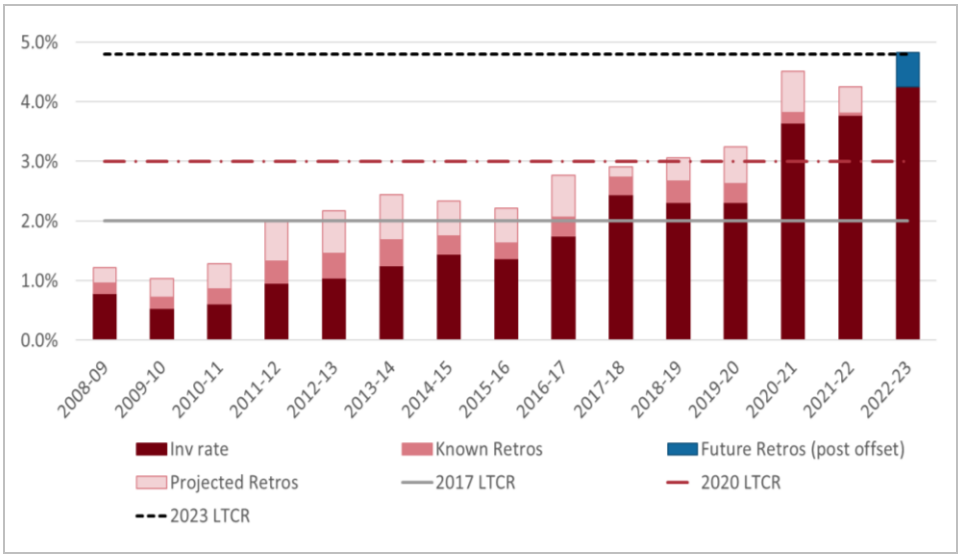
- the average age of the pensioner,
- the average ongoing pension payment, and
- the lump sum paid as a multiple of the ongoing pension.

These values are dependent on the backdate period and are set out in detail in Appendix D. The application of these assumptions results in liabilities of between $1.2 million and $1.7 million per claim.

Total Invalidities – MSBS

6.52 It is useful to return to Figure 6.1 and include both the rate of known retrospective invalidity pensioners and future assumed retrospective invalidity pensioners assigned to their year of exit from the ADF. Figure 6.13 provides this updated perspective, showing the total invalidity rate by year of exit arising from both immediate and retrospective claims.

Figure 6.13: MSBS invalidity rates (including retrospective claims)



6.53 Retrospective invalidity pensions can be expected to arise in respect of ADF exits in future years, as well as from ADF exits from prior years. The three-year average retrospective rate derived from the earlier analysis amounted to an adjustment of about 0.7 percentage points. For MSBS, this adjustment needs to be reduced to recognise that retrospective invalidity pensioners are derived from individuals who cease service and are assumed to take up a preserved benefit. As we are valuing this preserved benefit, to avoid double counting the assumed allowance for retrospective invalidities in respect of future years of exit from the ADF has been reduced to 0.5 percentage points. This is represented by the blue bar in Figure 6.13.

6.54 The combined rate of annual future MSBS invalidity exits (both immediate and retrospective) is assumed to be 4.8 per cent.

6.55 While I have referenced a single MSBS invalidity exit rate above for simplicity, it is worth noting that there are some differences in observed rates by years of service, with shorter service periods experiencing lower rates initially, likely reflecting the time taken before a condition develops, before the rate stabilises after about 8 years of service. Given that all MSBS contributors have at least 7 years of service, then using a relatively stable invalidity rate regardless of service period is reasonable. There is also a clear distinction between the rates for officers and other ranks, with much higher rates observed for other ranks.

Invalidity Exits from Active Service – ADF Cover

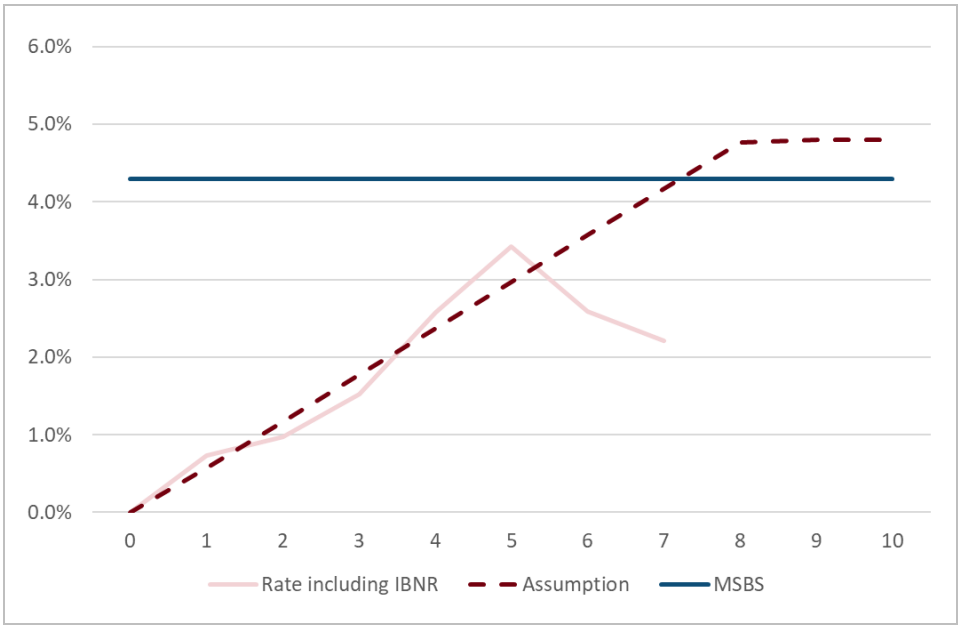
6.56 For the 2020 report there was limited experience for ADF Cover as it had only been in operation for four years and most of those covered by ADF Cover were new to the ADF. At that time, it was assumed that ADF Cover would ultimately experience the same level of invalidity exit rates as for MSBS. However, with the significant increase in MSBS experience and the observation that the ADF Cover experience generally does not include periods of overseas deployment, I have performed a detailed analysis of the ADF Cover invalidity experience for this report.

6.57 Continuing the focus on years of service to explain the growth in the MSBS invalidity rate, Figure 6.14 examines the invalidity rate for ADF Cover by years of ADF service, given that it is likely to take time before an invalidity claim develops. The greater the number of years of service an individual has, the more likely they are to ultimately develop a compensable condition.

6.58 This analysis also includes an allowance for future invalidity claims where an individual has suffered an injury, is currently being managed with the objective of having them return to normal duties, but who eventually leaves the workforce with an invalidity claim and associated pension. These IBNR (or Incurred But Not Reported) claims are assumed to follow a three year progression from when an incident occurs as follows:

- 50 per cent of individuals will leave service in the year in which the incident occurs,
- 30 per cent will leave in the year after the incident year, and
- 20 per cent will leave two years after the incident year.

Figure 6.14: ADF cover invalidity rate by year of service (excluding retrospective claims)



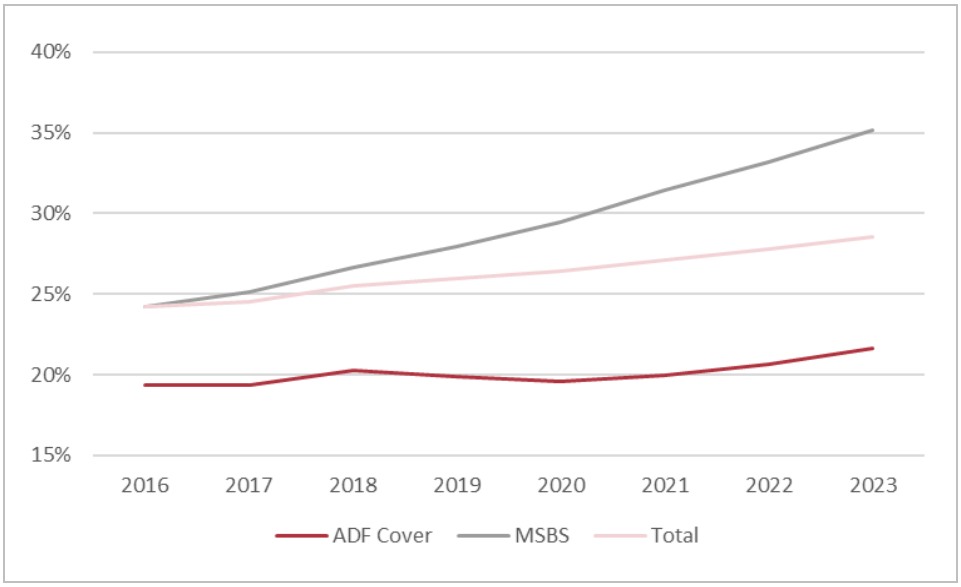
6.59 The data points after 6 and 7 years are unreliable given the small number of individuals who have been in ADF Cover for these periods of time.

6.60 The observation from Figure 6.14 is that the progression of claim development is trending towards that of MSBS, so that after a period of about 7 years of service, we are expecting that the rate for longer serving ADF Cover personnel will be similar to the average MSBS rate of 4.3 per cent (excluding retrospective invalidities).

6.61 However, while the intention is to assume that ADF Cover personnel will ultimately experience the same level of invalidities as MSBS personnel for the same length of service, another adjustment needs to be made to take into account the different mix of officer and other ranks within the two groups.

6.62 Invalidity rates for officers are significantly lower than the rates for other ranks. This means that over time, the closed MSBS personnel group is made up of a higher proportion of officers and therefore can expect to have a progressively lower average rate of invalidity. For the growing membership of ADF Cover, this growth in the proportion of officers is also evident, but from a much lower starting point. Figure 6.15 shows the progressive officer proportions of each scheme and the combined schemes between 2016 and 2023.

Figure 6.15: Officer proportions



6.63 The difference in the proportion of officers in the two schemes, means that if the same invalidity rates for longer serving officers and other ranks are applied to both schemes, then the overall invalidity exit rate for ADF Cover will be higher than that of MSBS as it has a lower proportion of officers. The equivalent overall invalidity rate for longer serving ADF Cover personnel is 4.8 per cent compared with 4.3 per cent for MSBS (excluding retrospective invalidities).

6.64 It should also be noted that the annual invalidity exit rate for those in ADF Cover will ultimately be less than the 4.8 per cent discussed above. This is because individuals in ADF Cover can have short lengths of service where the invalidity exit rates are lower, whereas virtually all individuals in MSBS now have 7 or more years of service.

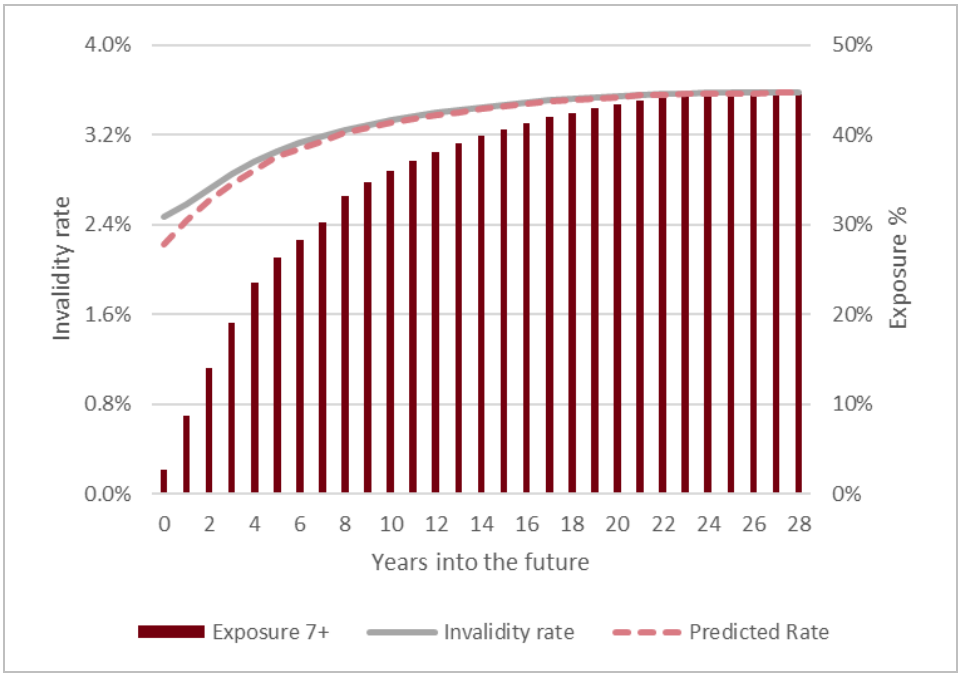
6.65 Figure 6.16 sets out the projected average invalidity rate for ADF Cover based on the growing workforce shown in Figure 4.2. This rate includes an additional 0.5 percentage point allowance for retrospective invalidities. This average annual rate is expected to stabilise at about 3.6 per cent as the workforce reaches a stable average length of service of about 8 years.

6.66 A similar approach to that adopted in Figure 6.4 has been applied to simulate the projected invalidity rate using representative invalidity exit rates and the proportions of contributors within the same three broad service period groupings. Again, a relatively close match is observed.

6.67 The representative rates are:

- Zero to three years of service: 1.60 per cent
- Four to six years of service: 3.25 per cent
- Seven or more years of service: 5.30 per cent

Figure 6.16: ADF cover projected invalidity rate



6.68 In line with MSBS, I have assumed that 99 per cent of future invalidity exits from ADF Cover will be Invalidity A pensions.

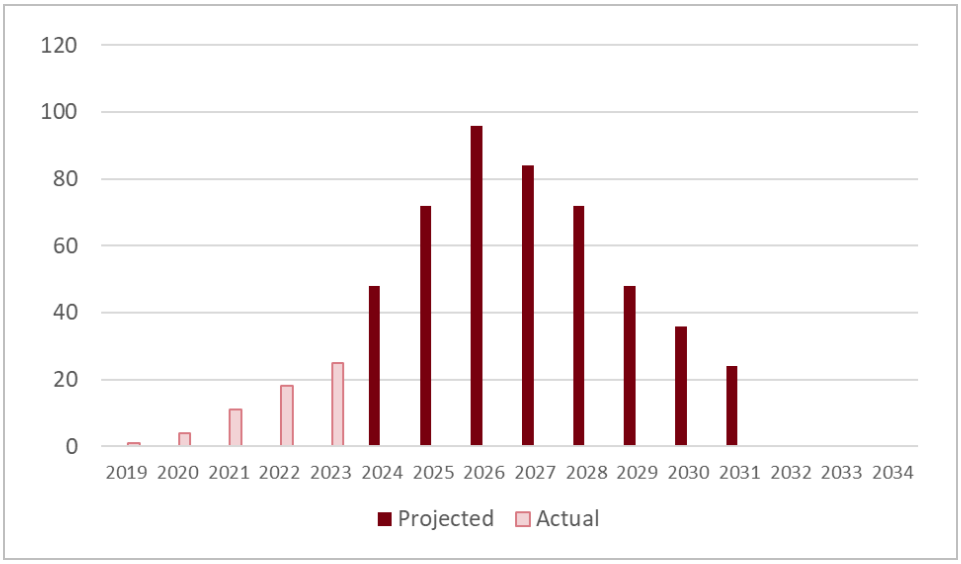
Retrospective Exits – ADF Cover

6.69 Given the short period of time that ADF Cover has been in operation, there have been few retrospective invalidity claims to date. 25 such claims were accepted for the year to 30 June 2023. However, while it is tempting to assume that such claims will not reach the expected levels of MSBS, I have chosen to retain the same allowance as for MSBS, but with the concession that the rate after the Preserved benefit offset is used (even though there is no such offset for ADF Cover). This allowance will continue to be monitored over coming years.

6.70 Figure 6.17 sets out the expected numbers of retrospective claims yet to come forward for service up to 30 June 2023, assuming that the MSBS retrospective invalidity rate is translated to ADF Cover. Claims are arbitrarily spread out over the next 8 years and ignore the current CSC claim backlog.

6.71 Analysis of the historical successful ADF Cover retrospective invalidity claims shows that about 70 per cent were Invalidity A claims, well below the current rate of 97% observed for MSBS.

Figure 6.17: ADF cover actual and projected retrospective claims



Exits from Active Service – DFDRB

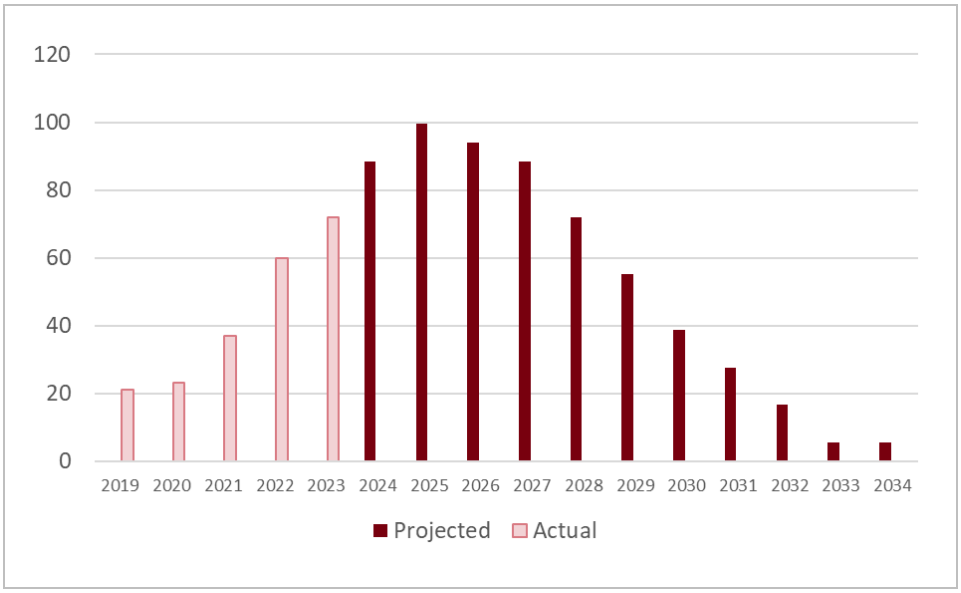
6.72 The invalidity experience for DFRDB is broadly in line with that observed for MSBS. This also represents a material increase from the rates adopted for the 2020 report, but as there are only about 500 generally long serving active contributors in DFRDB, the financial impact is immaterial.

6.73 Consistent with the 2020 report, I have assumed that all future DFRDB invalidity claims will be invalidity A claims. While there has been some recent evidence of historical invalidity B claims being upgraded to invalidity A, it is at a lower rate than that observed for MSBS and so I have not made an explicit allowance for this for DFRDB.

Retrospective Invalidity Exits – DFDRB

6.74 The growth in retrospective invalidity exits observed for MSBS is also observed in DFRDB, albeit with lower volumes. If the run-off associated with pre 2018 exit years is applied to DFRDB, then around 600 further retrospective DFRDB exits can be expected. Figure 6.18 sets out the expected distribution of these payments, ignoring the impact of the CSC processing backlog.

Figure 6.18: DFRDB actual and projected retrospective claims



6.75 Analysis of the historical DFRDB retrospective invalidity claims shows that about 85 per cent were Invalidity A claims.

6.76 There is considerable uncertainty about future invalidity exit rates for all of the Schemes. While I believe the assumptions adopted for the current report are not unreasonable, there is a risk that the numbers of new invalidity pensions commencing each year will continue to increase. Given this uncertainty, I have included a scenario in the sensitivity analysis in Appendix F which allows for the ongoing level of invalidity exits rates to be 40 per cent higher than the assumed rates.

ADF Cover – Gender and Arm of Service

6.77 For this report it was informative to consider whether gender and arm of service (Army, Navy or RAAF) had any impact on the rate of invalidity exit. I have focussed on the direct in-service invalidity exits from ADF Cover only as these were considered to be more representative of the current environment within the ADF. However, it is also important to note that the volume of data for ADF Cover is still emerging and any observations made at this stage may be influenced by a relatively small sample size. In light of this, analysis on gendered invalidity rates for MSBS is planned.

6.78 Broadly, the analysis showed that:

- female invalidity rates were initially more than twice that of male invalidity rates, with this ratio now more settled at about 40 per cent higher than the male rates, and
- Army exit rates are about 40 per cent higher than either Navy or RAAF. Given the more physical nature of Army life, a higher exit rate is not unexpected. However, as it is clear that an increasing proportion of claims are related to mental health, this “physical” variation may be becoming less apparent over time.

6.79 The average length of service for males and females in each of the relevant years and arms of service was also examined. This showed that while females within the Navy and RAAF had lower average service periods, the difference was not likely to be material enough to modify the observations above. The gender-based service periods for Army were very similar.

6.80 While we have investigated invalidity exit rates by gender and arm of service, they have not been applied to liability projections for this report. However, if there is an expectation that there will be a change in the gender and arm of service mix of the ADF of the future, more nuanced exit rates may be required for future reports.

ADF Cover – Change in criteria for recruits

6.81 The ADF has announced changes in the acceptance criteria for future recruits, including a relaxation of health criteria that currently result in automatic rejection and the acceptance of permanent residents from specific countries. This report makes no allowance for any potential impact that the revised standards may have on future invalidity rates.

Section 7: Other experience assumptions

Mortality of contributors

7.1 The assumed contributor mortality rates are unchanged from those used for the 2020 report. The assumed rates are higher than those experienced over the last three years. This allows for a margin to cover the possibility of serious accidents which result in multiple deaths.

Resignation

7.2 Resignation assumptions have been made by scheme and duration of service.

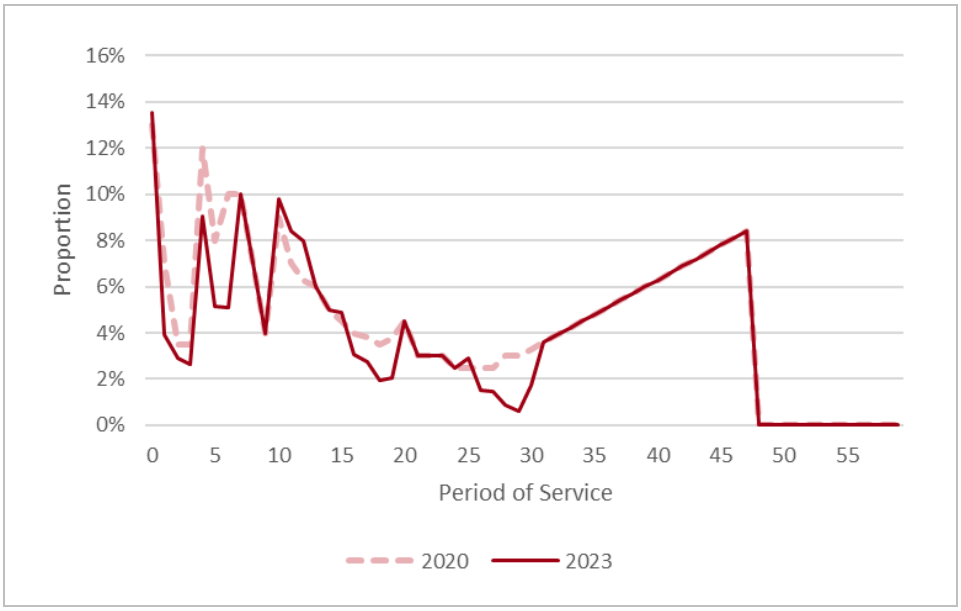
7.3 DFRDB resignation rates in the past have been strongly influenced by the scheme design, which sees a minimal benefit paid on resignation prior to completion of 20 years' service and a lifetime pension paid once that threshold is achieved. With the closure of the DFRDB in 1991, all contributory DFRDB members now have the 20 years of service needed to qualify for a pension benefit on resignation.

7.4 Given that the numbers of DFRDB resignations were broadly in line with expectations, the officer and other rank resignation rates adopted for the 2020 report were retained for this report.

7.5 Exit rates for MSBS other ranks were similar to those assumed in the 2020 Report but with variations at five years of service and between 15 and 20 years of service and after 25 years of service. As there are very few MSBS members with short periods of service, ADF Cover resignation experience was used for these periods. Figure 7.1 shows the rates used in the 2020 Report along with the adjustments made for this report. The larger spike after 4 years of service is predominantly a reflection of Army experience.

7.6 The differences between male and female experience were not found to be significant enough to justify setting separate assumptions. As such, exit rates for MSBS other ranks have been adopted which apply to both genders.

Figure 7.1: Other rank resignation rates



7.7 Exit rates for MSBS officers were also broadly similar to the previous experience with lower rates observed at similar durations as were observed for other ranks. The rates for the current report were generally reduced to reflect the observed experience. As with the other ranks, the differences between male and female experience were not found to be significant enough to justify setting separate assumptions. As such, exit rates for MSBS officers have been adopted which apply to both genders.

7.8 The MSBS resignation rates have been also adopted for ADF Cover recognising that there are few ADF Cover personnel with longer periods of service. Effectively, combined ADF Cover and MSBS resignation experience has been adopted and applied to both schemes.

Retirement

7.9 The compulsory retirement age for most ADF personnel was effectively increased from age 55 to age 60 from 1 July 2007. Prior to the change to the compulsory retirement ages, only a very small group of ADF personnel served beyond age 55. In the 2011 report, it was noted that there was a growing group of contributors aged 55 or more and that the assumption of universal exit at age 55 was no longer tenable. At the same time, there was minimal experience on actual exit rates for this group and the somewhat arbitrary assumption that the exits of those still in service at age 55 would be evenly spread over the period to age 60 was adopted. Individuals over age 60 at the valuation date were assumed to immediately retire.

7.10 The experience since 2011 has shown that only a relatively modest proportion of contributing individuals retire at age 55, with most delaying their retirement until around their early 60s and beyond. This is despite this being higher than the compulsory retirement age of age 60 for virtually all ADF personnel. A number of individuals are now remaining in service past age 65. In response to this, the ages of retirement have been increased as shown in Figure 7.2 below.

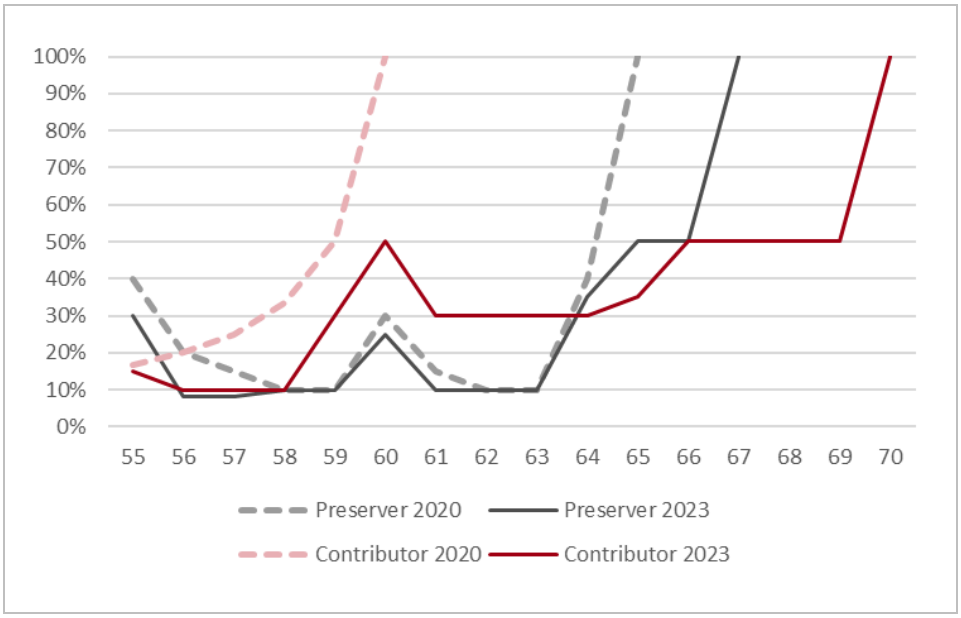
7.11 For preserved members, up to the 2014 LTCR it was assumed that all preserved benefits in the MSBS would be taken when first eligible, i.e. at age 55 or immediately if the individual was already over age 55.

7.12 For the 2017 report, it was found that most preserved members exiting over the period from 1 July 2014 to 30 June 2017 took their benefits at ages 55 and 56, but there was a tail of members taking their benefits for many years after that. It was then decided to create a table of retirement rates for current preserved members from ages 55 to 65, with most of the exits being at ages 55 and 56. Serving members who were projected to exit with a preserved benefit were still assumed to retire at age 55.

7.13 Since then, retirement rates for preserved members have been updated at successive reports to recognise that actual retirement rates have been lower at most ages prior to age 65, culminating in the adoption of retirement rates beyond age 65. The adopted retirement rates for preserved members are also shown in Figure 7.2 and are calculated using a money weighted basis rather than based on the number of exits at each age.

7.14 All else being equal, increasing the assumed retirement age to reflect the experience has the effect of reducing the unfunded liability. Should this trend of retiring at older ages reverse in the future, towards younger retirement ages, that change would be reflected in future reports and would increase the unfunded liability.

Figure 7.2: Retirement rates (contributors and preserved)



Retrenchment and redundancy

7.15 No allowance has been made for the effect of retrenchments and redundancies as their occurrence is unpredictable and impossible to model with any confidence. Past experience indicates that exit by this means from the ADF is uncommon. Generally, the effect of retrenchments and redundancies is to advance outlays.

Promotional increases in salaries

7.16 For other ranks in each of ADF Cover, MSBS and DFRDB, promotional increases appear to be related to period of service. As indicated in Figure 4.7, other ranks in the period prior to the 2020 report had starting salaries higher than the long-term trend. As such, the subsequent promotional increase experience was subdued. Therefore, the promotional increases for other ranks adopted for the 2020 report were higher than the subsequent experience. As starting salaries have returned to the longer-term trend, I have assumed a return to the traditional promotional increase assumptions from the 2020 report for the current report.

7.17 For cadets and officers, promotional increases appear to be related to both period of service and the age at joining. The level of promotional increases observed was not dissimilar to the 2020 report and the promotional increases assumed have been retained for the current report.

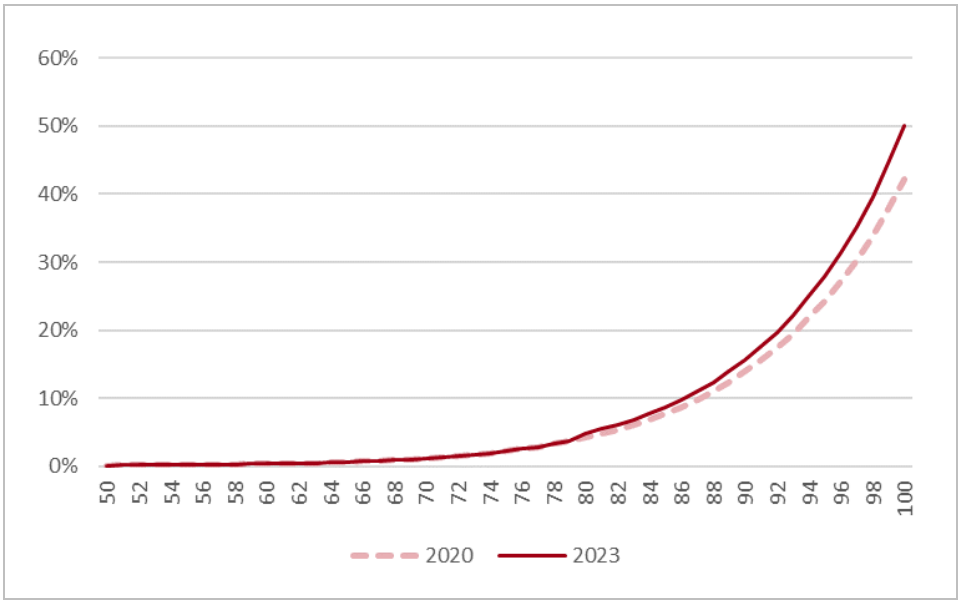
Mortality of pensioners

7.18 The combined experience of DFRB, DFRDB and MSBS has been used to set the pensioner mortality assumptions.

7.19 The numbers of deaths of age and reversionary pensioners (that is, pensioners other than invalid pensioners) were above what was expected based on the assumptions adopted in the 2020 report after allowing for mortality improvement at the assumed rates over the intervening period.

7.20 Based on the observed experience over the four years to 30 June 2023, pensioner mortality rates for both males and females have been increased for ages over 70, compared to the adjusted 2020 report rates. Using this period of data means the mortality rates include experience during the COVID-19 pandemic. During COVID-19, mortality was initially lower in 2020, but was then higher in 2022 and 2023, when restrictions were eased. Other than reflecting the average and offsetting experience over these four years in the assumptions, I have not made any further assumptions regarding post COVID-19 expected experience. Figure 7.3 below compares the revised assumptions with the previous rates for male retirement pensioners. A similar relative movement has occurred for female retirement pensioners.

Figure 7.3: Male retirement pensioner mortality



7.21 The rates of mortality for invalidity pensioners have moved similarly to that of retirement pensioners, resulting in an increase in the assumed mortality rates from age 70 relative to the 2020 report.

7.22 It is conceivable that MSBS pensioners will have lower mortality rates than DFRB or DFRDB pensioners of the same age. This is because most MSBS members have a choice between pension and lump sum on retirement whereas members of the two closed schemes do not. The ability to choose the form of benefit means that those with poorer life expectancies might be expected to opt for the lump sum and, conversely, those who consider themselves healthier are more likely to choose the pension option. In this context, it is relevant to note that, to date, a high proportion of MSBS retirees have chosen to take at least part of their benefit as a pension, and that proportion has continued to increase. This suggests that the impact on future MSBS pensioner mortality rates due to MSBS retirees selecting a full lump sum is likely to be small. Thus, for the time being, the same assumptions are used across all schemes.

7.23 It has been noted earlier in this report, that there have been substantial increases in the number of invalidity pension commencements in recent years, partly due to the increased recognition of mental health conditions. It is conceivable that the mortality of pensioners with mental health conditions will differ from that of pensioners where invalidity resulted from a physical impairment. If there is such a difference, it will likely be some time before it becomes apparent in the experience.

7.24 Allowances for future improvements in mortality rates of age and reversionary pensioners have been made in accordance with the trend in improvements shown in the series of Australian Life Tables published over a period of 40 years to 2015–17. This represents no change from the approach adopted for the 2020 report. No allowance was made for improvement in the mortality of invalidity pensioners.

Proportions married and age differences

7.25 Analysis of experience suggests that the assumptions on age differences between spouses should be altered from those adopted in the 2020 report. The observed changes showed a reduction in age difference for spouse pensioners, with the reduction being higher for younger spouses. This appears to align with the trend for first marriages within the general population, reflecting the generally higher age at which individuals now get married for the first time and the correspondingly lower age difference.

7.26 This has translated into something of a generational variation that has been observed within the different schemes as set out below:

- **DFRB:** no changes (males four years older than their spouses and females four years younger than their spouses),
- **DFRDB:** males three years older than their spouses, down from four years. Females remain three years younger than their spouses.
- **MSBS:** males three years older than their spouses, unchanged. Females now two years younger than their spouses, down from four years.
- **ADF Cover:** males two years older than their spouses, down from three years. Females two years younger than their spouses, down from four years.

7.27 The data on the proportions married suggested that the assumptions for males should be reduced at ages up to age 40, increased after age 65 and reduced after age 85. For females, reductions have been applied up to age 35, with increases at all other ages. Figures 7.4 and 7.5 show the respective updated assumptions.

Figure 7.4: Male proportion married

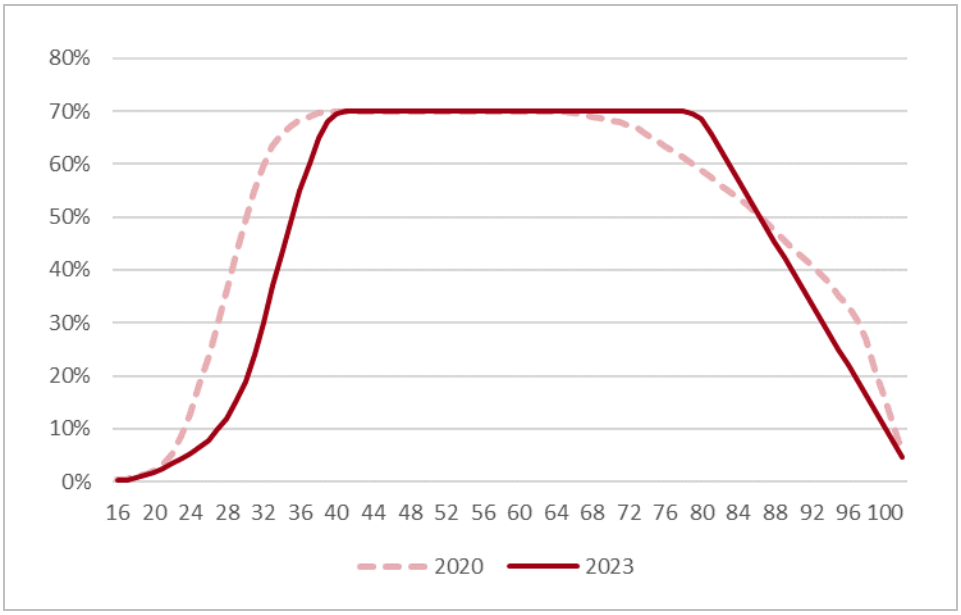
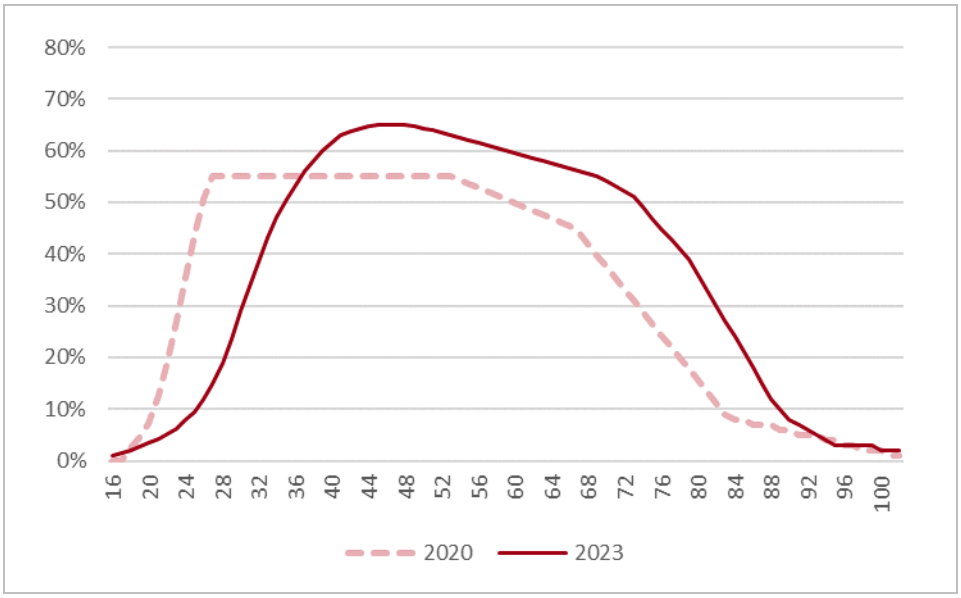


Figure 7.5: Female proportion married



7.28 At the time of preparing the 2020 report, based on limited experience, it appeared that the proportions married on the death of MSBS male invalidity pensioners were much lower than for other types of pensioners. The proportions assumed to be married were reduced and assumed to be the same as those assumed for the proportion of females assumed to be married. The experience since the 2020 report appears to be similar to that assumed for the 2020 report and this assumption has been retained.

Child pensions

7.29 For the military schemes, an allowance for pensions for children and orphans is made in the valuation via an adjustment to the spouse pension valuation. The allowances for pensions for children and orphans have been updated for this report based on recent experience.

7.30 For DFRDB contributors, the retirement reversionary spouse loading to account for child pensions was reduced from 0.5 per cent to nil, the invalidity reversionary spouse loading was reduced from 3 per cent to 2 per cent, and the spouse death in service loading was reduced from 5 per cent to 4 per cent.

7.31 For DFRDB pensions in the course of payment, based on known children's pensions, the retirement reversionary spouse loading was retained at zero, the invalidity reversionary spouse loading was reduced from 2 per cent to 1 per cent, and the spouse pension in payment loading was reduced from 1 per cent to 0.5 per cent.

7.32 For MSBS contributors and ADF personnel in ADF Cover, the retirement reversionary spouse loading was retained at 1 per cent, the invalidity reversionary spouse loading was decreased from 7.5 per cent to 7 per cent, and the spouse death in service loading was decreased from 10 per cent to 9 per cent.

7.33 For MSBS and ADF Cover pensions in payment, the retirement reversionary spouse loading was retained at zero, the invalidity reversionary spouse loading was increased from 5 per cent to 5.5 per cent, and the spouse pension in payment loading was reduced from 7.5 per cent to 3 per cent.

7.34 For MSBS preserved members, the retirement reversionary spouse loading was retained at 1 per cent.

7.35 As DFRB only covers those who were in receipt of a pension in 1973 and their surviving spouses, most pensioners are of advanced ages and it is unlikely that many pensions would be payable in respect of children and orphans. Accordingly, no allowance has been made for pensions for children and orphans in the valuation of DFRB.

Pension option in the MSBS

7.36 Members retiring from the MSBS (other than on the grounds of invalidity) have the option to convert all or part of their employer financed lump sum to a pension. This assumption has an impact on the reported costs of the MSBS as the actuarial value of the pension is significantly greater than the value of the lump sum.

7.37 The analysis of the experience over many Long-Term Cost Reports indicates a trend towards an increased take up of the pension option. This trend has moderated somewhat in the inter valuation experience for this report compared to the equivalent experience for the 2020 report.

7.38 An analysis was also done of pension take up rates by size of the employer accounts. This found that pension take up rates varied by the size of the employer account with those with larger employer accounts much more likely to take up the pension option. Those with small employer accounts, typically under $50,000, were more likely to take the benefit as a lump sum. It also found that officers were more likely to take up the pension option compared to other ranks where both had similar sized employer accounts.

7.39 For those that retired directly from service, there were very high take-up rates of the pension option. This should not be a surprise as these individuals are likely to have a significant length of service and have a sizeable lump sum member account that would also be payable. The lump sum member account would provide readily accessible funds in retirement, meaning that the lack of flexibility and accessibility with the pension would not be perceived as a drawback. The take-up rates for officers were similar to the take-up rates for other ranks. Based on the experience, I have reduced the take up rate for direct retirements for officers from 100 per cent for the 2020 report to 95 per cent and have retained the 95 per cent assumption adopted for the 2020 report for other ranks. The equivalent assumptions for the 2017 report were that there would be a 95 per cent pension take-up rate for direct retirements for officers and 85 per cent for other ranks.

7.40 For current preserved member retirements, I have similarly reduced the pension take up rate for officers from the 90 per cent value used for the 2020 Report to 85 per cent for this report, while retaining the 85 per cent assumption for other ranks. This lower rate for preserved member retirements reflects the lower average size of employer accounts of these members relative to direct retirements from the ADF. The equivalent assumptions for the 2017 report were that there would be an 85 per cent pension take-up rate for officers and 65 per cent for other ranks.

7.41 For those current serving members who are projected to exit with a preserved benefit and then retire sometime later, I have assumed the same pension take up rates as for current preserved members that were used for the 2020 report. The assumed pension take-up rates are therefore 85 per cent for both officers and other ranks. The equivalent assumptions for the 2017 report were that there would be 90 per cent pension take-up rate for officers and 80 per cent for other ranks.

7.42 Where a member dies in service, a surviving spouse may choose to take all or part of the employer account benefit in pension form. It had been assumed that pension take-up rates are 85 per cent for spouses of officers and 85 per cent for spouses of other ranks.

Commutation option in the DFRDB

7.43 Members retiring from the DFRDB (other than on the grounds of invalidity A or B) have the option to convert part of their pension to a lump sum. Experience over the last two decades suggests that most members choose to take the maximum allowable lump sum. The conversion factors generally provide for a lump sum which is greater than the actuarial value of the forgone pension at most ages. Accordingly, it has been assumed that all retiring members commute their pension to the maximum extent permissible.

MSBS associate accounts

7.44 Following a Family Law superannuation split for a non-pensioner member of the DFRDB or the MSBS, associate accounts are set up for the non-member spouse in the MSBS. The benefit provided for the non-member spouse is an accumulation lump sum that is payable on the non-member spouse satisfying a release provision under the *Superannuation Industry (Supervision) Act 1993*.

7.45 A non-member spouse can have two associate accounts. The Associate A account is a fully funded accumulation account. As it is fully funded, there are no unfunded cash flows or liabilities associated with this account. The Associate B account is an unfunded accumulation account. Interest is added to this account at a rate derived from the yields on Commonwealth bonds. For projection purposes, it is assumed that the yield on Commonwealth bonds will be 5 per cent per annum. To derive the cash expenditure for these accounts, it is assumed that the account will be paid out when the non-member spouse attains age 60 or be paid out immediately if the non-member spouse were over age 60 at 30 June 2023.

Changes to future superannuation guarantee contribution rates

7.46 The current SG rate of 11 per cent for 2023–24 is legislated to increase to 12 per cent over the period from 1 July 2024 to 1 July 2025. The cashflow projections in the current report have taken this into account.

Taxation

7.47 The DFRDB, DFRB and ADF Cover are entirely unfunded. They are untaxed schemes and hence no tax is levied on the schemes. The current valuation for the DFRDB assumes that the full Commonwealth Bond rate (without any reduction for notional investment tax) will be credited to the notional productivity benefit payable in accordance with the Determination made under the Defence Act 1903. For this valuation, the interest rate credited is assumed to be the same as the valuation interest rate, that is, 2.5 per cent per annum in excess of the CPI assumption.

7.48 In calculating the accumulation of productivity contributions for MSBS, allowance has been made for the 15 per cent contributions tax payable on employer contributions made to the MSBS Fund. Investment earnings of the Fund are also taxable at 15 per cent. For this valuation, the after tax return on Fund assets is assumed to be the same as the valuation interest rate, that is, 2.5 per cent per annum in excess of the CPI assumption.

Superannuation surcharge

7.49 The superannuation surcharge was a tax on notional employer superannuation contributions in respect of those with high incomes. The tax was assessed on a year-by-year basis but for unfunded schemes, such as the DFRDB and the MSBS, does not need to be paid to the ATO until a benefit is payable. The tax commenced in 1996 and was abolished from 1 July 2005 but those individuals who incurred a surcharge liability and have not yet taken their benefit will, for the most part, still have a surcharge debt account. When the benefit becomes payable, the actual benefit paid to the individual is reduced to take account of the superannuation surcharge amount payable to the ATO by the scheme. I have assumed that the schemes' liability to pay the superannuation surcharge to the ATO will be offset by the value of the benefit reductions resulting from the payment to the ATO. No specific allowances have thus been made in this report for the effects of the superannuation surcharge.

Division 293 tax

7.50 The Division 293 tax was introduced from 1 July 2012. The Division 293 tax applies to individuals whose income for Division 293 purposes is greater than $250,000 and imposes an additional 15 per cent tax on the employer's notional superannuation contributions for the individual (or the component thereof which results in the income for Division 293 purposes exceeding $250,000 if less).

7.51 In a similar manner to the superannuation surcharge, members of defined benefit superannuation funds are eligible to defer their Division 293 tax liabilities until benefits become payable.

7.52 As with the superannuation surcharge, I have assumed that the schemes' liability to pay the Division 293 tax liabilities to the ATO on behalf of the individual tax payer will be offset by the value of the benefit reductions resulting from the payment to the ATO. No specific allowances have thus been made in this report for the effects of the Division 293 tax.

Division 296 tax

7.53 Division 296 tax is proposed to be introduced from 1 July 2025. The Division 296 tax applies to individuals whose total superannuation balances exceed an unindexed value of $3 million. The proposed basis used to determine the superannuation balance for each Scheme is based on a Family Law valuation methodology.

7.54 In a similar manner to the superannuation surcharge and Division 293 tax, members of defined benefit superannuation funds are eligible to defer their Division 296 tax liabilities until benefits become payable. As such, no specific allowances have thus been made in this report for the effects of the proposed Division 296 tax.

Early release of preserved benefits in the MSBS

7.55 Early release of preserved benefits in the MSBS is permitted on the basis of disablement or hardship. No allowance has been made for early release of preserved benefits.

Conflict situations

7.56 At any one point in time, the bulk of personnel are not on deployment, but a number are likely to spend some time overseas involved in a conflict situation. The long-term costs reported here implicitly assume that average future levels of ADF deployment will not be unusually high. If levels of deployment in a war or warlike situations were to significantly increase, the assumptions adopted here may not hold. In particular, death and invalidity rates could be higher, as could ADF personnel numbers.

Section 8: Impact of assumption changes on unfunded liability

8.1 Sections 5, 6 and 7 set out changes in the assumptions adopted for this report. This section is intended to provide an indication of the relative and overall impact of those changes on the unfunded liability as at 30 June 2023 along with some case studies used to rationalise these changes.

8.2 A summary of the changes is set out below in Table 8.1, noting that not all changes were applied to all Schemes or subgroups within each Scheme. Appendix E sets out for each assumption change, the affected subgroup and Scheme, along with the dollar impact of the change on the unfunded liability at 30 June 2023.

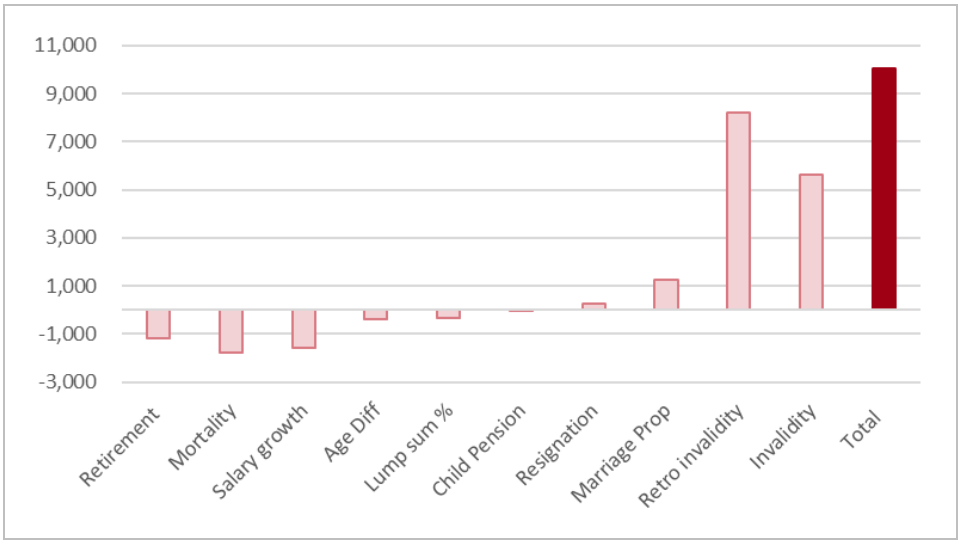
Table 8.1: Summary of assumption change impact

Assumption Change
Marriage proportion (lower at early ages and higher at older ages)
Spouse age difference (smaller for newer schemes)
Pensioner mortality (higher from age 85)
Retirement rate (deferred beyond age 60 for contributors and age 65 for preservers)
Lump sum take up for MSBS (5 percentage points lower)
Resignation (lower)
Invalidity rate (increased by 60%)
Invalidity A% (increased to 99%)
Invalidity Reclassification (all invalidity B pensioners to become invalidity A)
Retrospective Invalidities (higher for MSBS, introduced for DFRDB and ADF Cover)
Children's pension loading (lower)
Economic (general salary growth reduced from 4% to 3.7% per annum)

8.3 The overall impact of the changes in assumptions amounted to $10.027 billion, with the impact of the assumption changes on the unfunded liability varying widely, depending on the relative size of the change, the demographic profile of the sub-group and the benefit designs of the Schemes.

8.4 Figure 8.1 provides another perspective as to which assumption changes had the largest impact on the total unfunded liability. This information has provided guidance as to what are the most appropriate assumptions to consider for the Sensitivity Analysis in Appendix F.

Figure 8.1: Assumption change impact ($m)



8.5 The most significant assumption change relates to retrospective invalidity claims. While this represents an $8.2 billion increase relative to the levels assumed for the 2020 report, increases in assumptions concerning retrospective invalidities have been progressively introduced into liability calculations for subsequent financial statements and budget reporting since the 2020 report. The additional allowance above that adopted for the 2022 financial statements is about $4.8 billion.

8.6 Similarly, of the $5.6 billion increase due to higher invalidity rate and reclassifications, $1.1 billion on this was allowed for in the 2022 financial statements.

8.7 The three largest sub-groups by unfunded liability make up 84 per cent of the overall unfunded liability. The Figures below provide an indication of the size and direction of each assumption change for these sub-groups.

Figure 8.2: MSBS contributors ($m)

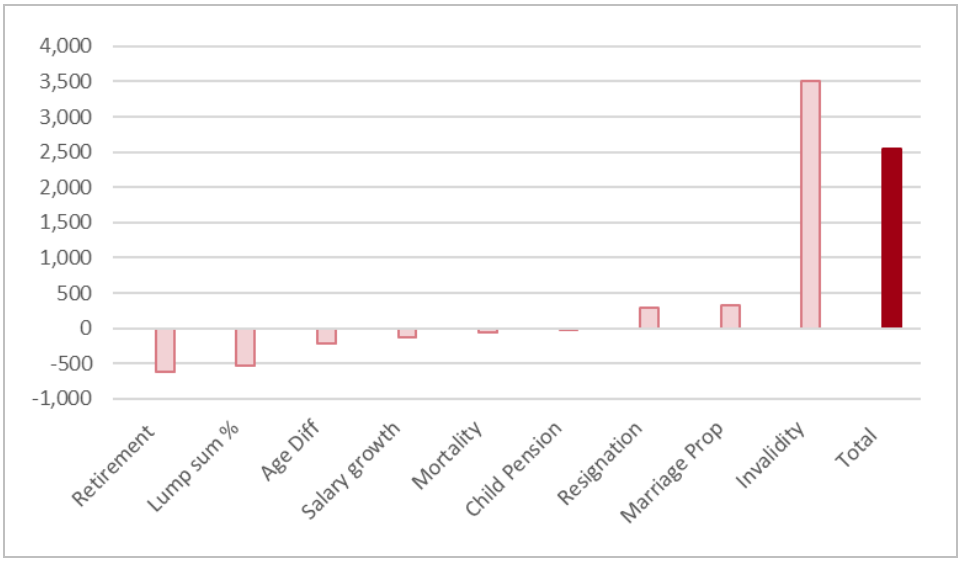


Figure 8.3: MSBS pensioners ($m)

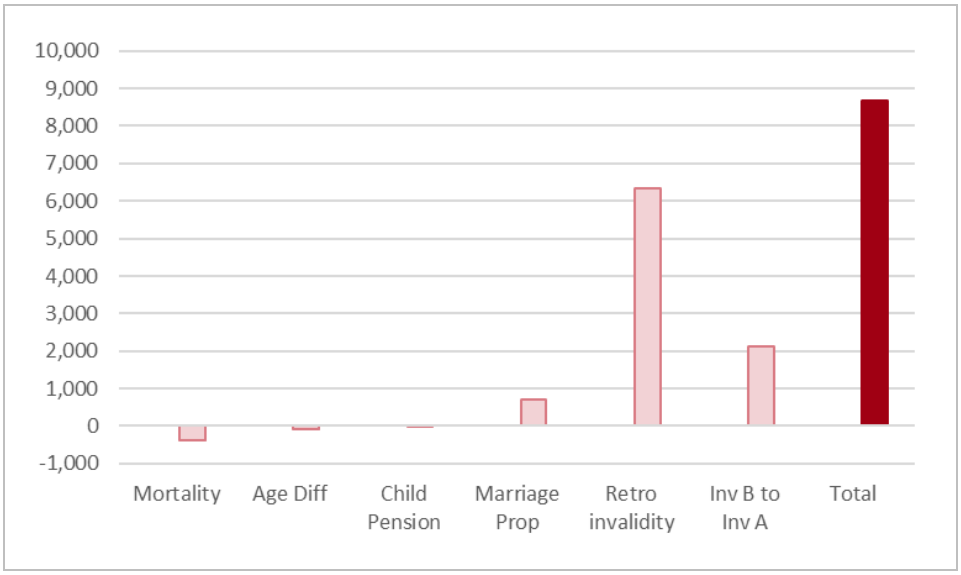
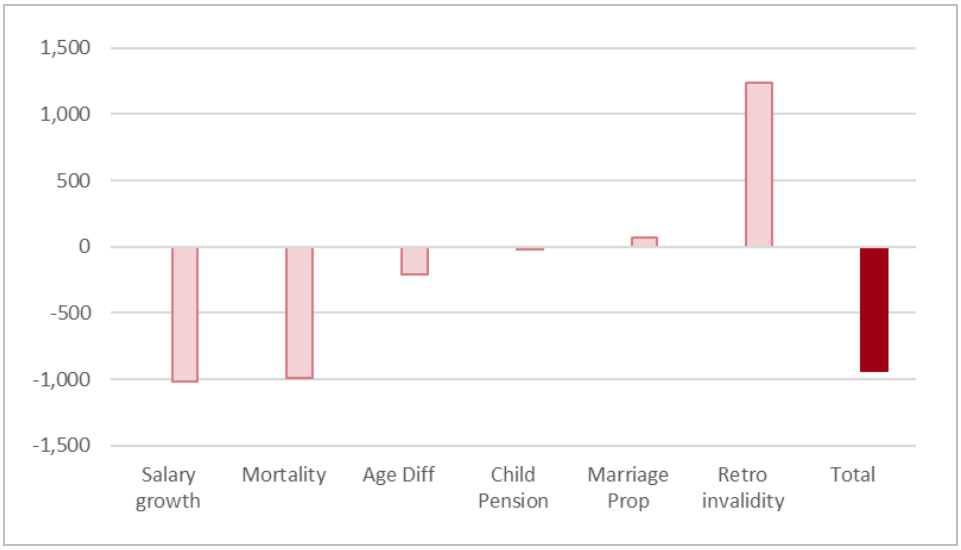


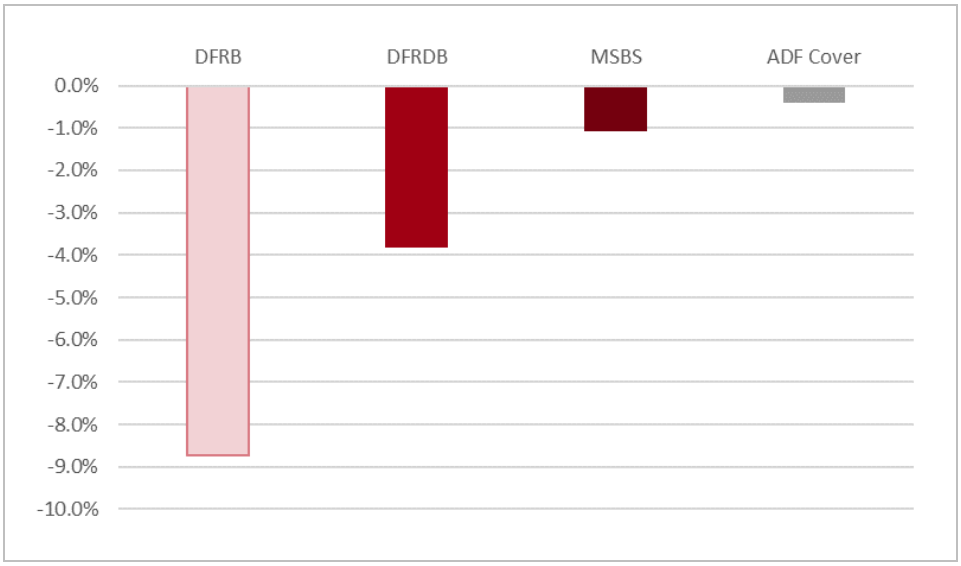
Figure 8.4: DFRDB pensioners ($m)



Case Studies

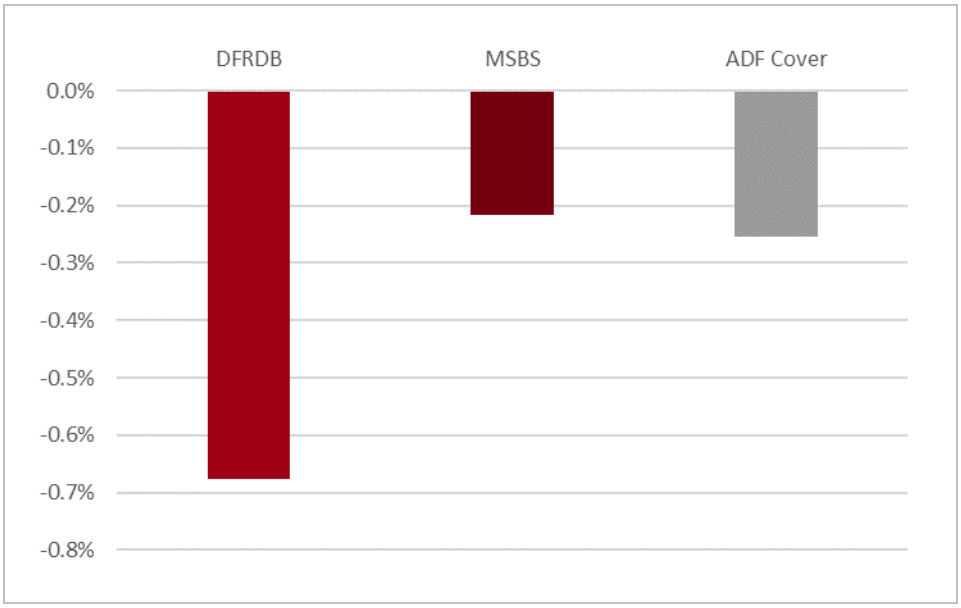
8.8 It is informative to compare the impact of particular assumption changes as a percentage of the unfunded liability in the different Schemes and sub-groups within the Schemes. Below are four case studies which provide a useful insight into the different demographics and operations of the Schemes.

Figure 8.5: Higher pension mortality (% change)



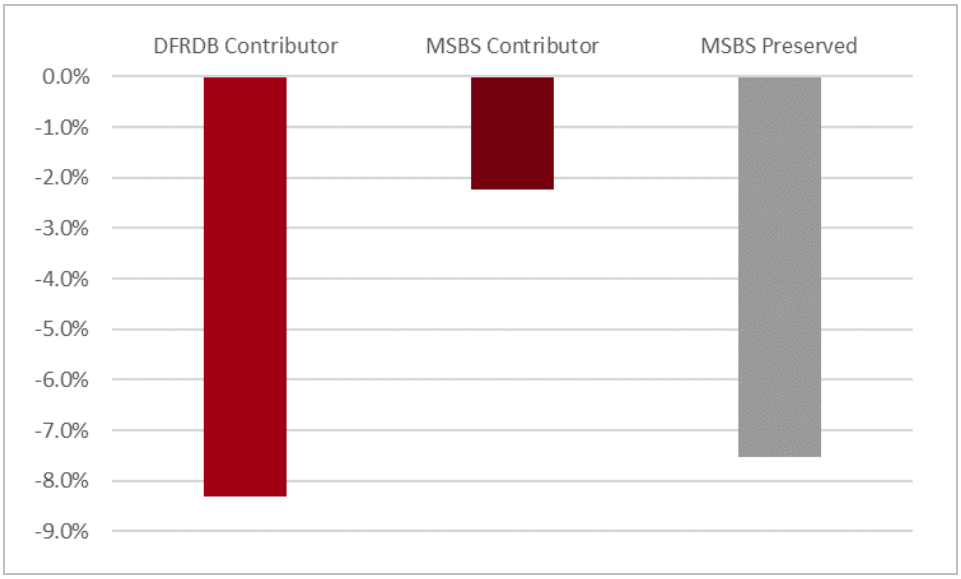
8.9 Figure 8.5 indicates that the impact of the higher pension mortality after age 85 is larger for the Schemes with the two oldest group of pensioners. As the pensioners for MSBS and ADF Cover are much younger, the chances of them surviving to age 85 are much lower which means the impact of higher mortality after age 85 is also lower.

Figure 8.6: Lower spouse age difference (% change)



8.10 Figure 8.6 indicates that the changes in the age difference of spouses were more pronounced for the older schemes, with a 1-year reduction applying for DFRDB and 2 years for MSBS and ADF Cover. This is reflected in a lower cost as the spouses can be expected to be older and survive for shorter periods and therefore cost less.

Figure 8.7: Deferred retirement age (% change)



8.11 The impact of a deferred retirement age is set out in Figure 8.7 and depends on the length of deferment, the likelihood of leaving service due to retirement and the level of benefits provided. For MSBS contributors, deferring retirement means that a retirement pension starts at a later age, and while an adjustment for this is made to the pension conversion factor, the net impact is a saving for each year of deferral.

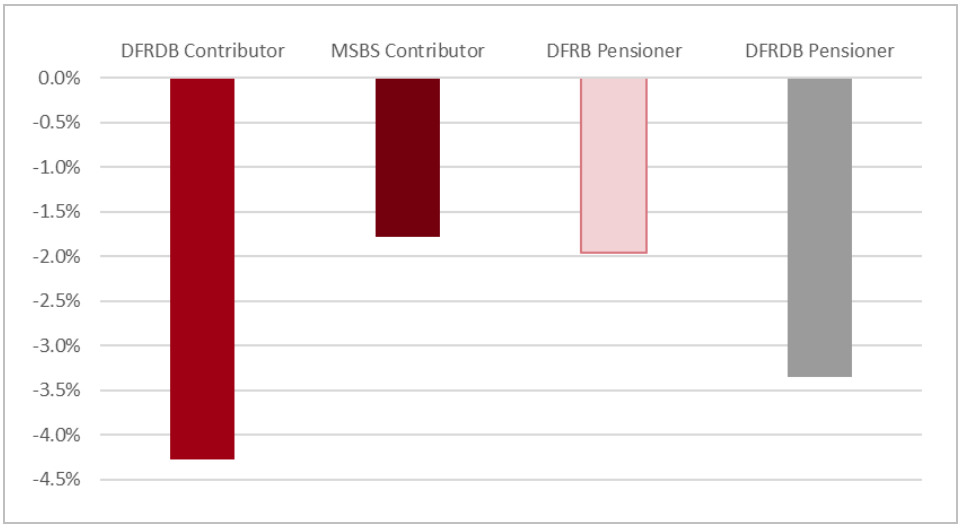
8.12 For MSBS Preservers, their benefit largely comprises a deferred component that increases with CPI. This means the discounting impact of deferral is much greater than for contributors where their benefit is growing at a higher salary growth rate.

8.13 Furthermore, many MSBS contributors are assumed to leave service due to invalidity and so there are proportionately fewer retirement exits, while the older average age of DFRDB contributors means that a higher proportion of them ultimately retire. This disparity contributes to the observed differences seen above.

8.14 Figure 8.8 below examines the impact of lower salary and MTAWE growth assumptions. The cost for MSBS contributors is lower due to the impact of lower salary growth prior to their leaving service. However, this change only impacts MSBS contributors while in service, as upon exit their pensions are indexed in line with CPI.

8.15 DFRDB contributors are much older and so will leave service much sooner, while their pension is indexed broadly in line with salary growth based on a MTAWE index. This means the impact of lower salary growth applies for a much longer period. For the two pensioner sub-groups, the larger impact applies to the younger DFRDB sub-group as the pension is expected to be paid for a longer period.

Figure 8.8: Lower salary and MTAWE growth (% change)



Section 9: Notional employer contribution rates

9.1 A notional employer contribution rate has been calculated for DFRDB and MSBS to illustrate the effective cost of the defined benefits being provided by the Commonwealth as a percentage of the superannuation salaries of scheme members. It represents the estimated contribution rate, on the assumptions made, that would be required to fund the defined benefits accruing to serving members over the next three years on the basis that benefits are attributed to periods of service under the AASB 119 accrual methodology.

9.2 In other words, if the scheme was exactly fully funded in respect of AASB 119 methodology accrued benefits at the beginning of the three years and contributions were made at the calculated rate, then the scheme would be expected to be exactly fully funded at the end of the period. The AASB 119 accrual methodology effectively assumes that benefits for MSBS are accrued either on a pro rata basis over service to the date of exit or the date they attain their Maximum Benefit Limit (MBL), if earlier.

9.3 ADF Cover only provides insurance type benefits. The notional employer contribution rate for ADF Cover has also been calculated as a percentage of the superannuation salaries of scheme members. It represents the estimated contribution rate, on the assumptions made, that would be required to pay a notional premium for the insurance cover provided to those covered at 30 June 2023 for the coming year.

9.4 The table below shows the notional employer contribution rates for the schemes. These rates include an allowance for the productivity contributions for the MSBS and DFRDB (generally 3 per cent), but do not include the additional employer contributions paid as a result of the application of the OTE earnings base in calculating Superannuation Guarantee obligations from 1 July 2008. The additional OTE contributions that are paid to the ancillary section of the MSBS Fund amounted to around $32 million in 2022–23. This equates to around 0.8 per cent of superannuation salary across the membership of both schemes. The DFRB scheme has no serving ADF personnel members and hence has no notional employer contribution rate. For comparison, the rates from the 2017 and 2020 reports are also shown.

Table 9.1: Notional employer contribution rates as a percentage of superannuation salary

	MSBS (%)	DFRDB (%)	ADF Cover (%)
2017 Report	52.0	43.0	21.6
2020 Report	53.7	41.8	54.6
Current Report	**53.5**	**36.2**	**43.7**

9.5 For the 2020 report, there was a significant increase in the notional employer contribution rate for ADF Cover. This was primarily attributable to the significant increase in the level of expected invalidity benefits payable at that time. However, the invalidity rates adopted were not adjusted to take into account the lower average length of service of ADF Cover personnel at the time and so was effectively a long-term cost based on a mature group of individuals. For this report, despite increasing the overall rates of invalidity further, the relatively low average length of service results in a reduction to the notional employer contribution rate.

9.6 As noted earlier in this report, the notional employer contribution rate is a notional insurance premium for the relevant population covered for the coming year. Over time, as the average period of service of the ADF Cover workforce increase, the notional employer contribution rate will also increase before reaching a relatively stable level of about 62 per cent in about 15 years' time. The projected rates over each of the next eight years are set out in Table 9.2 below.

Table 9.2: Projected notional employer contribution rates for ADF cover

Year	Rate (%)
2023–24	43.7
2024–25	47.4
2025–26	50.7
2026-27	53.6
2027–28	56.1
2028–29	58.1
2029–30	59.7
2030–31	60.9

9.7 In relation to MSBS, the invalidity exit assumptions made in this report were increased materially while also assuming a higher proportion of the more expensive invalidity A pensions compared to the 2020 Report. This could be expected, by itself, to increase the notional employer contribution rate.

9.8 However, noting that the MSBS is closed to new entrants, the notional employer contribution rate did not increase materially between the 2017 and 2020 reports, with a modest decrease for this report. Two factors have contributed to a decrease in the rate, namely an extension of the retirement age and the associated deferral of the commencement of pension payments, along with a reduction in the assumed level of salary increases prior to leaving service.

9.9 Despite this, and similar to the observation in the 2020 report, given the size of the increases to the invalidity assumptions, an increase rather than a decrease in the notional employer contribution rate would have been expected. This would have been the outcome had the MSBS not been closed to new members in 2016.

9.10 The reason behind the relatively small increase in costs is mainly to do with the accrual methodology used.

9.11 The accrual methodology assumes that invalidity benefits are accrued uniformly over the period to date of exit. For instance, if a member is projected to exit after 7 years of service and currently has 5 years of service 5/7ths of the benefit is assumed to have been accrued at the valuation date and the remaining 2/7ths will be accrued after the valuation date. The part of the benefit that accrues over the next three years is included in the calculation of the Notional Employer Contribution Rate. In this instance, it would be the remaining 2/7ths of the benefit.

9.12 As MSBS is now closed to new ADF personnel, there are now no remaining members that can exit through invalidity with very short periods of service. The cost of the invalidity pension for these individuals would be high, with the invalidity impact on the Notional Employer Contribution Rate also being high. The closure of MSBS to new ADF personnel means that these high cost short serving invalidity exits are no longer included in the calculation of the MSBS Notional Employer Contribution Rate. Consequently, the impact of increased invalidity assumptions on the MSBS Notional Employer Contribution Rate is not as significant as it is for ADF Cover. More generally, the accrual methodology used would be expected to result in the reported Notional Employer Contribution Rate for MSBS gradually declining over time.

9.13 The DFRDB is also closed to new entrants. The significant reduction in the DFRDB notional employer contribution rate is largely attributable to each of the deferral of the retirement age, the lower wage-based pension increases and the increase in mortality at older ages. In addition, as many of the current contributors have, or will shortly, attain 40 years of service, they will reach the maximum pension of 75 per cent of final salary.

9.14 The actuarial method used for calculating the notional employer contribution rate for MSBS and DFRDB in both this report and the previous report is known as the Projected Unit Credit (PUC) method as set out in AASB 119.

Section 10: Projection of Outlays

10.1 A projection of annual Commonwealth cash outlays has been carried out to show the cash impact to the Commonwealth from the schemes in the long term. Table 10.1 shows the actual outlays for 1991–92, 1992–93, every third year thereafter and then for each year since 2016–17. Outlays are shown for the DFRB, DFRDB, the MSBS, ADF Cover and the four schemes combined. Prior to 2010–11, DFRB outlays are included in DFRDB outlays. It also shows projected outlays for the next seven years and then every fifth year from 2029–30.

10.2 DFRB outlays are rapidly declining both in nominal dollar and GDP terms. DFRDB outlays are increasing slowly in nominal dollar terms but are declining in GDP terms. This is not surprising as there are few serving ADF personnel left in DFRDB and the deaths of pensioners reduces the expenditure in GDP terms. MSBS outlays are still increasing in both nominal dollar and GDP terms. Most members of MSBS are still under age 55 and generally not entitled to receive benefits until sometime in the future. ADF Cover provides insurance type benefits to new ADF personnel since July 2016. Its outlays will increase over time as the number of ADF personnel covered grows.

10.3 Actual outlays, in nominal terms, across 2020–21 to 2022–23 were higher than those projected in the 2020 report.

10.4 Projected DFRDB outlays are higher in nominal dollar terms than those projected in the 2020 report until around 2035. This is primarily due to pension increases over the three years to 30 June 2023 being higher than those assumed for the 2020 report due to the recent high levels of inflation. In the longer term, projected DFRDB outlays are lower than those projected in the 2020 report due to the lower rate of assumed pension increases as a consequence of the lower assumed annual increases in MTAWE.

10.5 Projected MSBS outlays are materially higher in nominal dollar terms than those projected in the 2020 report. This is primarily due to the impact of the higher effective invalidity exit rates compared to those assumed for the 2020 report along with the growth in retrospective invalidity exits.

10.6 Projected ADF Cover outlays are similar in nominal dollar terms to those projected in the 2020 Report in the short to medium term. Over the longer term, the projected outlays are lower, reflecting the greater impact over time of the lower salary growth assumption adopted for this report relative to the higher invalidity exit rates. In addition, there was a small decline in ADF personnel since 2020 compared with the 1 per cent per annum growth assumption.

10.7 A further impact on the ADF Cover nominal outlays is that while the number of ADF personnel is lower at present compared to that projected in the 2020 report, the adoption of a population growth rate assumption for future growth means that a similar overall projected population eventuates relative to the 2020 report.

10.8 The table below shows the historical and projected outlays for all Schemes.

Table 10.1: Actual and projected Commonwealth outlays[1]

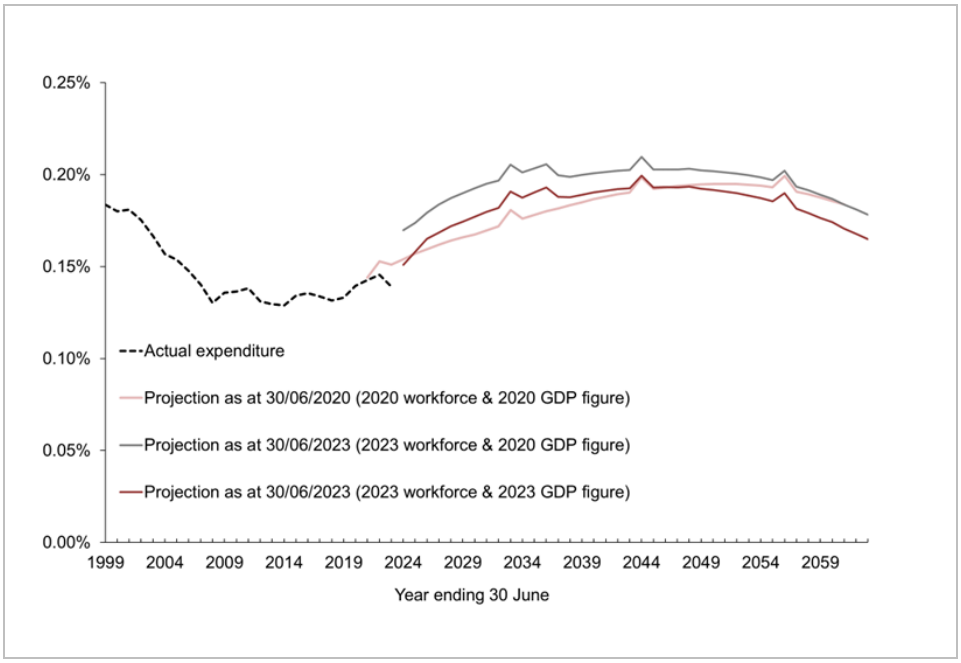
Year	DFRB[2] ($m)	DFRDB ($m)	MSBS ($m)	SG contributions ($m)	ADF Cover ($m)	Total ($m)	As a percentage of GDP
Actual[3]							
1991–92		600	32	-		632	0.16
1992–93		703	139	-		842	0.21
1995–96		801	153	-		954	0.20
1998–99		986	158	-		1,144	0.19
2001–02		1,160	171	-		1,331	0.18
2004–05		1,222	202	-		1,424	0.16
2007–08		1,295	249	-		1,543	0.14
2010–114	65	1,423	386	44		1,918	0.13
2013–14	53	1,455	505	28		2,041	0.13
2016–17	46	1,549	712	39	0	2,346	0.13
2017–18	41	1,575	775	37	2	2,430	0.13
2018–19	41	1,621	897	34	6	2,599	0.13
2019–20	38	1,619	1,065	32	13	2,767	0.14
2020–21	36	1,636	1,255	27	25	2,979	0.14
2021–224	37	1,759	1,522	30	49	3,397	0.15
2022–23	34	1,744	1,677	32	79	3,566	0.14
Projected							
2023–24	30	1,908	1,893	32	129	3,992	0.15
2024–25	28	1,916	2,121	32	183	4,280	0.16
2025–26	26	1,949	2,369	32	254	4,630	0.16
2026–27	24	1,976	2,623	30	331	4,985	0.17
2027–28	23	1,989	2,889	29	422	5,352	0.17
2028–29	21	1,998	3,151	27	521	5,719	0.17
2029–30	20	2,003	3,429	25	639	6,117	0.18
2034–35	14	2,010	4,900	18	1,474	8,416	0.19
2039–40	9	1,971	5,919	11	2,832	10,743	0.19
2044–45	5	1,805	7,280	5	4,817	13,913	0.19
2049–50	2	1,507	8,554	0	7,556	17,619	0.19
2054–55	1	1,097	9,525	0	11,141	21,764	0.19
2059–60	0	657	9,912	0	15,507	26,076	0.17

Note: The components may not add exactly to the total due to rounding.

1. These figures have **not** been adjusted to 2023 dollars and do not include cash outlays relating to ADF Super accumulation arrangements.
2. Prior to 2010–11, DFRB outlays are included in the DFRDB figures.
3. The figures up to 2022–23 reflect the actual expenditure in those years.
4. 2010–11 and 2021–22 were 27 pension pay day years and hence had higher expenditure than normal.

10.9 Figure 10.1 shows the total projected outlays as a percentage of GDP over the next 40 years. Assuming an unchanged projected GDP relative to the 2020 report, outlays rise above the 2020 projection before falling below in about 30 years' time. If an updated GDP projection is applied, then the comparison with the 2020 report is much closer in the short term and much lower in the longer term.

Figure 10.1: Actual and projected commonwealth outlays as a percentage of GDP



10.10 The increase before 2040 primarily reflects the higher invalidity exit rates assumed both from active service and retrospective pensions. This is partially offset by the lower assumed level of salary growth and associated pension increases for DFRDB, higher mortality rates after age 85 and higher average ages of retirement. After 2040, the assumed population growth rate drops below the assumed rate of 1 per cent per annum from the 2020 report, lowering the projected outlays compared to that report, while the lower salary growth assumption continues to impact the ADF Cover outlays.

10.11 In terms of the comparison between the GDP projections from the 2020 and 2023 reports, the main factors at play here are the higher than expected level of current GDP due to strong commodity prices and a stronger than expected labour market. Over the medium term further strong growth in GDP is expected due to a significant growth in population post COVID-19 along with a lower trade weighted exchange rate.

10.12 The projections also factor in the impact of the occasional years where there are 27 pension pay days instead of the usual 26 pension pay days which lead to extra expenditure in those years. This occurs around every 11 years.

10.13 The other factor to note in the projected expenditure is the drop in expenditure after 10 years. This is a result of the somewhat arbitrary assumption that the building up, and eventual clearing, of the backlog of the assessment of retrospective invalidity claims is dealt with over a 10-year period.

10.14 Furthermore, no allowance is made in these projections for employer contributions of 16.4 per cent of salary into either ADF Super or a chosen alternative. These contributions currently represent about 0.016 per cent of GDP, increasing to 0.034 per cent of GDP by 2040.

Section 11: Unfunded liabilities

11.1 The unfunded liabilities are the liabilities for superannuation entitlements in respect of service already rendered to the ADF for which no assets are held. For this purpose, as discussed in paragraph 1.10, assets held in the Future Fund are not considered to be held against the scheme liabilities. The assets attributable to the fully funded ancillary section of MSBS and the associated accumulation benefit liabilities are excluded from this calculation.

11.2 These liabilities do not fall due until the rules of the schemes provide for benefits to be payable, which is generally when members retire, and so they are spread over many years into the future. The value of the unfunded liabilities has been calculated as the present value of all of the liabilities accrued in respect of past service less the value of the assets held in the MSBS Fund.

11.3 The net present value of unfunded liabilities was calculated to be $127.2 billion as at 30 June 2023. This is 5.0 per cent of GDP. The net present value of unfunded liabilities reported as at 30 June 2020 was $98.9 billion or 5.0 per cent $114.4 billion as at 30 June 2023, or 5.1 per cent of GDP. Liabilities are therefore higher than was projected at the last report in dollar terms but lower in GDP terms. The key driver of this outcome has again been the larger than expected number of commencements of new MSBS invalidity pensioners over the last three years (from both active service and retrospective claims) and the accompanying changes to the assumptions regarding future commencements of MSBS invalidity pensions. This has added around $9 billion to the unfunded liability. The higher than expected levels of pension indexation have also added to the higher nominal value of the unfunded liability. However, the projected unfunded liabilities in GDP terms have dropped to 5.0 per cent of GDP due to the increase in the level of GDP relative to that projected in the 2020 report.

11.4 Had the assumptions used for the 2020 report been retained for this report, the unfunded liabilities would have been $121.7 billion. The increase was largely generated by the higher numbers of new invalidity pension commencements in MSBS compared to those assumed in the 2020 report, including retrospective invalidity pensions. The increase was also generated by actual rates of CPI increase and the rates of pension increases for those in DFRDB for those aged 55 or more being higher than the long term assumptions in the 2020 report.

11.5 A breakdown of the unfunded liabilities between contributors, pensioners, preserved members and non-pension associate members by scheme is shown in Table 11.1. The pension liabilities include allowances for future retrospective invalidity pensions for those that have already exited the ADF.

Table 11.1: Estimate of unfunded liabilities by category

Category of members	DFRB ($b)	DFRDB ($b)	MSBS ($b)	ADF Cover ($b)	Total
Contributors	-	1.2	30.0	0.5	31.7
Pensioners	0.2	30.6	46.5	3.3	80.6
Preserved members	-	-	14.5	-	14.5
Non-pension associate members	-	-	0.4	-	0.4
Total	0.2	31.8	91.4	3.8	127.2

Note: Components may not add up to totals due to rounding.

11.6 Table 11.2 shows the projected unfunded liability for each scheme and for the four schemes combined. The projections are in nominal dollars and have not been adjusted to 2023 dollars. To enable a comparison of the projected liabilities with the position in 2023, projections of the combined unfunded liability as a percentage of GDP are also shown.

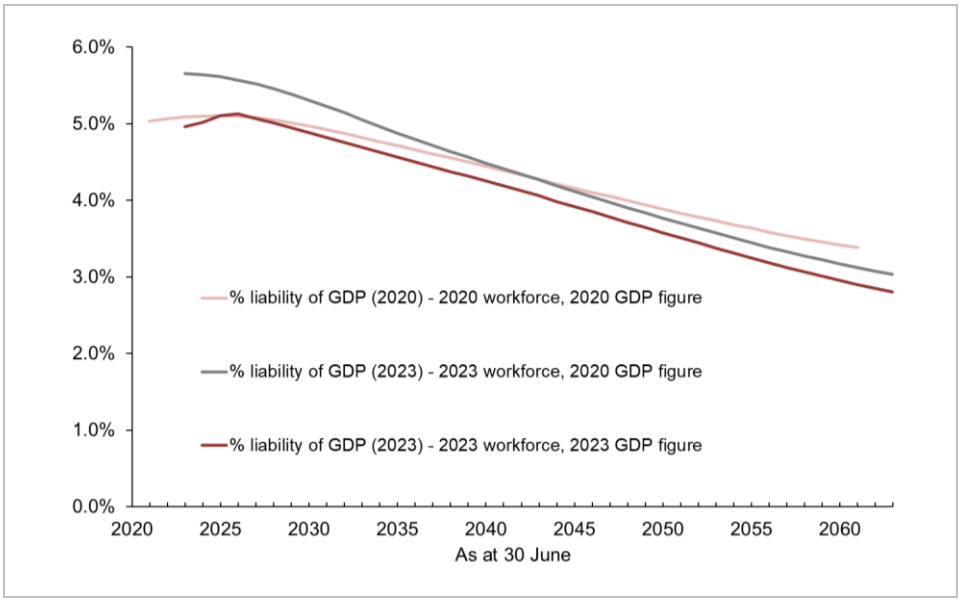
Table 11.2: Projected Unfunded Liabilities[1]

Year ending 30 June	DFRB ($b)	DFRDB ($b)	MSBS ($b)	ADF Cover ($b)	Total[2] ($b)	As a % of GDP
2023	0.2	31.8	91.4	3.8	127.2	5.0
2024	0.2	31.4	96.0	5.0	132.6	5.0
2025	0.2	31.0	100.5	6.5	138.2	5.1
2026	0.2	30.6	104.8	8.3	143.9	5.1
2027	0.2	30.1	109.0	10.6	149.8	5.1
2030	0.1	28.4	120.3	19.6	168.5	4.9
2035	0.1	24.8	134.8	42.1	201.8	4.6
2040	0.0	20.4	144.9	74.7	240.1	4.3
2045	0.0	15.3	148.7	118.3	282.3	3.9
2050	0.0	10.2	145.0	174.0	329.2	3.6
2055	0.0	5.8	133.2	242.6	381.6	3.3
2060	0.0	2.6	114.3	325.6	442.4	3.0

1. These figures are future nominal values and have not been adjusted to 2023 dollars.
2. Totals may differ from the sum of DFRB, DFRDB, MSBS and ADF Cover due to rounding.

11.7 Figure 11.1 shows the projected unfunded liabilities as a percentage of GDP together with the equivalent projection from the 2020 report.

Figure 11.1: Projected unfunded liabilities as a percentage of GDP



11.8 Based on a consistent 2020 GDP basis, the difference between this projection and that in the 2020 report largely reflects the changes in the demographic assumptions, principally the increase in the assumed rates of invalidity exits for serving ADF personnel in MSBS, as well as the increased allowance for retrospective invalidities. However, this was offset by the lower population growth in the longer term and lower salary growth assumptions for this report.

11.9 However, when allowance is made for the updated higher GDP values, the unfunded liabilities as a percentage of GDP now fall below those assumed for the 2020 report over all future years, reducing to about 3.0 per cent of GDP in 2060 compared to the previous expectation of about 3.5 per cent of GDP. Given this decline, along with the existence of the Future Fund and the implicit Commonwealth Guarantee to pay benefits, I believe the current method of funding benefits is adequate.

11.10 The Future Fund currently holds a balance of about $200 billion intended to meet the unfunded liabilities of Commonwealth defined benefit schemes. By itself, this balance is unlikely to be sufficient to provide adequate funding for all Commonwealth defined benefit liabilities when allowance is made for the growing liability associated with ADF Cover.

11.11 The current projection using the most recent GDP information shows a spike over the next two years before a gradual fall. This spike is not apparent in the projection based on 2020 GDP expectations. This reflects Treasury's current view that GDP growth over the three years to 30 June 2026 will be subdued before reverting to a nominal long term growth rate of about 5 per cent per annum.

AASB 119

11.12 Since the 2005–06 financial year, Defence has been required to comply with Australian Accounting Standard AASB 119 – Employee Benefits in reporting on superannuation obligations in its financial statements. The discount rate assumption required under AASB 119 differs from the assumption used in this report. The requirement for the AASB 119 discount rate to be based on Government bond rates at the reporting date. This results in changes in economic assumptions from year to year. All else being equal, movements in interest rates will lead to volatility in reported liabilities under AASB 119.

11.13 Under AASB 119, the interest rate is set separately for each scheme. The interest rate is based on the relevant Commonwealth bond whose mean discounted term approximates the mean discounted term of the liabilities. The table below sets out the interest rates used as at 30 June 2023.

Table 11.3: AASB 119 interest rates at 30 June 2023

Scheme	Interest rate (% per annum)
ADF Cover	4.4
MSBS	4.4
DFRDB	4.2
DFRB	4.0

11.14 Given that these interest rates are lower than the 5 per cent per annum used for this report, the reported unfunded liabilities in the Defence financial statements were higher than those given in this report. The lower the discount rate used, the higher the unfunded liability. The AASB 119 unfunded liabilities for each scheme as at 30 June 2023 are set out in Table 11.4 along with the estimates used in this report.

Table 11.4: Estimate of unfunded liabilities as at 30 June 2023

	DFRB ($b)	DFRDB ($b)	MSBS ($b)	ADF Cover ($b)	Total
Long term assumptions	0.2	31.8	91.4	3.8	127.2
Financial Statements	0.3	33.5	100.1	4.0	137.9

11.15 A further variation between AASB 119 calculations and calculations for this report is the use of short-term financial assumptions for the AASB 119 calculations, reflecting best estimates around likely rates of CPI over the foreseeable future along with known salary growth agreements and an allowance for the MTAWE cap placed on DFRDB pension indexation for those over age 55. As the Long-Term Cost Report is intended to be a measure of long-term costs and a point of comparison with prior reports, the preference is to ignore short term financial assumption expectations and retain broad consistency of assumptions over successive reports.

11.16 It should also be noted that the June 2023 AASB 119 figures do not include many of the demographic assumption changes that have been adopted for this report, following an analysis of experience.

11.17 For the purpose of Budget and MYEFO projections each year, the initial projection year is based on the AASB119 valuation basis, before reverting to the long-term assumptions at the end of the first projection year.

AASB 1056

11.18 Since the 2016–17 financial year, CSC has been required to comply with Australian Accounting Standard AASB 1056 Superannuation Entities when reporting on superannuation obligations in its financial statements for MSBS. Such reporting is not required for the other Defence schemes. AASB 1056 requires the inclusion of an accrued liability figure in the financial statements. The accrued liability is the combined liability for accrued funded and unfunded components of benefits.

11.19 The assumptions for AASB 1056 are set by CSC. One of the key assumptions in the accrued benefit calculations is the expected return on a portfolio of assets. CSC's current investment objective for the default balanced investment option is a return of 6.0 per cent per annum relative to assumed CPI increases of 2.5 per cent per annum.

11.20 For the accrued liability as at 30 June 2023, CSC set the economic assumptions as investment returns of 6.0 per cent per annum; general salary increases of 4.0 per cent per annum; and CPI increases of 2.5 per cent per annum. The demographic assumptions used were those from the 2022 Long Term Cost Update Report. For the 2022 Long Term Cost Update Report, the invalidity exit rates were increased by 25 per cent from those used for the 2020 report.

11.21 The accrued liability reported for MSBS at 30 June 2023 was $84.6 billion of which $12.8 billion was the funded component and $71.8 billion was the unfunded component. The unfunded component is less than the unfunded liability for MSBS included in this report of $91.4 billion. The main reason for the difference is the difference in assumed interest rate used to discount future cash flows with the rate for AASB 1056 purposes being one percentage point higher, which leads to a lower liability. Another significant reason for the difference is the further changes made to the demographic assumptions for this report, particularly the higher assumed rates of commencements of new invalidity pensions which have increased the unfunded liability.

Section 12: Summary and Conclusion

Summary of Results

12.1 This report has covered a wide range of areas required to be analysed to project the future costs to the Commonwealth of the unfunded component of the four defined benefit Military Superannuation Schemes. The key results of this analysis are:

- Invalidity pension commencements over the period to 30 June 2023 for MSBS were higher than previously projected. With the availability of additional data in respect of ADF Cover invalidities, the influence of years of service on claim incidence has become apparent. This has provided a better understanding of the drivers of the historical growth in new MSBS invalidity pensions and a change in the modelling approach so that invalidity exit rates are now based on duration of service.
- Successful retrospective invalidity claims continue to rise for all schemes, along with a further rise in the proportion of invalidity A pensions and the emergence of the reclassification of past invalidity B pensions into invalidity A pensions. This has led to the introduction of an assumption that 99 per cent of future invalidity pension commencements will be invalidity A. The invalidity exit rates in this report include an allowance for both pensions that commence immediately on exit and pensions that commence retrospectively in respect of that year of exiting active service.
- Higher invalidity rates ultimately contribute to higher projected liabilities although the higher liabilities have been somewhat offset by lower assumed wage growth and higher mortality assumptions.
- Relative to the 2020 report the unfunded liabilities and, in the longer term, cash outlays when expressed as a percentage of GDP have fallen. This has been largely influenced by lower than expected growth in the ADF workforce and higher than expected GDP growth over the three year period.
- Over the long term, the ADF Cover notional employer contribution rate is expected to settle at around 62 per cent of salary. This rate is higher than the rate for MSBS, despite the exclusion of the 16.4 per cent of salary cost of the ADF Super arrangements.

Uncertainties

12.1 A wide range of assumptions need to be established to project cash outlays. Should experience vary from those assumptions, different outcomes will follow. This uncertainty is most pronounced in the setting of invalidity assumptions.

12.2 While this report sets out our current expectations for future invalidities, actual experience remains highly uncertain. Appendix F sets out the impact of both higher and lower invalidity assumptions, along with changes in other assumptions that have a material impact on the results, as informed by Section 10.

Next Steps

12.3 Each Long-Term Cost Report provides new insights into the experience of the schemes which is translated into improved estimates of future Commonwealth outlays. However, between each report there are opportunities to improve the insights that can be provided. Given this, below are recommendations relating to future activity.

- Information is available within Defence relating to individuals with health issues who are currently being managed with an objective of them returning to their normal duties. Over time, many of these individuals progress to a point where they are unlikely to return to normal duties and are likely to leave service with an invalidity claim. Access to this data will assist with an assessment of IBNR claims that are currently incorporated into ADF Cover exit assumptions.
- This report has initiated analysis on other potential drivers of invalidity exits, including by gender and arm of service in respect of ADF Cover. An annual update of this new analysis is recommended, along with analysis on gendered invalidity rates for MSBS.
- Further insights can be expected from obtaining more information from CSC relating to the nature of the disability (for example the proportion of the disability relating to both physical and mental health conditions). Ideally, this would be provided in relation to both historical claims and all future claims.
- This further analysis can be incorporated into the current annual Update reports so that they can be more responsive to changing experience and so that the financial implications of these changes can be addressed between Long Term Cost Reports.
- At the same time, ongoing analysis can provide Defence with regular feedback regarding the emerging invalidity experience and where resources could be focussed on reducing future claim rates. This could lead to better outcomes for all concerned.

Guy Thorburn FIAA
Australian Government Actuary

26 June 2024

Appendix A: MSBS benefits

Summary of membership, contribution and benefit provisions of the Military Superannuation and Benefits Scheme (MSBS)

The MSBS is governed by a Trust Deed and Rules established under the *Military Superannuation and Benefits Act 1991*. The Act, Trust Deed and Rules set out the full membership, contribution and benefit provisions of the MSBS. The provisions of the Scheme are complex and a summary of the principal provisions of the Scheme is set out below. It should not be used to calculate benefits for individuals.

Membership

Membership of the Scheme is closed to new ADF personnel with effect from 1 July 2016.

Definitions

Salary: Salary is actual salary including higher duties allowance, service allowance, and some qualifications and skills allowances.

Final average salary: Average annual salary received over the last three years prior to termination of service.

Accrual rates: The accrual rate is variable and calculated on a daily basis. The rates are:

- 18 per cent for each of the years of service 0 to 7,
- 23 per cent for each of the years 8 to 20; and
- 28 per cent for year 21 and each year thereafter.

Total accrued multiple: The sum of the accrual rates for the total period of service subject to certain maximum multiple restrictions.

Member contributions

Contributions rates are variable. There is a set base rate of 5 per cent of salary with an option to contribute additional amounts of up to 5 per cent in increments of 1 per cent (maximum contributions are thus 10 per cent of salary).

Scheme structure

Member component This consists of the member contributions paid into the MSBS together with accumulated earnings on the contributions.

Employer component This consists of a defined benefit equal to:

Total accrued multiple x Final average salary

3 per cent benefit This consists of employer contributions of 3 per cent of salary less 15 per cent employer contribution tax together with accumulated earnings.

The 3 per cent benefit forms part of the employer component.

Retirement benefits (on or after age 55)

On retirement the member would be entitled to a lump sum of:

Member component + Employer component

The member has an option to convert between 50 per cent and 100 per cent of the employer component to a pension. The terms of conversion are determined by the member's age at the date of conversion. At age 55, $12 of lump sum is converted to $1 per annum of pension. At age 60, $11 of lump sum is converted to $1 per annum of pension.

Resignation benefit (before age 55)

On resignation, the member would be entitled to:

- an immediate lump sum of the Member component; and
- a Preserved Employer Benefit of the Employer component

The Preserved Employer Benefit is payable from age 55, or earlier in certain circumstances. The funded portion of the Preserved Employer Benefit (the 3 per cent benefit) is accumulated with Fund Earnings between the date of exit and the date of payment. The unfunded portion of the Preserved Employer Benefit (the portion in excess of the 3 per cent benefit) is increased in line with movements in the CPI between the date of exit and the date of payment.

When the Preserved Employer Benefit is paid the member has the same pension option as applies to retirement benefits.

Retrenchment or redundancy

The benefit is calculated in the same way as the resignation benefit. The member may elect one of two options with the employer financed part of the benefit:

- take a Preserved Employer Benefit; or
- convert all of the Preserved Employer Benefit into an immediate pension. The conversion factor is dependent on the member's age.

Invalidity benefits

Invalidity and death benefits depend on retirement age. For virtually all members, retirement age is 60 and the conversion factor at age 60 is 11.

The invalidity benefit payable depends on the level of invalidity suffered by the member.

Invalidity classification	Degree of incapacity
A	60% – 100%
B	30% – 59%
C	Less than 30%

Invalidity A benefit

A benefit equal to:

- an immediate lump sum of the member component; plus
- a pension calculated as follows:

$$\frac{\textit{Total Accrued Multiple at Retirement Age x Final Average Salary}}{\textit{Conversion Factor at Retirement Age}}$$

Invalidity B benefit

A benefit equal to:

- an immediate lump sum of the member component; plus
- a pension equal to the better of:

$$\text{(i)}\quad 50\% \times \frac{\text{Total Accrued Multiple at Retirement Age x Final Average Salary}}{\text{Conversion Factor at Retirement Age}}\text{ ; and}$$

$$\text{(ii)}\quad \frac{\text{Total Accrued Multiple (to date of exit) x Final Average Salary}}{\text{Conversion Factor at Age at Exit}}$$

Invalidity C benefit

The invalidity C benefit is the same as the resignation benefit.

Death benefits for contributory members

The death benefit for a contributory member is:

- an immediate lump sum of the member component; plus
- an employer financed lump sum equal to:

Total Accrued Multiple at Retirement Age x Final average salary.

The surviving spouse of the member may convert between 50 per cent and 100 per cent of the employer financed lump sum into a pension. The amount of the pension is calculated as:

$$67\% \times \frac{\text{Employer Financed Lump Sum x Proportion Converted}}{\text{Conversion Factor at Retirement Age}}$$

If the pension option is taken and there are dependent children, an additional pension is paid.

Pensions

Pensions are payable for the life of the pensioner and are increased twice each year in line with the movement in the CPI. On the death of the pensioner, a pension of 67 per cent of the member's pension is paid to the surviving spouse (if any). An additional pension is payable in respect of children under age 16 (or age 25 if still in full time education). If there is no surviving spouse, then in some circumstances orphan's pensions or a lump sum may be payable.

Ancillary benefits

The ancillary section of the MSBS provides fully funded accumulation benefits. Ancillary benefits can arise in various ways including superannuation guarantee employer contributions, additional voluntary member contributions, salary sacrifice employer contributions, Government co-contributions, spouse contributions and transfers into the MSBS.

Superannuation guarantee

With effect from 1 July 2008, additional employer contributions have been payable to the ancillary section of the MSBS on a quarterly basis to ensure compliance with SG requirements. The contributions are paid in respect of eligible allowances that are not included in superannuation salary for both DFRDB and MSBS members at the applicable SG rate (currently 11%). The additional contributions are subject to a maximum of the applicable SG rate multiplied by the maximum quarterly earnings base for Superannuation Guarantee less the applicable SG rate multiplied by the superannuation salary for the quarter.

Appendix B: DFRDB benefits

Summary of membership, contribution and benefit provisions of the Defence Force Retirement and Death Benefits Scheme (DFRDB)

The DFRDB is established under the *Defence Force Retirement and Death Benefits Act 1973*. The Act and associated Regulations, and the Defence Force (Superannuation) (Productivity Benefit) Determination under the *Defence Act 1903* set out the full membership, contribution and benefit provisions of the DFRDB. The provisions of the Scheme are complex and a summary of the principal provisions of the Scheme is set out below. It should not be used to calculate benefits for individuals.

Membership

Membership of the Scheme is closed to new entrants and consists of members of the Scheme as at 30 September 1991 who did not transfer to the MSBS.

Definitions

Salary:	Salary is the highest incremental salary for substantive rank plus service allowance and some qualifications and skills allowances.
Final salary:	Salary at the date of termination of service.
Statutory retirement age:	Varies between age 47 and 60 depending on rank for officers, age 55 for other ranks.

Member contributions

Member contributions are 5.5 per cent of salary.

Retirement pay (pension)

Members who separate from the ADF on other than invalidity grounds are entitled to retirement pay on separation after completion of a minimum of 20 years' service or, if they have reached statutory retiring age for their rank, on completion of 15 years' service.

Retirement pay

Years of service	Per cent of final salary	Years of service	Per cent of final salary
15	30.00	28	47.50
16	31.00	29	49.25
17	32.00	30	51.25
18	33.00	31	53.25
19	34.00	32	55.50
20	35.00	33	57.75
21	36.50	34	60.25
22	38.00	35	62.75
23	39.50	36	65.25
24	41.00	37	67.75
25	42.50	38	70.50
26	44.00	39	73.50
27	45.75	40	76.50

Officers who voluntarily retire or are discharged on disciplinary grounds before reaching notional retiring age (generally five years below the statutory retiring age) have a penalty applied to the calculation of their retirement pay. The penalty is a 3 per cent reduction in retirement pay for each year that their age on retirement is less than their notional retiring age.

Commutation

A portion of retirement pay may be commuted to a lump sum. The maximum sum is currently five times the annual retirement pay. The residual pension after commutation is calculated by use of an expectation of life factor ranging from 40.18 at age 31 to 15.60 at age 60 for males, and from 45.53 to 19.51 respectively for females.

Resignation benefit (no entitlement to retirement pay)

On resignation prior to being entitled to retirement pay, a benefit of a refund of the member contributions is paid.

Retrenchment or redundancy benefit

There is no special retrenchment or redundancy benefit and the benefit is either the retirement pay or resignation benefit as appropriate.

Invalidity benefits

The invalidity benefit payable depends on the level of invalidity suffered by the member.

Invalidity classification	Degree of incapacity
A	60% – 100%
B	30% – 59%
C	Less than 30%

Invalidity A benefit

A pension of 76.5 per cent of final salary.

Invalidity B benefit

A pension of 38.25 per cent of final salary.

Invalidity C benefit

A lump sum of 1.5 times member contributions.

Death benefits for contributory members

If the member is survived by a spouse, the spouse receives a pension of 62.5 per cent of the pension that would have been paid to the member on being classified Invalidity A. An additional pension may be paid in respect of dependent children. The surviving spouse has an option to convert part of the pension to a lump sum. The maximum lump sum is twice the member's final salary at death.

If the member is not survived by a spouse but is survived by dependent children under age 25, orphan's pensions may be payable.

If the member is not survived by a spouse or dependent children, a lump sum of 1.5 times member contributions is paid.

Pensions

Pensions are payable for the life of the pensioner and indexed pensions are increased twice each year according to the age of the pensioner. Where an age retirement retiree elected to commute their pension for a lump sum of less than four times the pension before commutation, part of the pension payable will be a non-indexed pension.

For pensioners less than age 55, indexed pensions are indexed in line with the movement in the CPI. For pensioners aged 55 or more, indexed pensions are indexed using the same methodology as currently applies for indexation of Age and Service pensions. Since 1 July 2014, Age and Service pensions are increased by the greater of the CPI and the Pensioner and Beneficiary Living Cost Index (PBLCI), and benchmarked against an index based on a percentage of MTAWE (currently at 27.7 per cent of MTAWE for a single person).

This means that if the cumulative growth in MTAWE since 1 July 2014 is higher than the cumulative growth in the level of CPI since 1 July 2014, pension increases are limited to the growth in the CPI. At 30 June 2023, this limitation applies as the cumulative growth in MTAWE was 9.4 per cent higher than the comparable growth in CPI. For the purposes of this report, no allowance has been made for this limitation and it has been assumed that pensioners aged 55 or more will receive increases in line with the salary growth assumption.

On the death of the pensioner, a pension of 62.5 per cent of the member's pension prior to commutation is paid to the surviving spouse (if any). An additional pension is payable in respect of children under age 16 (or age 25 if still in full time education). Where the pension is paid following the death of a retired member, part of the pension is unindexed.

If there is no surviving spouse, orphans' pensions may be payable in some circumstances.

Productivity (3 per cent) superannuation benefit

A productivity superannuation benefit based on a notional contribution of 3 per cent of superannuation salary accumulated with interest at a rate based on the long-term Commonwealth Bond rate is paid in addition to the benefits set out above.

Superannuation Guarantee top up

A top up benefit may be payable in addition to the benefits payable above in order to ensure that the benefits payable from the Scheme are at a level which meets Superannuation Guarantee requirements in respect of DFRDB superannuation salary. Note that with effect from 1 July 2008, additional employer contributions in respect of eligible allowances that are not included in the DFRDB superannuation salary have been paid to the MSBS ancillary section to ensure compliance with the Superannuation Guarantee requirements following the removal of the protected earnings base for the DFRDB.

Appendix C: ADF Cover benefits

Summary of membership, contribution and benefit provisions of the ADF Super and ADF Cover schemes

The principal provisions of these arrangements are set out below. They should not be used to calculate benefits for individuals.

The documents setting out the provisions of ADF Super are the *Defence Act 1903* and the *Australian Defence Force Superannuation Act 2015.* The documents setting out the provisions of ADF Cover are the *Australian Defence Force Cover Act 2015.*

Membership

The ADF Super and ADF Cover arrangements apply to all new ADF personnel with effect from 1 July 2016.

ADF Super

Under the ADF Super arrangements, employer superannuation contributions of 16.4 per cent of the individual's Ordinary Time Earnings (OTE) are paid to the accumulation superannuation fund of the individual's choice. Defence is required to conduct a stapled super fund check with the ATO to determine if the individual already has a superannuation fund and direct contributions to that fund. If no fund can be found and the individual does not nominate a fund, Defence must then direct contributions to ADF Super which is managed by CSC.

ADF Cover

ADF Cover provides associated death and invalidity cover for all members of the permanent ADF forces until age 60. ADF Cover applies regardless of superannuation fund choice.

Death in service benefits

The benefits provided under ADF Cover on the member's death in service can be summarised as follows:

A lump sum equal to:

(60 – Member's age in years at the date of death) x 25 per cent x Superannuation salary at exit; or

If there is a surviving spouse, the surviving spouse may instead of the lump sum, opt for an annual lifetime pension of:

(60 – Member's age in years at the date of death) x 1.5 per cent x Superannuation salary at exit

The lifetime pension is indexed twice a year for CPI increases. Additional pension benefits may be payable if there are dependent children.

Invalidity benefits

The invalidity benefit payable depends on the level of invalidity suffered by the member.

Invalidity classification	Degree of incapacity
A	60% – 100%
B	30% – 59%
C	Less than 30%

The benefits provided on a member's invalidity exit under ADF Cover where the individual is classified invalidity Class A can be summarised as follows:

- A lifetime pension of:

  (60 – Member's age in years at invalidity exit) x 2.2 per cent x Superannuation salary at exit; plus

- A temporary top up pension payable to age 60 of

  Completed years of service at exit x 2.2 per cent x Superannuation salary at exit

Both the lifetime pension and the temporary top up pension are indexed twice a year for CPI increases. If the invalid pensioner were to die, and there were to be a surviving spouse, a lifetime reversionary pension would be payable to the surviving spouse at 67 per cent of the rate of lifetime pension that would have been payable to the invalidity pensioner. Additional pension benefits may be payable to the reversionary spouse if there are dependent children. There is no reversionary pension payable in respect of the temporary top up pension.

The benefits provided on a member's invalidity exit under ADF Cover where the individual is classified invalidity Class B are half of those provided where the individual is classified invalidity Class A. That is, the benefit percentage of 2.2 per cent in the formula for calculating invalidity Class A benefits is replaced by 1.1 per cent.

No benefits are provided under ADF Cover where the individual is classified invalidity Class C.

Appendix D: Demographic assumptions

Set out below is a summary of the demographic assumptions for the DFRB, DFRDB, MSBS and ADF Cover.

Contributor exits by death and invalidity

The tables below set out the rates adopted for death and invalidity per 1,000 contributors at each age shown. The rates for males and females are assumed to be the same.

Table D.1: MSBS death and invalidity rates (per 1,000 contributors)

Age	Death[1]	Invalidity 'A'		Invalidity 'B'		Invalidity 'C'	
		Officers and cadets	Other ranks	Officers and cadets	Other ranks	Officers and cadets	Other ranks
20	0.49	5.05	34.21	0.05	0.35	0.00	0.00
25	0.54	5.89	54.12	0.06	0.55	0.00	0.00
30	0.56	7.90	60.44	0.08	0.61	0.00	0.00
35	0.58	8.47	65.65	0.09	0.66	0.00	0.00
40	0.59	13.34	63.79	0.13	0.64	0.00	0.00
45	0.61	17.53	67.19	0.18	0.68	0.00	0.00
50	0.76	23.40	63.87	0.24	0.65	0.00	0.00
55	1.30	27.00	60.42	0.27	0.61	0.00	0.00
59	1.92	27.00	64.54	0.27	0.65	0.00	0.00

1 Also applies to ADF Cover

Table D.2: ADF Cover invalidity rates (per 1,000 contributors)

Years of Service	Invalidity 'A'		Invalidity 'B'	
	Officers and cadets	Other ranks	Officers and cadets	Other ranks
0	8.71	20.74	0.09	0.21
1	8.85	22.53	0.09	0.23
2	9.05	24.71	0.09	0.25
3	9.31	27.43	0.09	0.28
4	9.66	30.96	0.10	0.31
5	10.23	35.47	0.10	0.36
6	10.82	40.70	0.11	0.41
7	11.63	47.21	0.12	0.47
8	12.75	55.53	0.13	0.56
9 +	13.83	62.18	0.14	0.63

Table D.3: DFRDB death and invalidity rates (per 1,000 contributors)

Age	Death	Invalidity 'A'		Invalidity 'B'	
		Officers and cadets	Other ranks	Officers and cadets	Other ranks
40	0.59	13.47	64.44	0.00	0.00
45	0.61	17.71	67.87	0.00	0.00
50	0.76	23.64	64.51	0.00	0.00
55	1.30	27.28	61.03	0.00	0.00
59	1.92	27.28	65.19	0.00	0.00

Note: The service durations of DFRDB contributors are such that, for a large and increasing majority of members, the invalidity B benefit provides a lower pension than the pension which would be paid on retirement. Accordingly, it is assumed that there will be no future invalidity B exits from the DFRDB.
Invalidity 'C' exits from the DFRDB are included in the resignation assumptions.

Retrospective invalidity payments

In order to place a value on retrospective invalidity pensions, assumptions effective at the date at which the pension is backdated to are required and are represented in the Figures below.

Figure D.1: Average age at effective start date

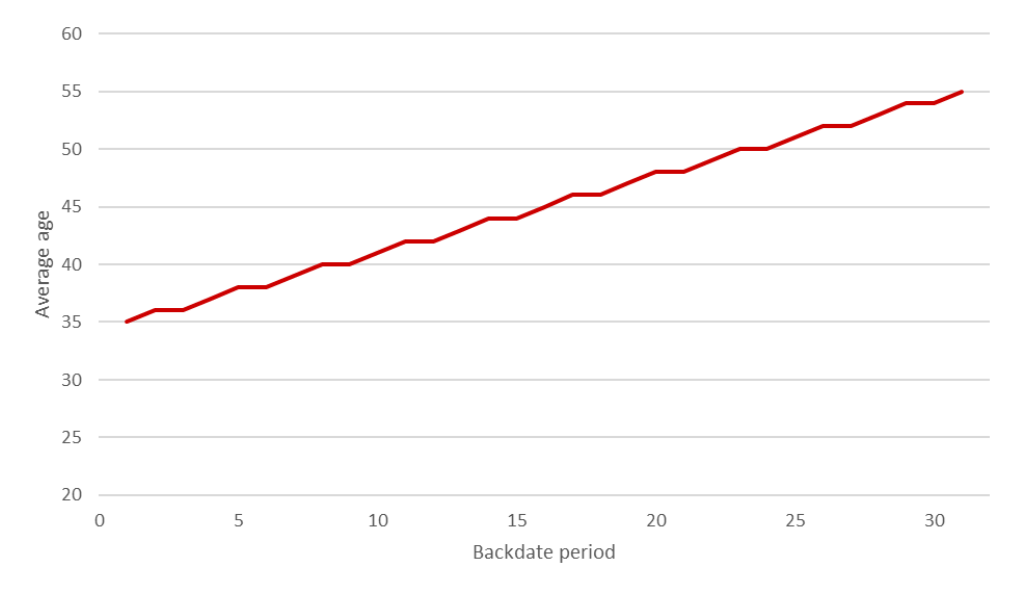


Figure D.2: Average ongoing pension rate

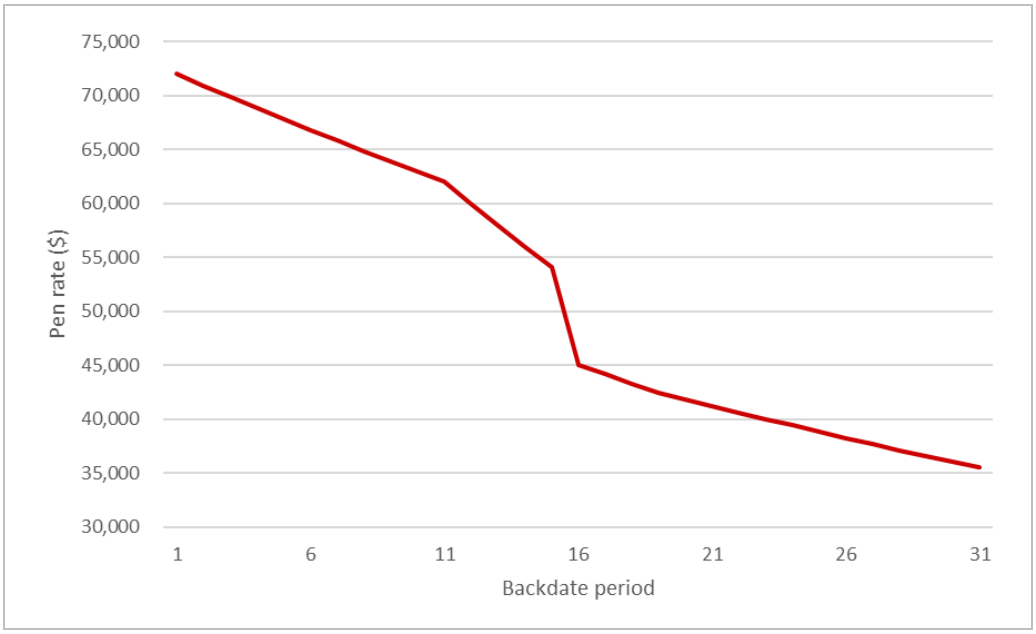
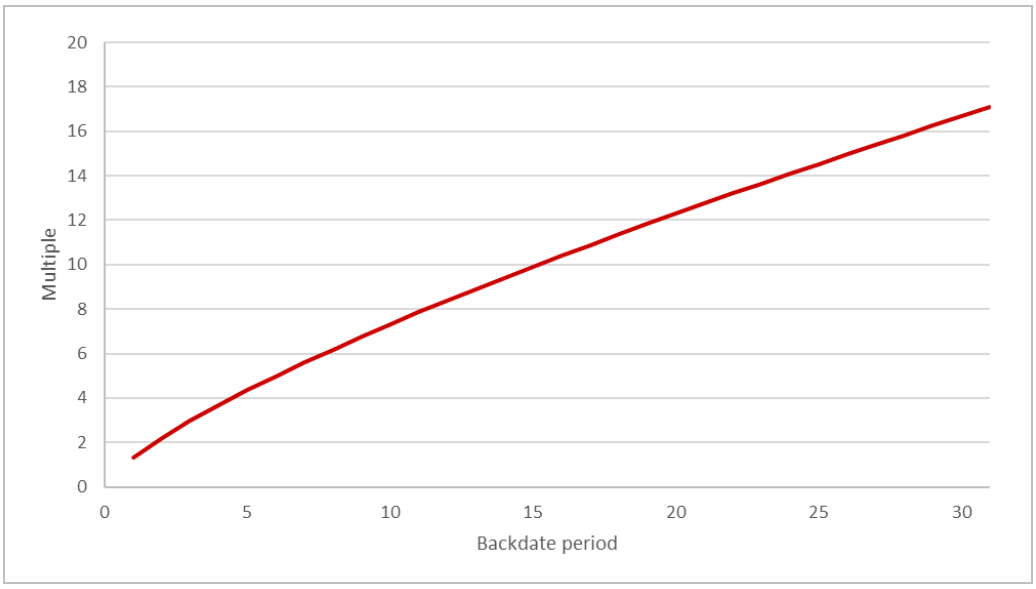


Figure D.3: Average lump sum multiple of ongoing pension



Contributor exits by resignation

The tables below set out the rates adopted for resignation for contributors. Resignation is assumed to only occur below age 55. The figures represent the numbers leaving per 1,000 contributors by duration of service. Retirement rates for those aged 55 or more are a separate assumption.

Resignation rates for MSBS and ADF Cover are set out below.

Table D.4: MSBS and ADF Cover resignation rates (per 1,000 contributors)

Years of service	Officers and Cadets Male and female	Other ranks Male and female
0	96	136
1	59	39
2	26	29
3	29	26
4	22	90
5	19	51
6	21	51
7	43	100
8	27	70
9	35	40
10	50	98
11	50	84
12	50	80
13	50	60
14	45	50
15	50	49
16	27	31
17	24	28
18	31	20
19	12	20
20	60	45
21	55	30
22	47	30
23	34	30
24	26	25
25	22	29
26	21	15
27	20	15
28	10	9
29	6	6
30	22	17

For DFRDB members younger than 55, the assumed resignation rates are set out below.

Table D.6: DFRDB service duration resignation rates for age less than 55 (per 1,000 contributors)

Years of service	Officers Male and female	Other Ranks Male and female
25	84	79
26	84	79
27	84	79
28	84	79
29	84	79
30	84	79
31	84	79
32	84	79
33	84	79
34	84	79
35	84	79
36	84	79
37	84	79
38	84	79
39	84	79
40	84	79

Note: The DFRDB has been closed to new entrants since 1991.
DFRDB resignation rates include exits under the Invalidity 'C' provisions.

Contributor exits by retirement

The following retirement rates have been assumed for all serving members in both the MSBS and DFRDB from age 55. Members attaining age 67 are all assumed to retire.

Table D.7: MSBS, DFRDB and ADF Cover retirement rates from age 55 (per 1,000 contributors)

Age	Rate	Age	Rate
55	150	63	300
56	100	64	300
57	100	65	350
58	100	66	500
59	300	67	500
60	500	68	500
61	300	69	500
62	300	70	1000

Contributor exits by retrenchment and redundancy

No allowance has been made for the effects of retrenchments and redundancies as the retrenchment and redundancy decision is unpredictable and impossible to model with any confidence.

New entrants (ADF Cover)

The following table shows figures for the assumed age distribution and average salaries of male and female new entrants.

Table D.8: New entrants

Age	Officers			Other ranks			Cadets		
	Males %	Females %	Average salary ($)	Males %	Females %	Average salary ($)	Males %	Females %	Average salary ($)
17				5.7	5.3	60,506	8.0	8.0	47,990
18				16.6	22.7	60,974	30.4	30.4	48,986
19				11.3	11.3	61,442	15.4	15.4	49,057
20			78,466	8.1	8.4	61,794	10.2	10.2	53,224
21	2.0	3.1	78,415	6.8	7.0	62,145	7.3	7.3	56,213
22	2.7	4.4	80,090	6.1	6.0	62,496	5.5	5.5	58,665
23	3.4	5.3	81,715	5.0	4.9	62,847	4.1	4.1	60,740
24	4.1	5.3	82,874	4.5	4.0	63,199	3.4	3.4	64,283
25	3.5	5.3	83,876	3.9	3.3	63,550	2.8	2.8	64,283
26	3.1	5.3	85,284	3.4	2.8	63,784	2.3	2.3	64,283
27	2.8	5.3	86,063	2.7	2.4	64,018	2.0	2.0	64,283
28	2.6	5.3	87,483	2.4	2.1	64,252	1.7	1.7	64,283
29	2.5	4.4	88,958	2.0	1.8	64,486	1.0	1.0	64,283
30	2.3	3.3	89,816	1.8	1.6	64,721	0.9	0.9	64,283
31	2.2	2.8	92,250	1.6	1.4	64,955	0.8	0.8	64,283
32	2.0	2.3	92,767	1.5	1.2	65,189	0.7	0.7	64,283
33	1.9	2.2	93,467	1.4	1.1	65,423	0.7	0.7	64,283
34	1.8	2.0	98,066	1.3	1.0	65,913	0.4	0.4	64,283
35	1.7	2.0	100,000	1.2	1.0	67,041	0.3	0.3	64,283
36	1.7	1.9	100,000	1.1	0.9	67,531	0.3	0.3	64,283
37	1.6	1.9	100,000	1.0	0.8	68,021	0.2	0.2	64,283
38	1.6	1.8	100,000	0.9	0.7	68,511	0.2	0.2	64,283
39	1.6	1.8	100,000	0.8	0.6	69,001	0.2	0.2	64,283
40	1.6	1.8	100,000	0.8	0.6	69,492	0.2	0.2	64,283
41	1.6	1.7	100,000	0.6	0.5	69,982	0.1	0.1	64,283
42	1.6	1.7	100,000	0.6	0.5	70,472	0.1	0.1	64,283
43	1.7	1.7	100,000	0.5	0.5	70,962	0.1	0.1	64,283
44	1.7	1.6	100,000	0.5	0.5	71,452	0.1	0.1	64,283

Table D.8: New entrants (continued)

Age	Officers			Other ranks			Cadets		
	Males %	Females %	Average salary ($)	Males %	Females %	Average salary ($)	Males %	Females %	Average salary ($)
45	1.8	1.6	100,000	0.5	0.5	71,942	0.1	0.1	64,283
46	1.9	1.6	100,000	0.4	0.5	72,432	0.1	0.1	64,283
47	2.0	1.5	100,000	0.5	0.5	72,922	0.1	0.1	64,283
48	2.1	1.5	100,000	0.4	0.5	73,413	0.1	0.1	64,283
49	2.2	1.5	100,000	0.4	0.4	78,466	0.1	0.1	64,283
50	2.3	1.4	100,000	0.4	0.4	83,520			
51	2.4	1.4	100,000	0.4	0.4	84,205			
52	2.5	1.4	100,000	0.4	0.3	84,791			
53	2.6	1.4	100,000	0.3	0.3	85,269			
54	2.7	1.3	100,000	0.3	0.3	85,631			
55	2.7	1.3	100,000	0.3	0.2	85,974			
56	2.8	1.3	100,000	0.3	0.2	86,301			
57	2.8	1.2	100,000	0.3	0.2	86,611			
58	2.8	1.2	100,000	0.3	0.2	86,905			
59	2.8	1.2	100,000	0.3	0.1	87,185			
60	2.7	1.2	100,000	0.3	0.1	87,451			
61	2.5	1.1	100,000	0.2	0.1	87,703			
62	2.3	1.1	100,000	0.1	0.1	87,943			
63	1.8	1.1	100,000	0.2	0.1	88,171			
64	1.2	0.4	100,000	0.0	0.1	88,392			

Promotional salary increases

MSBS and ADF Cover officer and cadet promotional salaries are dependent on the period of service and entry age. Since the salary scale is two-dimensional, a cross-section of the salary scales is presented below for a selection of entry ages. DFRDB officer salaries, and ADF Cover, MSBS and DFRDB other rank salaries only relate to period of service.

Table D.9: DFRDB, MSBS and ADF Cover salary progression

Duration	MSBS and ADF Cover Officers			MSBS and ADF Cover Cadets			DFRDB	
	Entry age 20	Entry age 23	Entry age 27	Entry age 18	Entry age 21	Entry age 25	Officers	Other Ranks
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	1.089	1.088	1.073	1.125	1.060	1.040	1.065	1.100
2	1.174	1.173	1.144	1.272	1.134	1.081	1.130	1.194
3	1.257	1.255	1.212	1.444	1.291	1.250	1.194	1.242
4	1.336	1.333	1.277	1.557	1.423	1.426	1.259	1.284
5	1.412	1.408	1.340	1.688	1.554	1.570	1.309	1.321
6	1.484	1.479	1.400	1.814	1.673	1.686	1.337	1.357
7	1.554	1.547	1.457	1.938	1.790	1.798	1.365	1.390
8	1.620	1.611	1.512	2.059	1.901	1.904	1.392	1.421
9	1.682	1.672	1.565	2.176	2.010	2.007	1.420	1.451
10	1.742	1.729	1.615	2.288	2.113	2.104	1.447	1.480
11	1.798	1.783	1.662	2.394	2.210	2.195	1.474	1.507
12	1.851	1.834	1.707	2.494	2.302	2.281	1.502	1.533
13	1.900	1.881	1.749	2.590	2.390	2.362	1.529	1.559
14	1.947	1.924	1.788	2.681	2.472	2.440	1.557	1.583
15	1.990	1.964	1.825	2.766	2.550	2.513	1.622	1.607
16	2.030	2.001	1.859	2.847	2.624	2.581	1.689	1.629
17	2.066	2.034	1.891	2.923	2.692	2.645	1.755	1.651
18	2.100	2.064	1.920	2.993	2.756	2.705	1.820	1.672
19	2.130	2.090	1.947	3.059	2.815	2.760	1.883	1.693
20	2.157	2.113	1.971	3.119	2.870	2.811	1.946	1.712
21	2.180	2.133	1.992	3.175	2.920	2.858	2.004	1.731
22	2.200	2.149	2.011	3.225	2.964	2.900	2.058	1.749
23	2.217	2.161	2.027	3.271	3.005	2.938	2.108	1.767
24	2.231	2.172	2.040	3.311	3.040	2.972	2.154	1.784
25	2.242	2.183	2.051	3.347	3.071	3.001	2.197	1.800
26	2.253	2.194	2.061	3.377	3.097	3.025	2.237	1.816
27	2.265	2.205	2.071	3.403	3.119	3.046	2.273	1.831
28	2.276	2.216	2.082	3.424	3.138	3.065	2.305	1.845
29	2.287	2.227	2.092	3.443	3.155	3.081	2.334	1.859
30	2.299	2.238	2.102	3.461	3.171	3.097	2.359	1.873
31	2.310	2.249	2.113	3.479	3.187	3.113	2.381	1.886
32	2.322	2.261	2.123	3.496	3.203	3.129	2.401	1.898
33	2.333	2.272	2.134	3.514	3.219	3.144	2.420	1.909
34	2.345	2.283	2.145	3.531	3.236	3.160	2.437	1.921

As an example, consider an MSBS cadet who joined at age 21. The salary of such a person at age 31 would, in the absence of inflation, be assumed to be 2.113 times the commencing salary at age 21.

Pensioner mortality

The table below shows the mortality rates assumed for pensioners for DFRB, DFRDB, MSBS and ADF Cover. The age retired rates and invalidity rates are based on combined MSBS and DFRDB experience. Spouse rates are assumed to be the same as age retired rates for both males and females.

Table D.10: Pensioner mortality (per 1,000 pensioners)

Age	Males			Females		
	Age retired	Invalid retired	Spouse	Age retired	Invalid retired	Spouse
20	0.10	1.62	0.10	0.13	1.62	0.13
30	0.21	1.67	0.21	0.21	1.67	0.21
40	0.59	2.45	0.59	0.53	2.45	0.53
50	1.44	4.09	1.44	1.23	4.09	1.23
55	2.27	5.70	2.27	1.90	5.70	1.90
60	3.60	8.54	3.60	3.43	8.54	3.43
65	6.11	13.78	6.11	5.68	13.78	5.68
70	11.18	23.42	11.18	10.00	23.42	10.00
75	21.27	43.67	21.27	21.68	43.67	21.68
80	46.86	76.89	46.86	39.09	76.89	39.09
90	153.29	238.38	153.29	128.72	238.38	128.72
100	500.32	739.04	500.32	424.65	739.04	424.65

Improvements in pensioner mortality

The following table summarises the assumed rates of improvement in future mortality of age retirements. No allowance has been made for future improvements in mortality for invalidity retirements.

Table D.11: Assumed rates of mortality reduction (per cent per annum)

Age	Male	Female
60	2.7	2.3
70	2.8	2.3
80	2.1	2.0
90	1.0	1.0
100	0.0	0.0

MSBS retirement ages for preserved members

The following table summarises the assumed rates of retirements for current and future preserved members. Preserved members aged 67 or more at the valuation date are assumed to retire immediately.

Table D.12: Preserver retirements (per 1,000 preserved members)

Age	Age Retirement	Age	Age Retirement
55	300	**62**	100
56	80	**63**	100
57	80	**64**	350
58	100	**65**	500
59	100	**66**	500
60	250	**67**	1,000
61	100		

Proportions married at death and age differences

The assumed proportions married at death at each age are shown below.

Table D.13: Proportions married

Age	Male non-invalidity (%)	Male invalidity[1] (%)	Female (%)
20	2	3	3
30	19	29	29
40	70	62	62
50	70	64	64
60	70	60	60
70	70	54	54
80	69	36	36
90	40	8	8

1 Male DFRDB invalidity pensioners are assumed to have the same proportion married as male non-invalidity pensioners

Married male members are assumed to be married to younger females on death with the age difference varying by Scheme. Married female members are assumed to be married to older males on death based on similar age differences.

Table D14: Age difference on death

Scheme	Age Difference on Death
DFRB	4 years
DFRDB	3 years
MSBS	2 years
ADF Cover	2 years

MSBS pension take-up rates for retirements

For those members retiring from ADF service aged 55 or more, it is assumed that 95 per cent of the lump sum would be converted to a pension.

MSBS pension take-up rates for preserved members

For current preserved members retiring aged 55 or more, it is assumed that 85 per cent of the lump sum would be converted to a pension.

For current serving members who become preserved members in the future who retire aged 55 or more, it is assumed that 85 per cent of the lump sum would be converted to a pension.

DFRDB commutation

Those members retiring from ADF service are assumed to take the maximum commutation lump sum available. This is generally 5 times the retirement pay prior to commutation.

Accrual recognition

For pensioners and preserved benefits all cash flows and associated unfunded liabilities are accrued at the valuation date.

For MSBS serving members (contributors), the proportion of the benefit taken to be accrued is as follows:

- for retirement and resignation benefits, the employer component of the benefit is assumed to accrue uniformly over the period from the date of commencement of the current period of service to the projected date of exit, or the projected date of attaining MBL status, whichever is earlier.
- for death and invalidity A and B benefits, the employer component of the benefit is assumed to accrue uniformly over the period from the date of commencement of the current period of service to the projected date of exit.

For DFRDB serving members (contributors), the proportion of the benefit taken to be accrued is as follows:

- for all benefits, the employer component of the benefit is assumed to accrue uniformly over the combined periods of service that count for benefit purposes to the projected date of exit. That is, where the serving member is a re-entered recipient, prior periods of service to the current period are included.

For serving members under the ADF Super arrangements that have insurance type cover provided by ADF Cover, there is no unfunded liability in respect of ADF Cover in respect of events (incidents and injuries) that are expected to occur in the future. There is, however, an Incurred But Not Reported (IBNR) type of reserve included to cover those that have incurred an injury or condition prior to the measurement date that will result in an invalidity pension commencing after the measurement date. This reserve is calculated on the basis that of the injuries or conditions incurred during a year,

- 50 per cent of them will result in an invalidity pension commencing in the same year,
- 30 per cent will result in an invalidity pension commencing in the subsequent year; and
- 20 per cent will result in an invalidity pension commencing in the year after.

GDP increases adjusted for inflation

GDP growth rates are assumed to be 2.5 per cent per annum in excess of inflation and are based on Commonwealth Treasury projections of nominal GDP values which have been adjusted for consistency with the inflation and wage growth assumptions adopted for this valuation. Given this adjustment, they should not be regarded as official Commonwealth Treasury projections.

Table D.15: ADF Population Projection

Year to 30 June	Population Growth %	Defence 2040 Target %
2024	1.7	1.8
2025	1.5	1.8
2026	1.5	1.8
2027	1.4	1.8
2028	1.4	1.8
2029	1.3	1.8
2030	1.3	1.8
2031	1.3	1.8
2032	1.2	1.8
2033	1.2	1.8
2034	1.2	1.8
2035	1.2	1.8
2036	1.1	1.8
2037	1.1	1.8
2038	1.1	1.8
2039	1.1	1.8
2040	1.1	1.8
2041	1.1	1.1
2042	1.0	1.0
2043	1.0	1.0
2044	1.0	1.0
2045	1.0	1.0
2046	1.0	1.0
2047	1.0	1.0
2048	0.9	0.9
2049	0.9	0.9
2050	0.9	0.9
2051	0.9	0.9
2052	0.9	0.9
2053	0.9	0.9
2054	0.9	0.9
2055	0.9	0.9
2056	0.8	0.8
2057	0.8	0.8
2058	0.8	0.8
2059	0.8	0.8
2060	0.8	0.8
2061	0.8	0.8
2062	0.8	0.8
2063	0.8	0.8

Appendix E: Summary of Assumption Change Impact

Assumption Change	DFRB Pension	DFRDB Cont.	DFRDB Pension	MSBS Cont.	MSBS Pension	MSBS Preserved	ADF Cover	Total Impact ($m)
Marriage proportion (variable)	✓	✓		✓	✓	✓	✓	+$1,239
Spouse age difference (smaller)		✓	✓	✓	✓	✓	✓	-$406
Pensioner mortality (higher)	✓	✓	✓	✓	✓	✓	✓	-$1,789
Retirement rate (deferred)		✓		✓		✓		-$1,169
Lump sum take up for MSBS (higher)				✓		✓		-$353
Resignation (lower)				✓				+$284
Invalidity rate (+60%)		✓		✓			✓	+$5,646
Invalidity A% (higher)				✓			✓	
Invalidity Reclassification					✓			
Children's pension loading (lower)	✓	✓	✓	✓	✓			-$44
Economic (salary growth lower)	✓	✓	✓	✓				-$1,597
Retrospective Invalidities			✓		✓		✓	+$8,218
Total Impact on unfunded liability ($m)	-$28	-$133	-$933	+$2,544	+$8,666	-$775	+$687	+$10,027

Appendix F: Sensitivity analysis

Sensitivity analysis has been undertaken on a variety of factors to show the impact of a range of scenarios on the unfunded liabilities for all schemes and the notional employer contribution rates for DFRDB, MSBS and ADF Cover.

Economic Parameters

The key sensitivities around the costs of the schemes relate to the economic parameters. Accordingly, six scenarios which illustrate the impacts of changes to the economic assumptions have been modelled, specifically:

- a decrease of 1 percentage point in the annual interest rate used,
- an increase of 1 percentage point in the annual interest rate used,
- a decrease of 1 percentage point in the assumed annual rate of general salary (and MTAWE) inflation,
- an increase of 1 percentage point in the assumed annual rate of general salary (and MTAWE) inflation,
- a decrease of 1 percentage point in the assumed annual rate of CPI inflation; and
- an increase of 1 percentage point in the assumed annual rate of CPI inflation.

In each of the above cases, it is assumed that the other economic assumptions are unchanged. The nominal base assumptions for this purpose are those adopted for the Long Term Cost Report, namely:

- 2.5 per cent per annum CPI
- 3.7 per cent per annum general wage increase (2.5 per cent CPI plus 1.2 per cent productivity growth)
- 5 per cent interest rate (2.5 per cent CPI plus 1.2 per cent productivity growth plus 1.3 per cent population growth)

It should be noted that the general salary inflation assumption is not only used for the indexation of military salaries but is also used for the indexation of DFRB and DFRDB pensions for those aged 55 or more.

There is little variation between the likely short term CPI increases and general salary increases that have been assumed for this report. However, as discussed in Appendix B, if the cumulative growth in MTAWE since 1 July 2014 is lower than the cumulative growth in the level of CPI since 1 July 2014, DFRDB and DFRB pension increases for those aged 55 and over are limited to the growth in the CPI/PBLCI. Given that at 30 June 2023, the cumulative growth in MTAWE was 9.4 per cent lower than the comparable growth in CPI, then it is expected that the relevant pension increases will be limited to the assumed levels of CPI/PBLCI for the next ten years before reverting to salary growth rates from 2033–34. As a result, I have included a further short term economic assumptions scenario based on this likely outcome. For this scenario I have assumed that the PBLCI will be 2.7 per cent per annum, that is 0.2 percentage points higher than CPI.

Demographic Parameters

Section 7 sets out details of changes made to the demographic assumptions for this report, while Section 8 provides insight into the financial impact of those changes. Based on this analysis, I have included four further scenarios which relate to the most significant of the demographic changes with respect to the unfunded liability, namely:

- invalidity exit experience continues to increase, with a 40 per cent increase in new invalidity pensions from direct exits, while the numbers of future retrospective invalidity pensions commencing have also been increased by 40 per cent,
- invalidity exit experience from direct exits reduce by 40 per cent from the levels assumed for this report, while the assumed numbers of future retrospective invalidity pensions commencing have also been reduced by 40,
- pensioner mortality rates continue to increase with a 10 per cent increase in the rates of mortality at all ages, for both males and females and for member spouses, and
- pensioner mortality rates decrease with a 10 per cent decrease in the rates of mortality at all ages, for both males and females and for member spouses.

While the change in the retirement rates also had a material impact on the unfunded liability, that was largely due to the allowance made in this report for the gradual change in behaviour over time from the historical assumption that individuals all retired at age 60. Going forward, I am not expecting the same material variations in retirement experience.

Population Growth Parameters

As indicated in Section 4, while the results from this report are based on an ADF population growth scenario which increases in line with the projected growth of the Australian population, a second alternative scenario has regard to Defence's published target of an ADF serving membership of 80,000 by 2040. This scenario requires a 1.8 per cent per annum growth rate to achieve this target, before reverting to population growth rates thereafter.

Comparative Results

The impact of the alternative scenarios on the unfunded liability and notional employer contribution rates are as follows:

Table F.1: Impact of alternative scenarios – unfunded liability

	DFRB Unfunded Liability $m	DFRDB Unfunded Liability $m	MSBS Unfunded Liability $m	ADF Cover Unfunded Liability $m	Total Unfunded Liability $m	Total Unfunded Liability Changes %
2023 Long-Term Cost Report	247	31,734	91,353	3,849	127,183	-
Interest rate (-1% pa)	265	35,812	112,976	4,613	153,665	21%
Interest rate (+1% pa)	231	28,376	75,240	3,295	107,143	-16%
Salary increases (-1% pa)	231	28,430	89,601	3,766	122,029	-4%
Salary increases (+1% pa)	264	35,667	93,325	3,951	133,207	5%
Inflation (CPI) (-1% pa)	247	31,699	76,828	3,365	112,140	-12%
Inflation (CPI) (+1% pa)	247	31,769	110,163	4,519	146,698	15%
Lower Invalidity rates (-40%)	247	31,224	85,231	3,594	120,296	-5%
Higher invalidity rates (+40%)	247	32,243	96,715	4,104	133,309	5%
Lower mortality (-10%)	259	32,570	92,576	3,883	129,288	2%
Higher mortality (+10%)	236	30,976	90,226	3,818	125,256	-2%
Short Term Economic	234	29,608	91,353	3,849	125,045	-2%

The first six scenarios highlight the sensitivity of the estimates of the unfunded liability to changes in economic assumptions. As DFRB and DFRDB pensions are now linked to salary (MTAWE) inflation for most of the period while in payment, these schemes are much more sensitive to the salary (MTAWE) increase assumption than the CPI increase assumption which only applies to pension indexation for those under age 55. For the MSBS, the large unfunded components of the preserved benefits as well as pensions are CPI inflation linked. Most MSBS contributors will end up with a preserved benefit on exit from the ADF and are likely to take a pension on eventual retirement. As a result, MSBS costs are much more sensitive to the CPI inflation assumption than the salary increase assumption.

The variation in invalidity rates from active service only impact MSBS and ADF Cover (ignoring the small group of contributors remaining in DFRDB), while the variation in retrospective invalidities also impacts DFRDB.

Changes in mortality rates impact all Schemes but in different proportions, as indicated by Figure 8.5, where the mortality change was only at older ages. For the alternative scenario, which involves a uniform change in mortality rates, the impact varies by Scheme due to their different age profiles, with a larger percentage change applying for the older schemes (DFRB and DFRDB) relative to MSBS and ADF Cover.

The impact of the alternative assumptions on the notional employer contribution rates for each Scheme are set out below in Table F.2 with relative movements broadly consistent with the movements in the unfunded liability.

Table F.2: Impact of alternative scenarios – notional employer contribution rate

	DFRDB	MSBS	ADF Cover	
			2023–24	Mature State
2023 long-term cost report	36.2%	53.5%	43.7%	61.8%
Interest rate (-1% pa)	42.6%	69.0%	52.7%	74.4%
Interest rate (+1% pa)	31.2%	42.4%	36.8%	51.5%
Salary increases (-1% pa)	31.2%	50.5%	43.7%	61.8%
Salary increases (+1% pa)	42.4%	56.9%	43.7%	61.8%
Inflation (CPI) (-1% pa)	36.2%	45.4%	36.6%	51.9%
Inflation (CPI) (+1% pa)	36.2%	64.1%	52.9%	73.5%
Lower Invalidity rates (-40%)	35.8%	47.2%	26.2%	37.1%
Higher invalidity rates (+40%)	36.6%	58.8%	61.2%	86.5%
Lower mortality (-10%)	36.8%	54.2%	44.2%	62.6%
Higher mortality (+10%)	35.7%	52.9%	43.2%	61.1%

It is clear that from an economic perspective, changes in interest rate and inflation assumptions have material and corresponding impacts on the notional employer contribution rates for MSBS and ADF Cover, while salary increases are the key assumption for DFRDB. In relation to the demographic assumptions, invalidity rates are more impactful than mortality.

Short term economic assumptions outlays

While Table F.1 shows the impact of the short term economic assumptions on the unfunded liability for DFRB and DFRDB at 30 June 2023, the table below compares the projection of annual Commonwealth cash outlays for DFRB and DFRDB, based on the alternative short term economic assumptions with the cash impact from the base case presented in this report. DFRB and DFRDB are considered here as they experience the biggest impact of the short term assumptions due to the application of CPI/PBLCI increase rather than salary increase over the next 10 years. As expected, the impact on cash outlays of lower pension indexation grows over time.

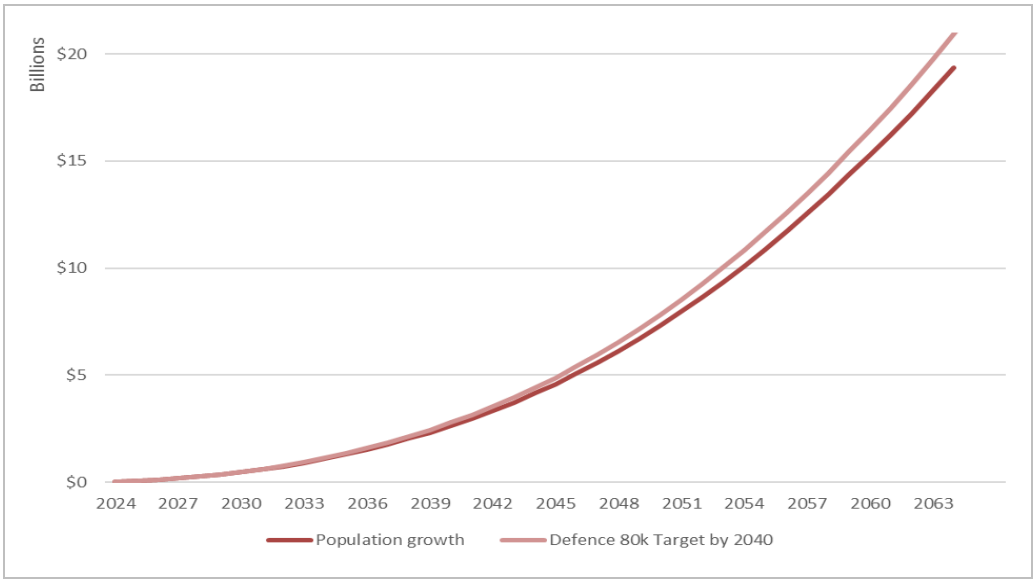
Table F.3: Projected Commonwealth outlays for DFRB and DFRDB – short term economic assumptions

Year	Current ($m)	Alternative ($m)	Difference ($m)
2023–24	1,938	1,932	-6
2024–25	1,943	1,920	-23
2025–26	1,975	1,933	-42
2026–27	2,000	1,939	-61
2027–28	2,012	1,932	-80
2028–29	2,020	1,921	-99
2029–30	2,023	1,906	-117
2034–35	2,024	1,840	-184
2039–40	1,980	1,799	-182
2044–45	1,810	1,642	-168

Population growth unfunded liability

While the alternative population growth scenario illustrated in Figure 4.1 has no impact on the unfunded liability at 30 June 2023, there is a gradual increase over time in relation to the ADF Cover unfunded liability. The impact of higher ADF Cover population growth is better illustrated with a comparison of projected cash flows. This is illustrated in Figure F.1 below.

Figure F.1: Projected ADF cover cashflow



As expected, a faster rate of ADF population growth sees the ADF Cover cashflow increase over time with the increase being over $1.5 billion in nominal dollars by 2064.