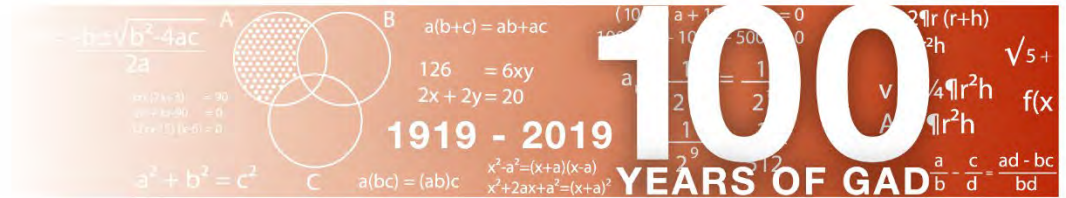




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Department



## **Civil Servants and Others Pension Scheme (Northern Ireland)**

### **Effective Pension Age (EPA) option for alpha members**

### **Contribution rates, 'headroom' calculation factors and guidance**

Date: 1 August 2019





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## 1 Introduction

- 1.1 This report is addressed to the Northern Ireland Department of Finance (DoF) as Scheme Manager of the Civil Servants and Others Pension Scheme (Northern Ireland) (CSOPS(NI) or 'alpha' pension scheme). The alpha pension scheme was established by The Public Service (Civil Servants and Others) Pensions Regulations (Northern Ireland) 2014 ("the Regulations") and came into force on 1 April 2015.
- 1.2 The purpose of the report is to provide DoF with specific factors, and accompanying guidance to demonstrate how EPA (effective pension age) costs are calculated within the alpha pension scheme. This report also provides factors and guidance for assessing the value of the EPA options against the overall limit of extra pension (the 'headroom test').
- 1.3 This guidance is intended to supersede any previously issued, for the purposes of ARBO calculations. No advice or factors issued in the past should be used for the cases after this date. In particular, this guidance supersedes:
- "Civil servants and others Pension Scheme (Northern Ireland) Effective Pension Age (EPA) options for alpha members. Contribution rates, 'headroom' calculation factors and guidance" dated 26 April 2016.
- 1.4 The factors in this note have been updated but the calculation methodology remains unchanged.
- 1.5 This report is applicable to benefits accruing in the alpha pension scheme only and provides advice on:
- EPA option cost factors – for eligible members opting to buy an effective pension age of 1, 2 or 3 years prior to their normal pension age (NPA), or age 65; and
  - 'Headroom' calculation factors – for determining the value of an EPA option against the overall limit of extra pension.

### Scheme regulations

- 1.6 The provisions relating to EPA options, and 'headroom' calculations are set out as follows:
- EPA: Schedule 1 part 3 of the regulations
  - Headroom calculations: Schedule 1 part 1 of the regulations
- 1.7 The factors to determine the costs for an EPA option, and for headroom calculations, are the responsibility of the scheme manager after having taken advice from the scheme actuary.

### Assumptions

- 1.8 The factors provided in this note have been prepared in light of our advice to DoF dated 30 October 2018 and its instructions following that advice



- 1.9 Details of the principal assumptions underlying the factors in this guidance have are set out in Appendix E. some important limitations are set out in section 4.

### **Implementation and Review**

- 1.10 The EPA contribution rate factors contained in this guidance will apply from 1 April 2019, and the Headroom factors will apply from 7 January 2019. These implementation dates have been determined by the DoF. This guidance will apply with immediate effect upon receipt of the respective guidance.
- 1.11 This guidance has been written for pension administrators and assumes some knowledge of general pension terminology, and some familiarity with retirement calculations for the CSOPS (NI). Any questions concerning the application of this guidance should, in the first instance, be referred to DoF.
- 1.12 In line with best practice and in order to make sure that the factors are working as intended and the instructions are fit for purpose, we suggest that some example calculations are sent GAD for review.
- 1.13 The factors contained in this guidance will be subject to review periodically. This will depend on external circumstances, for example whenever there is a change in the SCAPE basis; when changes in the actuarial assumptions adopted for other scheme factors take place; or following each future actuarial valuation where the mortality and other relevant experience is reviewed or if other credible and material information comes to light.
- 1.14 Any special cases that are not covered by this guidance should be treated on a case by case basis.

### **Third Party Reliance**

- 1.15 This guidance has been prepared for use of the DoF and the scheme administrators for the purposes of demonstrating the application of the factors covered by this guidance only. This guidance may be published on DoF and the scheme administrator's website but must not otherwise be reproduced, distributed or communicated in whole or in part to any person without GAD's prior written permission.
- 1.16 Other than DoF and the scheme administrators, no person or third party is entitled to place any reliance on the contents of this guidance, except to any extent explicitly stated herein. GAD has no liability to any person or third party for any action taken or for any failure to act, either in whole or in part, on the basis of this guidance, whether or not GAD has agreed to the disclosure of its advice to the third party.



## 2 EPA Contribution rates

- 2.1 Members can purchase a reduction in pension age of up to three years. This is limited by a requirement that the reduced pension age is at least 65 years (and so non-integer year reductions are possible). For example, where a member has a NPA of 66 years and 6 months they will be able to buy a reduction of 1 year or 1 year and 6 months.
- 2.2 The tables in Appendix A set out the following factors:
- P2EPA1 (Tables 717 in the consolidated factors spreadsheet) - Contribution rate in respect of the 1 year early EPA option, payable in addition to standard member and employer contribution rates.
  - P2EPA2 (Tables 718 in the consolidated factors spreadsheet)- Contribution rate in respect of the 2 year early EPA option, payable in addition to standard member and employer contribution rates.
  - P2EPA3 (Tables 719 in the consolidated factors spreadsheet)- Contribution rate in respect of the 3 year early EPA option, payable in addition to standard member and employer contribution rates.
- 2.3 The EPA option contribution rates in the factor tables are expressed as a percentage of the member's pensionable earnings.
- 2.4 EPA contributions are payable by members only, in addition to their standard member contributions. Their employer's contribution rate is unaffected by the EPA option. This report sets out how this additional contribution rate is determined from the tables set out in Appendix A. The contribution rate should be applied to the member's pensionable earnings over the scheme year. Therefore any pensionable pay fluctuations will impact on the amount of the contributions paid for the EPA option.
- 2.5 At the start of each scheme year in which the EPA option is in force (or operation), the member's age (complete years, ignoring part years) is determined and the contribution rate(s) corresponding to their NPA (in complete years and complete months, ignoring part months) is taken from the relevant EPA option table(s) (1 year, 2 years or 3 years earlier).
- 2.6 Where the minimum age of 65 years applies the reduction being purchased will not be an integer year reduction and it is necessary to interpolate between the rates from two EPA option tables to derive the correct contribution rate.
- 2.7 Contribution rates will increase annually with age, all else equal.
- 2.8 This means EPA option contribution rates are effectively determined at each 1st April, but are applied to pensionable earnings over the scheme year, in the same manner as standard member and employer contributions.



***EPA for an integer number of years early***

- 2.9 The additional member contribution in respect of the EPA option is determined as follows:

***Additional member contribution in respect of the EPA option =***

$$\text{Pensionable earnings} \times \text{P2EPAn contribution rate (age at 1st April)}$$

Where:

**Pensionable earnings** are as defined in the Regulations.

**Age at 1st April** is the member's age in the complete years (ignoring part years) on 1st April.

**P2EPAn contribution rate** is taken from table P2EPAn appropriate for the member's age and NPA (in years and complete months, ignoring part months) and the number of years (n) earlier that the member wishes to retire before NPA.

***EPA for a non-integer number of years early (minimum age of 65 years applies)***

- 2.10 In order to derive the appropriate contribution rate where a non-integer year reduction is being purchased, it is necessary to interpolate between two contribution rates taken from separate P2EPAn tables.
- 2.11 The EPA contribution rate is derived as:

***Non-integer reduction EPA contribution rate (P2EPAd) =***

$$[\text{Reduction (rounded up)} - \text{Reduction (exact)}] \times \text{P2EPAn (Rounded down) contribution rate}$$

+

$$[\text{Reduction (exact)} - \text{Reduction (rounded down)}] \times \text{P2EPAn (Rounded up) contribution rate}$$

Where:

**Reduction (Exact)** is the number of years and months (ignoring part months) reduction to pension age that is being purchased.

**Reduction (Rounded up)** is the **Reduction (Exact)** rounded up to the nearest number of complete years.

**Reduction (Rounded down)** is the **Reduction (Exact)** rounded down to the nearest number of complete years.

**P2EPAn (Rounded up) contribution rate** is taken from table P2EPAn appropriate for the member's age and NPA (in years and complete months, ignoring part months) and number of years **Reduction (Rounded up)**.



**P2EPAn (Rounded down) contribution rate** is taken from table P2EPAn appropriate for the member's age and NPA (in years and complete months, ignoring part months) and number of years **Reduction (Rounded down)**.

- 2.12 Where an EPA reduction of between 0 and 1 years is being purchased, it will be necessary to interpolate between the P2EPA1 (contribution rates for a 1 year reduction) table and a notional P2EPA0 (contribution rates for no reduction) table where all entries are set to zero.
- 2.13 The additional member contribution in respect of the EPA option are determined as follows:

***Additional member contribution in respect of the EPA option =***

***Pensionable earnings x P2EPAd contribution rate (age at 1st April)***

Where:

**Pensionable earnings** are as defined in the Regulations.

**Age at 1st April** is the member's age in the complete years (ignoring part years) on 1st April.

**P2EPAd contribution rate** is derived as set out in 2.11 above.

- 2.14 Example calculations are shown in Appendix D.



### 3 'Headroom' Calculations

- 3.1 The value of any EPA option is to be taken into account when assessing whether a member can purchase (additional) added pension under the alpha scheme.
- 3.2 A member is only able to purchase (additional) added pension if there is available 'headroom'. This is assessed by comparing the value of any 'extra pension' (EPA options plus any accrued added pension) against the 'overall limit of extra pension' ('headroom limit') as set out in Schedule 1 Part 1 of the Regulations.
- 3.3 A member is only allowed to purchase an EPA option if, at the commencement of the contract (i.e. when the initial application for an EPA is submitted), the existing total extra pension is less than the overall limit on extra pension (i.e. there is headroom available). In other words, a member can purchase an EPA option if prior to purchase there is headroom, even if the purchase of the option would mean that they subsequently exceed the limit on extra pension.
- 3.4 A member is only allowed to purchase (additional) added pension if the total extra pension (including the added pension the member intends to purchase) is less than the limit on extra pension at the commencement of the contract (i.e. there is headroom available to cover the expected additional added pension).
- 3.5 A 'prospective' EPA option will be valued (by converting it into an equivalent added pension) at the start of the contract. When valuing the option it is assumed that the member continues to contribute to this option until their respective earlier pension age is reached (the purchase of the EPA option is automatically renewed at the start of each scheme year).

The value of the option will not be recalculated for:

- any change to a member's actual NPA through new legislation;
  - in response to future changes in headroom methodology or early retirement factors;
  - or for the actual salary growth experienced by a member.
- 3.6 Should a member cease contributing to the option before their earlier pension age is reached then the value of that option is no longer the prospective value determined at the start of the contract. The 'accrued' value of this EPA option should be based on the period during which EPA contributions were actually paid in respect of the option and not the full period to earlier pension age assumed when determining the prospective value of the option.
- 3.7 Calculations are required for:
- (i) determining the value of an EPA option at the outset of the contract, and
  - (ii) determining the value of an accrued EPA option.





- 3.8 The headroom calculations effectively assume that part-time members will continue to work the same proportion of part-time hours for the remainder of their careers (full-time equivalent pensionable earnings are not used in the calculation).

### Re-joiner

- 3.9 Schedule 1 Regulation 28 (4) sets out that where a member ceases to be in pensionable service under the Scheme and then re-enters after a gap in pension service of less than 5 years the EPA contributions can resume (subject to certain restrictions) without re-assessing their value against the headroom limit.
- 3.10 The tables in Appendix C set out the following factors:
- P2HR1 (Table 720 in the consolidated factors spreadsheet) – prospective accrual accumulation factor
  - P2HRrev1 (Table 721 in the consolidated factors spreadsheet) – revaluation factors

### Determining the value of an EPA option at outset of the contract

- 3.11 The main data required is:
- Option commencement date (i.e. the date the initial application for an EPA is effective from)
  - Member's NPA (normal pension age) in years and complete months
  - Member's EPA in years and complete months (i.e. relating to option being purchased)
  - Member's pensionable earnings at option commencement date
- 3.12 The prospective value assessed assumes that the member continues to contribute to the EPA option until the respective earlier pension age is reached. The calculation to determine the value of the prospective EPA option is set out in a three stage process:

#### Stage 1: Estimate the prospective pension arising from future accrual at EPA

#### Prospective pension = Pensionable Earnings × P2HR1 factor

Where:

**Pensionable Earnings** is as defined in the Regulations.

**P2HR1 factor** is taken from table P2HR1 (in Appendix C) appropriate for the period (in years and complete months, ignoring part months) between option commencement date and EPA.



**Stage 2: Converting the prospective pension into equivalent added pension at EPA**

**Equivalent added pension at EPA =**

$$\text{Prospective pension} \times [(1 / P2ER \text{ factor}_{NPA}) - 1]$$

Where:

**P2ER factor<sub>NPA</sub>** is the early payment reduction factor from the latest version of our guidance note 'Public Service (Civil Servants and Others) Pension Scheme (Northern Ireland) - Alpha: *Early Payment Reduction (normal health) and Age Addition, Factors and guidance*' (the 'ER note'). It is the factor at the member's age at EPA (in years and complete months) taken from the P2ERXX table (Appendix A of ER note) relevant to the member's NPA. If a member has a non-integer NPA then more than one factor is required and these factors are interpolated to obtain the actual factor to use.

**Stage 3: Expressing the equivalent added pension at EPA as an equivalent added pension at option commencement date (ie the value of EPA option at outset)**

**Value of EPA option at outset =**

$$\text{Equivalent added pension at EPA} / P2HRRev1 \text{ factor}$$

Where:

- 3.13 **P2HRRev1 factor** is the factor appropriate for the number of years (ignoring part years) between the option commencement date and EPA, from Appendix E. As outlined in paragraph 3.12 it is assumed that a member will continue to contribute to the EPA option until the respective earlier pension age is reached. The prospective value of an EPA can be expressed as a percentage of the headroom limit in place at the outset of the contract. The formula is set out below:

**Value of EPA option at outset as % of headroom limit at outset**

$$= \text{Value of EPA option at outset} / \text{headroom limit at outset}$$

Where:

**Value of EPA option at outset** is calculated from the three stage process in paragraph 3.12

**Headroom limit at outset** is the overall limit of extra pension at EPA at option commencement date. Please see paragraph **Error! Reference source not found.** for more information.



### Determining the value of an accrued EPA option

- 3.14 When an EPA option lapses (i.e., contributions stop before selected EPA), then the prospective value of the EPA option should no longer be used. Any subsequent test against the headroom limit should use the accrued value of the EPA option. The accrued value is determined as a simple pro-rata calculation of the original prospective value of the EPA option based on the number of monthly EPA contributions that had been paid divided by the number of monthly contributions that would have been paid between the EPA commencement date and date of original EPA.
- 3.15 This calculation is applied to the percentage of headroom limit that was determined for the original prospective EPA option.

The formula is set out below:

**Value of accrued EPA option (as a % of headroom limit) =**

**Value of EPA option at outset as % of headroom limit at outset**  
**× [ M / N ]**

Where:

**Value of EPA option at outset as % of headroom limit at outset** as calculated in paragraph 3.13

**M** is the number of monthly EPA contributions paid

**N** is the number of monthly contributions that would have been paid between the EPA commencement date and member's original EPA.

- 3.16 Should the value of accrued EPA options be required at a later date then the proportion of the headroom limit calculated in paragraph 3.15 can simply be applied to the level of headroom limit in force at the later date.



## 4 Limitations of this guidance

- 4.1 This guidance should not be used for any purpose other than those set out in this guidance.
- 4.2 The factors contained in this guidance are subject to regular review. Scheme managers and administrators need to ensure that they are using the latest factors, as relevant, when processing cases.
- 4.3 Advice provided by GAD must be taken in context and is intended to be considered in its entirety. Individual sections, if considered in isolation, may be misleading, and conclusions reached by a review of some sections on their own may be incorrect. 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.
- 4.4 This guidance only covers the actuarial principles around the calculation and application of EPA factors. Any legal advice in this area should be sought from an appropriately qualified person or source.
- 4.5 Scheme managers and administrators should satisfy themselves that EPA calculations and benefit awards comply with all legislative requirements including, but not limited to, tax and contracting-out requirements.
- 4.6 This guidance is based on the Regulations in force at the time of writing. It is possible that future changes to the Regulations might create inconsistencies between this guidance and the Regulations. If users of this guidance believe there to be any such inconsistencies, they should bring this to the attention of DoF and GAD. Under no circumstances should this guidance take precedence over the Regulations. Administrators should ensure that they comply with all relevant Regulations.



## Appendix A. Contribution rates for EPA options

**Table A1: P2EPA1 (Table 717 in the consolidated factors spreadsheet) - retire 1 year early from NPA**

Age (complete years, ignoring part years)	P2EPA1												
	Normal Pension Age (in years and complete months, ignoring part months)												
	Years	65											
	Months	0	1	2	3	4	5	6	7	8	9	10	11
20	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
21	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
22	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
23	0.9%	0.9%	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
24	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
25	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
26	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
27	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
28	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
29	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
30	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
31	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
32	1.1%	1.1%	1.1%	1.1%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
33	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
34	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
35	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
36	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
37	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
38	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
39	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
40	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.2%	1.2%
41	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
42	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
43	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%
44	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
45	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
46	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.4%	1.4%	1.4%	1.4%
47	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
48	1.6%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
49	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%
50	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
51	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
52	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
53	1.8%	1.8%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
54	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
55	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
56	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%
57	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
58	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.9%
59	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
60	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
61	2.2%	2.2%	2.2%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
62	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
63	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%
64	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%



**Table A1: P2EPA1 (Table 717 in the consolidated factors spreadsheet) – retire 1 year early from NPA (continued)**

Age (complete years, ignoring part years)	P2EPA1												
	Normal Pension Age (in years and complete months, ignoring part months)												
	Years	66											
	Months	0	1	2	3	4	5	6	7	8	9	10	11
20	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
21	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
22	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
23	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
24	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
25	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
26	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
27	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
28	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
29	1.0%	1.0%	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
30	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
31	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
32	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
33	1.1%	1.1%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
34	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
35	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
36	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
37	1.2%	1.2%	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
38	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
39	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
40	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
41	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.2%	1.2%	1.2%	1.2%
42	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
43	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
44	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
45	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
46	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
47	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
48	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
49	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
50	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.5%
51	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
52	1.7%	1.7%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
53	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
54	1.8%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
55	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.7%
56	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
57	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%
58	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
59	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.9%	1.9%
60	2.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
61	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%
62	2.2%	2.2%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
63	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
64	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%
65	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%



**Table A1: P2EPA1 (Table 717 in the consolidated factors spreadsheet) – retire 1 year early from NPA (continued).**

Age (complete years, ignoring part years)	P2EPA1												
	Normal Pension Age (in years and complete months, ignoring part months)												
	Years	67											
	Months	0	1	2	3	4	5	6	7	8	9	10	11
20	0.8%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%
21	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
22	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
23	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
24	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
25	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
26	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.8%	0.8%
27	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
28	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
29	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
30	1.0%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
31	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
32	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
33	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
34	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
35	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.0%	1.0%	1.0%
36	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
37	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
38	1.2%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
39	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.1%
40	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
41	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
42	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
43	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
44	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
45	1.4%	1.4%	1.4%	1.4%	1.4%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
46	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
47	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
48	1.5%	1.5%	1.5%	1.5%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
49	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
50	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
51	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.5%	1.5%	1.5%
52	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
53	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
54	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
55	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
56	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.7%	1.7%	1.7%
57	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
58	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%
59	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
60	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.9%	1.9%	1.9%	1.9%
61	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
62	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%
63	2.2%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
64	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
65	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
66	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%



**Table A1: P2EPA1 (Table 717 in the consolidated factors spreadsheet) – retire 1 year early from NPA (continued).**

Age (complete years, ignoring part years)	P2EPA1	
	Normal Pension Age (in years and complete months, ignoring part months)	
	Years	68
	Months	0
20		0.7%
21		0.8%
22		0.8%
23		0.8%
24		0.8%
25		0.8%
26		0.8%
27		0.9%
28		0.9%
29		0.9%
30		0.9%
31		1.0%
32		1.0%
33		1.0%
34		1.0%
35		1.0%
36		1.1%
37		1.1%
38		1.1%
39		1.1%
40		1.2%
41		1.2%
42		1.2%
43		1.3%
44		1.3%
45		1.3%
46		1.4%
47		1.4%
48		1.4%
49		1.5%
50		1.5%
51		1.5%
52		1.6%
53		1.6%
54		1.7%
55		1.7%
56		1.7%
57		1.8%
58		1.8%
59		1.9%
60		1.9%
61		2.0%
62		2.0%
63		2.1%
64		2.2%
65		2.2%
66		2.3%





**Table A2: P2EPA2 (Table 718 in the consolidated factors spreadsheet) – retire 2 years early from NPA**

Age (complete years, ignoring part years)	P2EPA2												
	Normal Pension Age (in years and complete months, ignoring part months)												
	Years	66											
	Months	0	1	2	3	4	5	6	7	8	9	10	11
20	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.5%	1.5%
21	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
22	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
23	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.6%
24	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
25	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
26	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
27	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
28	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
29	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
30	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.9%	1.9%	1.9%
31	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
32	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%
33	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
34	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%
35	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
36	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%
37	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
38	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.3%	2.3%
39	2.5%	2.5%	2.5%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
40	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
41	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
42	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
43	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.6%	2.6%
44	2.8%	2.8%	2.8%	2.8%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
45	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
46	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.8%	2.8%
47	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
48	3.1%	3.1%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
49	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
50	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.1%	3.1%	3.1%
51	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
52	3.4%	3.4%	3.4%	3.4%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
53	3.5%	3.5%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
54	3.6%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
55	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.5%
56	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.6%	3.6%
57	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.7%	3.7%
58	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.8%
59	4.1%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	3.9%
60	4.2%	4.2%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.0%
61	4.3%	4.3%	4.3%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%
62	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
63	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%
64	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.5%	4.5%	4.5%	4.5%



**Table A2: P2EPA2 (Table 718 in the consolidated factors spreadsheet) – retire 2 years early from NPA (continued)**

Age (complete years, ignoring part years)	P2EPA2												
	Normal Pension Age (in years and complete months, ignoring part months)												
	Years	67											
	Months	0	1	2	3	4	5	6	7	8	9	10	11
20	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
21	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
22	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
23	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
24	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.6%	1.6%	1.6%
25	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
26	1.8%	1.8%	1.8%	1.8%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%
27	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
28	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
29	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%
30	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
31	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.9%	1.9%	1.9%	1.9%	1.9%
32	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
33	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
34	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
35	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
36	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
37	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
38	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
39	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.3%	2.3%	2.3%	2.3%
40	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
41	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.4%	2.4%
42	2.6%	2.6%	2.6%	2.6%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
43	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
44	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.6%	2.6%	2.6%	2.6%
45	2.8%	2.8%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
46	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
47	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.8%	2.8%	2.8%	2.8%
48	3.0%	3.0%	3.0%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
49	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
50	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.0%	3.0%
51	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.1%	3.1%	3.1%	3.1%	3.1%
52	3.3%	3.3%	3.3%	3.3%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
53	3.4%	3.4%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
54	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
55	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.4%
56	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.5%	3.5%	3.5%
57	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.6%	3.6%	3.6%
58	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.7%	3.7%	3.7%
59	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.8%	3.8%
60	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	3.9%	3.9%	3.9%
61	4.2%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.0%	4.0%
62	4.3%	4.3%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.1%
63	4.4%	4.4%	4.4%	4.4%	4.4%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
64	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%
65	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%



**Table A2: P2EPA2 (Table 718 in the consolidated factors spreadsheet) – retire 2 years early from NPA (continued)**

Age (complete years, ignoring part years)	P2EPA2	
	Normal Pension Age (in years and complete months, ignoring part months)	
	Years	68
	Months	0
20		1.5%
21		1.5%
22		1.6%
23		1.6%
24		1.6%
25		1.7%
26		1.7%
27		1.8%
28		1.8%
29		1.8%
30		1.9%
31		1.9%
32		2.0%
33		2.0%
34		2.1%
35		2.1%
36		2.2%
37		2.2%
38		2.3%
39		2.3%
40		2.4%
41		2.4%
42		2.5%
43		2.6%
44		2.6%
45		2.7%
46		2.8%
47		2.8%
48		2.9%
49		3.0%
50		3.0%
51		3.1%
52		3.2%
53		3.3%
54		3.4%
55		3.4%
56		3.5%
57		3.6%
58		3.7%
59		3.8%
60		3.9%
61		4.0%
62		4.1%
63		4.3%
64		4.4%
65		4.5%



**Table A3: P2EPA3 (table 719 in the consolidated factors spreadsheet) – retire 3 years early from NPA**

Age (complete years, ignoring part years)	P2EPA3												
	Normal Pension Age (in years and complete months, ignoring part months)												
	Years	67											
	Months	0	1	2	3	4	5	6	7	8	9	10	11
20	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
21	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.3%	2.3%	2.3%	2.3%	2.3%
22	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
23	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.4%	2.4%	2.4%
24	2.6%	2.6%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
25	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
26	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
27	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
28	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.7%	2.7%
29	2.9%	2.9%	2.9%	2.9%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
30	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
31	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	2.9%	2.9%
32	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
33	3.2%	3.2%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
34	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
35	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.2%	3.2%	3.2%	3.2%
36	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
37	3.5%	3.5%	3.5%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
38	3.6%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
39	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.5%
40	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.6%	3.6%	3.6%
41	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.7%	3.7%	3.7%	3.7%
42	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.8%	3.8%	3.8%	3.8%	3.8%
43	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
44	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
45	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%
46	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%
47	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.4%	4.3%	4.3%	4.3%	4.3%	4.3%
48	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.4%	4.4%	4.4%	4.4%	4.4%
49	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.5%	4.5%	4.5%	4.5%
50	4.8%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.6%	4.6%	4.6%
51	4.9%	4.9%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.7%
52	5.0%	5.0%	5.0%	5.0%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%	4.9%
53	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
54	5.3%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%	5.1%	5.1%	5.1%	5.1%
55	5.4%	5.4%	5.4%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.3%	5.2%
56	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%	5.4%
57	5.7%	5.7%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.5%	5.5%	5.5%	5.5%
58	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
59	6.0%	6.0%	6.0%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.8%	5.8%
60	6.2%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.0%	6.0%	6.0%	6.0%	6.0%
61	6.3%	6.3%	6.3%	6.3%	6.3%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.1%
62	6.5%	6.5%	6.5%	6.5%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%	6.3%	6.3%
63	6.7%	6.7%	6.7%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.5%	6.5%	6.5%
64	6.8%	6.8%	6.8%	6.8%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%



**Table A3: P2EPA3 (table 719 in the consolidated factors spreadsheet) – retire 3 years early from NPA (continued)**

Age (complete years, ignoring part years)	P2EPA3	
	Normal Pension Age (in years and complete months, ignoring part months)	
	Years	68
	Months	0
20		2.30%
21		2.30%
22		2.40%
23		2.40%
24		2.50%
25		2.60%
26		2.60%
27		2.70%
28		2.70%
29		2.80%
30		2.90%
31		2.90%
32		3.00%
33		3.10%
34		3.10%
35		3.20%
36		3.30%
37		3.40%
38		3.50%
39		3.50%
40		3.60%
41		3.70%
42		3.80%
43		3.90%
44		4.00%
45		4.10%
46		4.20%
47		4.30%
48		4.40%
49		4.50%
50		4.60%
51		4.70%
52		4.90%
53		5.00%
54		5.10%
55		5.20%
56		5.40%
57		5.50%
58		5.70%
59		5.80%
60		6.00%
61		6.10%
62		6.30%
63		6.50%
64		6.70%



## Appendix B. Worked examples (EPA)

### Example B1

B.7 Consider a member with details as follows:

- Date of birth: 15/10/1960 (aged 58 years and 5 months on 01/04/2019);
- NPA: 66 years and 7 months.
- Pensionable earnings at 01/04/2019: £20,000 per annum (equivalent to £1,666.67 per month)

B.2 Should the member wish to purchase an EPA option to retire 1 year early on 01/04/2019, the contribution rates to be used are those in respect of the member's age at that date in complete years (58 years).

#### ***EPA option***

B.3 P2EPA1 contribution rate for a 58 year old with NPA 66 years and 7 months is 1.9%.

B.4 The additional member contribution in respect of the EPA option are determined as follows:

***Additional member contribution in respect of the EPA option =***

$$\mathbf{\pounds 1,666.67 \times 1.9\% = \pounds 31.67 \text{ per month}}$$

### Example B2

B.5 The member is unable to purchase an EPA option to retire 2 years early because they are limited by a requirement that the reduced effective pension age is at least 65 years. This member is able to buy a reduction of 1 year (as above) or 1 year and 7 months.

B.6 Should the member wish to purchase an EPA option to retire 1 year and 7 months early on 01/04/2019, the appropriate EPA contribution rate is derived by interpolating between the EPA retiring 1 year early contribution rate (P2EPA1) and the EPA retiring 2 years early contribution rate (P2EPA2). These contribution rates are appropriate to the member's age (58 years) and NPA (66 years and 7 months).

B.7 P2EPA1 contribution rate for a 58 year old with NPA 66 years and 7 months is 1.9%. The P2EPA2 contribution rate for a 58 year old with NPA 66 years and 7 months is 3.9%.

B.8 The EPA contribution rate is derived as:

***Non-integer reduction EPA (P2EPAd) contribution rate =***

$$\mathbf{\left[2 - \frac{1}{12}\right] \times 1.9\% + \left[\frac{1}{12} - 1\right] \times 3.9\% = 3.067\%}$$



- B.9 The additional member contribution in respect of the EPA option are determined as follows:

***Additional member contribution in respect of the EPA option =***

$$\mathbf{\pounds 1,666.67 \times 3.067\% = \pounds 51.12 \text{ per month}}$$

- B.10 The applicable contribution rates should be re-assessed each 1st April.



## Appendix C. 'Headroom' factors

**Table C1: P2HR1 (Table 720 in the consolidated factors spreadsheet) - Prospective accrual accumulation factor**

Period between Option commencement date and EPA (in years and months, ignoring part months)												
Years	Months											
	0	1	2	3	4	5	6	7	8	9	10	11
0	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
1	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05
2	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07
3	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.10	0.10	0.10
4	0.10	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.13	0.13	0.13
5	0.13	0.14	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.16	0.16	0.16
6	0.17	0.17	0.17	0.17	0.18	0.18	0.18	0.19	0.19	0.19	0.19	0.20
7	0.20	0.20	0.21	0.21	0.21	0.21	0.22	0.22	0.22	0.23	0.23	0.23
8	0.23	0.24	0.24	0.24	0.25	0.25	0.25	0.26	0.26	0.26	0.27	0.27
9	0.27	0.28	0.28	0.28	0.29	0.29	0.29	0.30	0.30	0.30	0.31	0.31
10	0.31	0.32	0.32	0.32	0.33	0.33	0.33	0.34	0.34	0.34	0.35	0.35
11	0.35	0.36	0.36	0.37	0.37	0.37	0.38	0.38	0.38	0.39	0.39	0.39
12	0.40	0.40	0.41	0.41	0.41	0.42	0.42	0.43	0.43	0.43	0.44	0.44
13	0.45	0.45	0.45	0.46	0.46	0.47	0.47	0.47	0.48	0.48	0.49	0.49
14	0.49	0.50	0.50	0.51	0.51	0.52	0.52	0.52	0.53	0.53	0.54	0.54
15	0.55	0.55	0.56	0.56	0.56	0.57	0.57	0.58	0.58	0.59	0.59	0.60
16	0.60	0.61	0.61	0.62	0.62	0.63	0.63	0.64	0.64	0.64	0.65	0.65
17	0.66	0.66	0.67	0.67	0.68	0.68	0.69	0.69	0.70	0.70	0.71	0.71
18	0.72	0.73	0.73	0.74	0.74	0.75	0.75	0.76	0.76	0.77	0.77	0.78
19	0.78	0.79	0.80	0.80	0.81	0.81	0.82	0.82	0.83	0.83	0.84	0.85
20	0.85	0.86	0.86	0.87	0.88	0.88	0.89	0.89	0.90	0.90	0.91	0.92
21	0.92	0.93	0.93	0.94	0.95	0.95	0.96	0.97	0.97	0.98	0.98	0.99
22	1.00	1.00	1.01	1.02	1.02	1.03	1.04	1.04	1.05	1.06	1.06	1.07
23	1.08	1.08	1.09	1.10	1.10	1.11	1.12	1.12	1.13	1.14	1.14	1.15
24	1.16	1.17	1.17	1.18	1.19	1.19	1.20	1.21	1.22	1.22	1.23	1.24
25	1.24	1.25	1.26	1.27	1.28	1.28	1.29	1.30	1.31	1.31	1.32	1.33
26	1.34	1.34	1.35	1.36	1.37	1.38	1.38	1.39	1.40	1.41	1.42	1.42
27	1.43	1.44	1.45	1.46	1.47	1.47	1.48	1.49	1.50	1.51	1.52	1.52
28	1.53	1.54	1.55	1.56	1.57	1.58	1.59	1.59	1.60	1.61	1.62	1.63
29	1.64	1.65	1.66	1.67	1.67	1.68	1.69	1.70	1.71	1.72	1.73	1.74
30	1.75	1.76	1.77	1.78	1.79	1.80	1.81	1.82	1.83	1.84	1.85	1.86
31	1.87	1.88	1.89	1.90	1.91	1.92	1.93	1.94	1.95	1.96	1.97	1.98
32	1.99	2.00	2.01	2.02	2.03	2.04	2.05	2.06	2.07	2.08	2.09	2.10
33	2.12	2.13	2.14	2.15	2.16	2.17	2.18	2.19	2.20	2.22	2.23	2.24
34	2.25	2.26	2.27	2.28	2.30	2.31	2.32	2.33	2.34	2.36	2.37	2.38
35	2.39	2.40	2.42	2.43	2.44	2.45	2.46	2.48	2.49	2.50	2.51	2.53
36	2.54	2.55	2.56	2.58	2.59	2.60	2.62	2.63	2.64	2.65	2.67	2.68
37	2.69	2.71	2.72	2.73	2.75	2.76	2.77	2.79	2.80	2.81	2.83	2.84
38	2.86	2.87	2.88	2.90	2.91	2.93	2.94	2.95	2.97	2.98	3.00	3.01
39	3.03	3.04	3.06	3.07	3.09	3.10	3.11	3.13	3.14	3.16	3.17	3.19
40	3.20	3.22	3.24	3.25	3.27	3.28	3.30	3.31	3.33	3.34	3.36	3.38
41	3.39	3.41	3.42	3.44	3.46	3.47	3.49	3.51	3.52	3.54	3.55	3.57
42	3.59	3.60	3.62	3.64	3.66	3.67	3.69	3.71	3.72	3.74	3.76	3.77
43	3.79	3.81	3.83	3.85	3.86	3.88	3.90	3.92	3.93	3.95	3.97	3.99
44	4.01	4.03	4.04	4.06	4.08	4.10	4.12	4.14	4.16	4.18	4.19	4.21
45	4.23	4.25	4.27	4.29	4.31	4.33	4.35	4.37	4.39	4.41	4.43	4.45
46	4.47	4.49	4.51	4.53	4.55	4.57	4.59	4.61	4.63	4.65	4.67	4.69
47	4.71	4.73	4.76	4.78	4.80	4.82	4.84	4.86	4.89	4.91	4.93	4.95
48	4.97	4.99	5.02	5.04	5.06	5.08	5.11	5.13	5.15	5.17	5.20	5.22
49	5.24	5.26	5.29	5.31	5.34	5.36	5.38	5.41	5.43	5.45	5.48	5.50
50	5.52	5.55	5.57	5.60	5.62	5.65	5.67	5.70	5.72	5.75	5.77	5.80
51	5.82											





**Table C2: P2HRRev1 (Table 721 in the consolidated factors spreadsheet) –  
Revaluation factor**

<b>Number of years (ignoring part years) between Option commencement date and EPA</b>	<b>Factor</b>	<b>Number of years (ignoring part years) between Option commencement date and EPA</b>	<b>Factor</b>
<b>0</b>	<b>1</b>	<b>25</b>	<b>1.64</b>
<b>1</b>	<b>1.02</b>	<b>26</b>	<b>1.67</b>
<b>2</b>	<b>1.04</b>	<b>27</b>	<b>1.71</b>
<b>3</b>	<b>1.06</b>	<b>28</b>	<b>1.74</b>
<b>4</b>	<b>1.08</b>	<b>29</b>	<b>1.78</b>
<b>5</b>	<b>1.1</b>	<b>30</b>	<b>1.81</b>
<b>6</b>	<b>1.13</b>	<b>31</b>	<b>1.85</b>
<b>7</b>	<b>1.15</b>	<b>32</b>	<b>1.88</b>
<b>8</b>	<b>1.17</b>	<b>33</b>	<b>1.92</b>
<b>9</b>	<b>1.2</b>	<b>34</b>	<b>1.96</b>
<b>10</b>	<b>1.22</b>	<b>35</b>	<b>2</b>
<b>11</b>	<b>1.24</b>	<b>36</b>	<b>2.04</b>
<b>12</b>	<b>1.27</b>	<b>37</b>	<b>2.08</b>
<b>13</b>	<b>1.29</b>	<b>38</b>	<b>2.12</b>
<b>14</b>	<b>1.32</b>	<b>39</b>	<b>2.16</b>
<b>15</b>	<b>1.35</b>	<b>40</b>	<b>2.21</b>
<b>16</b>	<b>1.37</b>	<b>41</b>	<b>2.25</b>
<b>17</b>	<b>1.4</b>	<b>42</b>	<b>2.3</b>
<b>18</b>	<b>1.43</b>	<b>43</b>	<b>2.34</b>
<b>19</b>	<b>1.46</b>	<b>44</b>	<b>2.39</b>
<b>20</b>	<b>1.49</b>	<b>45</b>	<b>2.44</b>
<b>21</b>	<b>1.52</b>	<b>46</b>	<b>2.49</b>
<b>22</b>	<b>1.55</b>	<b>47</b>	<b>2.54</b>
<b>23</b>	<b>1.58</b>	<b>48</b>	<b>2.59</b>
<b>24</b>	<b>1.61</b>	<b>49</b>	<b>2.64</b>
		<b>50</b>	<b>2.69</b>



## Appendix D. Worked examples ('Headroom' Calculations)

D.1 The examples are illustrative only.

### Example D1 – headroom limit used for EPA option

D.2 Consider a member with details as follows (i.e. Example B1):

- EPA commencement date: 01/04/2019
- EPA: 65 years
- Date of birth: 15/10/1960
- Monthly EPA payments between EPA commencement date and EPA: 79
- NPA: 66 years and 7 months
- Period between EPA commencement date and EPA: 6 years and 6 months
- Pensionable earnings at 01/04/2019: £20,000 per annum (equivalent to £1,666.67 per month)
- Current headroom limit is £7,000 a year

D.3 Stage 1: estimate the prospective pension arising from future accrual at EPA

D.4 Prospective pension = Pensionable Earnings × P2HR1 factor

$$= £20,000.00 \times 0.18 = £3,600.00 \text{ a year}$$

P2HR1 factor based on period between EPA option commencement date and EPA – i.e., 6 years and 6 months (ignoring part months).

### Stage 2: Converting the prospective pension into equivalent added pension at EPA

D.5 Equivalent added pension at EPA =

$$\text{Prospective pension} \times [ ( 1 / P2ER \text{ factor}_{NPA} ) - 1 ]$$

$$= £3,600.00 \times [ ( 1 / 0.91425 ) - 1 ] = £337.65 \text{ a year}^1$$

$P2ER \text{ factor}_{NPA}$  is 0.91425 based on early retirement age of EPA 65 years and NPA of 66 years 7 months (interpolated).

---

<sup>1</sup> The member is retiring 1 year and 7 months early. The factor is derived by interpolating between the factor for age 64 years 5 months from table P2ER66 (i.e. 0.916 for NPA 66) and the factor for age 65 years and 5 months from table P2ER67 (i.e. 0.913 for NPA 67) (see early payment reduction and age addition factors and guidance for the alpha section). The NPA is 66 years 7 months so using the weights 5/12 and 7/12 respectively, the factor is  $[(5/12) \times 0.916] + [(7/12) \times 0.913] = 0.91425$ .



**Stage 3: Expressing the equivalent added pension at EPA as an equivalent added pension as at commencement date - i.e., the value of EPA option at outset**

D.6 Value of EPA option at outset =

Equivalent added pension at EPA / *P2HRRev1* factor

$$= £337.65 / 1.13 = £298.81$$

=£299 (rounded to nearest £)

*P2HRRev1* factor based on period between EPA Option commencement date and EPA – ie, 6 years (ignoring part years).

**Express value of EPA option at outset as % of headroom limit at outset**

= Value of EPA option at outset / headroom limit at outset

$$= £299.00 / £7,000.00 = 4.27\%$$

= 4% (nearest %)



### Example D2 – lapsed EPA option

- D.7 Consider a member as in Example D1 who lapsed their EPA contract after making 26 monthly EPA payments. Current headroom limit (in 2019/20) is £7,000 a year.
- D.8 At outset the value of the EPA option was 4% of the headroom limit (from before). Once the EPA contract has lapsed, then the value of EPA option is reassessed as:  $4.00\% \times 26 / 79 = 1\%$  (nearest %). That is, the EPA option has used up 1% of the headroom limit.



## Appendix E. Assumptions underlying factors

### Financial assumptions

Nominal discount rate	4.448% pa
CPI	2.00% pa
Real discount rate (in excess of CPI)	2.40% pa

### Mortality assumptions

Base mortality tables	S2NMA and S2NFA
Base table adjustment	Member: 110% of S2NMA for males and 110% of S2NFA for females (as per 2016 valuation)
Future mortality improvement	Based on ONS principal UK population projections 2016
Year of Use	2020

### Other assumptions

Proportion of male members for the purpose of unisexing factors	50%
Allowance for commutation	Nil