Government Actuary's Department

Principal Civil Service Pension Scheme (PCSPS)

Factors for actuarial reduction buy out (ARBO) - for members retiring before age 55 whose deemed date for pension increases occurs before the date of early retirement

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Contents

1   Summary

1.1   This note is addressed to The Pension Scheme Executive (TPSE) of the Cabinet Office as scheme manager of the PCSPS (the 'Principal Civil Service Pension Scheme' or the 'Scheme').

1.2   The purpose of this note is to provide TPSE with the method and tables to be used to calculate the cost of buying out the full actuarial reduction in the circumstances described in paragraph 1.4 below.

1.3   Scheme members who are eligible to take actuarially reduced early retirement have the option to pay a lump sum to the scheme and then receive an unreduced pension and lump sum.

1.4   This note relates only to cases involving members wishing to retire before age 55 whose deemed date for pension increases occurs before the date of early retirement. We have provided a pro forma in Appendix C, which can be used to calculate the ARBO cost. An example of using the pro forma is in Appendix B.

1.5   In the remainder of this note, the lump sum payment required to buy out the actuarial reduction is referred to as the actuarial reduction buy out (ARBO) cost. The ARBO cost should be calculated before the member commutes pension for lump sum.

1.6   The ARBO cost for added pensions will be calculated in the same way as for main scheme benefits (and using the same tables as determined by paragraphs 2.2 to 2.4 and 3.1).

Assumptions

1.7   The factors provided in this note have been prepared in accordance with our note *Principal Civil Service Pension Scheme: Advice on actuarial calculation factors* dated 18 November 2014, as subsequently amended.

Relevant scheme rules

1.8   The PCSPS rules on actuarial reduction buy out are set out below. The rules state that the factors covered by this note are to be prepared by the Minister for the Civil Service, after consulting the Scheme Actuary.

1972 Section	– rule 3.51 (final salary benefits)
	– rule 14.18A (added pension benefits)
	– rule 12.4 (pension credit member benefits)
2002 Section	– rule D.3A (**premium** final salary benefits)
	– rule L.11A (**classic plus** final salary benefits)
	– rule C1.15A (added pension benefits)
2007 Section	– rule E.15A (all benefits)

Implementation

1.9   We understand the actuarial reduction buy out factors are the responsibility of the Minister. We recommended that the new factors be adopted as soon as possible. Cabinet Office have confirmed that the revised PCSPS factors have been implemented from 1 April 2015 and are aware of any risks in selecting this implementation date.

Cases not covered by this note

1.10   For cases involving members wishing to retire after age 55 or before age 55 whose deemed date for pension increases occurs on or after the date of early retirement, the procedure for calculating the ARBO cost is set out in our note *PCSPS: Factors for actuarial reduction buy out (ARBO) - All members except those retiring before age 55 whose deemed date for pension increases occurs before the date of early retirement* dated 10 March 2015, as subsequently amended.

1.11   We understand that **nuvos** members can only take early retirement (in normal health) at or above age 55. Therefore this note will not apply to members of **nuvos**.

1.12   Calculations for members whose NPA is not age 60 or 65 years should be referred to GAD.

1.13   We do not anticipate any other special cases not covered by this note (or the guidance note referenced in paragraph 1.10 above). However, if any do occur they should be referred to GAD.

1.14   This note does not apply to benefits in the **alpha** scheme (or Civil Service and Others Pension Scheme). We have provided separate advice for the **alpha** scheme in our note *Civil Service and Others Pension Scheme: Factors for actuarial reduction buy out (ARBO) for alpha members* dated 14 October 2014, as subsequently amended*.

Further information

1.15   Please contact Nick Horne (020 7211 2679) or Cody Shek (020 7211 2684) for further information on this note.

Limitations

1.16   This note is intended for the use of the Cabinet Office and the scheme administrators for the purposes of demonstrating the application of the factors covered by this guidance only. The information and advice in this note should not be relied upon, or assumed to be appropriate, for any other purpose or by any other person. GAD does not accept any liability to third parties, whether or not GAD has agreed to the disclosure of its advice to the third party.

1.17   The factors contained in this note are subject to regular review. Administrators need to ensure that they are using the latest factors, as relevant, when processing cases.

1.18   Advice provided by GAD must be taken in context and is intended to be read and used as a whole, not in parts. GAD does not accept responsibility for advice that is altered or used selectively. Clarification should be sought if there is any doubt about the intention or scope of advice provided by GAD. In no circumstances should this guidance take precedence over the scheme rules.

1.19   This note only covers the actuarial principles around the factors covered in this note. Any legal advice in this area should be sought from an appropriately qualified person or source. In no circumstances should this guidance take precedence over the scheme rules. If users of this guidance believe it to contain any inconsistencies with the scheme rules, they should bring this to the attention of Cabinet Office and GAD.

2 Classic and Classic Plus members

2.1 The ARBO cost for a **classic** or **classic plus** member retiring early should be considered as the sum of two components: the cost of buying out the reduction applied to the member's pension, and the cost of buying out the reduction applied to the member's lump sum.

2.2 The cost of buying out the actuarial reduction applied to the member's pension should be calculated as:

$$PensionCost = [P \times F_x \times (1 + PI)] - [P \times PI \times G_x]$$

Where:

x = member's age at retirement date in years and complete months

P = unreduced pension at retirement. [The pension consists of a member's Main Pension, any Added Pension bought and (where relevant) the Transfer In pension].

PI = rate of pension increase (PI rate) from the 'Deemed Date for Pension Increase' to the published increase date preceding the date of early retirement, as provided for under Section 59 of the Social Security Pensions Act 1975 (as amended). The PI rate is calculated as:

PI *rate* = (PI *multiplier* – 1)

where the PI multiplier applies from the Deemed Date for Pension Increase to the published increase date preceding the early retirement date[1].

F_x = relevant factor for a member aged x, taken from:

- Table 3 (P1ARBO60) for a member with NPA 60
- Table 4 (P1ARBO65) for a member with NPA 65[2]

G_x = relevant factor for a member aged x, taken from Table 1 (P1ARBOGX).

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[1] The PI *multipliers* are published by HM Treasury in the tables: "Pensions increase multiplier tables" each year. The multipliers in the tables are in the form of one plus the pension increase percentage. This means the amount of pension after the increase is found by multiplying the current pension by the multiplier. For examples of using the multiplier tables, see Appendix D.
[2] We understand that there are a small number of **classic** and **premium** members with an NPA of 65.

2.3   The cost of buying out the actuarial reductions applied to the member's lump sum should be calculated as:

$$LSCost = LSR + [PI \times LSR \times H_x]$$

LSR =   lump sum reduction (i.e. 'unreduced lump sum' – 'reduced lump sum'). The reduced lump sum is the amount of lump sum the member would be entitled to at retirement if they chose not to buy out the actuarial reduction.

H_x =   relevant factor for a member aged x, taken from Table 2 (P1ARBOHX).

2.4   The total ARBO cost of a **classic** or **classic plus** member is then the sum of the pension buy out and lump sum buy out components:

Cost = PensionCost + LSCost

2.5   The calculations above are done before the member commutes pension for lump sum.

3 Premium members

3.1 Since **premium** members receive no automatic lump sum, the ARBO cost should be calculated as:

$$Cost = [P \times F_x \times (1 + PI)] - [P \times PI \times G_x]$$

where variables are as defined in paragraph 2.2.

3.2 The calculation above should be done before the member commutes pension for lump sum.

4   How to use the pro forma

4.1   Appendix C contains a pro forma which can be used to calculate the ARBO cost for cases covered by this note. Appendix B contains an example of using the pro forma.

4.2   The pension 'P' referred to in paragraphs 2.2 and 3.1, consists of a member's Main Pension, any Added Pension bought and (where relevant) the Transfer In pension. As outlined in the pro forma, pension increases apply to each of these components and different pension increases may be required if different 'Deemed date for PI' are applicable.

4.3   The following table gives the sources of the variables defined in 2.2 and 3.1 above, and their references in the pro forma.

Variable	Source	Reference in pro forma
P	Member data	(1)
PI	HM Treasury- "Pension increase multiplier tables". The early retirement date determines which multiplier table should be used. See Appendix D for examples of using the multiplier tables.	(3)
F_x	Tables 3 and 4 in Appendix A	(4)
G_x	Table 1 in Appendix A	(5)
LSR	Member data	(12)
H_x	Table 2 in Appendix A	(6)

4.4   The member's unreduced lump sum at retirement should reflect the retirement lump sum a member is entitled to before any commutation takes place.

4.5   The reduced lump sum – referenced by (11) in the pro forma – is derived from the lump sum early retirement factor, i.e. the actuarial reduction factor that would apply to the member's lump sum if he received actuarially reduced benefits and did not take up the buy out option - see GAD's guidance note *Principal Civil Service Pension Scheme: Early and late retirement factors* dated 4 March 2015, as subsequently amended.

5   Example

Example: Classic (NPA 60) member retiring from active status

Member data:

>	Date of birth	01/11/1959
>	Normal Pension age (NPA)	60
>	Date of retirement	01/05/2014
>	Deemed Date for Pension Increase	01/01/2012
>	Main Pension	£5,000
>	Added Pension	£0
>	Transferred in pension	£0
>	Unreduced lump sum	£15,000

Calculation:

>	Age at retirement (years and complete months)	54 years 6 months
>	F_x factor table to use	Table 3 (P1ARBO60)
>	F_x factor for age at retirement	5.04
>	PI rate between Deemed Date and retirement[3]	0.0632
>	G_x factor for age at retirement (from Table 1)	0.49
>	H_x factor for age at retirement (from Table 2)	0.97
>	Reduced lump sum[4]	£12,570.00
>	Lump sum reduction (LSR)	£2,430.00

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[3] This is taken from the 2014 PI Multiplier Tables published by HMT. See Appendix D for more details on calculating the appropriate PI rate.

[4] Calculated using the methodology and factors provided in GAD's note *Principal Civil Service Pension Scheme: Early and late retirement factors* dated 4 March 2015 (paragraphs 2.6 and 2.8) (as subsequently amended). In this example, factor is 0.838 (age 54 years and 6 months from P1ER60LS1, retire from active status).

> Pension cost calculated as:

$$PensionCost = [P \times F_x \times (1 + PI)] - [P \times PI \times G_x]$$

> Pension cost = [£5,000 x 5.04 x 1.0632] – [£5,000 x 0.0632 x 0.49]

$$= £26,637.80$$

> Lump sum cost calculated as:

$$LSCost = LSR + [PI \times LSR \times H_x]$$

> Lump sum cost = £2,430.00 + [0.0632 x £2,430.00 x 0.97]

$$= £2,578.97$$

> Overall ARBO cost is calculated as:

$$Cost = PensionCost + LSCost$$

> Cost = £26,637.80 + £2,578.97

$$= \textbf{£29,216.77}$$

Please note that in this example the member has no Added Pension or Transferred in pension. Where members do have these, the 'Deemed Date for PI' may not be the same for all components of pension. If different 'Deemed Date for PI' apply then the PI would need to be applied individually to the different components of pension (as shown in the pro forma in Appendices B and C.

Appendix A: Factor tables

List of Tables

Table 1: P1ARBOGX - G$_x$ factors for all members

months	Age at early retirement				
	50	51	52	53	54
0	4.41	3.62	2.78	1.90	0.97
1	4.35	3.55	2.71	1.82	0.89
2	4.28	3.48	2.63	1.75	0.81
3	4.21	3.41	2.56	1.67	0.73
4	4.15	3.34	2.49	1.59	0.65
5	4.08	3.27	2.41	1.51	0.57
6	4.01	3.20	2.34	1.44	0.49
7	3.95	3.13	2.27	1.36	0.41
8	3.88	3.06	2.19	1.28	0.32
9	3.82	2.99	2.12	1.21	0.24
10	3.75	2.92	2.05	1.13	0.16
11	3.68	2.85	1.97	1.05	0.08

Table 2: P1ARBOHX - H$_x$ factors for all members

	Age at early retirement				
months	50	51	52	53	54
0	0.77	0.81	0.86	0.90	0.95
1	0.78	0.82	0.86	0.91	0.95
2	0.78	0.82	0.86	0.91	0.96
3	0.78	0.82	0.87	0.91	0.96
4	0.79	0.83	0.87	0.92	0.97
5	0.79	0.83	0.88	0.92	0.97
6	0.79	0.84	0.88	0.93	0.97
7	0.80	0.84	0.88	0.93	0.98
8	0.80	0.84	0.89	0.93	0.98
9	0.80	0.85	0.89	0.94	0.99
10	0.81	0.85	0.89	0.94	0.99
11	0.81	0.85	0.90	0.95	1.00

Table 3: P1ARBO60 - F$_x$ factors for classic or premium members with NPA60

	Age at early retirement									
months	50	51	52	53	54	55	56	57	58	59
0	8.36	7.69	6.98	6.23	5.45	4.62	3.75	2.86	1.94	0.98
1	8.30	7.63	6.92	6.17	5.38	4.55	3.68	2.78	1.86	0.90
2	8.25	7.57	6.86	6.10	5.31	4.48	3.60	2.71	1.78	0.82
3	8.19	7.51	6.79	6.04	5.24	4.40	3.53	2.63	1.70	0.74
4	8.14	7.45	6.73	5.97	5.17	4.33	3.45	2.55	1.62	0.65
5	8.08	7.39	6.67	5.91	5.10	4.26	3.38	2.48	1.54	0.57
6	8.03	7.34	6.61	5.84	5.04	4.19	3.31	2.40	1.46	0.49
7	7.97	7.28	6.54	5.78	4.97	4.11	3.23	2.32	1.38	0.41
8	7.91	7.22	6.48	5.71	4.90	4.04	3.16	2.25	1.30	0.33
9	7.86	7.16	6.42	5.65	4.83	3.97	3.08	2.17	1.22	0.25
10	7.80	7.10	6.36	5.58	4.76	3.90	3.01	2.09	1.14	0.16
11	7.75	7.04	6.29	5.52	4.69	3.82	2.93	2.02	1.06	0.08

Table 4: P1ARBO65 - F$_x$ factors for classic or premium members with NPA65

	Age at early retirement														
months	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
0	11.70	11.14	10.54	9.91	9.24	8.53	7.79	7.03	6.25	5.44	4.60	3.74	2.85	1.93	0.98
1	11.66	11.09	10.49	9.85	9.18	8.47	7.73	6.97	6.18	5.37	4.53	3.67	2.78	1.85	0.90
2	11.61	11.04	10.43	9.80	9.12	8.41	7.67	6.90	6.11	5.30	4.46	3.59	2.70	1.77	0.82
3	11.56	10.99	10.38	9.74	9.06	8.35	7.60	6.84	6.04	5.23	4.39	3.52	2.62	1.70	0.74
4	11.52	10.94	10.33	9.69	9.00	8.29	7.54	6.77	5.98	5.16	4.32	3.44	2.55	1.62	0.66
5	11.47	10.89	10.28	9.63	8.95	8.23	7.48	6.70	5.91	5.09	4.24	3.37	2.47	1.54	0.57
6	11.42	10.84	10.22	9.57	8.89	8.16	7.41	6.64	5.84	5.02	4.17	3.30	2.39	1.46	0.49
7	11.37	10.79	10.17	9.52	8.83	8.10	7.35	6.57	5.78	4.95	4.10	3.22	2.32	1.38	0.41
8	11.33	10.74	10.12	9.46	8.77	8.04	7.29	6.51	5.71	4.88	4.03	3.15	2.24	1.30	0.33
9	11.28	10.69	10.07	9.41	8.71	7.98	7.22	6.44	5.64	4.81	3.96	3.07	2.16	1.22	0.25
10	11.23	10.64	10.01	9.35	8.65	7.92	7.16	6.38	5.57	4.74	3.88	3.00	2.09	1.14	0.16
11	11.19	10.59	9.96	9.30	8.59	7.86	7.10	6.31	5.51	4.67	3.81	2.93	2.01	1.06	0.08

Appendix B: Example case

Actuarial Reduction Buyout for Members receiving pension before aged 55 with Deemed Date for PI before Early Retirement Date

Identifier	Example									
Scheme Section	Classic					**PI adjustment factors**				
Date of Birth	01/11/1959		Age at early retirement	Years	54	Pension	0.4900	(5) = G_x	Table 1 from guidance note
				Complete Months	6				
Early Retirement Date	01/05/2014					Lump sum	0.9700	(6) = H_x	Table 2 from guidance note
from	active status								

(active or deferred status will impact Factor used to calculate reduced lump sum - see Note on (11) below)

Table 3 from guidance note for NPA 60 cases

Actuarial Reduction Buyout Factor 5.04 (4) = F_x → Table 4 from guidance note for NPA 65 cases

Deemed Date for PI See (2). Note - dates chosen are illustrative only

Unreduced Pension Value			**Deemed date for Pension Increases**	**PI Rate**	F_x					**PensionCost**	**ARBO Cost**
(1)			(2)	(3)	(4)	(7) = (1)*[1+(3)]*(4)		(8) = (1)*(3)*(5)		(9) = A + B + C - D - E - F	(15) = (9) + (14)
Main Pension	£3,250.00		01/01/2012	0.0632	5.04	A	£17,415.22	D	£100.65		
Added Pension	£750.00		01/01/2013	0.0326	5.04	B	£3,903.23	E	£11.98	£26,533.38	
Transfer In	£1,000.00		01/01/2012	0.0632	5.04	C	£5,358.53	F	£30.97		
							£26,676.98		£143.60		

	Unreduced lump sum	**Reduced lump sum**	**Deemed date for Pension Increases**	**PI Rate**						**LSCost**	
	(10)	(11)	(2)	(3)		(12) = (10) - (11)		(13) = (12)*(3)*(6)		(14) = J + K + L + M + N + P	£29,101.53
Main Pension	£9,750.00	£8,170.50	01/01/2012	0.0632		J	£1,579.50	M	£96.83		
Added Pension	£2,250.00	£1,885.50	01/01/2013	0.0326		K	£364.50	N	£11.53	£2,568.15	
Transfer In	£3,000.00	£2,514.00	01/01/2012	0.0632		L	£486.00	P	£29.79		
							£2,430.00		£138.15		

Note on (3)   PI Rate = (PI multiplier -1). PI multiplier for Deemed Date for Pension Increases to the published increase date preceeding the date of early retirement.

Note on (11)   Reduced lump sum calculated from draft guidance entitled *PCSPS: Early and late retirement factors* dated 4 March 2015 (paragraphs 2.6 and 2.8). In this example, Factor is 0.838 (age 54 years and 6 months from P1ER60LS1, retire from active status).

Appendix C: Pro forma for calculations

Actuarial Reduction Buyout for Members receiving pension before aged 55 with Deemed Date for PI before Early Retirement Date

Identifier						
Scheme Section				**PI adjustment factors**		
Date of Birth		Age at early retirement	Years	Pension		$(5) = G_x$	*Table 1 from guidance note*
		Complete Months		Lump sum		$(6) = H_x$	*Table 2 from guidance note*
Early Retirement Date from						
(active or deferred status will impact Factor used to calculate reduced lump sum - see Note on (11) below)		Actuarial Reduction Buyout Factor	$(4) = F_x$	*Table 3 from guidance note for NPA 60 cases*		
				Table 4 from guidance note for NPA 65 cases		
Deemed Date for PI	See (2)					

	Unreduced Pension Value		**Deemed date for Pension Increases**	**PI Rate**	F_x			**PensionCost**	**ARBO Cost**
	(1)		(2)	(3)	(4)	$(7) = (1)*[1+(3)]*(4)$	$(8) = (1)*(3)*(5)$	$(9) = A + B + C - D - E - F$	$(15) = (9) + (14)$
Main Pension						A	D		
Added Pension						B	E		
Transfer In						C	F		

	Unreduced lump sum	**Reduced lump sum**	**Deemed date for Pension Increases**	**PI Rate**				**LSCost**	
	(10)	(11)	(2)	(3)		$(12) = (10) - (11)$	$(13) = (12)*(3)*(6)$	$(14) = J + K + L + M + N + P$	
Main Pension						J	M		
Added Pension						K	N		
Transfer In						L	P		

Note on (3)   PI Rate = (PI multiplier -1). PI multiplier for Deemed Date for Pension Increases to the published increase date preceeding the date of early retirement.

Note on (11)   Reduced lump sum calculated from draft guidance entitled *PCSPS: Early and late retirement factors* dated 4 March 2015 (paragraphs 2.6 and 2.8). Factor will depend on whether member retires from active or deferred status.

Appendix D: Pension increases

HM Treasury publishes pensions increase multiplier tables in April each year. The effective date varies from year to year. The multipliers in the tables are in the form of one plus the pension increase percentage. This means the amount of pension after the increase is found by multiplying the current pension by the multiplier.

The following examples show how the early retirement date and the effective date of the pensions increase multiplier tables interact.

Example 1
Early retirement date: 07/04/2014
Deemed Date for Pension Increase: 01/01/2010

07/04/2014 is the date from which the 2014 pensions increase multipliers take effect so these should be used. The multiplier in question is therefore 1.1384 and the rate (i.e. "PI" as defined in paragraph 2.2) is 0.1384.

Example 2
Early retirement date: 06/04/2014
Deemed Date for Pension Increase: 01/01/2010

The early retirement date in this example occurs before the date from which the 2014 pensions increase multipliers take effect so the 2013 pension increase multipliers should be used. The multiplier in question is therefore 1.1085 and the rate (i.e. "PI" as defined in paragraph 2.2) is 0.1085

Example 3
Early retirement date: 09/12/2014
Deemed Date for Pension Increase: 24/03/2014

Where there is a short period of time between the Deemed Date for Pension Increase and the date from which the next pension increase multipliers take effect the pension increase multiplier table may not show the relevant factor. In this example the early retirement date is after

07/04/2014 so the 2014 pensions increase multiplier table should be used, but the table does not give a factor any date after 22/03/2014. It should therefore be assumed that the pension increase multiplier is 1.00 and therefore the rate (i.e. "PI" as defined in paragraph 2.2) is 0.

<u>Example 4</u>
Early retirement date: 01/02/2014
Deemed Date for Pension Increase: 01/07/2013

In cases where the period between the Deemed Date for Pension Increase and the early retirement date does not pass the date when the next pension increase multipliers take effect then it should be assumed that the pension increase multiplier is 1.00 and therefore the rate (i.e. "PI" as defined in paragraph 2.2) is 0. *[These calculations can be simplified by using the procedure for calculating the cost of the actuarial reduction buy out as laid out in the report 'PCSPS: Factors for actuarial reduction buy out (ARBO) - All members except those retiring before age 55 whose deemed date for pension increases occurs before the date of early retirement'* dated 10 March 2015, as subsequently amended*]*.

Links to HM Treasury tables.

Most recent Pensions Increase multiplier tables:

https://www.gov.uk/government/publications/public-service-pensions-increase-2014
https://www.gov.uk/government/publications/public-service-pensions-increase-2015

Previous pensions increase multiplier tables:

http://webarchive.nationalarchives.gov.uk/20130402150008/http:/www.hm-treasury.gov.uk/tax_pensions_increases.htm

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