

# APPENDIX METHODOLOGY: RETIREMENT INCOME ADEQUACY: GENERATION BY GENERATION



# INTRODUCTION

This appendix provides more detail on the methodology employed within the PLSA report *Retirement Income Adequacy: Generation by Generation*. Specifically it examines:

- The process to segment the Wealth & Assets Survey (WAS) dataset; and

# WAS SEGMENTATION

The modelling exercise itself has been conducted using data from the Wealth & Assets Survey (WAS) which is the most robust source of population level data on the wealth and saving attitudes of people in Great Britain (GB).

We have used Wave 4 of this survey – which was undertaken in 2012-14, the latest available; the survey covers 20,000 households comprising 47,000 individuals.

WAS, like any other survey, has its limitations. In particular the self-reporting nature of the survey may lead to non- sampling error. However its comparative strength to other wealth surveys, such as HMRC Personal Wealth Statistics, is that it is representative of the whole population in GB.

1. There is a time delay between the collection of data for WAS, and its publication. As the last wave was undertaken just at the point of introduction of automatic enrolment, it is possible that individuals, identified as not being automatically enrolled in the WAS data, may have been automatically enrolled since the survey was undertaken.

# WAS SEGMENTATION: METHODOLOGY

- 2. For the purpose of our research we focussed on individuals from WAS who were:
  - in employment (whether as an employee or self-employed); and
  - Aged between 22 64.
- 3. This sample covered about 17,000 individuals (unweighted), which when weighted up to the GB population level equates to 25.5 million.
- 4. Those who were students were not included in the analysis. We expect their experience to be similar to millennials in the model.
- 5. This population was selected as we were interested in the economically active population who were likely to be affected by automatic enrolment. We are however aware that there will be issues of adequacy for those individuals not in employment.
- 6. We segmented the cases in WAS based on a number of characteristics:

- Gender;
- Age group;
- Tax band; and
- Socio economic profession (which included a self-employed segment).
- 7. We also grouped by pensions tenure which was necessary for our modelling process; this created 1,216 segments. However not all segments were populated with cases in fact only 783 actually contained cases. The remaining 433 segments contained no cases.
- 8. **TABLE 1** displays the overarching groups by pension tenure; each of these groups had a number of segments within the grouping.

EMPLOYMENT STATUS	PLOYMENT CURRENT PENSIONS		RETAINED PENSIONS TENURE		
STATUS	TERORE	NOTHING	DB	DC	DB/DC
Employed	No pension	72	72	72	72
	Defined benefit	72	72	72	72
	Defined contribution	72	72	72	72
	Defined benefit and defined contribution pension	72	72	72	72
Self-employed	With personal pensions	8	8	8	8
	No personal pensions	8	8	8	8

#### TABLE 1: PENSION TENURE GROUPINGS AND THE NUMBER OF SEGMENTS WITHIN EACH GROUP

9. **TABLE 2** shows the 72 segments for those with an employed status.

GENDER	AGE	TAX BAND	SOCIO ECONOMIC CLASSIFICATION		
Male		0%	Managerial	Intermediate	Routine
	22-34	20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine
		0%	Managerial	Intermediate	Routine
Male	35-44	20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine
		0%	Managerial	Intermediate	Routine
Male	45-54	20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine
		0%	Managerial	Intermediate	Routine
Male	55-64	20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine
		0%	Managerial	Intermediate	Routine
Female	22-34	20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine
		0%	Managerial	Intermediate	Routine
Female	35-44	20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine
Female	45-54	0%	Managerial	Intermediate	Routine
		20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine
		0%	Managerial	Intermediate	Routine
Female	55-64	20%	Managerial	Intermediate	Routine
		40%	Managerial	Intermediate	Routine

#### TABLE 2: SEGMENTATION FOR THOSE IN EMPLOYMENT FOR EACH PENSION GROUPING

10. TABLE 3 shows the 8 segments for those in the self- employed status.

Gender	Age
Male	22-34
Male	35-44
Male	45-54
Male	55-64
Female	22-34
Female	35-44
Female	45-54
Female	55-64

TABLE 3: SEGMENTATION FOR THOSE IN SELF-EMPLOYMENT FOR EACH PENSION GROUPING

- 11. Input data used within the Hymans Robertson Guided Outcomes (GO) (R) methodology is taken from these 783 segments: the input data used is the current age at the time of the survey, gross income, current and retained value of DC savings, retained value of DB savings and contribution levels.
- 12. Please note that state pension levels are not collected via WAS input data relate purely to private pension wealth.

The input data is based on the median value for each segment, with the exception of:

- Contribution rates: where the 75<sup>th</sup> percentile has been used as it is more reflective of OPSS data on contribution levels, which is considered to be the most robust source of data as it is administrative data.
- Current age at time of the survey: where there are less than 10 cases (unweighted) in a segment the midpoint has been taken to avoid issues of disclosure.
- 13. Each segment relates to a number of weighted cases for the population; this enabled us to aggregate back up to population level for GB and provides an estimate of adequacy across the working population of GB.
- 14. It is important to note that although the segments represent a typical saver, there will be variation within a segment that using the median will not capture.
- 15. Some segments have very low bases (unweighted), so caution is advised when reporting some segments at a granular level.

# **MODELLING PENSIONS WEALTH**

- 1. Hymans Robertson has used their GO (R) methodology, customised in certain areas to meet our requirements, in order to model our input data to project the likely outcomes at retirement in relation to achieving the Target Replacement Rate (TRR).
- 2. The Hymans Robertson GO (R) methodology is a stochastic model producing 1,000 simulated scenarios for each modelling run.
- 3. The model produces an output that provides data for each segment on the probability of achieving their TRR, based on the recommendations of the Pension Commission.
- 4. The model however applies smoothed TRRs across each salary band; this technique is used as it smooths the gross targets to produce a more consistent target for members of all salaries, and also has no material impact at the aggregate level of this analysis compared to using the precise Pensions Commission targets. **TABLE 4** displays how the Hymans Robertson GO (R) methodology applies the TRR.

EARNINGS RANGE (2016/17 EARNINGS FIGURES)	PENSION COMMISSION TRR	HYMANS ROBERTSON GO TRR AT THE BOTTOM OF THE EARNINGS RANGE	HYMANS ROBERTSON GO TRR AT THE TOP OF THE EARNINGS RANGE
Less than £12,600	80%	80%	80%
£12,600 to £23,299	70%	80%	70%
£23,300 to £33,199	67%	70%	67%
£33,200 to £53,199	60%	67%	60%
£53,200 to £80,000	50%	60%	50%
Over £80,000	50%	£40,000	£40,000

#### TABLE 4: HYMANS ROBERTSON ADAPTED TARGET REPLACEMENT RATES

- 5. We undertook 5 different data runs within the model; examining a base case and four different scenarios.
- 6. There are a number of assumptions that are used within the modelling process for the base case (and scenarios).
- 7. We have tried to ensure that all assumptions are driven by data and known facts; this is to limit the impact of the assumptions on our modelling outputs. Where we have

considered it appropriate, and we have no existing data to base an assumption on, we have employed the standard assumptions within the Hyman's GO methodology. In other instances we have asked Hymans Robertson to use bespoke assumptions or approaches set by us.

- 8. In the section 'Modelling Assumptions' below, we have outlined the rationale for the assumption and the likely impact of the assumption; we have classified according to the following themes:
  - Market conditions;
  - Workforce participation;
  - Contributions;
  - DC growth;
  - DB accrual;
  - State pension;
  - Income conversion.
- 9. The base case modelling used the WAS data effectively as is, augmented by any assumptions necessary (for instance, around how automatic enrolment minimum contribution rates are scheduled to increase in the future and how these increases would apply to each segment) to understand the current position in the absence of further changes in the behaviours of individual members, changes to provision by employers or Government-led changes to the underlying pensions environment.
- 10. The four scenarios that were run in the model maintained the base case assumptions outlined but with some variations around contribution levels, qualifying earning bands and retirement age.
  - Scenario 1: Increasing contributions to 12% of Qualifying Earnings from 2019;
  - Scenario 2: Increasing contributions to 16% of Qualifying Earnings from 2019;
  - Scenario 3: Increasing contributions to 14% and removing Qualifying Earnings upper and lower limits from 2019;
  - Scenario 4: Increasing contributions to 12% from 2019, removing the Qualifying Earnings upper and lower limits from 2019 and increasing working life by five years.

# **MODELLING ASSUMPTIONS**

## 1. Market Conditions

### a) Timings of market conditions

**Assumption:** We have taken market conditions for future projections from 31 May 2016, prior to the results of the EU referendum vote in late June 2016, but have used an effective calculation date of 30 June 2013 (a mid point for when the data was collected).

**PLSA Rationale:** Market conditions would normally be aligned with the point at which data was collected. However taking slightly later market conditions avoids an overly optimistic economic outlook considering the decline in market conditions since 2013. Using data from before the EU referendum avoided incorporating the short term volatility of the markets.

**Likely impact:** Within the model's economic parameters, market conditions have the greatest impact on short-term projections, although they may also affect the expectations for long-term yields. If market conditions and the subsequent economic parameters within the model had been taken in June 2013, the outlook may have looked better for all members due to higher short-term and long-term expected yields, with the outlook looking particularly better for those retiring in the first 5 years, say. If post EU referendum market conditions had been taken instead of May 2016 conditions, the outlook may have looked worse for those retiring in the first 5 years, say, but the long-term projections would not have differed to the same extent.

# b) Economic Scenario Generator (ESG)

**Assumption:** ESS Hyman Robertson's (proprietary) stochastic asset model was used to generate probability distributions for the future behaviour of asset returns and economic variables.

Key ESG parameters include:

- The average excess equity return over the risk-free asset (cash) (tending to approximately 3% p.a. as the investment horizon is increased) and the volatility of equity returns (approximately 18% p.a. over the long term). The ESG predicts future cash returns using the evolution of the very short end (i.e. 1 month maturity) of the project nominal gilt yield curve.
- Long-term (median) real interest rates will slowly rise from their current low levels to eventually be around 1.5% per annum (the 17-year-maturity zero-coupon fixed interest gilt) (median) real interest rate is only expected to rise from current levels to around 1% per annum over the next 20 years). The projected 17-year nominal yield in X years' time is the central expectation for the yield on a 17 year zero coupon gilt in X years' time.

**PLSA Rationale:** These are standard assumptions within the Hyman's Guided Outcomes model.

Likely impact: Not applicable

#### c) Projected asset returns

**Assumption:** The absolute expected returns shown are the 20 year geometric averages and the absolute volatilities quoted are the first year's standard deviations. All returns are shown in **TABLE 5** net of implicit fees (such as transaction costs etc.).

#### **TABLE 5: EXPECTED RETURNS**

	ABSOLUTE EXPECTED RETURN	STANDARD DEVIATION (P.A.)
	(P.A.)	
Inflation (RPI)	2.90%	1.50%
Cash	2.80%	1.20%
Fixed-interest Gilts (medium dated)	1.90%	9%
Index-linked Gilts (medium dated)	1.20%	7%
Corporate bonds (medium dated)	2.60%	9%
UK Equity	6.40%	18%
Overseas Equity	6.10%	20%
Commercial Property	3.80%	14%

**PLSA Rationale:** These are standard projections within the Hymans Robertson GO (**R**) methodology.

Likely impact: N/A

# 2. Workforce Participation

# a) Projected employee journey

**Assumption:** Each member will continue to contribute to their pension until they reach the state pension age, at which point they convert their accumulated fund to retirement income.

No allowance is made for members taking time out of the labour market or switching from DB to DC or vice versa.

**PLSA Rationale:** Not providing for different employees journeys is consistently applied to each member; we appreciate that the journey is unlikely to be this simplistic in real life, but have applied to achieve a consistent base case.

**Likely impact:** This approach may overstate adequacy to the extent that some people will in reality retire before the state pension age and/or take career breaks; it may understate adequacy to the extent that some people will in reality work beyond the state pension age. It may overstate adequacy for DB members to the extent that they transfer to DC provision in future and vice versa.

# b) Increases in gross annual income/average earnings

**Assumption:** For all representative members, income or earnings will be assumed to increase by RPI+1%.

**PLSA Rationale:** In the absence of available data on earnings growth for our segment, we have applied linear earnings growth for all model points.

**Likely impact:** Replacement rates are a moving target. Higher salary growth may result in higher contributions but will also typically require a higher TRR from occupational/private pension provision. This is because in the model, replacement rates are judged against a retiree's final salary.

# c) Introduction of the National Living Wage

**Assumption:** The National Living Wage (NLW) was implemented in April 2016; however we have not applied this/assumptions around this to in our model.

**PLSA Rationale:** Assumptions around the NLW have not yet been included in the Hymans model as the policy has only been recently implemented.

**Likely impact:** Lower earners may have had larger pay rises than implemented within the model. This is likely to have affected their TRR and therefore the probability of achieving adequacy.

## 3. Contributions

#### a) Opt out rates from automatic enrolment

**Assumption:** We have made no allowance for opting out of automatic enrolment for those who are eligible.

**PLSA Rationale:** Opt out rates are currently reported at about 10%<sup>1</sup>. However, there is limited data available on the characteristics of those who opt out – and we do not know how this may change in the future. Rather than applying a universal assumption that 10% of all segments would opt out, we applied an assumption that everyone would remained opted in.

Likely impact: The number of people who are assessed as adequate may be overestimated.

### b) Pensionable Salary

**Assumption:** Due to the availability of data in WAS pensionable salary was constructed from gross earnings.

**PLSA Rationale:** This was the best proxy for constructing pensionable salary from the WAS data.

### Likely impact: N/A

### c) Current DC contribution rates

**Assumption:** For current contribution rates we have taken the 75<sup>th</sup> percentile for each model point currently contributing to a DC pension. These data points was used for:

- 0% rate taxpayers or those that are self-employed (on the assumption that these individuals are not subject to automatic enrolment in future), even where the total of annual employee and employer contributions is less than 2% per annum;
- 20% or 40%+ taxpayers (who would be expected to be subject to automatic enrolment) where the total of annual employee and employer contributions exceeds, 2% of estimated Qualifying Earnings; or
- Individuals who have current DB provision i.e. are labelled as either "DB only" or "DB & DC" (on the assumption that the DB provision for these individuals meets the minimum automatic enrolment criteria).
- ▶ For 20% or 40%+ rate taxpayers where the total of annual employee and employer contributions is less than 2% of estimated Qualifying Earnings, the model will override the current employee contribution rates with a current total employee and employer contribution rate of 1% of estimated Qualifying Earnings.

**PLSA Rationale:** We have selected to use the 75<sup>th</sup> percentile, as it most closely reflects the distribution of total contribution rates reported in the ONS' 'Occupational Pension Scheme

<sup>&</sup>lt;sup>1</sup> DWP, Automatic Enrolment evaluation report 2015, 2015 sourced on 22/112016 at

 $https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/477176/rr909-automatic-enrolment-evaluation-2015.pdf$ 

Survey'. It also maintains the differences between segments. The WAS data does not provide enough information to understand whether, on the whole, employers within a segment are using a minimum automatic enrolment contribution rate that is based on Qualifying Earnings or one of the alternative contribution rate approaches that are based on other definitions of pensionable salary (ranging from basic pay to gross earnings).

**Likely impact:** Where, on the whole, employers within a segment are using one of the three alternative quality requirements to set out the minimum automatic enrolment contributions, the level of contributions assumed in the modelling do not reflect the change in the minimum contribution rate or the change in pensionable salary definition.

# d) Future DC contribution rates

Assumption: The model has used the following assumptions:

- for any model points featuring 0% taxpayers, those that are self-employed or have current DB pension provision, we would use the current employee contribution rates (on the assumption that these individuals aren't subject to automatic enrolment into a DC scheme in future);
- for any model points featuring 20% or 40%+ taxpayers (who would be expected to be subject to automatic enrolment) we would use the median current employee contribution rates where the total of annual employee and employer contributions exceeds 8% of estimated Qualifying Earnings;
- for any model points featuring 20% or 40%+ taxpayers where the total of annual employee and employer contributions is less than, say, 8% of estimated Qualifying Earnings, we would propose that the current total contribution rates rise to be 5% of estimated Qualifying Earnings from April 2018 and 8% of estimated Qualifying Earnings from April 2019 (i.e. using current contribution rates where greater) but are fixed at 8% of estimated Qualifying Earnings from April 2019 (i.e. no comparison against current rates applied to projected salaries is made from April 2019 on). The total minimum rates (employee and employer contribution rates) change to 16%, 14% and 12% of the relevant definition of Qualifying Earnings from April 2019 for the interventions relating to the increase in automatic enrolment minimum contributions.

**PLSA Rationale:** In the absence of robust or existing data on future contribution levels, we have opted for the automatic enrolment minimum – as employers have to offer these levels as a minimum. The WAS data does not provide enough information to understand whether, on the whole, employers within a segment are using a minimum automatic enrolment contribution rate that is based on Qualifying Earnings or one of the alternative contribution rate approaches that are based on other definitions of pensionable salary (ranging from basic pay to gross earnings).

**Likely impact:** This may under or overstate adequacy for those individuals that see contribution progression or reductions, or who change their working pattern throughout

their career. Where, on the whole, employers within a segment are using one of the three alternative quality requirements to set out the minimum automatic enrolment contributions, the level of contributions assumed in the modelling will not reflect the change in the minimum contribution rate or the change in pensionable salary definition.

# e) Increases in the lower and upper limits to the assumed levels of Qualifying Earnings for automatic enrolment

**Assumption:** Both the lower and upper limits will be assumed to increase in line with projected RPI, but the upper limit will be subject to a cap on the annual increase of 1.5%, while the lower limit will be subject to a cap on the annual increase of 0.5%.

The upper and lower limits applied were £5,616 and £41,963 respectively; these were calculated using the figures from 2012/13 of £5,564 and £42,475, and from 2013/14 of £5,668 and £41,450.

**PLSA Rationale:** This approach assumes that the informal policy of allowing the lower threshold of the qualifying earnings band to wither continues. The qualifying earning upper and lower limits have increased at less than RPI in every year (except for 2015/16 where the upper limit increased at higher than RPI in 2015 and in 2012/13 where the upper limit decreased).

**Likely impact:** A low level of annual increases to the lower limit is likely to produce higher levels of contributions than a high level of annual increases and thus higher levels of adequacy, with the effect being most pronounced for lower earners. The cap on the annual increases to the upper limit will negatively impact adequacy for higher earners whose salary would be expected to increase at a faster rate than the cap increases.

# 4. DC Growth

### a) Asset allocation and lifestyle strategy for the occupational DC scheme

**Assumption:** We have used a single lifestyle investment strategy for all members being modelled. This is a single stylised strategy intended to capture some of the key features of common lifestyle strategies presents asset allocation throughout accumulation.

ASSET ALLOCATION	UP TO AND INCLUDING 10 YEARS FROM SPA	5 YEARS FROM SPA	AT SPA
UK equity	40%	25%	0
Overseas equity	40%	25%	0
Fixed-interest gilts (medium dated)	10%	20%	40%
Corporate bonds (medium dated)	10%	17.5%	35%
Cash	0	12.5%	25%

TABLE 6: ASSE	T ALLOCATION DU	IRING ACCUMULATION
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**PLSA Rationale:** Our approach with choosing a lifestyle strategy was to choose one consistent with the default strategy of a typical automatic enrolment provider as at the effective date of the WAS dataset.

**Likely impact:** This lifestyle approach assumes a path to annuitisation. With the recent introduction of Pension Freedoms, individuals may opt for alternative ways of accessing their pension pots in retirement and the default lifestyle strategies may have a different asset allocation throughout the investment period, but particularly in the period preceding SPA.

# b) Total expense ratio

**Assumption:** The model uses annual management charges of 0.5% p.a. for all DC pension wealth in addition of the implicit transaction costs and fees already built into assumptions about the projected asset returns.

PLSA Rationale: Most automatic enrolment providers offer pricing at or below this level.

**Likely impact:** There may be an overstatement of adequacy for those individuals in schemes with higher AMCs. Conversely there may be an understatement of adequacy for those in schemes with lower AMCs.

# 5. DB Accrual

# a) Projected increases to DB pensions in revaluation and in payment

**Assumption:** All DB pensions will be assumed to increase in line with uncapped/unfloored RPI when in payment, with no allowance for commutation to cash or any guaranteed cash lump sum.

Prior to coming into payment:

- DB retained benefits will be assumed to revalue (i.e. increase prior to coming into payment) in line with projected RPI.
- Any form of DB pension within the current scheme (whether already accrued or to be accrued in the future) will be assumed to revalue (i.e. increase prior to coming into payment) in line with the salary growth assumption, so that members have 100% of their DB accrual in their current DB scheme linked to final salary.

**PLSA Rationale:** Some DB schemes have increases in payment, or increases prior to coming into payment, that are expected to be lower than RPI (for instance, if linked to CPI). Conversely, some DB schemes have increases in payment, or increases prior to coming into payment that may be expected to equal or exceed RPI (for instance, schemes containing a minimum annual increase of say, 3%, or schemes with fixed-rate revaluation). The WAS data does not permit us to understand the relevant increases for each segment. As such, RPI has been used to represent the 'typical' increase for both deferred and pensions in payment.

**Likely impact:** This may overstate adequacy for those schemes that are indexed via CPI or some other increase that is lower than RPI, but may understate adequacy for those schemes that are indexed to something that is higher than RPI. In addition, any DB members who are in a CARE or hybrid scheme, or who might be expected to leave the DB scheme prior to SPA (voluntarily or otherwise), may have an overstated level of adequacy.

# b) Future DB accrual

**Assumption:** For those currently accruing to a DB scheme (who we have assumed will continue to accrue in the future), we have calculated their final income from DB by using the following variables:

- Most frequently stated accrual rates: 1/60ths
- Most frequently stated scheme design: final salary
- Pensionable salary: gross income
- Effective DB Normal Retirement Age (NRA): If a member is already past the DB NRA supplied, State Pension Age is used. Otherwise, the minimum of DB NRA and State Pension Age is used.

We use the above to estimate the annual accrual for each year between the calculation date and the retirement date, with the accrual increasing in subsequent years in line with salary growth (for the proportion linked to final salary) and in line with the assumed level of revaluation (for the proportion not linked to final salary). We then perform an approximate calculation to assess the ratio of the DB pension as a proportion of the individual's projected salary at retirement to produce a figure for the net replacement ratio arising.

**PLSA Rationale:** We have used the most likely accrual rates, scheme design and NRA for those currently accruing in DB; this is available data from WAS so is data driven.

**Likely impact:** We cannot make accurate predictions about how DB schemes may change over the years; reduced accrual rates and career average schemes may affect adequacy levels.

#### 6. State pension

#### a) Increases to State pension

**Assumption:** We have allowed for State Pensions to increase in line with average earnings, using an underlying assumption that the assumed annual average earnings increase will always be greater than both the projected Consumer Price Inflation (CPI) increases and 2.5% annual growth.

PLSA Rationale: This is in line with Hymans Robertson's standard approach.

**Likely impact:** If earnings were to fall below CPI or annual growth, the amount of state pension would reduce and may impact upon adequacy.

#### b) State pension income

**Assumption:** We will assume entitlement to the full new Single Tier Pension, with a value of £7,500 as at the effective date of calculation of June 2013, and not take into account any accrued or protected BSP/ S2P/SERPS elements.

**PLSA Rationale:** We did not have access to data showing levels of SERPS/S2P accrual. As such it was not possible to approach modelling SERPS/S2P accrual in a data-driven manner.

**Likely impact:** Entitlement to the full state pension may overstate adequacy for some people; whereas excluding entitlement to S2P/SERPS may understate adequacy for some individuals. This impact will diminish over time.

Many individuals will not receive the full state pension and so this model will overstate adequacy for these individuals.

#### 7. Retirement Income

## a) DC income product type at retirement

**Assumption:** The DC income product type at retirement is an RPI-linked income paid throughout the life of the member. There is no tax-free cash taken and no spouses' allowance.

**PLSA Rationale:** Freedom and Choice was only implemented in April 2015, and new products have only been developed over the last year. It was therefore not possible to model this in a data driven manner. The income pricing approach used was designed to be a proxy for some of the pricing assumptions that may have been used in the period covering the Wave 4 WAS data collation.

Additionally the annuity is RPI-linked as this is standard industry practice; we are examining adequacy for the individual and not at the household level so have elected to make no spousal allowances.

**Likely impact:** Those individuals that choose to take an UFPLS, and/or drawdown their retirement income may receive more or less income in retirement than this approach. In addition, different assumptions around projected longevity or projected yields may produce different levels of adequacy.

# b) DC income conversion assumptions

**Assumption:** Income is priced using the range of simulated interest rates effective from the projected retirement date. Unisex projected longevity has been assumed in line with the S1 series of mortality tables with mortality rates reducing by 1.5% p.a. from 2013 onwards (i.e. mortality rates for say a 65 year old in one year will be 98.5% of the mortality rate for a 65 year old in the previous year) and a 10% allowance for expenses.

PLSA Rationale: This is in line with Hymans Robertson's standard approach.

Likely impact: N/A



#### Pensions and Lifetime Savings Association

Cheapside House, 138 Cheapside, London EC2V 6AE

T: 020 7601 1700 E: plsa@plsa.co.uk

www.plsa.co.uk

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