



# Government Actuary's Department

**Report by the Government Actuary on the actuarially fair rate of increments for those reaching State Pension age on or after 6 April 2016 and choosing to defer their State Pension beyond State Pension age**



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## 1 Executive summary

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- 1.1 The Department for Work and Pensions (DWP) commissioned the Government Actuary's Department (GAD) on 17 January 2014 "to provide an update of [GAD's] report into the actuarially fair rate of increments [for those deferring State Pension beyond State Pension age]". This followed on from similar work produced by GAD for DWP in 2003, 2010 and 2012. The rates required are for those reaching State Pension age (SPA) in years between 2016-17 and 2026-27, that is, after the introduction of the single-tier State Pension in 2016, and deferring for between 1 and 5 years.
- 1.2 The Minister for Pensions stated in July 2013<sup>1</sup> that a piece of advice on this subject from the Government Actuary would be published, and used as a base for regulations concerning the rate of increments offered to those people who defer receipt of their State Pension until after State Pension age.
- 1.3 The concept of an "actuarially fair" rate of increment is subjective. I have assumed actuarially fair rates of increments to be the rates, expressed as a proportion of pension at the end of the deferral period, which mean that, at SPA, the benefits available have broadly the same value whether the person chooses to defer or not.
- 1.4 Other things being equal, the "actuarially fair" incremental rates vary by:
  - > sex
  - > year of reaching State Pension age and State Pension age in that year
  - > length of deferral
  - > life expectancy
  - > rate of up-rating on the benefit being deferred.

I have not shown a single rate of increments but, instead, show actuarially fair rates on a variety of assumptions.

### Assumptions

- 1.5 The following assumptions have been made about the benefits under the single-tier State Pension from 2016-17 onwards and related increments:
  - > no inheritance of deferral increment for surviving spouse or civil partner.
  - > the deferrer's estate will be able to claim up to 3 months of arrears if deferrer dies before making a claim for State Pension.
  - > the basic State Pension to be up-rated by the "triple lock" and "protected payments" by CPI
  - > increments to be increased by CPI once in payment
  - > increases to the SPA will be in line with current legislation including SPA increasing from 66 to 67 between 2026 and 2028 as set out in the Pensions Act 2014.

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<sup>1</sup> <http://www.publications.parliament.uk/pa/cm201314/cmpublic/pensions/130704/am/130704s01.htm>



- 1.6 The assumptions about future methods of uprating, i.e. 'triple lock' and CPI, are based on current legislation and practice and are not meant to imply that these methods are guaranteed for the future.
- 1.7 The calculations were based on the following financial assumptions:
  - > a nominal discount rate of 5% a year
  - > "triple lock" increases of 4.75% a year
  - > CPI inflation of 2% a year
- 1.8 The mortality rates underlying the ONS's 2012-based principal population projections were used, with a variant of 85% of these mortality rates in order to show the impact of assuming higher life expectancy for those deferring.
- 1.9 If any of the assumptions used in this report change or if the methods used to up-rate state pension benefits change it would be appropriate to review the rate of increment to ensure that it remains "actuarially fair". Such a review should look at whether changes in factors are appropriate and, if so, whether for both future people reaching SPA and also for existing deferral cases.

## Results

- 1.10 Inspection of the results over all the possible variations in assumptions (sex of pensioner deferring, year of reaching SPA, assumed mortality rate, length of deferral and type of benefit being deferred) shows that the:
  - > lowest value of actuarially fair rate of increment = 5.7% a year (1 year deferral for women reaching SPA in 2016-17 with 85% of population mortality and benefit being deferred having triple lock up-rating)
  - > highest value of actuarially fair rate of increment = 8.5% a year (5 year deferral for men reaching SPA in 2020-21 with 100% of population mortality and benefit being deferred having CPI up-rating)
  - > highest value of actuarially fair rate of increment where benefit being deferred has triple lock = 7.9% (5 year deferral for men reaching SPA in 2020-21 with 100% of population mortality)
- 1.11 It would seem, therefore, that the "actuarially fair" rate is likely to lie somewhere between 5.7% a year and 8.5% a year depending on the circumstances. These are broadly equivalent to rates of increment of 1% every 9 weeks and 1% every 6 weeks respectively.
- 1.12 "Actuarially fair" rates would therefore appear to be somewhat lower than the current rate which is 1% every 5 weeks of deferral, equivalent to 10.4% a year.
- 1.13 We have carried out an analysis of the amount of "protected payments" people reaching SPA after 2016 are projected to receive. This analysis indicates that for those reaching SPA in the years immediately after 2016 "protected payments" will be between 2.0% and 5.0% of the total pension benefit payable after 2016. Therefore most of the benefit payable will, on our assumptions, be up-rated by triple lock rather than CPI,
- 1.14 "Actuarially fair" rates are very little different from those calculated in 2012 which used different assumptions, most notable the ONS 2010-based population projection mortality rates.
- 1.15 It is for Ministers to decide a suitable actual rate for increments.



## 2 Introduction and background

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- 2.1 The Department for Work and Pensions (DWP) commissioned the Government Actuary's Department (GAD) on 17 January 2014 "to provide an update of [GAD's] report into the actuarially fair rate of increments [for those deferring State Pension beyond State Pension age]". This followed on from similar work produced by GAD for DWP in 2003, 2010 and 2012. The rates required are those for those reaching State Pension age (SPA) in years between 2016-17 and 2026-27, following the introduction of the single-tier State Pension, and for those deferring for between 1 and 5 years.
- 2.2 Increments for deferring receipt of State Pensions have existed for some time. State Pension deferral is when a person puts off (or delays) claiming their State Pension after State Pension age until a time that suits them. Increments are currently paid at a rate of 1% for each 5 weeks of deferral (thus 1/5% a week or approximately 10.4% a year) for periods of deferral longer than 5 weeks. The increments are calculated on a simple basis – that is, a deferral of, say 2 years attracts an increment of approximately 21%. They are applied as a percentage of the rate of State Pension that applies at the end of the period of deferral.
- 2.3 DWP is now considering the policy for increments that would be payable to those reaching State Pension age in 2016-17 and later, under the "single-tier" arrangements. References to the State Pension in the work below should be read as references to the flat-rate State Pension in the "single-tier" world. However, it should be noted that the actual rate of pension is not relevant to the calculation of the increment.
- 2.4 The Minister for Pensions stated in July 2013 that<sup>2</sup> a piece of advice on this subject from the Government Actuary would be published, and used as a base for regulations concerning the rate of increments offered to those people who defer receipt of their State Pension until after State Pension age.

### **Actuarial fairness**

- 2.5 The concept of an "actuarially fair" rate of increment involves answering the question "fair to whom" and depends on the view and positions of the parties between whom the rate is to be fair. I have worked on the basis of the required fairness being between different generations of taxpayers whilst being seen as fair to the generality of people taking up the deferral option ignoring tax effects and their specific circumstances such as health, marital status and so on. In producing the figures below I have assumed, following the precedent set by earlier work on this topic, that actuarially fair rates of increments are the rates, expressed as a proportion of pension at the end of the deferral period, which mean that, at SPA, the benefits available have the broadly same value in terms of cost to the Exchequer (using a similar approach to that used for public service pensions) whether the person chooses to defer or not.
- 2.6 The benefits considered for a person choosing to defer are the State Pension from the end of the period of deferral paid for life and the increment from the end of the period of deferral paid for life, both multiplied by the probability of surviving until the end of the period of deferral, plus the value of the "death during deferral" benefit. Both State Pension and increments are assumed to be subject to regular up-rating when in payment. The benefits considered for someone not choosing to defer are simply the basic State Pension payable from SPA for life with up-rating.

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<sup>2</sup> <http://www.publications.parliament.uk/pa/cm201314/cmpublic/pensions/130704/am/130704s01.htm>



- 2.7 Other things being equal, the “actuarially fair” incremental rates as a percentage of the State Pension are greater when the increments are expected to be payable for shorter periods. Therefore they are greater:
- > for men than for women (as men are expected to live less long than women on average)  
  
at the present time, when assumed mortality rates are higher and longevity less, than in the future (given equal SPAs), although this effect is counteracted by the higher State Pension ages which apply in the future
  - > for people who defer for longer than for people who defer for only a short time
  - > for people with lower life expectancies: in particular, this means that if we were to assume that those deferring had lighter than average mortality (higher than average longevity). People choosing to defer may have a lower rate of mortality than the population as a whole because they had higher education or income levels, or because it can reasonably be assumed that those in poor health would not choose to defer. As requested I have calculated rates based on the mortality of the population as a whole (referred to below as “average life expectancy”), and also on a variant basis of mortality rates of 85% of these (referred to below as “high life expectancy”).
- 2.8 Strictly speaking, different rates of increment would be actuarially fair in respect of the amount of the single-tier State Pension and amounts of “protected payments” – that is, amounts of State Pension in excess of the standard single-tier rate based on accruals before April 2016. This is because protected payments have CPI-based up-ratings rather than the “triple lock” up-rating as assumed to apply to the single-tier State Pension (see paragraph 3.4). I have therefore considered the effect of both triple-lock and CPI up-rating, although the results show that the “actuarially fair” rate of increment is not particularly sensitive to this assumption particularly for shorter periods of deferral.
- 2.9 I have not shown a single rate of increments, instead showing actuarially fair rates on a variety of assumptions in line with the possible sources of variation listed above.



### 3 Assumptions

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- 3.1 The actuarially fair increment rate, as defined above, depends on a number of assumptions including:
- > the nature of the benefits being deferred and the increments being offered for that deferral, including how deferral affects the pension that can be inherited by a spouse and rates of up-rating of State Pension given up by deferral and of the increments when they come into payment
  - > discount (interest) rates used to value future payments
  - > assumed mortality rates (and therefore the age and sex of the deferrer, the date of deferral and how the mortality of those who defer is expected to compare to the general population)

As agreed with DWP, I have ignored marginal tax rates and marginal rates of withdrawal of income-related benefits. In addition I have ignored any expenses arising from deferral.

- 3.2 If the assumptions used in this report change or if the methods used to up-rate state pension benefits change it would be appropriate to review the rate of increment to ensure that it remains “actuarially fair”. Such a review should look at whether changes in factors are appropriate and, if so, whether for both future people reaching SPA and also for existing deferral cases.

#### **Benefit assumptions**

- 3.3 The following assumptions have been made about the nature of the benefits under deferral:
- a. no inheritance of deferral increment for surviving spouse or civil partner.
  - b. the deferrer’s estate will be able to claim up to 3 months of arrears if deferrer dies before making a claim for State Pension.
  - c. the basic State Pension to be up-rated by the “triple lock” – the higher of CPI, earnings and 2.5%. However amounts of “protected payments” – that is, amounts of State Pension in excess of the standard single-tier rate based on accruals before April 2016 – can also be deferred, and these are subject to CPI up-rating. Therefore, I have also presented up-rating by CPI in the variant results.
  - d. increments to be increased by CPI once in payment.
- 3.4 I have assumed that increases to the SPA will be in line with current legislation including SPA increasing from 66 to 67 between 2026 and 2028 as set out in the Pensions Act 2014 rather than the previous legislation which would have raised the SPA from 66 to 67 between 2034 and 2036.
- 3.5 The assumptions about future methods of uprating, i.e. ‘triple lock’ and CPI, are based on current legislation and practice and are not meant to imply that these methods are guaranteed for the future.

#### **Financial assumptions**

- 3.6 The calculations were based on the following financial assumptions:
- a. a gross discount rate of 5% a year  
This has been derived as CPI inflation of 2% a year (see below) plus a



3% a year long-term interest rate to reflect the preference for consumption now rather than later.

The same real discount rate of 3% p.a. above CPI was used to set contribution rates to public service pension schemes.

- b. "triple lock" increases of 4.75%<sup>3</sup> a year.  
Earnings increases were assumed to be 2.45%<sup>4</sup> a year above CPI inflation (see below), and the "triple lock" was expected to be 0.3% above earnings on average because if the annual rate of earnings increases is less than the rate of CPI increases or less than 2.5% (as occurred in 2012, for example), the triple lock up-rating will be higher than the earnings increase.
- c. CPI inflation of 2% a year  
The results are not very sensitive to this assumption as the discount rate and triple lock increase assumption were set with reference to CPI. It is the difference between the rate of increase and the discount rate which affects the results more than their absolute amounts.

3.7 The economic assumptions adopted match the July 2013 Fiscal Sustainability Report, and the discount rate assumption chosen by GAD.

#### **Mortality assumptions**

3.8 The assumed mortality rates and improvements in mortality over time are the assumptions used by ONS for their 2012-based principal population projections. As stated in paragraph 2.7, I have calculated rates on two bases, one with no adjustment to the mortality rates and one with a reduction to 85% of the full rate.

3.9 The mortality assumptions used are cohort mortality rates. They allow for projected future changes in mortality during an individual's lifetime. For example, a 65 year-old in 2016 is assumed to be subject to the mortality for a 65 year-old in 2016, a 66 year-old in 2017, a 67 year-old in 2018 and so on. This will produce a higher life expectancy than if the mortality rates for 65 year-olds, 66 year-olds, 67 year-olds and for older ages in 2016 had been used instead, since mortality rates are generally projected to decrease over future years.

3.10 The expectations of life at State Pension age that result from these assumptions are as follows (note effects of increases in SPA):

**Table 1 – Cohort expectations of life (average SPA in year assumed)**

	100% population mortality		85% population mortality	
	2016-17	2026-27	2016-17	2026-27
Men	21.8 (65)	21.8 (66.3)	23.3 (65)	23.3 (66.3)
Women	25.8 (63.5)	24.3 (66.3)	27.3 (63.5)	25.8 (66.3)

<sup>3</sup> These rates were quoted as rounded to 4.7% and 2.4% in the July 2013 Fiscal Sustainability Report





## 4 Results

- 4.1 The full results, for each combination of mortality and up-rating assumptions, are set out in the Appendices 1 – 4 to this letter. The rates calculated are expressed as a proportion of pension at the end of the deferral period. The appendices are as follows:
- > Appendix 1 – results for 100% population mortality, benefit deferred has triple lock up-rating
  - > Appendix 2 – results for 100% population mortality, benefit deferred has CPI up-rating
  - > Appendix 3 – results for 85% population mortality, benefit deferred has “triple lock” up-rating
  - > Appendix 4 – results for 85% population mortality, benefit deferred has CPI up-rating
- 4.2 The calculated rates vary by year of reaching State Pension age for the reasons set out in paragraph 2.7. The actuarially fair rates also increase as the period of deferment increases, which can be seen in the tables in the appendices. To compare the effect of the different mortality and up-rating assumptions alone, and the year in which SPA is reached, Tables 2 and 3 below summarise the actuarially fair rates of increment for people deferring for one year.

**Table 2 – Actuarially fair rates of increase for those deferring for 1 year (benefit being deferred has triple lock up-rating)**

Reach SPA in	2016 -17	2017 -18	2018 -19	2019 -20	2020 -21	2021 -22	2022 -23	2023 -24	2024 -25	2025 -26	2026 -27
<b>Male</b>											
SPA	65.0	65.0	65.0	65.5	66.0	66.0	66.0	66.0	66.0	66.0	66.3
Average life expectancy	6.7%	6.7%	6.7%	6.7%	6.8%	6.8%	6.8%	6.7%	6.7%	6.7%	6.7%
High life expectancy	6.4%	6.4%	6.3%	6.4%	6.5%	6.4%	6.4%	6.4%	6.4%	6.4%	6.4%
<b>Female</b>											
SPA	63.5	64.2	65.0	65.5	66.0	66.0	66.0	66.0	66.0	66.0	66.3
Average life expectancy	5.9%	6.0%	6.1%	6.2%	6.2%	6.2%	6.2%	6.2%	6.1%	6.1%	6.2%
High life expectancy	5.7%	5.7%	5.8%	5.9%	6.0%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%



**Table 3 – Actuarially fair rates of increase for those deferring for 1 year (benefit being deferred has CPI up-rating)**

Reach SPA in	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26	-27
<b>Male</b>											
SPA	65.0	65.0	65.0	65.5	66.0	66.0	66.0	66.0	66.0	66.0	66.3
Average life expectancy	6.8%	6.8%	6.7%	6.8%	6.9%	6.9%	6.8%	6.8%	6.8%	6.8%	6.8%
High life expectancy	6.5%	6.4%	6.4%	6.5%	6.6%	6.5%	6.5%	6.5%	6.5%	6.4%	6.5%
<b>Female</b>											
SPA	63.5	64.2	65.0	65.5	66.0	66.0	66.0	66.0	66.0	66.0	66.3
Average life expectancy	6.0%	6.1%	6.2%	6.2%	6.3%	6.3%	6.3%	6.3%	6.2%	6.2%	6.2%
High life expectancy	5.7%	5.8%	5.9%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%

- 4.3 Comparison of results for deferring triple lock up-rated benefits in Table 2, and deferring CPI up-rated benefits in Table 3, shows that the actuarially fair rate of increase will increase very slightly as the rate of up-rating decreases relative to the discount rate. This is because, with lower up-rating, when benefits are eventually claimed, they will have a lower value relative to those forgone. However, the similarity of the actuarially fair rates of increment for the two up-rating bases suggests that it is reasonable for a single increment rate to be used in practice for both single-tier State Pensions and for “protected payments” at least for shorter periods of deferral.
- 4.4 Rates of increment which are actuarially fair are higher for men than for women, because, on average, men will live less long than women and thus enjoy the value of the increment for less long. In some early years the effect is increased because women have an earlier State Pension age than men. However the differences are not that substantial.
- 4.5 Comparison of the average and high life expectancy results in Tables 1 and 2 shows that the actuarially fair rate of increase reduces as life expectancy increases. This is because as life expectancy increases, increments will be paid for a longer period. Therefore a lower increment is needed so that the value of all future increment payments is equal to the benefits foregone during deferral.
- 4.6 The effects for different years of reaching State Pension age (improving longevity over time and increasing State Pension age in certain years) offset each other to some extent. Although the effect is somewhat obscured by rounding, this can be seen in Tables 2 and 3 where the rates tend to increase when SPA increases from one year to the next, but tend to decrease when there is no SPA increase from one year to the next.

**Calculation of actuarially fair rates for those deferring for more than one year**

- 4.7 The results shown in Appendices 1 – 4 show rates that apply for the whole period of deferral where that period may be between 1 and 5 years, as well as equivalent annual rates.
- 4.8 Under the current system, increment rates are applied in a “simple interest” manner. That is, if the increment rate is  $z\%$  a year, the total increment for a period of deferral of  $t$  years would be  $t \times z\%$  calculated by dividing the cumulative increment rates for each



period above by the relevant number of years of deferral. This would produce equivalent annual rates which increase fairly steeply with length of deferral (as well as varying with the range of other factors discussed in paragraph 2.7), and which are higher than the equivalent one-year rates shown.

**What these results may mean for the “actuarially fair” rate of increments**

- 4.9 Inspection of the results over all the possible variations in assumptions (sex of pensioner deferring, year of reaching SPA, assumed mortality rate, length of deferral and type of benefit being deferred) shows that the:
- > lowest value of actuarially fair rate of increment = 5.7% a year (1 year deferral for women reaching SPA in 2016-17 with 85% of population mortality and benefit being deferred having triple lock up-rating)
  - > highest value of actuarially fair rate of increment = 8.5% a year (5 year deferral for men reaching SPA in 2020-21 with 100% of population mortality and benefit being deferred having CPI up-rating)
  - > highest value of actuarially fair rate of increment where benefit being deferred has triple lock = 7.9% (5 year deferral for men reaching SPA in 2020-21 with 100% of population mortality)
- 4.10 It would seem, therefore, that the “actuarially fair” rate is likely to lie somewhere between 5.7% a year and 8.5% a year depending on the circumstances. These are broadly equivalent to rates of increment of 1% every 9 weeks and 1% every 6 weeks respectively. Table 4 below compares “1% every x weeks” rates with percentage rates over the full relevant range.

**Table 4 – rates “1% every x weeks” increment and equivalent percentages**

<b>1% for every X weeks deferred</b>	<b>Equivalent percentage</b>
1% every 5 weeks	10.4%
1% every 6 weeks	8.7%
1% every 7 weeks	7.4%
1% every 8 weeks	6.5%
1% every 9 weeks	5.8%
1% every 10 weeks	5.2%

- 4.11 “Actuarially fair” rates would therefore appear to be somewhat lower than the current rate which is 1% every 5 weeks of deferral, equivalent to 10.4% a year.
- 4.12 We have carried out an analysis of the amount of “protected payments” people reaching SPA after 2016 are projected to receive. This analysis indicates that “protected payments” are likely to be a very small proportion of the total state pension benefit payable after 2016 i.e. for those reaching SPA in the years immediately after 2016 we have estimated that “protected payments” will be between 2.0% and 5.0% of pension benefits payable. This proportion reduces to zero by 2040. Therefore most of the benefit payable will be up-rated by triple lock rather than CPI,



### **Comparison with earlier results**

- 4.13 Appendix 5 to this letter briefly reconciles the results quoted above with those provided in letters of 22 October 2012 and 1 November 2012 from GAD to Helen Ganson of DWP.



## 5 Concluding comments

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- 5.1 I am pleased to present this report, which shows possible values for an “actuarially fair” rate of increments for people who choose to defer their State Pension beyond State Pension age under the single-tier State Pension to be introduced from April 2016. The rates shown vary according to the sex of the person deferring, the length of deferral, the type of State Pension (single-tier basic or “protected payment”) being deferred, the assumed longevity of the person deferring and the year in which they reach State Pension age.
- 5.2 It is for Ministers to decide a suitable actual rate for increments.

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May 2014



## Appendix 1 – Average life expectancy, triple lock up-rating

**Table A1.1 – Reach SPA in financial year 2016-17 – Male SPA = 65.0, Female SPA = 63.5**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.7%	13.9%	21.6%	29.9%	38.8%
Equivalent annual rate	6.7%	6.9%	7.2%	7.5%	7.8%
<b>Female</b>					
That is, defer to age	64.5	65.5	66.5	67.5	68.5
Cumulative increment rate for total period	5.9%	12.1%	18.7%	25.7%	33.2%
Equivalent annual rate	5.9%	6.1%	6.2%	6.4%	6.6%

**Table A1.2 – Reach SPA in financial year 2017-18 – Male SPA = 65.0, Female SPA = 64.2**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.7%	13.8%	21.5%	29.7%	38.6%
Equivalent annual rate	6.7%	6.9%	7.2%	7.4%	7.7%
<b>Female</b>					
That is, defer to age	65.2	66.2	67.2	68.2	69.2
Cumulative increment rate for total period	6.0%	12.3%	19.1%	26.2%	33.9%
Equivalent annual rate	6.0%	6.2%	6.4%	6.6%	6.8%



**Table A1.3 – Reach SPA in financial year 2018-19 – Male SPA = 65.0, Female SPA = 65.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.7%	13.8%	21.4%	29.6%	38.4%
Equivalent annual rate	6.7%	6.9%	7.1%	7.4%	7.7%
<b>Female</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.1%	12.5%	19.4%	26.8%	34.6%
Equivalent annual rate	6.1%	6.3%	6.5%	6.7%	6.9%

**Table A1.4 – Reach SPA in financial year 2019-20 – Male SPA = 65.5, Female SPA = 65.5**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	6.7%	13.9%	21.7%	30.0%	39.0%
Equivalent annual rate	6.7%	7.0%	7.2%	7.5%	7.8%
<b>Female</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	6.2%	12.7%	19.7%	27.1%	35.1%
Equivalent annual rate	6.2%	6.4%	6.6%	6.8%	7.0%

**Table A1.5 – Reach SPA in financial year 2020-21 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.8%	14.1%	21.9%	30.4%	39.5%
Equivalent annual rate	6.8%	7.0%	7.3%	7.6%	7.9%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.2%	12.9%	19.9%	27.5%	35.6%
Equivalent annual rate	6.2%	6.4%	6.6%	6.9%	7.1%



**Table A1.6 – Reach SPA in financial year 2021-22 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.8%	14.0%	21.8%	30.3%	39.4%
Equivalent annual rate	6.8%	7.0%	7.3%	7.6%	7.9%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.2%	12.8%	19.8%	27.4%	35.5%
Equivalent annual rate	6.2%	6.4%	6.6%	6.8%	7.1%

**Table A1.7 – Reach SPA in financial year 2022-23 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.8%	14.0%	21.7%	30.1%	39.2%
Equivalent annual rate	6.8%	7.0%	7.2%	7.5%	7.8%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.2%	12.8%	19.8%	27.3%	35.3%
Equivalent annual rate	6.2%	6.4%	6.6%	6.8%	7.1%

**Table A1.8 – Reach SPA in financial year 2023-24 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.7%	13.9%	21.7%	30.0%	39.0%
Equivalent annual rate	6.7%	7.0%	7.2%	7.5%	7.8%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.2%	12.7%	19.7%	27.2%	35.2%
Equivalent annual rate	6.2%	6.4%	6.6%	6.8%	7.0%





**Table A1.9 – Reach SPA in financial year 2024-25 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.7%	13.9%	21.6%	29.8%	38.8%
Equivalent annual rate	6.7%	6.9%	7.2%	7.5%	7.8%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.1%	12.7%	19.6%	27.1%	35.0%
Equivalent annual rate	6.1%	6.3%	6.5%	6.8%	7.0%

**Table A1.10 – Reach SPA in financial year 2025-26 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.7%	13.8%	21.5%	29.7%	38.6%
Equivalent annual rate	6.7%	6.9%	7.2%	7.4%	7.7%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.1%	12.6%	19.6%	27.0%	34.9%
Equivalent annual rate	6.1%	6.3%	6.5%	6.7%	7.0%

**Table A1.11 – Reach SPA in financial year 2026-27 – Male SPA = 66.25, Female SPA = 66.25**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	6.7%	13.9%	21.6%	29.8%	38.8%
Equivalent annual rate	6.7%	6.9%	7.2%	7.5%	7.8%
<b>Female</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	6.2%	12.7%	19.6%	27.1%	35.1%
Equivalent annual rate	6.2%	6.3%	6.5%	6.8%	7.0%



## Appendix 2 – High life expectancy, triple lock up-rating

**Table A2.1 – Reach SPA in financial year 2016-17 – Male SPA = 65.0, Female SPA = 63.5**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.4%	13.2%	20.4%	28.2%	36.5%
Equivalent annual rate	6.4%	6.6%	6.8%	7.0%	7.3%
<b>Female</b>					
That is, defer to age	64.5	65.5	66.5	67.5	68.5
Cumulative increment rate for total period	5.7%	11.6%	17.9%	24.6%	31.7%
Equivalent annual rate	5.7%	5.8%	6.0%	6.1%	6.3%

**Table A2.2 – Reach SPA in financial year 2017-18 – Male SPA = 65.0, Female SPA = 64.2**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.4%	13.1%	20.3%	28.1%	36.4%
Equivalent annual rate	6.4%	6.6%	6.8%	7.0%	7.3%
<b>Female</b>					
That is, defer to age	65.2	66.2	67.2	68.2	69.2
Cumulative increment rate for total period	5.7%	11.8%	18.2%	25.0%	32.3%
Equivalent annual rate	5.7%	5.9%	6.1%	6.3%	6.5%



**Table A2.3 – Reach SPA in financial year 2018-19 – Male SPA = 65.0, Female SPA = 65.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.3%	13.1%	20.3%	27.9%	36.2%
Equivalent annual rate	6.3%	6.5%	6.8%	7.0%	7.2%
<b>Female</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	5.8%	12.0%	18.5%	25.5%	32.9%
Equivalent annual rate	5.8%	6.0%	6.2%	6.4%	6.6%

**Table A2.4 – Reach SPA in financial year 2019-20 – Male SPA = 65.5, Female SPA = 65.5**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	6.4%	13.2%	20.5%	28.3%	36.7%
Equivalent annual rate	6.4%	6.6%	6.8%	7.1%	7.3%
<b>Female</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	5.9%	12.2%	18.8%	25.8%	33.4%
Equivalent annual rate	5.9%	6.1%	6.3%	6.5%	6.7%

**Table A2.5 – Reach SPA in financial year 2020-21 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.5%	13.4%	20.7%	28.7%	37.2%
Equivalent annual rate	6.5%	6.7%	6.9%	7.2%	7.4%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.0%	12.3%	19.0%	26.1%	33.8%
Equivalent annual rate	6.0%	6.1%	6.3%	6.5%	6.8%



**Table A2.6 – Reach SPA in financial year 2021-22 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.4%	13.3%	20.7%	28.5%	37.0%
Equivalent annual rate	6.4%	6.7%	6.9%	7.1%	7.4%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	5.9%	12.2%	18.9%	26.0%	33.7%
Equivalent annual rate	5.9%	6.1%	6.3%	6.5%	6.7%

**Table A2.7 – Reach SPA in financial year 2022-23 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.4%	13.3%	20.6%	28.4%	36.9%
Equivalent annual rate	6.4%	6.6%	6.9%	7.1%	7.4%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	5.9%	12.2%	18.9%	26.0%	33.5%
Equivalent annual rate	5.9%	6.1%	6.3%	6.5%	6.7%

**Table A2.8 – Reach SPA in financial year 2023-24 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.4%	13.2%	20.5%	28.3%	36.7%
Equivalent annual rate	6.4%	6.6%	6.8%	7.1%	7.3%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	5.9%	12.2%	18.8%	25.9%	33.4%
Equivalent annual rate	5.9%	6.1%	6.3%	6.5%	6.7%



**Table A2.9 – Reach SPA in financial year 2024-25 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.4%	13.2%	20.4%	28.2%	36.5%
Equivalent annual rate	6.4%	6.6%	6.8%	7.0%	7.3%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	5.9%	12.1%	18.7%	25.8%	33.3%
Equivalent annual rate	5.9%	6.1%	6.2%	6.4%	6.7%

**Table A2.10 – Reach SPA in financial year 2025-26 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.4%	13.1%	20.3%	28.1%	36.4%
Equivalent annual rate	6.4%	6.6%	6.8%	7.0%	7.3%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	5.9%	12.1%	18.7%	25.7%	33.2%
Equivalent annual rate	5.9%	6.0%	6.2%	6.4%	6.6%

**Table A2.11 – Reach SPA in financial year 2026-27 – Male SPA = 66.25, Female SPA = 66.25**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	6.4%	13.2%	20.4%	28.2%	36.5%
Equivalent annual rate	6.4%	6.6%	6.8%	7.0%	7.3%
<b>Female</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	5.9%	12.1%	18.8%	25.8%	33.3%
Equivalent annual rate	5.9%	6.1%	6.3%	6.4%	6.7%



### Appendix 3 – Average life expectancy, CPI up-rating

**Table A3.1 – Reach SPA in financial year 2016-17 – Male SPA = 65.0, Female SPA = 63.5**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.8%	14.3%	22.5%	31.5%	41.5%
Equivalent annual rate	6.8%	7.1%	7.5%	7.9%	8.3%
<b>Female</b>					
That is, defer to age	64.5	65.5	66.5	67.5	68.5
Cumulative increment rate for total period	6.0%	12.4%	19.5%	27.2%	35.5%
Equivalent annual rate	6.0%	6.2%	6.5%	6.8%	7.1%

**Table A3.2 – Reach SPA in financial year 2017-18 – Male SPA = 65.0, Female SPA = 64.2**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.8%	14.2%	22.4%	31.4%	41.3%
Equivalent annual rate	6.8%	7.1%	7.5%	7.8%	8.3%
<b>Female</b>					
That is, defer to age	65.2	66.2	67.2	68.2	69.2
Cumulative increment rate for total period	6.1%	12.7%	19.8%	27.7%	36.3%
Equivalent annual rate	6.1%	6.3%	6.6%	6.9%	7.3%



**Table A3.3 – Reach SPA in financial year 2018-19 – Male SPA = 65.0, Female SPA = 65.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.7%	14.1%	22.3%	31.2%	41.2%
Equivalent annual rate	6.7%	7.1%	7.4%	7.8%	8.2%
<b>Female</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.2%	12.9%	20.2%	28.2%	37.0%
Equivalent annual rate	6.2%	6.4%	6.7%	7.1%	7.4%

**Table A3.4 – Reach SPA in financial year 2019-20 – Male SPA = 65.5, Female SPA = 65.5**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	6.8%	14.3%	22.6%	31.7%	41.8%
Equivalent annual rate	6.8%	7.2%	7.5%	7.9%	8.4%
<b>Female</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	6.2%	13.1%	20.5%	28.6%	37.6%
Equivalent annual rate	6.2%	6.5%	6.8%	7.2%	7.5%

**Table A3.5 – Reach SPA in financial year 2020-21 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.9%	14.5%	22.8%	32.1%	42.3%
Equivalent annual rate	6.9%	7.2%	7.6%	8.0%	8.5%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.3%	13.2%	20.7%	29.0%	38.1%
Equivalent annual rate	6.3%	6.6%	6.9%	7.3%	7.6%



**Table A3.6 – Reach SPA in financial year 2021-22 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.9%	14.4%	22.7%	31.9%	42.1%
Equivalent annual rate	6.9%	7.2%	7.6%	8.0%	8.4%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.3%	13.2%	20.7%	28.9%	37.9%
Equivalent annual rate	6.3%	6.6%	6.9%	7.2%	7.6%

**Table A3.7 – Reach SPA in financial year 2022-23 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.8%	14.4%	22.6%	31.8%	41.9%
Equivalent annual rate	6.8%	7.2%	7.5%	7.9%	8.4%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.3%	13.1%	20.6%	28.8%	37.8%
Equivalent annual rate	6.3%	6.6%	6.9%	7.2%	7.6%

**Table A3.8 – Reach SPA in financial year 2023-24 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.8%	14.3%	22.5%	31.7%	41.7%
Equivalent annual rate	6.8%	7.2%	7.5%	7.9%	8.3%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.3%	13.1%	20.5%	28.7%	37.6%
Equivalent annual rate	6.3%	6.5%	6.8%	7.2%	7.5%





**Table A3.9 – Reach SPA in financial year 2024-25 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.8%	14.2%	22.4%	31.5%	41.5%
Equivalent annual rate	6.8%	7.1%	7.5%	7.9%	8.3%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.2%	13.0%	20.4%	28.6%	37.5%
Equivalent annual rate	6.2%	6.5%	6.8%	7.1%	7.5%

**Table A3.10 – Reach SPA in financial year 2025-26 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.8%	14.2%	22.4%	31.4%	41.3%
Equivalent annual rate	6.8%	7.1%	7.5%	7.8%	8.3%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.2%	13.0%	20.4%	28.5%	37.3%
Equivalent annual rate	6.2%	6.5%	6.8%	7.1%	7.5%

**Table A3.11 – Reach SPA in financial year 2026-27 – Male SPA = 66.25, Female SPA = 66.25**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	6.8%	14.2%	22.5%	31.5%	41.5%
Equivalent annual rate	6.8%	7.1%	7.5%	7.9%	8.3%
<b>Female</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	6.2%	13.0%	20.5%	28.6%	37.5%
Equivalent annual rate	6.2%	6.5%	6.8%	7.1%	7.5%



## Appendix 4 – High life expectancy, CPI up-rating

**Table A4.1 – Reach SPA in financial year 2016-17 – Male SPA = 65.0, Female SPA = 63.5**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.5%	13.5%	21.3%	29.8%	39.1%
Equivalent annual rate	6.5%	6.8%	7.1%	7.4%	7.8%
<b>Female</b>					
That is, defer to age	64.5	65.5	66.5	67.5	68.5
Cumulative increment rate for total period	5.7%	11.9%	18.6%	25.9%	33.9%
Equivalent annual rate	5.7%	6.0%	6.2%	6.5%	6.8%

**Table A4.2 – Reach SPA in financial year 2017-18 – Male SPA = 65.0, Female SPA = 64.2**

Defer for	1 year	2 years	3 years	4 years	5 years
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.4%	13.5%	21.2%	29.6%	38.9%
Equivalent annual rate	6.4%	6.7%	7.1%	7.4%	7.8%
<b>Female</b>					
That is, defer to age	65.2	66.2	67.2	68.2	69.2
Cumulative increment rate for total period	5.8%	12.1%	19.0%	26.4%	34.5%
Equivalent annual rate	5.8%	6.1%	6.3%	6.6%	6.9%



**Table A4.3 – Reach SPA in financial year 2018-19 – Male SPA = 65.0, Female SPA = 65.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	6.4%	13.4%	21.1%	29.5%	38.8%
Equivalent annual rate	6.4%	6.7%	7.0%	7.4%	7.8%
<b>Female</b>					
That is, defer to age	66.0	67.0	68.0	69.0	70.0
Cumulative increment rate for total period	5.9%	12.3%	19.3%	26.9%	35.2%
Equivalent annual rate	5.9%	6.2%	6.4%	6.7%	7.0%

**Table A4.4 – Reach SPA in financial year 2019-20 – Male SPA = 65.5, Female SPA = 65.5**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	6.5%	13.6%	21.4%	29.9%	39.3%
Equivalent annual rate	6.5%	6.8%	7.1%	7.5%	7.9%
<b>Female</b>					
That is, defer to age	66.5	67.5	68.5	69.5	70.5
Cumulative increment rate for total period	6.0%	12.5%	19.6%	27.3%	35.7%
Equivalent annual rate	6.0%	6.2%	6.5%	6.8%	7.1%

**Table A4.5 – Reach SPA in financial year 2020-21 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.6%	13.7%	21.6%	30.3%	39.8%
Equivalent annual rate	6.6%	6.9%	7.2%	7.6%	8.0%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.0%	12.6%	19.8%	27.6%	36.1%
Equivalent annual rate	6.0%	6.3%	6.6%	6.9%	7.2%



**Table A4.6 – Reach SPA in financial year 2021-22 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.5%	13.7%	21.5%	30.1%	39.6%
Equivalent annual rate	6.5%	6.8%	7.2%	7.5%	7.9%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.0%	12.6%	19.7%	27.5%	36.0%
Equivalent annual rate	6.0%	6.3%	6.6%	6.9%	7.2%

**Table A4.7 – Reach SPA in financial year 2022-23 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.5%	13.6%	21.4%	30.0%	39.4%
Equivalent annual rate	6.5%	6.8%	7.1%	7.5%	7.9%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.0%	12.5%	19.6%	27.4%	35.9%
Equivalent annual rate	6.0%	6.3%	6.5%	6.8%	7.2%

**Table A4.8 – Reach SPA in financial year 2023-24 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.5%	13.6%	21.3%	29.9%	39.3%
Equivalent annual rate	6.5%	6.8%	7.1%	7.5%	7.9%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.0%	12.5%	19.6%	27.3%	35.8%
Equivalent annual rate	6.0%	6.2%	6.5%	6.8%	7.2%



**Table A4.9 – Reach SPA in financial year 2024-25 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.5%	13.5%	21.3%	29.7%	39.1%
Equivalent annual rate	6.5%	6.8%	7.1%	7.4%	7.8%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.0%	12.5%	19.5%	27.2%	35.6%
Equivalent annual rate	6.0%	6.2%	6.5%	6.8%	7.1%

**Table A4.10 – Reach SPA in financial year 2025-26 – Male SPA = 66.0, Female SPA = 66.0**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.4%	13.5%	21.2%	29.6%	38.9%
Equivalent annual rate	6.4%	6.7%	7.1%	7.4%	7.8%
<b>Female</b>					
That is, defer to age	67.0	68.0	69.0	70.0	71.0
Cumulative increment rate for total period	6.0%	12.4%	19.4%	27.1%	35.5%
Equivalent annual rate	6.0%	6.2%	6.5%	6.8%	7.1%

**Table A4.11 – Reach SPA in financial year 2026-27 – Male SPA = 66.25, Female SPA = 66.25**

<b>Defer for</b>	<b>1 year</b>	<b>2 years</b>	<b>3 years</b>	<b>4 years</b>	<b>5 years</b>
<b>Male</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	6.5%	13.5%	21.3%	29.8%	39.1%
Equivalent annual rate	6.5%	6.8%	7.1%	7.4%	7.8%
<b>Female</b>					
That is, defer to age	67.3	68.3	69.3	70.3	71.3
Cumulative increment rate for total period	6.0%	12.5%	19.5%	27.2%	35.7%
Equivalent annual rate	6.0%	6.2%	6.5%	6.8%	7.1%



## Appendix 5 – Comparison with increment rates calculated in 2012

1. The GAD letter of 1 November 2012 provided a table of actuarially fair rates of increment for those deferring for 1 year, as a summary of both average and high life expectancy projections. I present these results again below, for comparison with my current projections.

**Table A5.1 – Actuarially fair rates of increase for those deferring for 1 year**

<b>Reach SPA in</b>	<b>2016- 17</b>	<b>2017- 18</b>	<b>2018- 19</b>	<b>2019- 20</b>	<b>2020- 21</b>	<b>2024- 25</b>
<b>Male</b>						
<b>SPA</b>	<b>65.0</b>	<b>65.0</b>	<b>65.0</b>	<b>65.5</b>	<b>66.0</b>	<b>66.0</b>
<i>Average life expectancy (100% population mortality)</i>						
as given in the letter of 1 November 2012	6.7%	6.7%	6.7%	6.8%	6.8%	6.7%
current estimates	6.7%	6.7%	6.7%	6.7%	6.8%	6.7%
<i>High life expectancy (85% population mortality)</i>						
as given in the letter of 1 November 2012	6.4%	6.4%	6.3%	6.4%	6.5%	6.4%
current estimates	6.4%	6.4%	6.3%	6.4%	6.5%	6.4%
<b>Female</b>						
<b>SPA</b>	<b>63.5</b>	<b>64.2</b>	<b>65.0</b>	<b>65.5</b>	<b>66.0</b>	<b>66.0</b>
<i>Average life expectancy</i>						
as given in the letter of 1 November 2012	5.9%	6.0%	6.1%	6.2%	6.2%	6.2%
current estimates	5.9%	6.0%	6.1%	6.2%	6.2%	6.1%
<i>High life expectancy</i>						
as given in the letter of 1 November 2012	5.7%	5.8%	5.8%	5.9%	6.0%	5.9%
current estimates	5.7%	5.7%	5.8%	5.9%	6.0%	5.9%



2. The assumptions used to create these rates were as follows.

**Table A5.2 – comparison of assumptions used in the two exercises**

	<b>Assumptions used in 2012 calculations</b>	<b>Assumptions used to create the current calculations shown above</b>
Discount rate	Real discount rate of 3% a year (over CPI)	Real discount rate of 3% a year (over CPI)
Mortality	ONS 2010 GB cohort mortality rates for central variant population projections	ONS 2012 GB cohort mortality rates for central variant population projections
Discount rate	5.0% a year	5.0% a year
Up-ratings in 2016 onwards on single-tier State Pension being deferred	4.5% a year (triple lock)	4.75% a year (triple lock)
Upratings on increments and protected payments in 2016 onwards	2.0% a year (CPI)	2.0% a year (CPI)

3. The actuarially fair rates compared to the 2012 calculations have remained almost unchanged at this level of accuracy. The impact of the new mortality projections has been negligible, and the relatively small increase in the up-rating assumption has caused a small reduction in the actuarially fair rates of increment in some cases, for reasons discussed in paragraph 4.3.