



Government Actuary's Department

Review of survivor benefits in occupational pension schemes

Estimated costs of equalisation for private sector schemes

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Part I – Report

1 Summary

- 1.1 The Department for Work and Pensions (DWP) asked the Government Actuary's Department (GAD) to estimate the costs of equalising certain pension scheme survivor benefits. This report sets out my estimates of the resulting costs.
- 1.2 This report considers funded, private sector, defined benefit (DB) occupational pension schemes in Great Britain (GB). The costings requested by DWP relate to the equalisation of survivor benefits between opposite sex spouses and same sex spouses¹, and between men and women. Occupational pension schemes are already required to provide equal benefits to men and women, and to opposite sex spouses and same sex spouses, for current periods of accrual. The costings in this report estimate the effects of equalising survivor benefits for the relevant past periods of accrual.
- 1.3 Taking into account the purposes of the survivor benefit review, the use to be made of the costings, the timescales for the review and the potential costs of collecting detailed data from individual pension schemes, DWP and I have agreed that I would use an aggregate, high-level, approach for these costings.
- 1.4 My calculations show that, using the data, methodology and assumptions described in this report, the estimated increase in schemes' aggregate technical provisions at 31 March 2012 from providing survivor benefits to widows and widowers from a same sex marriage in line with those currently provided to widows and widowers from an opposite sex marriage, for all periods of accrual (where this is not already the case), is around £100 million (around 0.01% of schemes' total technical provisions).²
- 1.5 If schemes were to provide survivor benefits to all widowers from an opposite sex marriage in line with those currently provided to widows from an opposite sex marriage, for all periods of accrual (where this is not already the case), the increase in schemes' aggregate technical provisions would be £300 million. Combining this with the costs in paragraph 1.4 gives a total cost of £400 million (around 0.03% of schemes' total technical provisions).
- 1.6 The costings in this report are based on an approximate, high-level methodology, and reflect relatively limited data on pension schemes' liability profiles and benefit provisions. It is possible that the ultimate costs of equalisation could be quite different from those estimated here. Section 6 shows that plausible changes in assumptions change the estimated costs significantly.
- 1.7 Please refer to the rest of this report for further details of my costings, and the interpretation and use of the results.

¹ In this report, references to "same sex spouses" should be interpreted as including civil partners.

² The estimated cost depends on the exact benefits provided. More details are given in section 4.



2 Introduction

- 2.1 The Government is carrying out a review of survivor benefits in occupational pension schemes in accordance with s16 of the Marriage (Same Sex Couples) Act 2013. The Department for Work and Pensions (DWP) asked the Government Actuary's Department (GAD) to estimate the costs of equalising certain pension scheme survivor benefits. This report sets out my estimates of the resulting costs.
- 2.2 This report considers funded, private sector occupational pension schemes only. GAD has prepared a separate report for HM Treasury (HMT) on the equivalent costs for public service occupational pension schemes. DWP has instructed us to consider defined benefit (DB) pension rights in Great Britain (GB).
- 2.3 The costings requested by DWP relate to the equalisation of survivor benefits between opposite sex spouses and same sex spouses³, and between men and women. DWP's specification of the costings required is included in Appendix 1. DWP's specification, and therefore this report, does not cover:
- > pension benefits other than those provided to survivors following the death of the original pension scheme member; or
 - > survivor benefits for unmarried partners⁴.
- 2.4 Occupational pension schemes are required to provide equal benefits to men and women for service from May 1990, and to provide equal benefits to opposite sex spouses and same sex spouses for service from December 2005⁵. The costings in this report estimate the effects of equalising survivor benefits for the relevant past periods of accrual. There are no corresponding ongoing, or future service, costs. DWP's summary of relevant pension schemes' statutory obligations is included in Appendix 2.
- 2.5 This report is addressed to DWP. It has been prepared on the understanding that it will be published in full. If any part of this report is reproduced, quoted or referred to in part, the party doing so should be aware that this report is intended to be read in full. Other than to DWP, GAD has no liability to any person or third party for any act or omission taken, either in whole or part, on the basis of this report.
- 2.6 In preparing this report, I have followed GAD's quality standards described [here](#).

³ In this report, references to "same sex spouses" should be interpreted as including civil partners.

⁴ Similarly, references to "unmarried partners" should be interpreted as excluding civil partners.

⁵ In addition, contracted-out pension schemes are required to provide the minimum level of contracted-out benefits to surviving same sex spouses for service from April 1988.



3 Methodology, assumptions and data

Methodology

- 3.1 The required costings cover over 6,000 pension schemes with an aggregate combined membership of over 10 million⁶. A comprehensive estimate would require details of each scheme's benefit provisions, discretionary practices, membership profile, accrued benefits and funding assumptions.
- 3.2 I have discussed the methodology for these costings with DWP. Taking into account the purposes of the survivor benefit review, the use to be made of the costings, the timescales for the review and the potential costs (to both government and pension schemes) of collecting detailed data from individual pension schemes, DWP and I have agreed that I would use an aggregate, high-level, approach for these costings.
- 3.3 In essence, the methodology used is to:
- > Take, as a starting point, the estimated aggregate technical provisions for GB DB pension schemes as at 31 March 2012, as provided by the Pensions Regulator;
 - > Estimate the proportion of those liabilities that are relevant to each costing (for example, in respect of periods of accrual, gender and type of benefit); and
 - > Estimate the potential increase in those liabilities arising from the relevant equalisation scenario (taking into account the extent to which schemes already provide equal benefits).
- 3.4 I consider this methodology to be appropriate for this purpose, given the use to be made of these costings as discussed with DWP. This methodology does not produce as accurate a result as the hypothetical 'comprehensive estimate' described in paragraph 3.1. Readers of this report should take into account the uncertainties caused by the use of an aggregate methodology. Further comments on risks and uncertainties are set out in section 6.
- 3.5 My costings consider increases in pension schemes' benefit payments only. I have made no allowance for any effects on schemes' administration costs.

Assumptions and data

- 3.6 The principal sources of data used are:
- > Data from the Pensions Regulator (tPR) on GB DB pension schemes' aggregate technical provisions as at 31 March 2012;
 - > 'Provision of survivors' benefits in private sector Defined Benefit pension schemes' (June 2014), a report produced by IFF Research Ltd on behalf of DWP for the purposes of the survivor benefit review; plus the detailed survey data collected by IFF Research Ltd for that report;

⁶ "[The Purple Book 2013](#)", PPF and tPR, section 2.1.



- > Data from the Pensions Regulator (tPR) on selected entries from annual scheme returns⁷ for those pension schemes surveyed by IFF Research Ltd for their report⁸; and
- > Relevant published data on pension schemes' benefits, membership, liabilities and funding assumptions, such as the Office for National Statistics' (ONS's) annual Occupational Pension Schemes Survey, tPR's scheme funding analysis and the Purple Book published by tPR and the Pension Protection Fund (PPF).

3.7 Where possible and appropriate, I have checked the data used for overall reasonableness and consistency with other available data sources. In my opinion, the data used are appropriate for the purpose of these costings as described above. It is possible that additional data sources exist which could be used to improve the costings. One of the purposes of the consultation exercise described in paragraph 3.10 was to identify such data.

3.8 I have not carried out a full independent audit of all the data I have used. I have therefore relied on the general completeness and accuracy of the information supplied. Any errors in the data used would affect my results.

3.9 Appendix 3 sets out, in detail, the assumptions used for these costings, and the data and rationale underlying those assumptions.

Consultation

3.10 An earlier draft of this report was shared with DWP, HMT and a number of stakeholder bodies. Where stakeholders provided feedback, this has been taken into account in the preparation of the final version of this report.

⁷ Pension schemes must, by law, provide certain data annually to the Pensions Regulator. In practice, such data is submitted online through the Regulator's 'Exchange' system. In this report, such data is referred to as 'scheme return' data.

⁸ The scheme data provided to GAD by tPR and IFF Research Ltd was anonymised.



4 Results

4.1 The following table shows the results of my calculations:

Table 4.1 – Estimated increase in technical provisions at 31 March 2012 from equalising certain survivor benefits, GB, private sector funded DB schemes

	Same sex survivors (£m)	Estimated cost Opposite sex survivors (£m)	Total (£m)	Cost as a percentage of total technical provisions (%)
Step 1	100	-	100	0.01%
Step 2(a)	100	-	100	0.01%
Step 2(b)	100	-	100	0.01%
Step 3	100	300	400	0.03%

¹ Step 1 shows the estimated cost of providing survivor benefits to widows from a same sex marriage in line with those provided to widows from an opposite sex marriage, and of providing survivor benefits to widowers from a same sex marriage in line with those currently provided to widowers from an opposite sex marriage, for all periods of accrual.

² Step 2(a) shows the estimated cost of providing survivor benefits to widows and widowers from a same sex marriage in line with those currently provided to widows from an opposite sex marriage, for all periods of accrual.

³ Step 2(b) shows the estimated cost of providing survivor benefits to widows and widowers from a same sex marriage in line with those currently provided to widowers from an opposite sex marriage, for all periods of accrual.

⁴ Step 3 shows the estimated cost of providing survivor benefits to all widows and widowers (whether male or female, and whether from a same sex marriage or an opposite sex marriage) in line with those currently provided to widows from an opposite sex marriage, for all periods of accrual.

⁵ Costs in respect of contracted-out schemes are estimated to be around 90% of the totals shown.

⁶ All costs shown are the total (not incremental) costs of each step, relative to the current position.

⁷ Costs have been rounded to the nearest £100 million. The estimated cost of Step 2(a) is estimated to be around £10 million greater than the estimated costs of Steps 1 or 2(b) (which are similar to each other).

4.2 The next two sections of this report include important comments on the interpretation of these results and the uncertainties underlying these estimates, and show that plausible changes in assumptions could change the estimated costs significantly.



5 Interpretation of the results

Technical provisions

- 5.1 In accordance with DWP's instructions, I have estimated the costs on a technical provisions basis at 31 March 2012.
- 5.2 A pension scheme's technical provisions represent the estimated value, at a particular date, of the scheme's liabilities⁹ which have accrued up to that date¹⁰.
- 5.3 Technical provisions are expressed as a capitalised value at the relevant date. This can be thought of as the amount of money that a pension scheme needs to hold now such that, together with future investment returns earned on that sum, the scheme can meet its future benefit payments to members (assuming that the assumptions underlying the calculation are borne out in practice).
- 5.4 Technical provisions are primarily used in scheme funding valuations. At a regular (usually triennial) actuarial valuation of a funded pension scheme, the comparison between the value of the scheme's assets¹¹ and its technical provisions¹² forms the basis for discussions between the pension scheme's trustees and sponsor regarding any additional contributions required from the sponsor to meet any deficit¹³.
- 5.5 The cost of a pension scheme's future benefit payments depends on unknown future experience. A scheme's technical provisions therefore reflects a number of assumptions. Legislation requires technical provisions to be calculated prudently, including a margin for uncertainty. In other words, a scheme's technical provisions will be greater than the trustees' best-estimate view of the present value of the scheme's expected future costs.¹⁴
- 5.6 Different pension schemes use different assumptions to calculate their technical provisions. In view of the high-level method used here, I have considered schemes' total technical provisions in aggregate, using a typical, average funding basis derived from published Pensions Regulator data.¹⁵

⁹ In other words, its obligations to pay future benefits to members.

¹⁰ In other words, in respect of members' pensionable service before the relevant date.

¹¹ In other words, the amount of money being held by the scheme.

¹² In other words, the amount of money the scheme needs to hold to meet its obligations.

¹³ Or on the application of any scheme surplus.

¹⁴ Putting this another way, the trustees should expect there to be a greater than 50% chance that the technical provisions will prove to be sufficient.

¹⁵ "[Scheme funding statistics](#)", May 2014, the Pensions Regulator.



Implications of the results – in aggregate across all schemes

5.7 DWP has asked us to consider the following two effects:

- > The increase in regular, future benefit payments to survivors – this will emerge as a series of regular (normally monthly) cashflows over the next 50 or so years; and
- > The immediate back-dating cost, in respect of past benefit payments that would have been due to current widows or widowers (ignoring interest payments).¹⁶

5.8 My costings represent the estimated increase in pension schemes' aggregate technical provisions of these two effects combined.

5.9 In practice, if the specified survivor benefits were to be equalised, there may not be any immediate increase in some schemes' technical provisions. This is because the calculation of technical provisions (and the assumptions underlying them) necessarily includes a large number of assumptions, some of which will incorporate margins for prudence. The small estimated relative¹⁷ costs of these changes means that, to some extent, they might already be covered by approximations and margins in schemes' technical provisions.

5.10 Where some schemes' technical provisions would increase and a scheme is in deficit, this would increase the deficit recovery contributions to be paid by the scheme sponsor. Typically, such contributions are spread over a period of 5 to 11 years¹⁸.

5.11 Whether or not schemes' technical provisions would increase immediately, the two effects described in paragraph 5.7 would represent a real increase in schemes' immediate (in the case of back-dating payments) and future (in the case of regular benefit payments) payments to members, and would therefore increase schemes' actual costs. To the extent that this is not anticipated exactly in advance by an increase in technical provisions, such costs would be expected to emerge as additional future valuation deficits or reductions in future scheme surpluses. The ultimate implications of such a measure would depend on the extent to which scheme surpluses and deficits are allocated to the sponsor or to scheme members.

¹⁶ As requested by DWP, I have assumed that no additional benefits would be due to the estates of deceased dependants.

¹⁷ Relative to schemes' total technical provisions.

¹⁸ Lower quartile to upper quartile spread of deficit recovery periods, from the Pensions Regulator's 2013 scheme funding analysis for 'Tranche 7' valuations.



Interpretation of the results – in aggregate across all schemes

5.12 The costs shown in section 4 are of the order of hundreds of millions of pounds. The costs represent small percentages (less than 0.05%) of pension schemes' total technical provisions. The reasons for this include:

- > Most benefit payments from pension schemes are to former scheme members, not widows and widowers;
- > The steps costed affect benefits accrued in certain periods only, not all accruals;
- > The costings in respect of same sex marriages reflect the relatively low assumed proportions of members entering into same sex marriages; and
- > The costings reflect survey data showing that many schemes already provide fully equalised survivor benefits for all periods of accrual.

Implications of the results – individual pension schemes

5.13 While the aggregate costs represent a small percentage of all pension schemes' total technical provisions, individual pension schemes would see more variable effects. For example:

- > A pension scheme that has not fully equalised survivor benefits would see a greater proportional increase in costs than that across all schemes in aggregate (where the relative cost is reduced by schemes which have already equalised);
- > Conversely, a pension scheme that has already fully equalised survivor benefits would see no increase in costs, relative to its current benefits.
- > A pension scheme with a small number of members, a high proportion of whom are in same sex marriages, could see a greater proportional increase in costs than that across all schemes in aggregate (where the aggregate number of same sex spouses is assumed to be relatively low).



6 Risks and sensitivities

Uncertainties inherent in the estimates

- 6.1 The costings in this report are based on an approximate, high-level methodology, and reflect relatively limited data on pension schemes' liability profiles and benefit provisions. Therefore, it is possible that, if there were to be any change in statutory equalisation requirements for pension schemes' survivor benefits, the ultimate costs could be quite different from those estimated here.
- 6.2 While the estimated costs could be quite different in absolute terms, there is greater confidence in the costs being relatively small compared with schemes' aggregate technical provisions, for the reasons described in paragraph 5.12.
- 6.3 One of the main reasons for the cost estimates being relatively small compared with schemes' aggregate technical provisions is the results of survey data, indicating that most private sector pension schemes already provide survivor benefits that have been fully equalised across the relevant groups. It is possible that this data does not completely represent schemes' actual benefit provision, due to:
- > sampling error; in other words, the possibility that the schemes in the sample are not representative of the totality of schemes (particularly in view of the relatively small sample size for some cells); or
 - > response error; in other words, the survey has not been completed correctly by all schemes in the sample.
- 6.4 As an example of the second point, pension schemes' benefit provisions can be very complicated, with different provisions applying to different membership groups (for example, depending on the date of leaving service), subsidiaries, and benefit scales. It is possible that, while a scheme might provide equalised benefits in respect of current employees, previous employees' entitlement might be unequal in certain respects. If such effects were not accurately picked up in the survey, then the estimated equalisation costs in this report could be understated.
- 6.5 A stakeholder body has indicated that, in its view, fewer private sector schemes will have fully equalised survivor benefits across the relevant groups than indicated by the IFF Research report. Table 6.1 on the following page illustrates the effects on the costings of varying this parameter.
- 6.6 The following paragraphs illustrate the sensitivities inherent in the estimates, by showing the potential changes in the estimates if certain assumptions and parameters are changed.

Sensitivity analysis

- 6.7 The table on the following page illustrates the effect on the results of varying certain assumptions and parameters. Each change is considered in isolation. Effects are shown for Steps 2(a) and 3 only, for brevity. Similar effects would emerge for the other steps.



Table 6.1 – Effects on the costings of varying certain assumptions

Variant	Step 2(a)		Step 3	
	Estimated cost (£m)	Cost relative to total technical provisions (%)	Estimated cost (£m)	Cost relative to total technical provisions (%)
Baseline results¹⁹	100	0.01%	400	0.03%
50% (not 77%) of schemes (by liabilities) already equalised for same sex survivor benefits	225	0.02%	525	0.04%
95% (not 77%) of schemes (by liabilities) already equalised for same sex survivor benefits	25	<0.01%	325	0.03%
75% (not 95%) of schemes (by liabilities) already equalised for opposite sex survivor benefits	100	0.01%	1,600	0.13%
97.5% (not 95%) of schemes (by liabilities) already equalised for opposite sex survivor benefits	100	0.01%	250	0.02%
Take-up of same sex marriages double that assumed for baseline results	200	0.02%	500	0.04%
Take-up of same sex marriages half that assumed for baseline results	50	<0.01%	350	0.03%
Current dependants' liabilities assumed to be 5% (not 2½%) of female former members' pensioners' liabilities.	100	0.01%	550	0.04%
Current dependants' liabilities assumed to be 1% (not 2½%) of female former members' pensioners' liabilities.	100	0.01%	325	0.03%

- 6.8 The table illustrates that plausible changes in assumptions could increase the estimated costs by a factor of 4, or reduce the estimated costs by a factor of ¼. These are not upper or lower bounds. In all cases illustrated, the estimated costs remain small relative to schemes' total accrued liabilities, with the highest cost shown above being less than 0.15% of schemes' total technical provisions.
- 6.9 Further, as with any liability calculation, the ultimate cost depends on actual future experience and is only known once all pensions have been paid. Changes in the discount rates used to value technical provisions, assumed longevity and other valuation assumptions could significantly increase or decrease the cost estimates.

¹⁹ As shown in section 4.



7 Reconciliation with previous estimates

Equalisation between opposite sex spouses and same sex spouses

- 7.1 DWP published an estimate of £18 million for the estimated increase in pension scheme liabilities of equalising survivor benefits for civil partners and same-sex married couples in contracted-in DB pension schemes in July 2013²⁰. The equivalent estimate for contracted-out schemes was £70 million, giving a total of £88 million for contracted-in and -out schemes combined. This can be compared with my estimates of around £100 million for Steps 1, 2(a) and 2(b) shown in section 4.
- 7.2 There are a number of differences in the calculations, most of which broadly offset each other resulting in estimates of a similar order of magnitude. The two most significant differences between the two estimates are:
- > My calculations assume a higher level of same sex marriages than DWP's calculations last year, based on the analysis of ONS data described in Appendix 3;
 - > My calculations assume that more schemes already provide fully equalised benefits than DWP's calculations last year, based on the results of the survey conducted by IFF Research Ltd, which was not available last year for DWP's calculations.

Equalisation between men and women

- 7.3 I am not aware of any previously published estimates of the increase in aggregate scheme liabilities for private sector DB schemes if widows' and widowers' (opposite sex) survivor benefits were to be equalised, against which my estimates can be compared.

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²⁰https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/210859/Ad_hoc_analysis_civil_partners_survivors_benefit_010713.pdf



Part II – Appendices

Appendix 1: DWP's specification of the costings required

This appendix contains a copy of the note sent to GAD by DWP specifying the costings required.

Survivor Benefit Review – DWP's Questions for GAD

This note details the questions and gives an explanation of what we mean by these steps. As part of that explanation we cover the periods of accruals.

More generally we are looking at schemes that cover GB in line with the approach being taken by HMT on the public service schemes. Of course there are differences between private and public schemes, and there will be differences in the ways the costs have been calculated. We have not been able to find a way of aligning the two figures, nor have we found any examples of where this has been done in historical examples. We therefore have to accept these differences.

Step 1

What is the cost of providing survivor benefits in pension schemes to surviving female civil partners and female survivors of a marriage between a same sex couple which are identical (for all periods of accrual) to those provided to women (widows) who survive their male spouse, and of providing survivor benefits in pension schemes to surviving male civil partners and male survivors of a marriage between a same sex couple which are identical (for all periods of accrual) to those provided to men (widowers) who survive their female spouse?

What we mean by this is that:

- we want to consider the estimated costs of eliminating all differences in treatment because of sexual orientation (SO), leaving only differences between men and women to operate in survivor benefits;
- We want to take into account **all periods of accrual**. To limit periods of accrual for equalisation between opposite sex (OS)/ same sex (SS) widows or OS/SS widowers would mean differences because of SO would not be eliminated entirely.



Step 2(a)

What is the cost of providing survivor benefits in pension schemes to surviving male and female civil partners and male and female survivors of a marriage between a same sex couple which are identical (for all periods of accrual) to those provided to women (widows) who survive their male spouse?

What we mean by this is that:

- we want to consider the estimated costs of aligning benefits for all SS survivors (men and women) with those for OS widows, that is, to be based on the same periods of accrual as OS widows' benefits are calculated within each scheme.
- that means we want to take into account ***all periods of accrual***.

Step 2(b)

What is the cost of providing survivor benefits in pension schemes to surviving male and female civil partners and male and female survivors of a marriage between a same sex couple which are identical (for all periods of accrual) to those provided to men (widowers) who survive their female spouse?

What we mean by this is:

- we want to consider the estimated costs of aligning benefits provided to SS survivors of either sex to be the same as those provided to OS widowers;
- benefits provided to OS widowers are subject to the legal minimum that only accruals post-1990 must be taken into account in equalising between men and women;
- but we want the question to cover ***all periods of accrual*** to ensure that the costs to schemes of providing exactly the same benefits to SS survivors as to OS widowers are assessed, regardless of the legal minimum requirement.

Alternative – specify a period of accrual

Once the initial cost estimates have been provided and considered, DWP may request further estimates from GAD on the estimated costs of equalising SS survivors' benefits for certain (but not all) periods of accrual (post-1990).

At this stage, no such further estimates are required from GAD. When building its model to address the above questions, GAD should bear in mind this possible additional requirement. However, DWP accepts that data on accrual periods is limited. DWP will be content to accept broad-brush estimates of the effects of limiting equalisation to specific periods of accrual.



Step 3

In addition to the above steps, what is the cost of providing survivor benefits in pension schemes to men who survive their female spouse which are identical (for all periods of accrual) to those provided to women who survive their male spouse?

What we mean by this:

- we want to consider the estimated costs of there being no difference in how survivors' benefits are calculated between men and women in OS marriage;
- all periods of accrual must be taken into account.
- the above question assumes that benefits provided to OS women (widows) are at least as great as the benefits provided to OS men (widowers). While this will generally be the case, it need not be in every pension scheme. Specifically, this step requires the estimated cost of equalisation (for all periods of accrual) to the higher of widows' and widowers' benefits.

This is the end point for equalisation on sex grounds. In order to do so we would not be able to limit by periods of accrual. All periods of accrual should be taken into account.

Additional Notes

We would like the cost broken down by schemes that are contracted out and not contracted out.

We would like to show the cost in terms of the present value of a scheme's liabilities as at 31 March 2012 on a scheme funding (technical provisions) basis.



Appendix 2: DWP's summary of schemes' statutory obligations

This appendix contains a copy of the note sent to GAD by DWP summarising current statutory requirements in respect of private sector occupational pension schemes' provision of survivor benefits.

SUMMARY OF LEGAL OBLIGATIONS TO PROVIDE SURVIVOR BENEFITS

Status of survivor	Benefits provided by non contracted-out DB occupational pension schemes	Benefits provided by contracted-out DB occupational pension schemes
Female survivor (widow) of opposite sex marriage	<p>No obligation to provide survivor benefits at all.</p> <p>If they do provide survivor benefits, must be equal for widows and widowers in respect of accruals from 17 May 1990 (Barber) (s.67 Equality Act 2010).</p>	<p>Must provide survivor's Guaranteed Minimum Pension (GMP) to a widow based on member's GMP accruals since 1978 (s.17(3) PSA 1993).</p> <p>GMP requirement replaced in 1997 with reference scheme test (RST) (s.12A PSA 1993). The RST requires schemes to provide benefits that are at least broadly equivalent to those provided by a reference scheme. In a reference scheme, survivor benefits must be provided to all survivors of married couples and CPs on 1997 accruals onwards.</p> <p>S.67 Equality Act 2010 applies to the provision of benefits from the scheme as a whole (GMP plus scheme excess) on accruals from 17 May 1990.</p>



Status of survivor	Benefits provided by non contracted-out DB occupational pension schemes	Benefits provided by contracted-out DB occupational pension schemes
Male survivor (widower) of opposite sex marriage	<p>No obligation to provide survivor benefits at all.</p> <p>If they do provide survivor benefits, must be equal for widows and widowers in respect of accruals from 17 May 1990 (Barber) (s.67 Equality Act 2010).</p>	<p>Must provide survivor's GMP to a widower based on member's GMP accruals since 1988 (s.17(4) PSA 1993).</p> <p>GMP requirement replaced in 1997 with reference scheme test (RST) (s.12A PSA 1993). The RST requires schemes to provide benefits that are at least broadly equivalent to those provided by a reference scheme. In a reference scheme, survivor benefits must be provided to all survivors of married couples and CPs on 1997 accruals onwards.</p> <p>S.67 Equality Act 2010 applies to the provision of benefits from the scheme as a whole (GMP plus scheme excess) on accruals from 17 May 1990.</p>
Female surviving civil partner, and female survivor of a same sex marriage	<p>No obligation to provide survivor benefits at all.</p> <p>If they do provide survivor benefits, must provide benefits equal to those provided to widows and widowers in respect of accruals from 5 Dec 2005 (Non-discrimination rule, s.61 Equality Act 2010, and paragraph 18 Schedule 9 of that Act).</p>	<p>Must provide survivor's GMP to a surviving CP or same sex widow based on member's GMP accruals since 1988 (s.17(4) PSA 1993 as amended by M(SSC) Act 2013).</p> <p>GMP requirement replaced in 1997 with reference scheme test (RST) (s.12A PSA 1993). The RST requires schemes to provide benefits that are at least broadly equivalent to those provided by a reference scheme. In a reference scheme, survivor benefits must be provided to all survivors of married couples and CPs on 1997 accruals onwards.</p>



Status of survivor	Benefits provided by non contracted-out DB occupational pension schemes	Benefits provided by contracted-out DB occupational pension schemes
Male surviving civil partner, and male survivor of a same sex marriage	<p>No obligation to provide survivor benefits at all.</p> <p>If they do provide survivor benefits, must provide benefits equal to those provided to widows and widowers in respect of accruals from 5 Dec 2005 (Non-discrimination rule, s.61 Equality Act 2010, and paragraph 18 Schedule 9 of that Act).</p>	<p>Must provide survivor's GMP to a surviving CP or same sex widower based on member's GMP accruals since 1988 (s.17(4) PSA 1993 as amended by M(SSC) Act 2013).</p> <p>GMP requirement replaced in 1997 with reference scheme test (RST) (s.12A PSA 1993). The RST requires schemes to provide benefits that are at least broadly equivalent to those provided by a reference scheme. In a reference scheme, survivor benefits must be provided to all survivors of married couples and CPs on 1997 accruals onwards.</p>



Appendix 3: Data and assumptions used

Data

A.1 The principal sources of data used are:

- > Data from the Pensions Regulator (tPR) on GB DB pension schemes' aggregate technical provisions as at 31 March 2012;
- > 'Provision of survivors' benefits in private sector Defined Benefit pension schemes' (June 2014), a report produced by IFF Research Ltd on behalf of DWP for the purposes of the survivor benefit review; plus the detailed survey data collected by IFF Research Ltd for that report;
- > Data from the Pensions Regulator (tPR) on selected entries from annual scheme returns²¹ for those pension schemes surveyed by IFF Research Ltd for their report; and
- > Relevant published data on pension schemes' benefits, membership, liabilities and funding assumptions, such as the Office for National Statistics' (ONS's) annual Occupational Pension Schemes Survey, tPR's scheme funding analysis and the Purple Book published by tPR and the Pension Protection Fund (PPF).

A.2 On the first item, tPR has estimated GB DB pension schemes' aggregate technical provisions as at 31 March 2012 to be £1,260 billion. This is an estimate: as pension schemes undertake actuarial valuations at different dates using different assumptions, tPR has had to estimate what schemes' aggregate technical provisions might have been had valuations been undertaken at 31 March 2012. In order to illustrate the potential uncertainty in this estimate, tPR has provided upper and lower bounds for this estimate, being £1,310 billion and £1,220 billion respectively.

A.3 On the second item, I have been provided with the underlying survey data collected by IFF Research Ltd for their report. This data covers 219 DB schemes, ranging from 65 schemes with fewer than 100 members to 18 of the largest 42 DB schemes, totalling technical provisions of around £110 billion. I have undertaken my own analysis on the survey results, in order to derive some of the assumptions required for these calculations. In some cases, the assumptions I have derived might differ from those reported by IFF Research Ltd, for reasons such as:

- > Different weightings being applied: IFF Research Ltd has generally presented its results in terms of numbers of pension schemes, and sometimes also relative to total scheme membership. For the purposes of my calculations, I have considered parameters weighted by scheme liabilities where possible, grossed up from the survey using data provided by tPR on GB DB pension schemes' estimated aggregate technical provisions by scheme size; and

²¹ Pension schemes must, by law, provide certain data annually to the Pensions Regulator. In practice, such data is submitted online through the Regulator's 'Exchange' system. In this report, such data is referred to as 'scheme return' data.



- > Where responses are unclear (for example, where one response is contradicted by a later response) my interpretation of the data might differ to IFF Research Ltd's. As far as I am aware, any such differences do not affect the order of magnitude of the results of my calculations.

Assumptions used

- A.4 Table A.1 on the following pages describes the derivation of the assumptions used in my calculations.
- A.5 As requested by DWP, and because of the relatively small liabilities involved, my calculations ignore any lump sum death in service benefits provided by schemes.
- A.6 In view of the approach used, the allowance for Guaranteed Minimum Pensions (GMPs) in my calculations is approximate. I have assumed that GMPs accrued between 1988 and 1997 are around 25% (for active and deferred members) and 33% (for pensioner members) of scheme benefits accrued in that period, on average.

Example of calculations

- A.7 In order to illustrate the method used, an example of my calculations is as follows:

Estimated cost of equalising male same sex survivor benefits with current (opposite sex) widows' benefits: contracted-out, deferred members, pre-88 accruals^{22,23}

£1,260 billion [total technical provisions scheme funding liabilities for all schemes]

x 93% [contracted-out proportion]

x 28% [current deferred liabilities proportion]

x 70% [male accruals proportion]

x 22% [pre-88 accruals proportion for male deferred members]

x 8% [additional liability to provide a survivor's benefit to a male survivor of a same sex marriage relative to a scheme's current technical provisions]

x 23% [proportion of schemes which do not already provide such benefits]

x 70% x 2.0% [combined proportion in an opposite sex marriage multiplied by relative proportions in same sex marriages compared with opposite sex marriages]

= £14 million²⁴

²² Equivalent calculations are also carried out for the other cells: ie other periods of accrual, for active and pensioner members, for contracted-in schemes and for women.

²³ Please refer to the tables on the following pages for details of the parameters used.

²⁴ Multiplying the numbers above together gives £13 million. The difference is due to rounding.



Table A.1 – Derivation of the assumptions used

Assumption	Value / Source	Comments
Percentage of total scheme liabilities in respect of contracted-out schemes	93% - From IFF survey data, grossed up using technical provisions.	Where a scheme in the survey was contracted out for the relevant periods of accrual for these costings (principally pre-1990 and pre-2005) but has subsequently contracted back in, our calculations have treated the scheme as being contracted out. This, and the different weightings applied, explain the difference between the assumption of 93% here and IFF's conclusion that 75% of schemes are (currently) contracted out. 93% is broadly consistent with data from past GAD/ONS Occupational Pension Scheme Surveys on private-sector scheme membership by contracting out status.
Percentage of total scheme liabilities in respect of current active, deferred and pensioner members	23%, 28% and 49% for active, deferred and pensioner members respectively (rounded to the nearest 1%) - From IFF survey data combined with tPR scheme return data, grossed up using technical provisions.	Derived from split of schemes' technical provisions. I have assumed no difference in this split between contracted-in and contracted-out schemes.
Percentage of total scheme liabilities in respect of service by male and female employees	70%/30% male/female – From IFF survey data on number of scheme members, grossed up using technical provisions.	Reflects reported membership split for active, deferred and pensioner members at three different dates. Little variation in results by membership group and date, so applied equally to active, deferred and pensioner members. I have assumed no difference in this split between contracted-in and contracted-out schemes. Broadly consistent with data from past GAD/ONS Occupational Pension Scheme Surveys on scheme membership.
Profile of accrued liabilities by year of accrual	Gender-specific profiles derived from data on contracted-out earnings from 1978 to 2010 from DWP's LLMDB2 dataset. Example rates shown in Table A.2 at the end of this appendix.	Approximate adjustments were made to the contracted-out earnings factors to (i) exclude public sector accruals, (ii) include contracted-in earnings, (iii) adjust for different earnings definitions, (iv) apply survival rates to March 2012, (v) apply revaluation factors to March 2012, and (vi) therefore estimate the accrual profile of current aggregate scheme liabilities. While these calculations incorporate a number of approximations, the resulting aggregate profiles have been checked for broad reasonableness and consistency with other data sources (including tPR data from schemes' reported s179 valuation results).



Assumption	Value / Source	Comments
Proportion married (giving rise to opposite sex widows' and widowers' benefits)	70% - Broadly consistent with the assumption used for PPF s179 valuations	s179 valuations assume 75% (males) and 65% (females) married. For simplicity, I have used a combined percentage of 70% for all members.
Proportion in same sex marriage or civil partnership, relative to numbers of members in opposite sex marriages	2.0% for active and deferred members, 0.5% for current pensioner members and 0% for current dependants – derived from ONS data	ONS data on deaths registered in England and Wales in 2012 ²⁵ suggests that, for pensioners dying in 2012, there are around 1-2 surviving dependants from a civil partnership for every 1000 surviving dependants from an opposite sex marriage. ONS data on marriage and civil partnership formation rates ²⁶ suggests that, based on current formation rates, there will be around 25 surviving dependants from civil partnerships or same sex marriages for every 1000 surviving dependants from an opposite sex marriage in the long-term. The assumptions were derived from a combination of these data and an assumed membership and liability profile.
Weighted average ages of members at 31 March 2012	49 years old for active members, 49 years old for deferred members and 68 years old for current pensioners, from IFF survey data combined with tPR scheme return data, grossed up using technical provisions.	Broadly consistent also with default values used for PPF valuation roll-forward calculations where no data is available.
Percentage increase in liabilities from providing the relevant survivor benefits (for a given period of accrual)	Calculated by comparing the present value of the relevant benefits (mainly, contingent survivor annuity values) with an estimated equivalent present value of overall scheme benefits (including single life and contingent survivor annuity values)	Annuity values reflect the average ages and proportions married shown above. A real discount rate of 1½% pa as at 31 March 2012 has been used, reflecting (i) real gilt yields of around 0% pa, (ii) tPR scheme funding analysis showing an average assumed outperformance relative to real gilt yields of around 1% pa in real discount rates used for tranche 7 valuations ²⁷ , and (iii) an assumed ½% pa margin between average pension increases and RPI increases.

²⁵ <http://www.ons.gov.uk/ons/rel/vsob1/mortality-statistics--deaths-registered-in-england-and-wales--series-dr-/2012/dr-tables-2012.xls>

²⁶ <http://www.ons.gov.uk/ons/rel/vsob1/vital-statistics--population-and-health-reference-tables/winter-2013-update/annual-table.xls>

²⁷ In other words, for scheme funding valuations with effective dates between 22 September 2011 and 21 September 2012.



Assumption	Value / Source	Comments
Schemes' benefit provisions: same sex spouses	77% of schemes (weighted by liabilities) base same sex survivors' pensions on all periods of accrual. Remainder assumed to provide statutory minimum benefits. Based on IFF survey data, grossed up using technical provisions.	The IFF report states that around four-fifths (81%) of schemes (weighted by scheme membership) have no difference in entitlement between same sex and opposite sex marriages, for all periods of accrual. 77% is therefore broadly consistent with this result; differences arise due to different interpretation of some responses and due to weighting by scheme liabilities rather than membership numbers. No differences assumed between contracted-out and contracted-in schemes (other than the different underlying statutory minimum requirements).
Schemes' benefit provisions: opposite sex widows'/widowers' benefits	95% of schemes (weighted by liabilities) provide equal widows' and widowers' benefits for all periods of accrual. Based on IFF survey data, grossed up using technical provisions.	The IFF report states that around 96% of schemes (weighted by scheme membership) have no difference in entitlement between opposite sex widowers and opposite sex widows, for all periods of accrual. 95% is therefore broadly consistent with this result; differences arise due to different interpretation of some responses and due to weighting by scheme liabilities rather than membership numbers. No differences assumed between contracted-out and contracted-in schemes (other than the different underlying statutory minimum requirements). Of the remaining 5% of schemes, just under one-tenth are assumed to provide widowers' benefits for service from 1990 onwards only and the remainder are assumed to provide widowers' benefits for service from 1985 onwards only (approximate, broadly reflecting the few responses provided by those schemes in the survey which did not report providing equal benefits).
Current dependants' assumptions	2½% of schemes' liabilities in respect of pensioner members (where the former employee was female) is assumed to relate to current dependants' pensions in payment. Equivalent assumption is 10% for former male employees. Cost of back-dated payments and payments to additional dependants not currently receiving a pension is equivalent to 100% of the additional prospective liability for current recipients (approximate assumption, based on typical age profiles).	Dependants' percentages reflect data from some selected schemes. There is relatively little published data on which to base these assumptions, to which the estimated costs of Step 3 are sensitive. Section 6 of this report illustrates the effect of varying these assumptions.



Table A.2 – Assumed breakdown of technical provisions at 31 March 2012 by period of accrual (or pensionable service)

	Pre-1990	1990-2005	Post-2005	Total
Men				
Actives and deferreds	28%	50%	22%	100%
Current pensioners	65%	32%	3%	100%
Women				
Actives and deferreds	20%	48%	32%	100%
Current pensioners	48%	49%	3%	100%