The Galbraith Tables

Actuarial tables for use when valuing pension rights for offsetting purposes with reference to non-pension capital assets

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A FOREWORD BY THE AUTHORS

The resolution of matters pertaining to finance for a divorcing couple is a complex affair, and this becomes especially true where pensions are to be considered. The myriad forms of pensions that exist within the UK means that any attempt to value such rights as might be held by a divorcing couple in a manner that is internally consistent is no mean task, and it is in performing analysis of this nature to which we have devoted our careers in the last few years.

Despite the introduction of pension sharing on divorce in December 2000, it remains the case that many such divorces which take place in the courts are settled with reference to offsetting i.e. the equating of pension rights with certain amounts of non-pension capital. This introduces further complexity, not least as such non-pension assets are seldom directly comparable with the rights that either individual might hold in a pension scheme.

Again and again, we have sought to perform such calculations as may prove useful to individuals, their legal representatives and indeed the courts, and it is in this spirit that we produce this first edition of these Galbraith Tables. These tables are intended to be used in a straightforward manner to place a value on pension rights that may be payable to either party, in turn to allow the parties to begin what remains a complex process of equating pension and non-pension rights.

We have been inspired by the simplicity of both the Duxbury and Ogden tables, being actuarial resources produced to help the courts place a capital value upon various streams of payments. These tables also follow the *"Multiplicand × Multiplier"* approach, and the commentary that accompanies these tables provides a detailed explanation of how the appropriate multiplicands are to be derived.

Indeed, Appendix U of *A Guide to the Treatment of Pensions of Divorce*—colloquially known in this industry as the PAG Report—sets out the challenge to produce such tables as may be used for "Ogden-style tables" in respect of valuing pension rights for offsetting purposes. While we accept that a range of possible suitable answers may emerge in respect of offsetting of pension rights—with there being both actuarial and legal considerations involved—we are nonetheless delighted to have taken up this challenge to create a resource that we believe to be of great ongoing value to practitioners in this field.

We are indebted to our fellow expert witness report writers at Mathieson Consulting Limited—being Catherine Anderson, Rob Pritchard and Rahim Rashid—for their helpful contributions, insights and proof-reading skills in the production of the tables and this accompanying document. Special thanks and praise are also due to Jonathan Blatchford, also an expert witness report writer at Mathieson Consulting Limited, for his thorough and diligent review of the tables and the calculations that underpin these. We would also like to thank George Mathieson for his support and enthusiasm in the execution of this endeavour, along with his insights into how best we might seek to take it to market. Finally, thanks are also due to Rhys Taylor of 36 Family for his legal eye, thoughtful input and his understanding of the needs of practitioners that lie beyond the ken of we actuaries.

Jonathan Galbraith   **Chris Goodwin**

March 2022

A QUICK START GUIDE TO USING THE GALBRAITH TABLES

This document sets out in some detail the remedy of offsetting as applied to pension rights, how the Galbraith Tables have been constructed and the assumptions that underpin these, and it provides full details (including examples) of how the tables themselves may be used.

However, it was felt that the reader may appreciate some kind of "quick start guide" i.e. a simple explanation of how to use the tables in the first instance, in the understanding that the finer details may be considered thereafter. This may be taken as such a guide, but it remains important for the user to understand the assumptions made and the caveats associated with the Galbraith Tables. No liability is admitted by the authors in respect of what follows in this document.

To value a lump sum amount of £10,000 (in today's money terms) payable to someone retiring at age 65 who is today aged 40

1. Refer to *"Factors used for the valuation of lump sums payable at retirement (either sex)"* in Section B of this document.

2. Look up the factor for Age at date of calculation = 40 and Assumed retirement age = 65, which gives 0.562.

3. Multiply the lump sum being valued (the multiplicand) by the Galbraith Table factor (the multiplier) i.e. 10,000 × 0.562 = £5,620.

4. This means that we determine **£5,620** to be required today to provide this individual with £10,000 in today's money terms when he/she is aged 65, in 25 years' time.

5. Adjustments in respect of tax and/or utility may then be appropriate, as discussed in Section G of this document.

To value an index-linked pension amount of £1,000 (in today's money terms) that is payable to a man retiring at age 60 who is today aged 45

1. Refer to *"Factors used for the valuation of pensions payable in retirement (males)"* in Section B of this document.

2. Look up the factor for Age at date of calculation = 45 and Assumed retirement age = 60, which gives 26.230.

3. Multiply the *per annum* pension being valued (the multiplicand) by the Galbraith Table factor (the multiplier) i.e. 1,000 × 26.230 = £26,230.

4. This means that we determine **£26,230** to be required today to provide this individual with an index-linked £1,000 pa pension income, in today's money terms, from age 60—being in 15 years' time—for the rest of his life.

5. Adjustments in respect of tax and/or utility may then be appropriate, as discussed in Section G of this document.

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SECTION A   PURPOSE OF THIS DOCUMENT

An introduction to the Galbraith Tables

A.1.   This document sets out details of Version 1.0 of the Galbraith Tables, being the proprietary tables of factors for use when offsetting pension benefits upon divorce using amounts of non-pension capital, as produced by Mathieson Consulting Limited.

A.2.   The tables themselves are to be found in Section B, with details of the assumptions that underpin them in Section D. Details of how the tables are to be used with actual pensions data may be found in Section E, with some discussion of matters pertaining to tax / utility adjustments being given in Section G.

A.3.   These tables may therefore prove useful to practitioners—be these legal or financial in nature—or indeed to individuals themselves when looking to value pension rights for offsetting purposes upon divorce.

A.4.   However, it is important to understand that **these tables are by no means intended to provide a single, definitive value of pension rights that may be used for offsetting purposes**. Indeed, most experts in this field will conclude that no such single figure is likely to exist is respect of *"the value of £X pa of pension in retirement"*, and it would be foolish and misleading to pretend otherwise.

A.5.   Instead, these tables must be seen as providing "*an* answer" rather than "*the* answer" in respect of any such question, and as alluded to above, the tables are a function of the assumptions that we have made in their compilation. There will exist other assumptions that are equally valid, and there will be circumstances where different assumptions / approaches will yield a more appropriate result. Any use of these tables must be made in this understanding.

Caveats in respect of the Galbraith Tables

A.6.   Neither the authors of this document nor Mathieson Consulting Limited can accept any liability where the use of these tables gives rise to offsetting figures that are then deemed to be unsuitable in a pensions settlement.

A.7.   No liability is admitted in respect of—but not restricted to—such matters as:

- user error through the application of the Tables;

- user error in respect of a misunderstanding of the nature of the pension rights being valued;

- any numerical errors within the Tables themselves such as may exist;

- the Tables' underlying assumptions being deemed unsuitable to a particular set of circumstances;

- the investment strategy that an individual who receives offset capital may wish to adopt; nor

- the appropriate adjustments to be made in respect of tax and/or utility.

A.8.   Instead, it must be understood that what emerges through the use of such tables is intended to be indicative and for discussion purposes by the parties in seeking to reach a settlement. Further analysis may be required to place any such results as emerge from the Tables into a broader context.

A.9.   It is noted that the UK pensions regime is complex and all too readily misunderstood, both by individual beneficiaries and very often their advisers. **Nothing shown herein is intended to be a substitute for the commissioning of proper independent advice—in the form of an expert witness report—to parties upon their divorce and financial remedy procedures.**

A.10. Part 6 of *A Guide to the Treatment of Pensions of Divorce*[1], being the report of the Pension Advisory Group (PAG)[2]—as published in July 2019 by the Nuffield Foundation—seeks to answer the question *"When might it be necessary to instruct a Pensions on Divorce Expert (PODE)?"*.

Professional compliance

A.11. The factors that comprise the Galbraith Tables shown in this document have been calculated in accordance with the applicable Technical Actuarial Standard, being TAS 100 as issued by the Financial Reporting Council (FRC).

About Mathieson Consulting Limited

A.12. Mathieson Consulting Limited is an actuarial consulting firm that specialises in producing Pensions on Divorce Expert Witness reports for the courts, taking in such matters as offsetting as well as other remedies e.g. pension sharing.

A.13. The Firm is able to provide assistance to solicitors representing individuals who are going through a divorce and have pensions issues to settle, and it has produced well in excess of 5,000 such reports since being founded in 2007.

A.14. At the time of writing, Mathieson Consulting Limited employs four actuaries and various other individuals experienced in both PODE work and pensions administration, and the Firm is in a position to provide support upon such matters as:

- The production of an expert witness report to consider pension sharing / offsetting; and

- The production of a simplified "offsetting only" report that makes use of the Galbraith Tables.

A.15. This work is typically performed on a single joint expert basis; however, the Firm is also able to act on a sole instruction basis with reference to such matters as shadowing the reports of other experts, providing advice on the composition of Letters of Instruction to be sent to other experts and such like.

A.16. Contact details for Mathieson Consulting Limited are to be found at www.mcact.co.uk.

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[1] To be found at https://www.nuffieldfoundation.org/sites/default/files/files/Guide_To_The_Treatment_of_Pensions_on_Divorce-Digital(1).pdf.
[2] The PAG is a multi-disciplinary body including leading actuarial, legal, judicial, academic and other experts in the field of Pensions and Divorce. The establishment of this Group was sanctioned by the President of the Family Division, and is jointly chaired by Mr Justice Francis and HHJ Edward Hess. Its purpose is to provide an authoritative guide to the Courts, lawyers, and others, as to the correct treatment of pensions in divorce cases.

SECTION B   THE GALBRAITH TABLES

Factors used for the valuation of lump sums payable at retirement (either sex)

Retirement ages 50–69

Age at date of calculation	Assumed retirement age																			
	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
20	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288
21	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296
22	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305
23	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313
24	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322
25	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331
26	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341
27	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350
28	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360
29	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370
30	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381
31	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391
32	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403
33	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414
34	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426
35	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438
36	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450
37	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463
38	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476
39	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489
40	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503
41	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517
42	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531
43	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546
44	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562
45	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578
46	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594
47	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611
48	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628
49	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646
50	1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664
51		1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683
52			1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702
53				1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722
54					1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742
55						1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763
56							1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784
57								1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806
58									1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829
59										1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853
60											1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875
61												1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895
62													1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917
63														1.000	1.000	1.000	1.000	0.984	0.961	0.939
64															1.000	1.000	1.000	1.000	0.984	0.961
65																1.000	1.000	1.000	1.000	0.984
66																	1.000	1.000	1.000	1.000
67																		1.000	1.000	1.000
68																			1.000	1.000
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Retirement ages 70–88

Age at date of calculation	Assumed retirement age																		
	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
20	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207	0.201	0.195	0.190	0.185	0.180	0.175	0.170
21	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207	0.201	0.195	0.190	0.185	0.180	0.175
22	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207	0.201	0.195	0.190	0.185	0.180
23	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207	0.201	0.195	0.190	0.185
24	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207	0.201	0.195	0.190
25	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207	0.201	0.195
26	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207	0.201
27	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212	0.207
28	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218	0.212
29	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225	0.218
30	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231	0.225
31	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237	0.231
32	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244	0.237
33	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251	0.244
34	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258	0.251
35	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265	0.258
36	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273	0.265
37	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280	0.273
38	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288	0.280
39	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296	0.288
40	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305	0.296
41	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313	0.305
42	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322	0.313
43	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331	0.322
44	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341	0.331
45	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350	0.341
46	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360	0.350
47	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370	0.360
48	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381	0.370
49	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391	0.381
50	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403	0.391
51	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414	0.403
52	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426	0.414
53	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438	0.426
54	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450	0.438
55	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463	0.450
56	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476	0.463
57	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489	0.476
58	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503	0.489
59	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517	0.503
60	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531	0.517
61	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546	0.531
62	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562	0.546
63	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578	0.562
64	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594	0.578
65	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611	0.594
66	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628	0.611
67	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646	0.628
68	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664	0.646
69	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683	0.664
70	1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702	0.683
71		1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722	0.702
72			1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742	0.722
73				1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763	0.742
74					1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784	0.763
75						1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806	0.784
76							1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829	0.806
77								1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853	0.829
78									1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875	0.853
79										1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895	0.875
80											1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917	0.895
81												1.000	1.000	1.000	1.000	0.984	0.961	0.939	0.917
82													1.000	1.000	1.000	1.000	0.984	0.961	0.939
83														1.000	1.000	1.000	1.000	0.984	0.961
84															1.000	1.000	1.000	1.000	0.984
85																1.000	1.000	1.000	1.000
86																	1.000	1.000	1.000
87																		1.000	1.000
88																			1.000

Factors used for the valuation of pensions payable in retirement (males)

Retirement ages 50–69

Age at date of calculation	Assumed retirement age																			
	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
20	26.803	25.278	23.828	22.451	21.142	19.900	18.720	17.600	16.537	15.529	14.572	13.664	12.803	11.987	11.214	10.481	9.787	9.131	8.509	7.922
21	27.454	25.890	24.404	22.992	21.651	20.378	19.169	18.022	16.933	15.900	14.919	13.989	13.107	12.271	11.479	10.728	10.018	9.345	8.709	8.108
22	28.120	26.517	24.993	23.546	22.172	20.867	19.629	18.453	17.337	16.279	15.274	14.322	13.418	12.562	11.750	10.981	10.253	9.564	8.913	8.297
23	28.803	27.159	25.597	24.114	22.705	21.368	20.099	18.894	17.751	16.666	15.637	14.661	13.736	12.859	12.027	11.240	10.494	9.788	9.121	8.490
24	29.503	27.817	26.216	24.695	23.251	21.881	20.580	19.345	18.174	17.063	16.009	15.009	14.061	13.162	12.310	11.504	10.740	10.017	9.334	8.688
25	30.221	28.492	26.850	25.291	23.810	22.405	21.072	19.807	18.607	17.468	16.389	15.364	14.393	13.472	12.600	11.774	10.992	10.251	9.551	8.890
26	30.956	29.183	27.499	25.901	24.383	22.943	21.576	20.279	19.050	17.883	16.777	15.728	14.733	13.790	12.896	12.050	11.249	10.491	9.774	9.096
27	31.710	29.892	28.165	26.526	24.970	23.493	22.092	20.763	19.503	18.308	17.174	16.099	15.080	14.114	13.199	12.332	11.511	10.735	10.001	9.307
28	32.484	30.619	28.848	27.166	25.571	24.057	22.621	21.258	19.967	18.742	17.580	16.479	15.435	14.446	13.508	12.620	11.780	10.985	10.233	9.523
29	33.277	31.364	29.547	27.823	26.187	24.634	23.162	21.766	20.442	19.186	17.996	16.868	15.798	14.785	13.825	12.915	12.054	11.240	10.470	9.743
30	34.091	32.128	30.265	28.497	26.819	25.227	23.717	22.285	20.928	19.641	18.422	17.265	16.170	15.131	14.148	13.216	12.335	11.501	10.713	9.968
31	34.925	32.912	31.001	29.187	27.466	25.834	24.285	22.818	21.426	20.107	18.857	17.672	16.550	15.486	14.478	13.524	12.622	11.768	10.960	10.197
32	35.781	33.716	31.756	29.895	28.130	26.456	24.868	23.363	21.937	20.585	19.303	18.089	16.938	15.848	14.816	13.839	12.915	12.040	11.213	10.432
33	36.658	34.540	32.530	30.622	28.811	27.094	25.466	23.923	22.460	21.074	19.760	18.516	17.336	16.220	15.162	14.161	13.214	12.318	11.472	10.672
34	37.558	35.386	33.324	31.367	29.510	27.749	26.079	24.496	22.996	21.575	20.228	18.952	17.744	16.599	15.516	14.490	13.520	12.603	11.736	10.917
35	38.480	36.253	34.138	32.130	30.226	28.420	26.707	25.084	23.546	22.089	20.708	19.400	18.161	16.988	15.878	14.827	13.833	12.894	12.006	11.167
36	39.425	37.141	34.972	32.914	30.960	29.108	27.352	25.687	24.110	22.615	21.200	19.859	18.589	17.386	16.249	15.172	14.154	13.191	12.282	11.423
37	40.394	38.052	35.828	33.717	31.714	29.814	28.012	26.305	24.688	23.155	21.704	20.329	19.027	17.795	16.628	15.525	14.482	13.495	12.564	11.685
38	41.386	38.985	36.704	34.540	32.486	30.537	28.690	26.939	25.281	23.709	22.221	20.811	19.476	18.213	17.017	15.886	14.817	13.807	12.853	11.952
39	42.402	39.941	37.603	35.383	33.277	31.279	29.385	27.590	25.889	24.277	22.751	21.305	19.937	18.641	17.416	16.257	15.161	14.126	13.148	12.225
40	43.442	40.920	38.523	36.248	34.088	32.040	30.097	28.256	26.512	24.860	23.294	21.812	20.409	19.081	17.824	16.636	15.513	14.452	13.450	12.505
41	44.412	41.922	39.466	37.134	34.920	32.820	30.828	28.940	27.151	25.457	23.852	22.332	20.893	19.531	18.243	17.025	15.874	14.786	13.760	12.792
42	45.306	42.857	40.432	38.041	35.772	33.619	31.577	29.641	27.807	26.069	24.424	22.865	21.389	19.993	18.672	17.424	16.244	15.129	14.077	13.085
43	46.217	43.718	41.333	38.972	36.646	34.438	32.345	30.360	28.480	26.698	25.010	23.412	21.899	20.467	19.113	17.832	16.623	15.480	14.402	13.385
44	47.145	44.597	42.163	39.839	37.541	35.279	33.133	31.098	29.170	27.343	25.612	23.973	22.421	20.953	19.565	18.252	17.012	15.840	14.735	13.693
45	48.092	45.492	43.009	40.639	38.376	36.140	33.941	31.855	29.878	28.005	26.230	24.549	22.958	21.452	20.028	18.682	17.410	16.210	15.077	14.009
46	49.057	46.406	43.873	41.454	39.146	36.944	34.769	32.631	30.604	28.684	26.864	25.141	23.509	21.965	20.504	19.124	17.820	16.589	15.427	14.332
47	49.687	47.336	44.753	42.286	39.931	37.684	35.541	33.427	31.350	29.381	27.515	25.748	24.075	22.491	20.993	19.578	18.240	16.978	15.787	14.664
48	49.504	47.944	45.649	43.133	40.731	38.439	36.253	34.169	32.114	30.096	28.183	26.372	24.656	23.032	21.496	20.044	18.672	17.378	16.156	15.005
49	49.319	47.765	46.234	43.997	41.547	39.209	36.979	34.853	32.826	30.829	28.869	27.011	25.252	23.587	22.012	20.523	19.116	17.788	16.536	15.356
50	49.131	47.585	46.061	44.559	42.377	39.993	37.719	35.550	33.482	31.512	29.571	27.667	25.864	24.157	22.542	21.015	19.572	18.211	16.926	15.716
51		47.402	45.885	44.390	42.917	40.791	38.472	36.260	34.151	32.141	30.225	28.339	26.491	24.741	23.085	21.520	20.041	18.644	17.327	16.086
52			45.706	44.218	42.752	41.308	39.237	36.981	34.831	32.781	30.827	28.965	27.133	25.340	23.643	22.038	20.521	19.089	17.738	16.465
53				44.042	42.584	41.147	39.732	37.714	35.521	33.431	31.438	29.539	27.730	25.952	24.213	22.568	21.013	19.545	18.160	16.855
54					42.411	40.981	39.573	38.187	36.223	34.091	32.060	30.123	28.278	26.521	24.796	23.110	21.517	20.012	18.593	17.255
55						40.811	39.411	38.031	36.674	34.761	32.690	30.715	28.834	27.042	25.337	23.665	22.032	20.490	19.035	17.663
56							39.243	37.871	36.520	35.190	33.329	31.316	29.398	27.571	25.832	24.178	22.558	20.978	19.487	18.082
57								37.706	36.362	35.039	33.736	31.924	29.969	28.107	26.334	24.648	23.045	21.476	19.949	18.509
58									36.200	34.884	33.587	32.311	30.548	28.650	26.843	25.123	23.489	21.936	20.419	18.944
59										34.724	33.434	32.164	30.913	29.199	27.357	25.605	23.939	22.356	20.854	19.388
60											33.277	32.014	30.769	29.545	27.878	26.093	24.395	22.781	21.250	19.799
61												31.859	30.622	29.404	28.205	26.586	24.856	23.212	21.652	20.172
62													30.471	29.259	28.067	26.894	25.323	23.648	22.058	20.550
63														29.111	27.926	26.760	25.614	24.090	22.470	20.934
64															27.782	26.622	25.482	24.363	22.887	21.322
65																26.481	25.348	24.236	23.144	21.715
66																	25.211	24.105	23.020	21.957
67																		23.972	22.893	21.836
68																			22.762	21.712
69																				21.584
70																				
71																				
72																				
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74																				
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Retirement ages 70–88

Age at date of calculation	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
20	7.368	6.844	6.350	5.883	5.444	5.029	4.638	4.270	3.924	3.598	3.292	3.004	2.734	2.482	2.245	2.024	1.817	1.627	1.451
21	7.539	7.003	6.497	6.019	5.569	5.145	4.745	4.368	4.013	3.680	3.366	3.072	2.796	2.538	2.296	2.069	1.858	1.663	1.483
22	7.715	7.166	6.647	6.159	5.697	5.263	4.853	4.468	4.105	3.763	3.442	3.141	2.859	2.595	2.347	2.116	1.899	1.700	1.516
23	7.894	7.332	6.801	6.301	5.829	5.384	4.964	4.569	4.198	3.848	3.520	3.212	2.923	2.653	2.400	2.163	1.941	1.737	1.550
24	8.078	7.502	6.958	6.446	5.962	5.507	5.078	4.674	4.293	3.936	3.600	3.284	2.989	2.712	2.453	2.211	1.985	1.776	1.584
25	8.265	7.675	7.119	6.594	6.099	5.633	5.194	4.780	4.391	4.024	3.681	3.358	3.056	2.773	2.508	2.260	2.029	1.815	1.619
26	8.456	7.852	7.283	6.745	6.239	5.761	5.312	4.888	4.490	4.115	3.763	3.433	3.124	2.834	2.563	2.310	2.073	1.855	1.655
27	8.652	8.034	7.450	6.900	6.382	5.893	5.433	4.999	4.591	4.208	3.848	3.510	3.194	2.897	2.620	2.361	2.119	1.896	1.691
28	8.852	8.219	7.621	7.058	6.527	6.027	5.556	5.112	4.695	4.303	3.934	3.589	3.265	2.962	2.678	2.413	2.166	1.938	1.728
29	9.056	8.408	7.796	7.220	6.676	6.164	5.682	5.228	4.801	4.399	4.022	3.669	3.338	3.027	2.738	2.467	2.214	1.980	1.766
30	9.264	8.601	7.975	7.384	6.828	6.304	5.810	5.346	4.909	4.498	4.112	3.750	3.412	3.095	2.798	2.521	2.262	2.024	1.805
31	9.477	8.798	8.157	7.553	6.983	6.447	5.942	5.466	5.019	4.598	4.204	3.834	3.487	3.163	2.860	2.576	2.312	2.068	1.844
32	9.695	8.999	8.343	7.725	7.142	6.593	6.076	5.589	5.131	4.701	4.297	3.919	3.564	3.233	2.923	2.633	2.363	2.113	1.884
33	9.917	9.205	8.533	7.900	7.304	6.742	6.212	5.714	5.246	4.806	4.393	4.006	3.643	3.304	2.987	2.691	2.414	2.159	1.926
34	10.144	9.415	8.728	8.079	7.469	6.894	6.352	5.843	5.363	4.913	4.490	4.094	3.723	3.376	3.052	2.749	2.467	2.207	1.967
35	10.376	9.630	8.926	8.263	7.638	7.049	6.495	5.973	5.483	5.022	4.590	4.185	3.805	3.451	3.119	2.809	2.521	2.255	2.010
36	10.613	9.849	9.128	8.449	7.810	7.207	6.640	6.107	5.605	5.134	4.691	4.277	3.889	3.526	3.187	2.871	2.576	2.304	2.054
37	10.855	10.073	9.335	8.640	7.986	7.369	6.789	6.243	5.730	5.247	4.795	4.371	3.974	3.603	3.257	2.933	2.631	2.354	2.098
38	11.102	10.301	9.546	8.835	8.165	7.534	6.940	6.382	5.857	5.363	4.901	4.467	4.061	3.682	3.328	2.997	2.689	2.404	2.144
39	11.355	10.535	9.762	9.034	8.348	7.703	7.095	6.524	5.986	5.482	5.008	4.565	4.150	3.762	3.400	3.062	2.747	2.456	2.190
40	11.614	10.774	9.983	9.237	8.535	7.875	7.253	6.668	6.119	5.602	5.118	4.665	4.241	3.844	3.474	3.128	2.806	2.509	2.237
41	11.879	11.018	10.208	9.445	8.727	8.050	7.414	6.816	6.254	5.726	5.231	4.767	4.333	3.927	3.549	3.196	2.867	2.564	2.285
42	12.149	11.268	10.438	9.657	8.922	8.230	7.579	6.967	6.391	5.851	5.345	4.871	4.427	4.012	3.625	3.265	2.928	2.619	2.334
43	12.427	11.524	10.674	9.874	9.121	8.413	7.747	7.120	6.532	5.980	5.462	4.977	4.523	4.099	3.704	3.335	2.991	2.675	2.385
44	12.711	11.786	10.915	10.096	9.325	8.600	7.918	7.277	6.675	6.110	5.581	5.085	4.621	4.188	3.783	3.407	3.055	2.732	2.436
45	13.002	12.055	11.163	10.323	9.534	8.791	8.094	7.438	6.822	6.244	5.702	5.195	4.721	4.278	3.865	3.480	3.121	2.791	2.488
46	13.301	12.330	11.416	10.556	9.748	8.987	8.273	7.601	6.971	6.380	5.826	5.307	4.823	4.370	3.948	3.554	3.188	2.850	2.541
47	13.607	12.612	11.675	10.795	9.966	9.188	8.456	7.769	7.124	6.519	5.952	5.422	4.926	4.464	4.032	3.630	3.256	2.911	2.595
48	13.921	12.901	11.942	11.039	10.191	9.393	8.644	7.940	7.280	6.661	6.081	5.539	5.032	4.559	4.118	3.707	3.325	2.973	2.650
49	14.244	13.198	12.215	11.290	10.420	9.604	8.836	8.116	7.440	6.806	6.213	5.658	5.140	4.657	4.206	3.786	3.396	3.036	2.706
50	14.576	13.504	12.495	11.547	10.656	9.819	9.033	8.296	7.604	6.955	6.348	5.780	5.250	4.756	4.295	3.867	3.468	3.100	2.764
51	14.917	13.817	12.784	11.812	10.899	10.041	9.236	8.480	7.771	7.107	6.486	5.905	5.363	4.858	4.387	3.949	3.541	3.166	2.822
52	15.267	14.140	13.080	12.083	11.147	10.269	9.443	8.669	7.943	7.264	6.627	6.033	5.478	4.961	4.480	4.032	3.616	3.233	2.882
53	15.626	14.470	13.384	12.362	11.403	10.502	9.656	8.863	8.120	7.424	6.772	6.164	5.597	5.068	4.575	4.118	3.692	3.301	2.942
54	15.995	14.810	13.695	12.648	11.665	10.742	9.875	9.062	8.301	7.588	6.921	6.298	5.717	5.176	4.673	4.205	3.770	3.371	3.004
55	16.372	15.157	14.015	12.941	11.933	10.987	10.099	9.267	8.486	7.756	7.073	6.436	5.841	5.288	4.773	4.295	3.850	3.442	3.068
56	16.758	15.513	14.342	13.242	12.209	11.239	10.329	9.476	8.676	7.928	7.229	6.576	5.968	5.402	4.875	4.386	3.932	3.515	3.132
57	17.152	15.876	14.676	13.549	12.490	11.496	10.564	9.690	8.871	8.104	7.388	6.720	6.098	5.518	4.980	4.480	4.015	3.589	3.198
58	17.555	16.247	15.018	13.863	12.778	11.759	10.804	9.908	9.070	8.285	7.552	6.867	6.230	5.637	5.087	4.575	4.101	3.665	3.266
59	17.965	16.626	15.367	14.183	13.072	12.028	11.050	10.132	9.273	8.469	7.718	7.018	6.366	5.759	5.196	4.673	4.188	3.743	3.335
60	18.384	17.013	15.723	14.511	13.372	12.303	11.301	10.361	9.481	8.658	7.889	7.172	6.504	5.884	5.307	4.773	4.277	3.822	3.405
61	18.771	17.407	16.086	14.845	13.679	12.584	11.557	10.595	9.694	8.851	8.063	7.329	6.646	6.011	5.421	4.875	4.368	3.903	3.477
62	19.122	17.770	16.457	15.186	13.992	12.871	11.820	10.834	9.911	9.048	8.242	7.491	6.791	6.141	5.538	4.979	4.461	3.986	3.551
63	19.478	18.101	16.798	15.533	14.311	13.164	12.087	11.078	10.133	9.250	8.425	7.655	6.940	6.275	5.658	5.086	4.557	4.071	3.626
64	19.840	18.436	17.109	15.854	14.637	13.463	12.361	11.328	10.361	9.456	8.611	7.824	7.092	6.411	5.780	5.195	4.654	4.158	3.703
65	20.205	18.776	17.423	16.145	14.938	13.768	12.640	11.583	10.593	9.667	8.803	7.997	7.247	6.551	5.906	5.307	4.754	4.247	3.782
66	20.575	19.119	17.742	16.440	15.210	14.049	12.925	11.843	10.830	9.883	8.998	8.174	7.407	6.694	6.034	5.422	4.857	4.338	3.863
67	20.801	19.466	18.064	16.738	15.486	14.303	13.187	12.108	11.072	10.102	9.197	8.354	7.569	6.841	6.165	5.540	4.962	4.431	3.946
68	20.683	19.677	18.389	17.039	15.764	14.560	13.423	12.351	11.318	10.326	9.400	8.538	7.735	6.990	6.299	5.660	5.069	4.527	4.031
69	20.561	19.562	18.584	17.342	16.044	14.818	13.661	12.570	11.542	10.553	9.606	8.724	7.904	7.142	6.436	5.782	5.178	4.624	4.118
70	20.436	19.442	18.471	17.522	16.326	15.078	13.900	12.789	11.743	10.759	9.815	8.913	8.074	7.296	6.574	5.906	5.289	4.723	4.206
71		19.319	18.354	17.411	16.490	15.338	14.139	13.009	11.945	10.943	10.003	9.103	8.246	7.451	6.714	6.032	5.402	4.824	4.295
72			18.232	17.295	16.381	15.488	14.379	13.229	12.146	11.127	10.171	9.275	8.419	7.607	6.854	6.158	5.515	4.925	4.385
73				17.176	16.267	15.380	14.515	13.448	12.347	11.310	10.338	9.426	8.575	7.764	6.995	6.285	5.629	5.027	4.476
74					16.150	15.269	14.409	13.571	12.547	11.493	10.504	9.577	8.711	7.904	7.137	6.412	5.744	5.130	4.568
75						15.155	14.301	13.468	12.658	11.676	10.670	9.728	8.848	8.027	7.264	6.540	5.858	5.233	4.660
76							14.190	13.364	12.559	11.776	10.837	9.879	8.984	8.150	7.375	6.655	5.974	5.336	4.753
77								13.258	12.458	11.681	10.927	10.030	9.121	8.273	7.486	6.755	6.078	5.441	4.846
78									12.358	11.586	10.837	10.112	9.259	8.398	7.597	6.856	6.169	5.535	4.941
79										11.491	10.747	10.027	9.332	8.523	7.710	6.957	6.260	5.618	5.027
80											10.657	9.942	9.252	8.589	7.824	7.059	6.352	5.701	5.102
81												9.858	9.173	8.514	7.883	7.162	6.445	5.784	5.177
82													9.094	8.439	7.812	7.214	6.537	5.867	5.253
83														8.364	7.741	7.147	6.583	5.950	5.327
84															7.669	7.079	6.519	5.989	5.400
85																7.011	6.454	5.929	5.434
86																	6.390	5.867	5.376
87																		5.806	5.318
88																			5.260

Factors used for the valuation of pensions payable in retirement (females)

Retirement ages 50–69

Age at date of calculation	Assumed retirement age																			
	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
20	28.705	27.106	25.586	24.141	22.766	21.458	20.215	19.032	17.908	16.840	15.823	14.857	13.938	13.065	12.236	11.449	10.703	9.995	9.324	8.689
21	29.410	27.772	26.214	24.732	23.323	21.983	20.709	19.498	18.346	17.250	16.209	15.218	14.277	13.382	12.533	11.726	10.961	10.236	9.549	8.898
22	30.132	28.453	26.856	25.338	23.894	22.521	21.215	19.973	18.793	17.671	16.603	15.588	14.623	13.707	12.836	12.010	11.226	10.482	9.778	9.111
23	30.871	29.151	27.514	25.958	24.478	23.071	21.733	20.461	19.251	18.101	17.007	15.967	14.978	14.039	13.146	12.300	11.496	10.735	10.013	9.330
24	31.628	29.864	28.187	26.593	25.076	23.634	22.263	20.959	19.719	18.541	17.420	16.354	15.341	14.378	13.464	12.596	11.773	10.992	10.253	9.553
25	32.403	30.595	28.877	27.242	25.688	24.210	22.805	21.469	20.199	18.991	17.843	16.751	15.712	14.726	13.789	12.900	12.056	11.256	10.499	9.781
26	33.196	31.344	29.582	27.907	26.314	24.800	23.360	21.991	20.690	19.452	18.275	17.156	16.092	15.081	14.121	13.210	12.346	11.526	10.750	10.015
27	34.009	32.110	30.305	28.588	26.956	25.404	23.928	22.526	21.192	19.924	18.718	17.571	16.481	15.445	14.461	13.528	12.642	11.802	11.007	10.254
28	34.841	32.895	31.044	29.285	27.612	26.022	24.510	23.072	21.706	20.406	19.171	17.996	16.879	15.817	14.809	13.852	12.945	12.085	11.270	10.498
29	35.693	33.698	31.802	29.999	28.284	26.654	25.105	23.632	22.231	20.900	19.634	18.430	17.285	16.198	15.165	14.185	13.255	12.373	11.538	10.748
30	36.565	34.521	32.577	30.729	28.972	27.302	25.714	24.205	22.770	21.405	20.108	18.874	17.702	16.587	15.529	14.525	13.572	12.669	11.813	11.003
31	37.458	35.363	33.371	31.477	29.676	27.965	26.338	24.791	23.320	21.922	20.593	19.329	18.127	16.986	15.901	14.872	13.896	12.971	12.094	11.264
32	38.373	36.226	34.184	32.243	30.398	28.643	26.976	25.391	23.884	22.451	21.089	19.794	18.563	17.393	16.282	15.228	14.228	13.280	12.382	11.531
33	39.310	37.109	35.017	33.027	31.136	29.338	27.629	26.005	24.461	22.993	21.597	20.270	19.009	17.810	16.672	15.591	14.567	13.595	12.675	11.805
34	40.269	38.014	35.869	33.830	31.892	30.050	28.298	26.634	25.051	23.547	22.117	20.757	19.465	18.236	17.070	15.963	14.913	13.918	12.976	12.084
35	41.251	38.940	36.742	34.652	32.666	30.778	28.983	27.277	25.656	24.114	22.649	21.256	19.931	18.673	17.478	16.344	15.268	14.249	13.283	12.369
36	42.256	39.888	37.636	35.494	33.459	31.524	29.684	27.936	26.275	24.695	23.193	21.766	20.408	19.119	17.895	16.733	15.631	14.586	13.597	12.661
37	43.285	40.858	38.550	36.356	34.270	32.287	30.402	28.611	26.908	25.289	23.751	22.288	20.897	19.576	18.321	17.131	16.002	14.932	13.918	12.959
38	44.339	41.851	39.486	37.238	35.100	33.069	31.137	29.301	27.557	25.898	24.321	22.822	21.397	20.043	18.758	17.538	16.381	15.285	14.247	13.264
39	45.418	42.868	40.445	38.141	35.951	33.869	31.890	30.008	28.220	26.521	24.905	23.368	21.908	20.521	19.204	17.954	16.769	15.646	14.583	13.576
40	46.522	43.910	41.426	39.065	36.821	34.687	32.660	30.732	28.900	27.158	25.502	23.928	22.432	21.010	19.661	18.380	17.166	16.016	14.926	13.895
41	47.552	44.976	42.431	40.011	37.711	35.525	33.448	31.473	29.595	27.811	26.114	24.501	22.968	21.511	20.128	18.816	17.572	16.393	15.277	14.221
42	48.499	45.969	43.460	40.980	38.623	36.383	34.254	32.231	30.307	28.479	26.740	25.087	23.516	22.024	20.607	19.262	17.988	16.780	15.636	14.554
43	49.465	46.883	44.418	41.972	39.557	37.261	35.080	33.007	31.036	29.162	27.381	25.687	24.078	22.548	21.096	19.719	18.413	17.175	16.004	14.895
44	50.449	47.815	45.299	42.895	40.513	38.161	35.925	33.801	31.782	29.862	28.037	26.302	24.652	23.085	21.597	20.186	18.847	17.580	16.379	15.244
45	51.453	48.765	46.197	43.745	41.402	39.081	36.790	34.614	32.545	30.578	28.708	26.930	25.240	23.634	22.110	20.664	19.292	17.993	16.764	15.600
46	52.477	49.733	47.113	44.610	42.220	39.937	37.676	35.446	33.326	31.310	29.395	27.573	25.842	24.196	22.635	21.153	19.748	18.417	17.157	15.965
47	53.143	50.720	48.047	45.493	43.054	40.724	38.500	36.297	34.125	32.060	30.097	28.231	26.457	24.772	23.171	21.653	20.214	18.850	17.559	16.338
48	52.941	51.362	48.998	46.392	43.903	41.526	39.256	37.089	34.943	32.827	30.816	28.904	27.086	25.360	23.720	22.165	20.690	19.293	17.971	16.720
49	52.739	51.164	49.615	47.307	44.768	42.343	40.027	37.815	35.703	33.612	31.551	29.592	27.730	25.961	24.282	22.688	21.178	19.746	18.392	17.110
50	52.538	50.966	49.420	47.900	45.649	43.175	40.812	38.555	36.400	34.340	32.303	30.296	28.388	26.576	24.856	23.224	21.676	20.210	18.822	17.509
51		50.768	49.226	47.710	46.218	44.022	41.611	39.309	37.109	35.009	33.001	31.016	29.061	27.205	25.443	23.771	22.185	20.684	19.262	17.917
52			49.032	47.519	46.031	44.567	42.424	40.075	37.832	35.689	33.641	31.683	29.749	27.848	26.042	24.330	22.706	21.168	19.712	18.334
53				47.328	45.843	44.383	42.947	40.855	38.567	36.380	34.291	32.295	30.387	28.504	26.655	24.901	23.238	21.662	20.171	18.761
54					45.656	44.199	42.766	41.355	39.314	37.084	34.953	32.916	30.971	29.113	27.281	25.484	23.781	22.167	20.640	19.196
55						44.015	42.585	41.178	39.792	37.799	35.626	33.549	31.564	29.669	27.861	26.080	24.336	22.683	21.119	19.640
56							42.404	41.000	39.618	38.256	36.310	34.191	32.167	30.235	28.390	26.632	24.902	23.210	21.608	20.093
57								40.823	39.444	38.085	36.745	34.845	32.780	30.809	28.929	27.135	25.426	23.748	22.107	20.557
58									39.270	37.914	36.578	35.259	33.404	31.394	29.476	27.647	25.904	24.245	22.617	21.029
59										37.744	36.411	35.095	33.798	31.988	30.032	28.167	26.390	24.698	23.089	21.512
60											36.244	34.932	33.638	32.362	30.597	28.696	26.884	25.159	23.518	21.958
61												34.769	33.479	32.206	30.952	29.233	27.386	25.627	23.954	22.364
62													33.320	32.051	30.801	29.570	27.896	26.103	24.398	22.777
63														31.896	30.649	29.422	28.215	26.587	24.848	23.196
64															30.498	29.274	28.071	26.888	25.306	23.622
65																29.127	27.927	26.748	25.590	24.055
66																	27.783	26.607	25.453	24.321
67																		26.467	25.316	24.188
68																			25.180	24.054
69																				23.920
70																				
71																				
72																				
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83																				
84																				
85																				
86																				
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88																				

Retirement ages 70–88

Age at date of calculation	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
										Assumed retirement age									
20	8.088	7.520	6.983	6.475	5.995	5.543	5.116	4.714	4.335	3.978	3.642	3.327	3.031	2.754	2.494	2.252	2.025	1.815	1.621
21	8.282	7.700	7.149	6.629	6.138	5.674	5.237	4.825	4.436	4.071	3.727	3.405	3.102	2.818	2.552	2.303	2.071	1.856	1.658
22	8.480	7.884	7.319	6.787	6.283	5.808	5.360	4.938	4.540	4.166	3.814	3.484	3.173	2.883	2.611	2.356	2.118	1.899	1.696
23	8.683	8.072	7.494	6.948	6.432	5.945	5.487	5.054	4.647	4.263	3.903	3.564	3.247	2.949	2.671	2.410	2.167	1.942	1.735
24	8.890	8.264	7.672	7.112	6.584	6.086	5.616	5.173	4.755	4.363	3.994	3.647	3.322	3.017	2.732	2.465	2.216	1.986	1.774
25	9.103	8.461	7.854	7.281	6.740	6.229	5.748	5.294	4.866	4.464	4.086	3.731	3.398	3.086	2.795	2.522	2.267	2.031	1.814
26	9.319	8.662	8.040	7.453	6.899	6.376	5.882	5.418	4.980	4.568	4.181	3.818	3.477	3.157	2.858	2.579	2.318	2.077	1.855
27	9.541	8.867	8.231	7.629	7.061	6.525	6.020	5.544	5.096	4.674	4.278	3.906	3.557	3.230	2.924	2.638	2.371	2.124	1.897
28	9.768	9.078	8.425	7.809	7.227	6.679	6.161	5.673	5.214	4.782	4.377	3.996	3.638	3.304	2.990	2.698	2.425	2.172	1.940
29	10.000	9.293	8.624	7.993	7.397	6.835	6.305	5.806	5.335	4.893	4.478	4.087	3.722	3.379	3.059	2.759	2.479	2.221	1.984
30	10.237	9.513	8.828	8.181	7.571	6.995	6.452	5.941	5.459	5.006	4.581	4.181	3.807	3.456	3.128	2.822	2.536	2.271	2.028
31	10.479	9.737	9.036	8.374	7.748	7.159	6.603	6.079	5.586	5.122	4.686	4.277	3.894	3.535	3.199	2.886	2.593	2.323	2.074
32	10.727	9.967	9.249	8.570	7.930	7.326	6.756	6.220	5.715	5.240	4.794	4.375	3.983	3.615	3.272	2.951	2.651	2.375	2.120
33	10.981	10.202	9.466	8.771	8.115	7.496	6.913	6.364	5.847	5.361	4.904	4.475	4.074	3.697	3.346	3.017	2.711	2.428	2.168
34	11.240	10.442	9.688	8.976	8.305	7.671	7.074	6.511	5.982	5.484	5.016	4.577	4.166	3.781	3.421	3.085	2.772	2.483	2.217
35	11.505	10.687	9.915	9.186	8.498	7.849	7.238	6.662	6.119	5.610	5.131	4.682	4.261	3.867	3.499	3.155	2.834	2.538	2.266
36	11.775	10.938	10.147	9.401	8.696	8.031	7.405	6.815	6.260	5.738	5.248	4.788	4.358	3.954	3.578	3.226	2.898	2.595	2.317
37	12.052	11.195	10.385	9.620	8.898	8.218	7.576	6.972	6.404	5.870	5.368	4.897	4.456	4.044	3.658	3.298	2.963	2.653	2.368
38	12.335	11.457	10.627	9.844	9.105	8.408	7.751	7.133	6.551	6.004	5.490	5.008	4.557	4.135	3.740	3.372	3.029	2.712	2.421
39	12.624	11.725	10.875	10.073	9.316	8.602	7.930	7.296	6.701	6.141	5.615	5.122	4.660	4.228	3.824	3.447	3.096	2.772	2.475
40	12.920	11.999	11.128	10.307	9.532	8.801	8.112	7.464	6.854	6.280	5.742	5.238	4.765	4.323	3.910	3.524	3.165	2.834	2.530
41	13.222	12.279	11.387	10.546	9.752	9.004	8.299	7.635	7.010	6.423	5.872	5.356	4.872	4.420	3.997	3.603	3.236	2.897	2.586
42	13.531	12.565	11.652	10.790	9.977	9.211	8.489	7.809	7.170	6.569	6.005	5.477	4.982	4.519	4.086	3.683	3.308	2.961	2.643
43	13.847	12.857	11.922	11.040	10.207	9.423	8.683	7.988	7.333	6.718	6.141	5.600	5.093	4.620	4.177	3.765	3.381	3.027	2.701
44	14.170	13.156	12.199	11.295	10.442	9.639	8.882	8.170	7.500	6.870	6.279	5.726	5.207	4.723	4.270	3.849	3.456	3.094	2.761
45	14.501	13.462	12.481	11.556	10.683	9.860	9.085	8.356	7.670	7.025	6.421	5.854	5.324	4.828	4.365	3.934	3.532	3.162	2.822
46	14.839	13.775	12.770	11.822	10.928	10.086	9.292	8.546	7.844	7.184	6.565	5.985	5.443	4.936	4.462	4.021	3.610	3.231	2.884
47	15.184	14.094	13.065	12.094	11.179	10.316	9.504	8.740	8.021	7.346	6.713	6.119	5.564	5.045	4.561	4.110	3.690	3.303	2.947
48	15.538	14.421	13.367	12.373	11.435	10.552	9.720	8.938	8.202	7.511	6.863	6.256	5.688	5.157	4.662	4.200	3.771	3.375	3.012
49	15.899	14.755	13.676	12.658	11.698	10.793	9.941	9.140	8.387	7.680	7.017	6.395	5.814	5.271	4.765	4.293	3.854	3.449	3.078
50	16.269	15.097	13.992	12.949	11.965	11.039	10.167	9.347	8.576	7.852	7.173	6.538	5.943	5.388	4.870	4.387	3.938	3.525	3.145
51	16.647	15.447	14.314	13.246	12.239	11.291	10.398	9.558	8.769	8.028	7.334	6.683	6.075	5.507	4.977	4.483	4.024	3.602	3.213
52	17.033	15.804	14.644	13.550	12.519	11.548	10.634	9.774	8.966	8.208	7.497	6.831	6.209	5.628	5.086	4.581	4.112	3.680	3.283
53	17.428	16.169	14.981	13.861	12.805	11.810	10.875	9.994	9.168	8.391	7.664	6.983	6.346	5.752	5.197	4.681	4.202	3.760	3.355
54	17.831	16.542	15.325	14.178	13.097	12.079	11.120	10.220	9.373	8.579	7.834	7.137	6.486	5.878	5.311	4.784	4.293	3.842	3.428
55	18.242	16.922	15.677	14.502	13.395	12.353	11.372	10.449	9.583	8.770	8.008	7.295	6.629	6.007	5.427	4.888	4.387	3.925	3.502
56	18.662	17.311	16.036	14.833	13.700	12.632	11.628	10.684	9.797	8.965	8.185	7.456	6.774	6.138	5.545	4.994	4.482	4.011	3.578
57	19.091	17.707	16.402	15.171	14.010	12.918	11.890	10.923	10.016	9.164	8.366	7.620	6.923	6.272	5.666	5.103	4.579	4.097	3.655
58	19.529	18.112	16.776	15.515	14.328	13.209	12.157	11.168	10.239	9.367	8.551	7.787	7.074	6.409	5.789	5.213	4.678	4.186	3.734
59	19.976	18.526	17.157	15.867	14.652	13.507	12.430	11.417	10.467	9.575	8.739	7.958	7.229	6.548	5.915	5.326	4.779	4.276	3.814
60	20.433	18.948	17.547	16.227	14.982	13.811	12.708	11.672	10.699	9.787	8.932	8.133	7.386	6.690	6.043	5.441	4.882	4.368	3.896
61	20.854	19.379	17.945	16.593	15.320	14.121	12.993	11.932	10.937	10.003	9.129	8.311	7.547	6.836	6.173	5.558	4.987	4.462	3.980
62	21.237	19.777	18.352	16.968	15.665	14.438	13.283	12.198	11.179	10.224	9.329	8.493	7.712	6.984	6.307	5.678	5.094	4.557	4.065
63	21.627	20.138	18.726	17.351	16.017	14.761	13.580	12.470	11.427	10.450	9.535	8.679	7.880	7.136	6.443	5.800	5.204	4.655	4.152
64	22.023	20.506	19.067	17.703	16.376	15.091	13.883	12.747	11.680	10.681	9.744	8.869	8.052	7.291	6.583	5.925	5.316	4.755	4.241
65	22.425	20.879	19.412	18.023	16.707	15.428	14.192	13.030	11.939	10.916	9.958	9.063	8.228	7.449	6.725	6.053	5.430	4.858	4.332
66	22.833	21.257	19.763	18.347	17.006	15.738	14.507	13.318	12.202	11.156	10.177	9.262	8.407	7.611	6.871	6.184	5.548	4.962	4.426
67	23.082	21.640	20.118	18.676	17.310	16.018	14.796	13.612	12.471	11.401	10.399	9.463	8.590	7.776	7.020	6.317	5.667	5.069	4.521
68	22.953	21.873	20.478	19.009	17.617	16.301	15.056	13.881	12.744	11.650	10.626	9.669	8.776	7.944	7.171	6.454	5.789	5.178	4.618
69	22.822	21.747	20.695	19.345	17.928	16.587	15.320	14.123	12.993	11.903	10.856	9.878	8.965	8.115	7.325	6.592	5.913	5.289	4.717
70	22.690	21.619	20.570	19.546	18.241	16.876	15.586	14.367	13.217	12.133	11.089	10.090	9.157	8.289	7.482	6.733	6.040	5.402	4.818
71		21.490	20.445	19.424	18.426	17.167	15.853	14.613	13.442	12.339	11.301	10.304	9.352	8.464	7.640	6.875	6.168	5.517	4.920
72			20.319	19.301	18.308	17.337	16.123	14.860	13.668	12.546	11.490	10.498	9.548	8.642	7.801	7.020	6.297	5.633	5.024
73				19.177	18.187	17.221	16.278	15.108	13.896	12.754	11.680	10.671	9.725	8.822	7.963	7.166	6.429	5.751	5.129
74					18.066	17.104	16.165	15.250	14.124	12.963	11.870	10.844	9.883	8.983	8.126	7.313	6.562	5.870	5.236
75						16.986	16.051	15.140	14.253	13.172	12.061	11.018	10.040	9.126	8.273	7.462	6.696	5.990	5.343
76							15.937	15.029	14.147	13.289	12.252	11.192	10.198	9.270	8.403	7.596	6.831	6.112	5.453
77								14.919	14.040	13.186	12.357	11.367	10.357	9.413	8.533	7.714	6.953	6.235	5.563
78									13.934	13.083	12.259	11.461	10.516	9.557	8.663	7.832	7.060	6.345	5.675
79										12.981	12.161	11.367	10.601	9.701	8.794	7.950	7.167	6.443	5.775
80											12.063	11.273	10.511	9.777	8.924	8.068	7.274	6.540	5.863
81												11.180	10.421	9.691	8.991	8.186	7.380	6.636	5.951
82													10.332	9.606	8.910	8.245	7.486	6.732	6.038
83														9.521	8.829	8.168	7.538	6.827	6.124
84															8.749	8.091	7.465	6.872	6.209
85																8.015	7.393	6.804	6.248
86																	7.322	6.736	6.185
87																		6.671	6.122
88																			6.062

SECTION C   AN INTRODUCTION TO OFFSETTING

Preamble

C.1.   The remedy of offsetting differences in a divorcing couple's pensions using non-pension capital has been commonplace in such financial remedy proceedings for some time. Indeed, it can be said that such a remedy predates all others, with the remedy of Pension Sharing Orders having been available from December 2000 onwards.

C.2.   This document is intended solely to showcase the Galbraith Tables and detail their application; it is not intended to serve as a textbook upon the remedy of offsetting in respect of pension rights upon divorce (less still any other such remedies). However, it is noted that a brief explanation of what is meant by offsetting of pension rights may well be deemed useful at this stage.

C.3.   Throughout this document, when the specifics of parties' pensions upon divorce are discussed, we shall refer to "the husband" and "the wife". However, it is accepted that there will be divorces in respect of same-sex marriages, and these tables may be deemed to be equally applicable.

C.4.   Likewise, the words "dissolution of a civil partnership" may be substituted for the word "divorce" throughout, with the legal processes pertaining to the dissolution of a civil partnership entered into under the Civil Partnership Act 2004 being understood to be analogous to divorce in respect of a marriage.

The basics of offsetting

C.5.   Offsetting allows each of the divorcing parties to retain his or her own pension rights, and *in lieu* of the pensions being shared, the party with the lesser pension rights then retains a larger amount of non-pension assets.

C.6.   For example, the husband has an arrangement with a leading pensions provider which has a Cash Equivalent Transfer Value (CETV)[3] of £100,000. He retains this pension following the divorce, and the wife retains an additional £100,000 of cash. Is this fair?

C.7.   Offsetting always creates issues in terms of how much should one provide to one party in non-pension assets *in lieu* of the other party having greater pension assets, with various legal precedents providing some different perspectives on this. The extent to which non pension capital should be discounted against pension capital is often a contentious area.

C.8.   Other important points to consider in respect of offsetting are as follows:

- Offsetting can only be used if there are sufficient 'other assets' held by the parties with which the difference in the pension assets can be offset.

- It is possible to use a mixture of offsetting and pension sharing (not a consideration of these tables) if the circumstances of particular cases dictate that this would lead to the fairest settlement.

- Much greater flexibility exists where non-pension capital is used by way of offset. For example, no minimum pension age attaches to non-pension capital amounts.

C.9.   Further useful background information upon the specifics of offsetting is to be found in Part 7 of the PAG Report that was discussed earlier in this document. Indeed, the PAG Report is increasingly being seen as the definitive guide upon pensions matters that pertain to divorce.

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[3] This is the term that shall be used in this document, but transfer value, Cash Equivalent Value (CEV), Cash Equivalent (CE) and other such variations are also applicable.

"More than" *versus* amount given

C.10. In our experience, one of the greatest difficulties in dealing with offsetting figures is whether these are defined in terms of:

- One party having £X amount "more than" the other in non-pension capital; or

- One party receiving £Y amount of non-pension capital from the other by means of offsetting.

C.11. This an opportune moment to clear up this issue: let us assume that A and B are two parties who have between them £200,000 in funds.

C.12. An equal split is obviously £100,000 each, but it must be noted once the split has been effected that every £1 that A gives to B (from A's own £100,000) means that B then has £2 "more than" A in funds.

C.13. Thus if it were to be agreed that B should have £40,000 more than A, this can be effected in two ways (which both lead back to the same overall result):

- If the monies have yet to be divided, then B need simply retain £120,000 and A £80,000, to give the desired split; while

- If the monies have already been divided, and each has £100,000, then A need give B some £20,000 *from his own share* (half of the difference of £40,000) such that again B has £40,000 more than A.

C.14. All offsetting amounts considered in this document will be expressed in the "more than" form i.e. the amount that the party with the lesser pension capital need retain in excess of that to be held by the party with the more generous pension provision.

SECTION D   ASSUMPTIONS USED IN THESE TABLES

Overarching principles

D.1. In broad terms, these Galbraith Tables value pension rights upon the basis of an individual seeking to replicate a defined benefit pension promise in retirement through i) the investment of defined contribution pension monies through to the assumed date of retirement, with ii) the accumulated fund then being drawn down over the individual's expected period of retirement.

D.2. Thus the tables may be used to determine the answer to the question *"what is the present value of a pension of £1 pa, payable from a given retirement date?"*, or more accurately, *"what level of defined contribution funds do I need today to replicate a pension of £1 pa, payable from a given retirement date?"*.

D.3. It follows that where immediate retirement is mooted or a pension in payment is valued, the first step above is trivial.

D.4. Similarly, we provide a table that simply allows for the first (pre-retirement) step, which may be used for the valuation of tax-free cash lump sums that accompany pension rights.

D.5. The pre-retirement phase assumes that monies in a defined contribution pension arrangement are used, rather than explicitly non-pension assets. However, in Section G we discuss tax and utility adjustments that might be applied to such non-pension assets then to allow a fair comparison to be made with defined contribution pension monies.

D.6. The post-retirement phase allows in effect for a "sinking fund" i.e. an accumulated fund that is expected to be drawn down at a rate in excess of likely investment returns, such that at the time of death, the fund has been exhausted. This is inherently the same approach that underpins the Duxbury tables, which are predominantly used to capitalise maintenance payments.

D.7. Other means exist by which an individual might seek to replicate a pension income in retirement, with perhaps the most obvious approach being via annuity purchase i.e. where the individual purchases a product that will provide a guaranteed income for life.

D.8. However, we reject the use of annuity purchase in compiling these tables on the grounds that i) annuity pricing is sensitive both to changes in market movements and insurers' commercial considerations, and ii) there exists a perception amongst consumers that annuities are "expensive" and reflect poor value for money.

D.9. Indeed, given that the requirement to purchase an annuity using defined contribution pension monies was relaxed following HM Treasury's "pension freedoms" of 2015, it was felt that alternative approaches ought to be considered in preparing these tables.

D.10. It is assumed throughout that inflation linkage will apply to the pension rights both before and after retirement, and moreover that such inflationary increases will follow the Consumer Prices Index (CPI) measure of price inflation. This is discussed further in this Section.

D.11. Most importantly, it is noted that what is shown herein is but one possible means by which pension rights may be valued, and it is by no means intended to be definitive. Pension on divorce experts—and indeed pensions professionals in general—will note that there are many alternative means by which pension rights may be attributed a present value.

Pre-retirement assumptions

D.12. It is assumed that over the accumulation (pre-retirement) period, a single contribution will be made at the date of the calculation i.e. the amount of offset capital itself. No allowance for further contributions nor withdrawals will be made thereafter until retirement.

D.13. No allowance is made for pre-retirement mortality i.e. the tables assume that the individual will always survive to retirement age.

D.14. Further, no allowance is made to replicate any pre-retirement death benefits that may attach to the pension rights e.g. any death-in-service or death-in-deferment lump sum, or any spouse's / children's pensions payable under such circumstances.

D.15. The funds will be assumed to accumulate in line with assumed investment returns, which will take account of a possible investment strategy as shown below.

D.16. Investment returns for the various asset classes considered in the investment strategy are as shown in the table below:

Equities	5.25% pa
Corporate bonds	2.25% pa
Government bonds (Gilts)	1.25% pa
Cash	0.75% pa

D.17. These rates of return are i) assumed to be after the deduction of any investment expenses, and ii) rounded to the nearest 0.25% pa.

D.18. Further, these are nominal rates that are to be used with our assumption that price inflation will be 2.00% pa in the period to retirement (itself chosen as the inflation target for the Bank of England as set by HM Treasury). Real rates may be derived from deducting 2.00% pa from the figures in the table above.

D.19. The rates above are informed by *"Accumulation rates used by providers of statutory money purchase illustrations since 6 April 2020"[4]* as published by the Financial Reporting Council (FRC) in respect of the rates used by pension providers in preparing Statutory Money Purchase Illustrations (SMPIs)

under actuarial standard Technical Memorandum 1 (AS TM1).

D.20. However, it is accepted that the selection of any such assumptions for future investment returns is very far from being an exact science, with this being acknowledged within AS TM1 itself.

D.21. In terms of the investment strategy hypothecated here, it is assumed that a term-dependent approach will apply, with higher-risk assets being held the further that one is from retirement, and a gradual shift then being made towards lower-risk assets as retirement approaches.

D.22. This approach is commonly known as "lifestyling" by defined contribution pension providers, and it recognises the fact that an individual may better accommodate significant fluctuations in fund value the further one is from retirement, with greater certainty and protection against such volatility typically being desired where one has a reduced opportunity in which to make good any investment losses that occurs.

D.23. The investment strategy assumed within the tables is broadly set out as follows:

- 10+ years from retirement, assets are held mainly (90%) in equities, with minimal holdings (10%) in corporate bonds and cash;

- Where there is a 3–10 years period to retirement, the corporate bond holding increases to 20% at the expense of the equities holding (now 75%), with 5% in cash; and

- Over the final three years to retirement, the investments are gradually moved to a lower risk equal split between gilts and cash.

D.24. We propose that this may be deemed to reflect the strategy that an investor with an "average" risk appetite might wish to adopt in the period to

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[4] This document is to be found at https://www.frc.org.uk/getattachment/e311e4e7-9a87-485f-ad59-3a8d8f8e5841/AS-TM1-accumulation-rate-survey-FINAL.pdf.

retirement with reference to defined contribution pension funds held.

D.25. The chart below sets out details of the forward rates and spot rates implied by this strategy:

Investment returns implied by proposed strategy over period to retirement
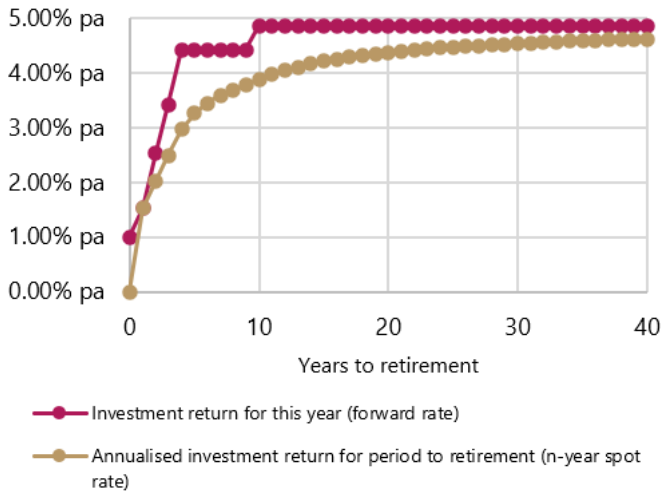
D.26. Please note also the comment made in D.45 around the treatment to be adopted where the assumed investment return for a given year is less than the assumed rate of price inflation deemed to apply to the rights being valued.

D.27. However, it is important to note that nothing shown in the tables or elsewhere within this document reflects any form of financial advice whatsoever upon such matters as:

- What might constitute an "optimal" investment strategy for investors with any particular risk appetite;

- The correct allocation of assets between classes to hold at a particular time (recognising that more asset classes exist for investment purposes than are shown in the earlier table);

- The actual assets to be held within each class (providers, specific funds, active *versus* passive investment etc);

- The principle and merits of "lifestyling" as opposed to maintaining a consistent asset allocation over the period to retirement.

D.28. It is recognised that many alternative strategies may be used to project monies held today to a later retirement age: **what is shown herein is simply one possible approach, and once again no advice is given as to the merits thereof in comparison to any other such strategy**.

D.29. In particular, it may well be argued that:

- The approach outlined above is insufficiently prudent, as pension rights in a defined benefit arrangement (i.e. what we seek to value) are protected against pre-retirement investment risk, and therefore it is improper to assume that an individual will incur such risks when seeking to replicate such deferred pension benefits; or in the alternative

- The approach outlined above is overly prudent, as a "lifestyling" strategy is one that lends itself to annuity purchase at retirement, while under a drawdown approach it is perhaps not necessary to move to a fully "derisked" position in the period leading to retirement on the grounds that the post-retirement period of decumulation may last 15–20 years.

D.30. Once again, such considerations notwithstanding, the strategy above is the one that shall be used in the derivation of the tables shown later in this document.

D.31. Any individual who receives financial assets as part of a divorce settlement—whether pension monies or non-pension assets—is strongly encouraged to seek financial advice as to how best such monies might be used to provide for his/her future. **No such financial or investment advice is provided within this document.**

Post-retirement assumptions

D.32. As alluded to earlier, it is assumed that an income drawdown solution shall be pursued to "run off" the accumulated fund over the expected period of retirement.

D.33. No expenses shall be allowed for at retirement, on the grounds that no explicit product is being purchased.

D.34. The income drawn in retirement shall be assumed to increase at a rate of 2.50% pa, with this being expected to follow CPI, but with an allowance for a 0.50% pa inflation risk premium[5].

D.35. Monies shall be assumed to be invested in a prudent manner, with these being split equally between Government bonds and cash. The assumed rate of investment returns post-retirement is 1.00% pa, consistent with the financial assumptions made earlier.

D.36. In terms of the period over which the fund is assumed to be drawn down, this is determined with reference to the S2 PA mortality tables, with year of birth projections to the assumed year of retirement. The CMI 2017 projections are made, subject to minimum 1.50% pa rate of improvement. Such mortality tables are available from the Continuous Mortality Investigation (CMI), which is operated by the Institute & Faculty of Actuaries.

D.37. These mortality assumptions broadly reflect those used by the Pension Protection Fund (PPF) where an assessment is made of a pension scheme's solvency (whether it has sufficient funds to allow the pension benefits to be "bought out" by an insurer). They are therefore deemed to be largely consistent with what is used by insurers when seeking to price an annuity.

D.38. Further, sex-specific tables shall be used i.e. the S2 PMA and PFA tables accordingly. It was deemed appropriate to make an allowance for sex-specific

mortality patterns—in particular, that women tend to outlive men—despite that fact that annuity pricing is no longer sensitive to this following the Test-Achats case[6].

D.39. However, it is possible to "override" the sex-specific nature of these tables by taking an average of the relevant figures for males and females of the same current age and assumed retirement age.

D.40. Sample life expectancies are as shown in the table below:

Age today	Assumed retirement age	Life expectancy in retirement (years)	
		Males	Females
20	60	28.5	30.4
40	60	26.6	28.6
60	60	24.9	26.7
80	80	9.1	10.2

D.41. These life expectancies are then scaled up by 10% to introduce a margin for prudence i.e. the fund is assumed to last for 110% of the life expectancy suggested by the relevant mortality tables.

D.42. It is assumed that each individual may be said to be in "normal" or "typical" health for one of his / her age at retirement: no allowance is made for possible curtailments in life expectancy. It follows that if one is in ill-health and/or has a significantly reduced life expectancy, then the use of such tables is unlikely to be appropriate.

D.43. Such considerations of life expectancy are "single life" in nature i.e. for the individual's own life only. No allowance is made for benefits that may be payable to others e.g. another spouse upon remarriage.

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[5] This is the "extra" that an individual might be prepared to pay to secure an income that is inflation-proofed in retirement.

[6] Judgement of the Court (Grand Chamber) of 01 March 2011: C-236/09 – Association Belge des Consommateurs Test-Achats ASBL and Others v Conseil des ministres.

Inflation linkage and pension increases

D.44. As alluded to above, the tables allow for the indexation of pension benefits both before and after retirement in line with the CPI measure of price inflation. This has been chosen as it now forms the dominant method of indexation used (in particular, it is used throughout the public sector pension schemes).

D.45. It is assumed throughout that no allowance be made for price inflation exceeding assumed investment returns in the period to retirement. In particular, where a prudent investment strategy is assumed to be adopted in the years immediately prior to retirement, and the resulting investment return lies below the assumed rate of price inflation, the lump sum valuation factor that emerges is capped at 1.000 i.e. no allowance is made for an individual seeking a sum of £100 in say two years' time—but with reference to today's money terms—having to invest a greater amount than £100 today.

D.46. It is noted that the tables need be applied to current pensions i.e. pensions as at the date of calculation. This is unlikely to present any problems in respect of the pensions of active scheme members (those accruing benefits) or pensions in payment, but when it comes to the deferred pensions of those who have left active service but have yet to retire, it may be necessary to "revalue" these to allow for the increases that have applied from date of leaving to date of calculation.

D.47. It is noted also that UK pensions may receive myriad increases both before and after retirement, with for example some pension elements being level, receiving fixed percentage increases, receiving increases in line with some measure of price inflation and / or being subject to caps and floors each year.

D.48. This document does _not_ seek to codify or anthologise the UK pensions landscape and this is simply noted in passing: it is important however that a competent understanding of the specifics of any pension rights to be valued is achieved prior to one's using the tables to place a value thereupon.

D.49. To the extent to which the tables are to be used with pensions that receive different rates of increase, it may be necessary for some manual adjustments to be made to the multiplicand.

D.50. These adjustments might take the following form:

- Prior to retirement, non-CPI pension increases may be allowed for by means of projecting the pension benefits to retirement in line with actual increases and then discounting back to today with reference to CPI at an assumed rate of 2.50% pa.

- Post retirement, various actuarial "rules of thumb" may be used to allow for £1 pa of CPI-linked pension being more valuable than £1 pa of level pension (and less generous than, say, £1 pa of pension that receives fixed 5% pa increases).

D.51. Such adjustments are left to the practitioner's discretion, but it must be remembered that the validity of such offsetting results is expected to deteriorate where significant actuarial adjustments are applied.

Taxation

D.52. It is assumed that the tables be used with pension incomes that are gross of income tax and lump sum amounts that are payable tax-free under HMRC rules. Adjustments to be made to offsetting results in respect of tax are considered in Section G.

D.53. Considerations in respect of the Lifetime Allowance (LTA) tax regime—for those with generous pension provision—lie well beyond the scope of this document. Where such issues are pertinent, the seeking of expert advice is essential.

The use of other assumptions with the Tables

D.54. It is intended that these Galbraith Tables reflect the underlying assumptions above, in a manner akin to Duxbury i.e. there is one definitive set of assumptions from which the tables are based (contrary to the approach adopted with Ogden, whereby tables are published that show results using various net discount rates).

D.55. However, a spreadsheet version of the Galbraith Tables is available, which allows the user to vary some of the underlying assumptions.

D.56. In particular, the model allows the following assumptions to be varied:

- Pre-retirement investment returns (with the strategy outlined earlier being replaceable with a fixed per annum investment return to retirement);

- Post-retirement investment returns;

- Inflation pre-retirement and pension increases post-retirement (useful perhaps where pensions are not CPI-linked); and

- The uplift to life expectancies discussed in D.41 above (with a 10% uplift being the default setting).

D.57. Interested parties should contact Mathieson Consulting Limited in respect of this spreadsheet, with details of fees levied being provided upon request.

SECTION E   HOW TO USE THE TABLES TO PRODUCE OFFSETTING FIGURES

Stages of offsetting

E.1.   There are two stages to the process of offsetting, and I suggest that these are considered in turn for the purposes of the calculations that follow:

- Stage 1 refers to the valuation of pension benefits for offsetting purposes i.e. how to value the pensions in a manner that is both internally consistent and consistent with the valuation of non-pension capital.

- Stage 2 refers to how any such amounts should be adjusted in relation to tax and utility to allow a fair comparison to be made with non-pension capital amounts.

E.2.   The operation of the tables relates to what is dubbed Stage 1 above; matters pertaining to Stage 2 (being tax and utility adjustments) are discussed in Section G.

Methods of valuing defined benefit pensions for offsetting purposes

E.3.   Within what is described as Stage 1 above, there are inherently two ways in which defined benefit pension promises—those expressed in pounds per annum terms, which can include State pensions and annuities now in payment that were purchased using defined contribution funds—can be valued for offsetting purposes.

E.4.   These are as set out below:

- In the first instance, the husband's pensions are valued in terms of what benefits they provide to him, and the wife's pensions in terms of what they provide to her. This is a "capital" measure of pension rights i.e. figures that may be placed upon the balance sheet for the purposes of the divorce.

- In the second instance, both parties' pensions are valued in terms of the shortfall in benefits that pertains to the individual with the lesser pension provision i.e. we determine how much this individual requires by way of offset to make up the shortfall in pension rights at retirement. This is by nature an "incomes" measure of pension rights.

E.5.   These two measures will produce equal results where the parties are either i) retired and identical in age, or ii) identical in age and assumed to retire at a later common age. It follows that where there is a divergence in ages, the two methods will produce different results, dependent variously upon

- the fact that the older one is at retirement, the smaller the amount of capital that is required to provide pension benefits; and

- the longer the period of deferment, the greater the allowance that may be made for investment returns on capital provided for offsetting purposes.

E.6.   A similar approach may also be adopted in respect of lump sums that accompany these pensions and are payable upon retirement.

E.7.   Practitioners and affected individuals must understand the context of any such figures that then emerge, in particular where such a difference in ages exists.

E.8.   It is assumed throughout that the pension rights to be considered will be UK-based in nature. It _may_ be appropriate to seek to value overseas pension rights using these tables—as per what is stated in Paragraphs D.44–D.51—but this relies upon certain assumptions about inflation linkage which may or may not be applicable.

The arithmetic associated with the factors

E.9. As with the Duxbury and Ogden tables, the tables shown herein rely upon the arithmetic of

$$Multiplicand \times Multiplier\text{[7]}$$

with the Multiplicand being the pension (or lump sum) benefit, in present day terms, that is to be valued and the Multiplier being drawn from the tables shown herein.

E.10. Thus it is necessary to value the pension rights of husband and wife separately, and then subtract the smaller figure that then emerges from the larger one.

E.11. In terms of which Multipliers to use, this depends on the method that is to be adopted. In particular:

- For the Capital measure, value each benefit with reference to who holds it i.e. value _husband's_ pensions / lump sums using factors that reflect _his_ particulars, and value _wife's_ pensions / lump sums using factors that reflect _her_ particulars.

- For the Income measure, value all benefits from the perspective of the recipient of the offsetting capital i.e. if husband has the greater pension provision, value all pensions / lump sums using factors that reflect _the wife's_ particulars.

E.12. At the expense of introducing some mathematical notation, we note that the table below sets out how the Multipliers are used with the various Multiplicands, depending upon the method adopted and whether pension rights or cash lump sums are being considered:

Multiplicand considered	Multiplier to use	
	Capital measure	Income measure
H's pension	$F_{P,H}$	$F_{P,L}$
H's lump sum	$F_{C,H}$	$F_{C,L}$
W's pension	$F_{P,W}$	$F_{P,L}$
W's lump sum	$F_{C,W}$	$F_{C,L}$

E.13. In respect of the notation used in the table above:

- $F_{P,x}$ refers to a pension valuation factor;

- $F_{C,x}$ to a cash lump sum valuation factor;

- x=H refers to the husband;

- x=W refers to the wife; and

- x=L refers to which of the two parties (H or W) has the lesser pension provision.

E.14. Thus $F_{P,H}$ is the factor used to value the pension payable to the husband. $F_{C,L}$ is the factor used in the income measure calculation to value lump sums, with this being defined with reference to the party that has the lesser overall pension rights (i.e. the wife if the husband has the greater pension provision).

E.15. This is perhaps best explained by means of a number of worked examples. In the interests of simplicity, the parties' names will change in each example, but the husband's name will always begin with an H and the wife's with a W.

E.16. It is assumed in all such examples that pension benefits are linked to the CPI measure both before and after retirement. As alluded to earlier, where

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[7] It is hoped that the reader might forgive the use of such mathematical terminology, albeit that which is also used in the Ogden Tables. In short, the Multiplier is the factor that comes from the tables, and the Multiplicand is "the thing that is being multiplied" i.e. the pension benefits that are to be valued.

benefits receive other such increases (or indeed where they are non-increasing) it will be necessary for some adjustments to be made.

E.17. Further, all pension benefits are shown in current terms i.e. were these in respect of deferred pension rights, an allowance has been made for revaluation from date of leaving to date of calculation.

Example 1: Harry and Wilma

E.18. Harry is aged 45, Wilma is aged 40. Harry has an accrued pension of £15,000 pa and three-times lump sum of £45,000 that are payable at age 60. Wilma has an accrued pension of £8,000 pa that is payable at age 60. Neither party has any defined contribution funds (considered later in Section F).

E.19. On the capital measure, the benefits are valued as follows:

Capital measure of offset amount			
	Multiplicand	Multiplier	Value
H's pension	£15,000 pa	26.230	£393,449
H's lump sum	£45,000	0.742	£33,386
Value for H			**£426,835**
W's pension	£8,000 pa	25.502	£204,019
W's lump sum	£0	0.646	£0
Value for W			**£204,019**
Difference (offset amount)			***£222,816***

E.20. Likewise, on the income measure, the benefits are valued as follows:

Income measure of offset amount			
	Multiplicand	Multiplier	Value
H's pension	£15,000 pa	25.502	£382,535
H's lump sum	£45,000	0.646	£29,054
Value for H			**£411,589**
W's pension	£8,000 pa	25.502	£204,019
W's lump sum	£0	0.646	£0
Value for W			**£204,019**
Difference (offset amount)			***£207,570***

E.21. Thus it can be seen that Harry has the greater pension provision, and therefore Wilma will be the recipient of non-pension offset capital.

E.22. Looking at the multipliers above, one can see that we use the same factors for Harry and Wilma when we come to the incomes measure, and in particular we use factors that pertain to Wilma as she will be the recipient of the non-pension capital. By contrast, when we considered capital values, we used each party's *own* factors for valuation purposes.

E.23. Consequently, Wilma requires a smaller amount of non-pension capital by way of offset when she seeks to match Harry's income in retirement than on a capital measure (£208k to £223k). This is because she is five years younger than him, and monies in her hands can be invested for longer prior to retirement.

Example 2: Horace and Wendy

E.24. Horace and Wendy are both pensioners; he is aged 67 and she is 64. He is in receipt of a pension income of £25,000 pa while her income is £11,000 pa. All defined contribution monies were used to purchase annuities that were taken into account in the incomes above, and there are no lump sums to consider.

E.25. Once again, the application of the factors is predicated upon the pensions being assumed to follow price inflation as measured by CPI in retirement.

E.26. On the capital measure, the benefits are valued as follows:

Capital measure of offset amount			
	Multiplicand	Multiplier	Value
H's pension	£25,000 pa	23.972	£599,293
H's lump sum	£0	1.000	£0
Value for H			**£599,293**
W's pension	£11,000 pa	30.498	£335,481
W's lump sum	£0	1.000	£0
Value for W			**£335,481**
Difference (offset amount)			***£263,811***

E.27. On the income measure, the figures are as follows:

Income measure of offset amount			
	Multiplicand	Multiplier	Value
H's pension	£25,000 pa	30.498	£762,457
H's lump sum	£0	1.000	£0
Value for H			**£762,457**
W's pension	£11,000 pa	30.498	£335,481
W's lump sum	£0	1.000	£0
Value for W			**£335,481**
Difference (offset amount)			***£426,976***

E.28. Thus Wendy requires more non-pension capital to match Horace's income than simply to equalise the capital value of their respective pensions: this is because she is younger than he and is expected to live longer than him in retirement. In turn, the cost of providing a notional £1 pa of pension income is higher for her than it is for him (£30.948 to £23,972).

SECTION F   SPECIAL CONSIDERATIONS WHEN USING THE TABLES

The treatment of defined contribution pension funds

F.1.   It is generally accepted that defined contribution funds may be offset on a pound-for-pound basis, at least prior to any adjustment for tax / utility.

F.2.   This is especially true given the "pension freedom" regime that was introduced by HM Treasury in 2015, with such monies as are held in a defined contribution fund being regarded as being the same as monies in a bank or building society account, except that tax need be paid in order to access such funds. Francis J—sitting as a deputy in the High Court at the time—came to the same conclusion in SJ *v* RA [2014] EWHC 4054 (Fam).

F.3.   Thus on the capital measure, such defined contribution funds are valued using a factor of 1.

F.4.   However, where an incomes measure is adopted, it must be recognised that a notional £100k of defined contribution funds will produce a different level of income for H and W where there is a material age gap between them. In turn, some finessing of the calculation is required where defined contribution funds are used as part of an offsetting calculation on the incomes measure.

F.5.   This can be rectified by using a factor of 1 for the party with the small pension provision (i.e. the recipient of any offset capital) and for the other party, a factor of $F_{P,L} \div F_{P,G}$ where again $F_{P,L}$ is the pension factor for the individual with the lesser pension rights, and $F_{P,G}$ is the pension factor for the individual with the greater pension rights.

F.6.   Again, this relies on mathematical notation, and is perhaps best illustrated by means of an example, and it is further noted that the application of the factors is predicated upon:

- All deferred pensions being assumed to be revalued to the date of the calculation; and

- All pensions being stated in CPI terms both before and after retirement.

Example 3: Hector and Willow

F.7.   Hector is 35 and Willow is 40, Hector has an accrued pension of £10,000 pa that is payable at age 65. He also has defined contribution funds of £250,000 and Willow has funds of £50,000.

F.8.   On the capital measure, the benefits are valued as follows (with factors of 1 being used for each defined contribution fund):

Capital measure of offset amount			
	Multiplicand	Multiplier	Value
H's pension	£10,000 pa	14.827	£148,272
H's lump sum	£0	0.489	£0
H's DC funds	£250,000	1.000	£250,000
Value for H			**£398,272**
W's pension	£0 pa	18.380	£0
W's lump sum	£0	0.562	£0
W's DC funds	£50,000	1.000	£50,000
Value for W			**£50,000**
Difference (offset amount)			***£348,272***

F.9.   On the income measure, the figures are as follows:

Income measure of offset amount			
	Multiplicand	Multiplier	Value
H's pension	£10,000 pa	18.380	£183,803
H's lump sum	£0	0.562	£0
H's DC funds	£250,000	1.240	£309,910
Value for H			**£493,713**
W's pension	£0 pa	18.380	£0
W's lump sum	£0	0.562	£0
W's DC funds	£50,000	1.000	£50,000
Value for W			**£50,000**
Difference (offset amount)			***£443,713***

F.10.   Thus the defined benefit pension promise to Hector is valued as before, and on the capital measure, the defined contribution funds are simply added to the total amounts of pension capital for each party.

F.11.   However, when it comes to the incomes measure, it is necessary to adjust the value of Hector's defined contribution fund when determining how much Willow needs in respect thereof by way of

offset. On account of Willow's being five years older than Hector, the cost to her to secure a notional £100 pa annuity income in retirement is greater, and in turn the $F_{P,L} \div F_{P,G}$ multiplier scales up his £250,000 of defined contribution funds.

Active membership of a defined benefit pension scheme

F.12. It is typical to consider pension rights on a "leaving service benefits" basis i.e. to assume that the individual leaves active service of the pension scheme as at the date of calculation.

F.13. In so doing, no allowance is made for i) any further accrual of benefits, ii) future salary linkage (to the extent that salary growth may be said to outstrip price inflation), or for iii) any special terms (such as enhanced early retirement) that may pertain only to active members.

F.14. This is another matter where one may wish to seek the advice of pensions expert to provide support and produce results that may be relied upon in any court settlement.

Multiple pensions with different retirement ages

F.15. The arithmetic above is predicated upon there being a single point at which each party's pension rights are put into payment, with this either being:

- Immediately, at current age, in respect of pensions in payment; or

- At a fixed age some years into the future, where pensions are not yet in payment.

F.16. Where this is the case, it is reasonable to total up each party's defined benefit pension rights, attaching lump sums and defined contribution funds, rather than consider these separately.

F.17. It follows however that an individual may have pensions that are payable at different retirement ages, or may be in receipt of some benefits now, with others to be taken at a later age (including perhaps State pensions). Under such circumstances, it is necessary to value each pension

separately using the *Multiplicand × Multiplier* formula.

Guaranteed annuity rates and other benefit promises attaching to defined contribution funds

F.18. The commentary in respect of pension rights held in defined contribution funds above assumes that these are conventional in nature i.e. with no benefit promises being made. It follows that a different treatment may be needed where such terms attach to a policy.

F.19. Some defined contribution pension policies taken out prior to c. 2000 come with the benefit of a guaranteed annuity rate (GAR), which means that the holder has the right to convert the fund into an annuity income on agreed terms. These contracts date back to a time when annuities were cheaper to provide than today, and it follows that such GARs may offer considerable value beyond the face value of the fund.

F.20. Under such circumstances, it is necessary to determine the expected income under the GAR, and then value such pension rights as being defined benefit in nature.

F.21. Other benefit promises may attach to seemingly defined contribution arrangements e.g. Guaranteed Minimum Pension (GMP) underpins on benefits bought out with insurers, minimum levels of investment returns and guaranteed fund values. Such benefits need be considered on a case-by-case basis, and the use of these tables is no substitute for seeking advice from a pensions expert.

Defined contribution funds with fund values that differ from the CETVs

F.22. Similarly, it follows that the CETV—or transfer value payable—of a defined contribution plan may differ from the underlying fund value.

F.23. CETVs typically exceed fund values where the arrangement is with-profits in nature, with the CETV making an allowance for bonuses that have not yet been awarded to the fund. By contrast,

where the CETV is lower than the fund value, it is usually associated with some penalty / charge that is applied to effect such a transfer.

F.24. A simple rule of thumb in such cases is to take the higher of the two figures, on the grounds this is usually the one that can be realised, by effecting a transfer where this is necessary. However, it may be necessary to gain a deeper understanding of the terms of the pension arrangement that the individual holds from its provider.

Defined benefit pensions with "generous" CETVs

F.25. The approach set out in the prior Section in respect of defined benefit pension rights makes no reference whatsoever to the Cash Equivalent Value (CETV) of the pension, and instead considers only the value of the income stream that may be determined using the tables.

F.26. In most cases, this will be entirely reasonable, on the grounds that the CETV will fall short of the calculated value of the benefits (on either the incomes or capital measure). Given that the CETV of the pension will only be realised either in full where a transfer is taken, or in part where a Pension Sharing Order is applied, it follows that the CETV of such pension rights may be deemed to immaterial.

F.27. However, some defined benefit pension schemes pay out very generous CETVs, whether on grounds of the scheme being well-funded with a prudent investment strategy, or with a view to members being encouraged to take up such generous terms.

F.28. Where a CETV provides a value that is greater than the calculated value of the rights using the table, it could be argued then that the CETV be used in place of the calculated value, on the grounds that this is the true amount that may be "released" from the pension arrangement.

F.29. Nonetheless, it should be noted that:

- The holder of the pension must be prepared to realise the additional value by means of a "DB to DC transfer" i.e. transferring-out the pension rights to unlock the extra value included in the CETV.

- It is noted that formal financial advice will need to be taken before either the defined benefit scheme or the receiving arrangement will permit such a transfer to proceed.

- Experts will disagree upon whether a CETV may be deemed to be "in the money" or otherwise, and such assessments depend very heavily upon the assumptions made which may well differ between individuals (appetite for investment risk *etc*).

- Finally, the CETV must be capable of being taken: this will not be possible where the member has passed Normal Retirement Age (NRA) and is in general not possible in public sector defined benefit schemes (or pension rights secured in the Pension Protection Fund).

F.30. It is accepted that different treatments may well be deemed applicable where a generous CETV is payable by a scheme in respect of defined benefit rights held therein.

Cash balance schemes

F.31. These are arrangements that are inherently defined benefit in nature before retirement, and defined contribution in nature after retirement. Typically, the individual builds up a salary-linked fund which is then used to secure benefits in retirement but with no explicit promises being made as to what the funds might secure.

F.32. Such arrangements ought to be considered on their own individual merits, but in general it might be appropriate to determine the expected fund as at retirement age, express this in today's money terms and then treat what remains as a defined contribution arrangement as discussed above.

SECTION G   POSSIBLE ADJUSTMENTS TO CALCULATED OFFSETTING FIGURES

Introduction

G.1.   It is generally accepted that monies held outside a registered UK pension arrangement are potentially more tax efficient than is an amount of pension capital. This is because the latter can only be used to provide taxable income—after any tax-free lump sum has been taken—whereas non-pension capital can be used to generate income with no tax. (Alternatively, a fund of £10,000 of cash can be converted into a pension fund of £12,500, after basic rate tax relief.)

G.2.   Given the choice between having £10,000 of cash or £10,000 of pension funds, most people would elect for £10,000 of cash. This is because it is more flexible, accessible, and liquid than monies in a pension fund—this is what is often referred to as the "Utility Argument". However, it must be noted that this argument is not always applicable, as discussed below.

G.3.   It is therefore necessary to adjust any calculated amount of non-pension capital as might emerge from the tables shown earlier in respect of offsetting to reflect:

- the greater **tax** efficiency compared to any equivalent amount in a pension fund; and

- the greater **utility** of the monies, where this is applicable.

Tax adjustments

G.4.   With regards to the first adjustment for income tax, there is some consensus that the adjustment is either 15% if the person with the greater pension income will be a basic rate taxpayer in retirement or 30% if they are forecast to be a higher rate taxpayer in retirement. These amounts reflect the current tax rates and assume that 25% of the pension funds can be taken tax-free.

G.5.   It is possible that if the pension assets are very small indeed, and the State pension is minimal, that the adjustment for tax could be less than 15%. It is also possible that the adjustment for tax could be

greater than 30%, if the pension holder is in the 45% tax bracket, or it could be between 15% and 30% if the pension straddles basic and higher rate tax.

G.6.   It follows also that if the pensions are in payment then no tax-free cash lump sums can be accessed and rates of 20% or 40% should apply.

G.7.   No adjustments need be made in respect of National Insurance Contributions (NICs), as pension incomes are not subject to NIC deductions even where the recipient has yet to attain State Pension Age.

G.8.   These comments are deemed applicable as at the time of writing, but it must be noted that any revisions to the income tax regime (in particular around rates, bands and allowances) could lead to other adjustments being applicable instead.

Utility adjustments

G.9.   It is the view of the Pension Advisory Group—as set out in the PAG Report, discussed earlier—that any adjustment for utility is what is called a section 25 factor i.e. it depends upon the specific facts of the case. Ultimately it is for the Court to decide upon what utility argument exists, with it having had the opportunity to consider all of the facts of the case.

G.10. Some of the factors for assessing the size of the utility argument are set out as follows:

- If the non-pension capital being offered relates to equity in the Former Matrimonial Home, and this meets a very basic housing need, it could be argued that such an asset is perhaps almost equally as illiquid as a pension fund and thus the quantum of the utility adjustment could perhaps be very small.

- By contrast, if the non-pension capital being offered is cash which is superfluous to needs, then the quantum of any adjustment could be significantly greater.

G.11. PAG discusses adjustments in respect of utility in some detail in Paragraphs 7.37–7.43. The key observations are as shown below (emphasis as per PAG report itself):

- "Unlike tax adjustments, adjustment for utility is **not a matter on which the PODE should be expected to comment**..." (Para 7.38);

- "**It is impossible to come up with a 'rule of thumb'** formula which may assist parties with how they might apply a utility adjustment; much will depend on the facts of the case. Indeed, in some cases it may be appropriate to make no further adjustment." (Para 7.40);

- "[PAG's] anecdotal observation is that in many cases pensions appear to have been excessively adjusted for perceived utility" (Para 7.41 (g)); and

- "Dependent on the facts of each case **a range of 0%–25% could potentially be argued** to be appropriate as a further adjustment to pension values for offsetting purposes where the application of a utility adjustment is considered justified on the facts of the case." (Para 7.42).

Partial offsetting

G.12. Partial offsetting is a remedy whereby pension sharing is combined with offsetting by means of non-pension capital.

G.13. In particular, the parties may agree to some non-equal distribution of non-pension assets—typically in favour of the party with the lesser pension assets—with it being understood that a Pension Sharing Order (PSO) is still required to make up a remaining difference in rights thereafter.

G.14. Where offsetting is to be combined with the sharing of solely defined contribution pension funds, it is possible to consider this on a "pound-for-pound" basis, but subject to adjustments for tax and utility as per this Section.

G.15. For example, if it is agreed that W need receive £200k from H by means of offset—such that she then has £400k more than him in non-pension assets—then it would be possible to substitute some of this £200k that he is to provide by using his defined contribution funds[8]. However, it must again be remembered that £200k of a pension credit may be deemed to be _less valuable_ than £200k in non-pension assets for reasons of tax / utility, and it may be appropriate to make an adjustment in respect thereof.

G.16. Partial offsetting solutions are complicated where the PSO concerned relates to a defined benefit pension scheme, and under such circumstances the input of a PODE will prove invaluable. This becomes especially true when multiple PSOs are considered, and some judgement need be applied as to which should be reduced first by the presence of non-pension capital.

Conclusions and further considerations

G.17. In bringing together the above, the Family Justice Council (FJC) "Needs" paper for Litigants in Person[9] suggests that perhaps an adjustment of between 20 and 40% need be made for tax and utility. PAG proposes that the adjustment should be broken down and proposes that adjustment for tax alone should be between 15% and 30% (as stated above), dependent upon whether the member is expected to pay tax at current basic or higher rates.

G.18. In addition, there **may** be an adjustment for utility—based on the specific facts of the case—of between 0% and 25%[10]. Therefore, PAG's view is that the overall adjustment for both tax and utility could be between 15% and 55%.

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[8] Refer again to what is stated in Paragraph F.2 of this document.
[9] The document can be found at https://www.judiciary.gov.uk/related-offices-and-bodies/advisory-bodies/fjc/guidance/sorting-out-finances-on-divorce/.
[10] The factors which PAG suggest may be considered when considering the Utility discount, are set out on pages 23–24 of the PAG Valuation and Expert report, but very firmly concludes that the adjustment for utility should remain within the discretion of the Court using S. 25 factors.

G.19. It should also be borne in mind that the adjustments for tax / utility may potentially vary between the parties. For example, if one party has a defined contribution fund very close to retirement and the other party has a defined benefit pension with a long period to retirement, any such adjustment for utility may be different for one party.

G.20. The above explanation of offsetting is a distillation of a very complex thought process. Full details of this thought process and associated considerations can be found in the PAG report, itself.

Examples of possible tax adjustments

G.21. In Example 1, it was shown that Wilma need retain £223k more in non-pension capital by way of offset on the incomes measure, with this becoming £208k on the capital measure (amounts rounded to nearest £1,000).

G.22. Given that these pension rights remain uncrystallised (i.e. they are deferred pensions yet to be taken), a tax adjustment of 15% may be deemed applicable, such that these amounts then become **£189k** and **£176k** respectively.

G.23. In Example 2, the pensions in question were deemed to be in payment, with any tax-free amounts having already been taken. Under such circumstances, the amount that Wendy need retain might instead be made subject to a 20% tax adjustment, such that the incomes figure of £264k reduces to **£211k**, and the capital figure of £427k becomes **£342k**.

SECTION H   THE AUTHORS' CURRICULA VITAE

Jonathan Galbraith BSc (Hons) FIA MEWI

I am an experienced pensions actuary, having spent over 17 years working in the UK pensions industry, many of them working as a corporate advisor in respect of the risks that companies face in operating defined benefit pension schemes.

I joined Mathieson Consulting in 2017, and I prepare and advise on Expert Witness reports in the areas of pensions on divorce, loss of pension rights on dismissal / injury, negligence (pensions on divorce) and Inheritance Act cases. I have advised in over 700 such cases, and am therefore in a position to draw upon such considerable experience.

One of my pensions reports was used in a February 2020 divorce case, with explicit reference being made to the report by HHJ Edward Hess in his anonymised written judgement (https://www.bailii.org/ew/cases/EWFC/OJ/2020/B10.pdf, paragraph 63 (ii)):

> *"It has been suggested by Mr Galbraith from Mathieson Consulting Limited, the PODE instructed in this case, in his report of 3rd July 2019...that (for reasons convincingly explained in detail by him which have been accepted by both parties, and which include a proper consideration of the Lifetime Allowance and Fixed Protection issues arising here) the appropriate equalisation age on the facts of this case is 60 (rather than the normal 65 or 67). I propose to adopt this recommendation."*

My pensions report in a September 2021 case (judgement at https://www.bailii.org/ew/cases/EWFC/OJ/2021/B63.html) is also referred to in favourable terms by Mr Recorder Salter.

My role also involves the development of new and existing services to clients, and the provision of internal and external training on pensions matters, including speaking at seminars and webinars.

I can draw upon significant experience of performing individual member benefit calculations, including transfer values, early/late retirement terms, pensions tax implications and also pension scheme valuations. Earlier work in my career included advising on pension scheme closure and valuation discussions, and carrying out liability management exercises. I have also historically served as a subject-matter expert in public / not-for-profit sector pension arrangements.

Employment history

2019–present	Head of Product & Risk, Mathieson Consulting
2017–present	Senior Actuary and Report Writer, Mathieson Consulting
2006–2017	Corporate pensions actuary, PwC
2004–2006	Trainee pensions actuary, Hewitt Bacon & Woodrow (now Aon)

Qualifications and memberships

Fellow of the Institute & Faculty of Actuaries, qualified 2009
BSc (Hons) in Mathematics, Statistics and Accounting, First Class, University of Strathclyde, 2004
Member of the Expert Witness Institute, 2021–
Affiliate Member of the Institute of Mathematics and its Applications, 2021–
Associate Member of Resolution (formerly the Solicitors Family Law Association), 2019–
Fellow of the Royal Statistical Society, 2006–

Published articles

Galbraith J and Taylor R, "*Scrumping the crop of recent pension decisions*", December [2020] Fam Law

Chris Goodwin BSc (Hons) FIA

I am an experienced pensions actuary, having worked in the UK pensions industry for over 30 years.

I joined Mathieson Consulting in 2017, and I prepare and advise on Expert Witness reports in the area of pensions on divorce. I have written or peer-reviewed over 850 such cases.

Previously during my career, I have worked for both actuarial consultants and life assurance companies including Aon Hewitt, Zurich Financial Services and the Prudential.

I have served as a Scheme Actuary to a portfolio of occupational pension schemes and have advised clients on pension matters from a wide range of business sectors including financial services, banking, manufacturing, the motor trade and charities. I have also served as a trustee director for a portfolio of Small Self-Administered Schemes.

Whilst working for Zurich Financial Services, I was responsible for implementing the Pension Sharing on Divorce Regulations within the business and as a Scheme Actuary, I advised clients on how they should implement pension sharing orders. I have also provided actuarial tables and procedures to clients for transfer value calculations, including those required to calculate pension credits.

As well as being a qualified actuary, I also hold a Post Graduate Certificate in Education (PGCE) in respect of the teaching of mathematics and have taught economics to actuarial students at the Central University of Finance and Economics, Beijing.

Employment history
2017–present	Senior Actuary and Report Writer, Mathieson Consulting
2016–2017	Trainee Mathematics Teacher, University of Worcester
2013–2015	Director, Goodwin Actuarial Services
2006–2012	Senior Consultant, Aon Hewitt
2003–2006	Senior Business Development Manager, Prudential
1994–2003	Director of In-Retirement Product Development, Zurich Financial Services
1988–1994	Consultant, Bacon & Woodrow (now Aon)

Qualifications and memberships
PGCE in secondary level Mathematics with post 16 enhancement, 2017
Exempt approved authority to provide investment advice, 2007–2012
Scheme Actuary, 1997–2003 and 2007–2012
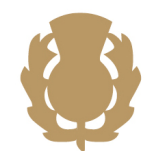Fellow of the Institute & Faculty of Actuaries, qualified 1994
BSc (Hons) in Economics & Statistics, University of Southampton, 1988