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Technical Report

Modelling of pension policy options, analysis based upon the Wealth and Assets Survey dataset and PPI individual modelling – updated for 2025 Wealth and Assets Survey round 8

Analysis sponsored by the PLSA

PENSIONS AND LIFETIME SAVINGS ASSOCIATION

About this paper

This Technical Report details an update to the previously published write-ups (February 2024) based on an updated Wealth and Assets Survey dataset. It includes:

- Background to the analysis
- Modelling approach taken
- Observations and commentary upon the results
- Conclusions

Full results of the modelling are available in a separate Appendix.

Tim Pike, Head of Modelling; and John Upton, Policy Analyst, at the Pensions Policy Institute (PPI), carried out the modelling and produced this Technical Report between March 2025 – May 2025.

The PPI is grateful for the input from Nicky Day and Simon Sarkar, of the PLSA, in the production of this paper. Editing decisions remain with the authors, who takes responsibility for any remaining errors or omissions.

Sponsorship has been given to help fund the research, and does not necessarily imply agreement with, or support for, the analysis or findings from the project.

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Section 1: Background to the analysis

Introduction

This report builds on the work of previous Technical Reports:

- The first Technical Report titled Projection of future pensioner household income, analysis based upon the Wealth and Assets Survey dataset,[1] explored what different generations of people who are currently working might earn in retirement. It examined their income through the lens of retirement income standards, allowing the findings to be framed in terms of adequacy, and reveal the implications for the quality of life of many people approaching retirement.
- The second Technical Report titled Modelling of pension policy options, analysis based upon the Wealth and Assets Survey dataset and PPI individual modelling,[2] expanded on this work by imagining these same people under different policy scenarios proposed by the Pensions and Lifetime Savings Association (PLSA), comparing their Retirement Living Standards (RLS) in each scenario to estimate the improvement these proposals would bring. The report also made use of the PPI's Individual Model, to explain the impacts of the policy changes on representative individuals which complemented the population wide statistics.

These previous Technical Reports found that large sections of the working population are currently not on track to hit minimum retirement living standards. Further, that the second Technical Report found that the PLSA's proposed policy changes, when combined, would bring a significant proportion of those missing the PLSA minimum retirement income standard up to this level. This report enables the PLSA to ensure that projections remain up to date as they continue to research the impact of policy on the retirement living standards of currently working generations.

This Technical Report updates:

- The work of the first Technical Report to project the future retirement adequacy of the current working population using the Wealth and Assets Survey.

This Technical Report also provides:

- Projections of retirement income for modelled individuals, similar to those modelled in previous reports, under the same variations of policy proposals as before.

This report reiterates the modelling approach taken and accompanies the Appendix which gives the most up to date figures.

Research Question:

The intention of the analysis is to provide quantitative evidence to support research into the question:

Under current economic and policy circumstances, what are the projected levels of retirement adequacy for the working population?

Income targets

[1] Pike, et al.[PPI] (2022)
[2] Pike, et al. [PPI] (2022)

As in the previous Technical Reports,[1, 2] the PLSA Retirement Living Standards and the Pensions Commission Replacement Rates were the benchmarks used to assess pension adequacy under various simulated policy conditions.

There are two traditional approaches to benchmarking retirement incomes which stem from these different perspectives:

1. Fixed income targets

Fixed income targets have their origins in the State underpin and avoidance of deprivation but have developed into 'basket of goods' approaches (the cost of a basket of goods and services required to meet a certain level of need or lifestyle standard). This method is used by the Joseph Rowntree Foundation (JRF) in their Minimum Income Standard (MIS) and by the PLSA to produce their 'Minimum', 'Moderate' and 'Comfortable' Retirement Living Standards. These 'basket of goods' approaches produce living standard targets in terms of the fixed incomes required to achieve these levels, regardless of working-life income levels.

These targets vary at each level to allow for different household circumstances, including housing costs and household composition, which significantly impact per person expenditure within a household.

2. Proportional income targets

Proportional income targets focus on assessing subjective individual comfort. This approach has its origins in the view of the engaged employer and is embedded in the design of final salary pension arrangements. The Pensions Commission used this approach to make its adequacy assessments, which produced targets in the form of 'replacement rates'[3] - the proportion by which retirement income replaces other income immediately before retirement. A target replacement rate is one which allows people to replicate working-life living standards in retirement.

These replacement rates depend upon income prior to retirement: it is generally assumed that those with the lowest incomes prior to retirement will need to maintain this income level into retirement, while those with higher incomes may not need to maintain these levels, as their expenditure will undergo a relative decrease due to circumstances associated with retirement. These include:

- paying off a mortgage, resulting in a significant reduction in living costs;
- reduction in potentially substantial travel costs associated with stopping work; and
- reduced discretionary spending as expenditure reduces with older ages.

[3] Pensions Commission (2005)

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Section 2: Modelling approach

Introduction

Two separate pieces of modelling work were updated from previous PPI Technical Reports: one using projections based on the Wealth and Assets Survey (WAS), and another using the PPI's Individual Model.

Common Assumptions

Both previous analyses used identical assumptions about retirement behaviour and saving behaviour. The common assumptions between the WAS section and the Individual Model section are listed here. The modelling is then discussed in two separate sections, and in those any assumptions specific to that analysis are given.

Retirement behaviour

People are modelled to claim the new State Pension (nSP) and other applicable benefits. After retirement, there is assumed to be no earned income.

An illustrative Income derived from capital sources, such as Defined Contribution (DC) pension savings, formal financial assets or housing equity, is taken at an initial amount of 3.5% of the starting capital. This allows for the amount to be increased with inflation throughout retirement to protect against the impact of price inflation. The chance of the capital having been exhausted prior to death using this approach is approximately 5%[4] and, as such, can be regarded a sustainable rate of income drawdown of capital.

Saving behaviour and pension accrual

Individuals were assumed to maintain pension contributions as a fixed percentage of their salary towards a DC pension fund, according to the contribution rate being modelled in the given scenario, throughout their working life.

DC assets are projected to achieve investment returns of 1½% above increases in Average Weekly Earnings.

WAS Modelling

Data

The model projects to retirement the microdata pertaining to working-age individuals collected in the Wealth and Assets Survey (WAS).[5] WAS is a longitudinal survey, in which respondents can participate in multiple waves, or rounds. Previous analysis has been based on round 7, but this analysis is based on the recently available round 8, which ensures that these figures are as up to date as possible.

Some care should be taken when comparing the results of previous analysis based on round 7, and the results given here. In round 8, there were updates to the weighting methodology used by the ONS

[4] Wilkinson, L. et al. Pensions Policy Institute (2018)
[5] ONS (2025)

[6], in order to account for an underrepresentation of renters and an overrepresentation of owner-occupiers, which means that populations are not directly comparable. As such, this update should not be used to try and identify trends between round 7 and round 8. Most notably, there is an increase in the proportion of people attaining the PLSA Comfortable Retirement Living Standard between the round 7 and round 8 analysis. While this proportion may have genuinely increased, especially given increases in projected DB income among this group, it is not possible to say to what degree this apparent increase is caused by changes to the methodology, and so these analyses should not be used to identify any such trend.

The number of households sampled in round 8 was approximately 15,100 (compared to 17,500 in round 7). This includes data for over 25,000 individuals aged 25 to 64 years old, weighted to be representative of the population of Great Britain.

The PPI projects the retirement income accrual of each relevant individual to State Pension age (SPa), considering the following individual circumstances.

- Savings to date;
- Current saving situation;
- Housing tenure;
- Projected employment trajectory, including earnings levels; and
- Future savings accrual.

The working-age trajectory includes:

- Earnings at a consistent level within age-dependent earnings distribution. Individuals are assumed to earn income at a consistent level relative to the distribution of income by ages as a proportion of median earnings. This allows for promotional increases in salary and any propensity to reduce working hours.
- Future working allows for periods out of work based upon a future number of expected years in the labour force by age, derived from analysis of the Labour Force Survey.[7]

Assumptions specific to WAS modelling

Saving behaviour and pension accrual of WAS population

Pension saving

Defined Contribution (DC) pension schemes

Employees who are currently making contributions to a DC workplace pension scheme are assumed to continue making contributions while in employment, with a contribution rate of at least the legislated minimum under automatic enrolment. This follows the working-age trajectory of income and future working as described above. Workers who are not members of workplace pension schemes, primarily the self-employed and those who have opted out, are not assumed to make contributions to a workplace pension.

Defined Benefit (DB) pension schemes

Employees who are members of DB pension schemes are assumed to continue to accrue benefits to retirement in a scheme equivalent to their current membership, subject to their working-age trajectory. This especially is worth noting as the policies only affect DC savings, and so including DB

[6] ONS (2025)
[7] Mitchell and Guled (no date). NISRA and ONS (2022)

income in the modelling can appear to reduce the effects of the policies compared to individual modelling that assumes no DB savings.

Housing assets and housing benefit

Homeowners currently paying mortgages: Mortgages are assumed to be paid off by retirement, future generations are assumed to have attained the same extent of home ownership as current generations by retirement (allowing for later transitions for transitioning from renting to ownership).

Where households rent in retirement: Households may be eligible for Housing Benefit. This means-tested benefit effectively reduces the need to support housing costs from other income sources.

Formal financial assets

Formal financial assets are expected to achieve investment returns consistent with DC pension savings.

Retirement Behaviour of WAS population

Prior to SPa, pension savings are untouched as households are assumed to be able to finance until SPa without needing to access pension savings.

Assessment of income level of WAS population

Retirement income is calculated at three levels for each household:

- **'Standard income'** is defined as the income from the State Pension, DB entitlement and DC savings, but after taking a tax-free lump sum taken from pension savings at retirement, which is not included in this level.
- **'Additional capital'** includes all items in standard income, as well as income generated from pension lump sums and financial assets.
- **'Housing capital'** includes all items in additional capital, as well as income generated through releasing equity from housing wealth.

Assessment of retirement outcomes

Each projected individual will be measured against income levels. This will include both fixed income approaches and proportional income targets.

Pensions & Lifetime Savings Association (PLSA) Retirement Living Standards

The Retirement Living Standards produced by the PLSA are based on the Minimum Income Standards (MIS) research supported by the Joseph Rowntree Foundation (JRF) and carried out by the Centre for Research in Social Policy (CRSP) at Loughborough University. It determines an annual target income under three different retirement living standards (Minimum, Moderate and Comfortable) for those living in London and outside London, and for single person and couple households [Table 2.1]. These were independently reviewed and revised by Loughborough University in 2025.

Table 2.1: PLSA Retirement Living Standards net household income levels after housing costs[8]:

PLSA Retirement Living Standards	Single households		Couple households	
	Outside London	London	Outside London	London

[8] PLSA (2025)

Minimum	£13,400	£15,800	£21,600	£24,800
Moderate	£31,700	£33,000	£43,900	£45,500
Comfortable	£43,900	£45,700	£60,600	£62,700

Pensions Commission Target Replacement Rates (TRRs)

This measure considers whether an individual can achieve a standard of living comparable to the standard of living the individual had before retirement. This approach was used by the Pensions Commission in 2005. It defines a proportion of working age income that is necessary in retirement to maintain living standards after retirement [Table 2.2].

Table 2.2: Pensions Commission TRRs[9]:

Pre-retirement gross earnings (2004)	Pre-retirement gross earnings (2021) *	Replacement rate threshold
Up to £9,500	Up to £15,000	80%
£9,500 to £17,500	£15,000 to £27,500	70%
£17,500 to £25,000	£27,500 to £39,300	67%
£25,000 to £40,000	£39,300 to £62,800	60%
£40,000 or more	£62,800 or more	50%

*Figures for 2021 are taken directly from official government statistics, however for the purposes of analysis these bands can be uprated suitably for any given year.

These income levels are applicable to individual incomes. To apply these to multiple occupancy households, the household income is first equivalised and then comparison to the threshold is made.

Pre-retirement gross earning thresholds have been uprated using earnings inflation.

Each of the adequacy measures were applied to individuals in the WAS round 7 dataset, giving a proportion of the population meeting each target level.

Policy options

Four policies, identified by the Pensions and Lifetime Savings Association (PLSA), were modelled as potential options for improving retirement income adequacy in the individual modelling carried out in the second paper.

1. Contribution Rates

Currently, automatically enrolled pension savers who do not make any changes to the default arrangement contribute 5% of their salary to their pension, with their employer contributing 3%, to make a total of 8% salary contributions. One way to increase an individual's pension savings would be to increase the total salary contribution, through some combination of employee and employer contributions.

2. Qualifying Earnings

This calculation on qualifying earnings is currently only made on salary lying within certain bands – above a minimum level and below a maximum level. In the 2024/25 tax year, the lower limit is £6,240 and the upper limit is £50,270. A second way to increase the amount that earners contribute to their pension would be to remove these limits.

[9] DWP, 2023

3. State Pension Level

The State Pension provides a guaranteed income in retirement to anyone who has paid enough in National Insurance contributions to qualify for it. Increasing the level of State Pension to be in line with retirement standards would have a high chance of ensuring those standards are met for most people.

4. Minimum age of contribution

Currently, employees are automatically enrolled into pension schemes when they reach 22 years of age. Lowering this age threshold to 18, as recommended by the Automatic Enrolment Review conducted in 2017,[10] would allow people to contribute earlier and therefore increase their pension pot.

Modelling Policy Options

For the WAS modelling section of this report, the policy situation was modelled as it currently exists, in order to best estimate the future retirement outcomes of the current working population. For the section of the report that aims to examine the effectiveness of the proposed PLSA policy changes, the following options were modelled.

Contribution rates

The contribution rates modelled were 8%, 12% and 16% modelled in depth being made up of 5% + 3%, 6% + 6%, and 12% + 6% from the employee and employer respectively.

Earnings limits

The limits were modelled as either being kept and uprated in line with earnings or removed altogether. If being modelled as being kept, they started with their 2025 values of £6,240 and £50,270.

State Pension

The State Pension was modelled as being set at either the current level, and uprated in line with the triple lock. The triple lock uprates the State Pension by the higher of earnings, the rise in the consumer price index, or 2.5%. There are currently no stated plans to end the triple lock policy.

Individual Modelling

Data

The PPI's Individual Model is based on the Office for Budget Responsibility (OBR) figures for the Economic and Fiscal Outlook (EFO). These figures are updated regularly, and as they are updated, so are the modelling results in this and the previous Technical Reports. These figures provide a projection of economic determinants such as inflation. With these assumptions about the future of the economy, it is possible to project and model other policies and conditions that would affect a DC saver in the future, and therefore estimate their retirement income.

Assumptions specific to individual modelling

[10] DWP 2017

Characteristics of individuals under individual modelling assumptions

The individuals modelled for this report were assumed to be 18 in 2025. The individuals start working at 22 and retire at state pension age. The 50th and 75th percentiles of earnings for each gender and age was derived from the Labour Force Survey,[11] and all individuals modelled were assumed to be earning, throughout their life, one of:

- The Living Wage;
- Median earnings; or
- The 75th percentile of earnings.

Saving behaviour and pension accrual under individual modelling assumptions

Defined Benefit (DB) pension schemes

Individuals were modelled as having no DB pension entitlements. This is out of scope of the individual modelling.

Housing assets and housing benefit

Individuals were modelled as not receiving housing benefit, and retirement income was given without any housing costs deducted.

Formal financial assets

Individuals are assumed not to use other forms of saving for retirement income.

Retirement behaviour under individual modelling assumptions

Individuals were modelled to retire at state pension age, taking the state pension and accessing their pension savings at this point.

The individuals are modelled as not choosing to take a tax-free lump sum at retirement, but to keep this money in their pension fund to draw down from.

[11] Labour Force Survey, 2024

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Section 3: Observations and commentary upon the results

WAS Modelling

Updated results based on round 8 of the Wealth and Assets Survey are available in the Appendix, and a selection of these results are shown here.

The updated results continue to show that significant proportions of the population are set to miss the retirement income targets set by the PLSA Minimum Retirement Living Standard and the Pensions Commission Target Replacement Rates (TRRs) calculated on a personal/household basis. Furthermore, we see that the PLSA Moderate and Comfortable standards are unattainable for the majority of the population.

As with the first analysis conducted, these results continue to show that a large proportion of the working population are projected not to meet the PLSA's Minimum Retirement Living Standard – a quarter of the population (24%), are projected to not meet this standard even after accounting for a potential boost to retirement income from equity release. Meanwhile, we see that the PLSA's Moderate and Comfortable Retirement Living Standards are unattainable for the majority of the population, which also applies even after factoring in housing and other additional sources of income. By contrast, a smaller majority (55%) of the population are projected to miss the retirement income target that is generated by using the replacement rate methodology used by the Pensions Commission when designing Automatic Enrolment policy. This reduces to a minority once additional sources of income are accounted for. This highlights the extent to which Automatic Enrolment has succeeded so far in providing the pension coverage it set out to achieve, and also the differences in the two approaches to defining a retirement income standard – that is, the basket of goods approach used by the PLSA, or the replacement rate approach used by the Pensions Commission.

Table 3.1: The proportion of working-age households projected to miss retirement income thresholds

Retirement income threshold	Proportion of households below the income threshold		
	Standard Income	Additional Capital	With Housing Equity
PLSA RLS Minimum	31%	27%	24%
PLSA RLS Moderate	87%	78%	71%
PLSA RLS Comfortable	95%	90%	87%
Pensions Commission Target Replacement Rates	55%	43%	34%

Table 3.2: The proportion of working-age households contributing to DC pensions projected to miss retirement income thresholds

Retirement income threshold	Proportion of households below the income threshold		
	Standard Income	Additional Capital	With Housing Equity
PLSA RLS Minimum	19%	15%	14%
PLSA RLS Moderate	84%	67%	59%
PLSA RLS Comfortable	95%	87%	82%
Pensions Commission Target Replacement Rates	67%	48%	35%

Table 3.3: The proportion of working-age households contributing to DC pensions projected to miss target replacement rates, by generation.

Generation	Proportion of DC saving households attaining Pensions Commission TRRs using income from additional capital.
Millennials	44%
Generation X	54%
Baby Boomers	51%

Table 3.4: The proportion of working-age households projected to miss retirement income thresholds by household status.

Retirement income threshold	Proportion of households below the income threshold using income from additional capital.	
	Couples	Singles
PLSA RLS Minimum	9%	47%
PLSA RLS Moderate	66%	92%
PLSA RLS Comfortable	85%	97%

Table 3.5: The proportion of working-age households contributing to DC pensions projected to miss target replacement rates, for those with the highest and lowest incomes.

Retirement income threshold	Proportion of households making DC savings below the income thresholds using income from additional capital.	
	Lowest Income Quintile	Highest Income Quintile
PLSA RLS Minimum	33%	3%
PLSA RLS Moderate	90%	33%
PLSA RLS Comfortable	97%	72%
Pensions Commission Target Replacement Rates	25%	72%

Individual Modelling

A representative individual was modelled, who is automatically enrolled for their whole working life. The results are given for different earnings profiles for this individual for each gender. Current features of the pension system, such as being enrolled at 22, the lower earnings limit, and minimum employer and employee contribution rates were assumed.

We see that a person who earns at the median level for their gender at every age, and who works consistently full-time from 22 to the projected State Pension age (SPa) of 68, would have a retirement income of £19,209 for a male and £18,840.03 for a female.

Further results for a wider range of representative individuals and policies were also modelled which will be released separately.

Table 3.6: Weekly retirement earnings of someone who contributes to a DC pension until retirement age, before and after implementation of proposed policy changes by the PLSA

	22 year old, LEL, 8%	
Male		
Living wage	£	17,976.15
Median	£	19,209.30
75th percentile	£	20,134.94
Female		
Living wage	£	17,976.15
Median	£	18,840.03
75th percentile	£	19,870.86

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Appendix

Additional results

Full results of all the modelling are available in the separate Appendix here.

Projection Assumptions

Key assumptions

Except where explicitly stated in the report, the key assumptions used in the report are detailed below.

Other economic assumptions

Other economic assumptions are taken from the Office for Budget Responsibility's (OBR) Economic and Fiscal Outlook (EFO)[12] Investment returns are assumed to be 1.5% above the rate of increase in average earnings.

Limitations of analysis

Care should be taken when interpreting the modelling results used in this report. In particular, individuals are not considered to change their behaviour in response to their pension provision or personal circumstances. For example, an individual will not increase their contributions to pension saving as they approach retirement, or have higher incomes.

Between round 7 and round 8 of the Wealth and Assets Survey, there have been changes in methodology[6] which mean that the this analysis and the previous analysis are not suitable for identifying trends, and this should rather be taken as an update to ensure that the most recent data available is used.

Key results

The key output from the model is the built-up pension wealth and entitlement over the course of the individual's work history and the post-retirement income that results from this.

The post-retirement income is presented as projected cashflows from retirement over the future lifespan of the individual. These are annual cashflows which include the following key items:

- State Pension
  - Reflects entitlement and the projected benefit level of State Pension components.
- Private pension
  - Derived from the decumulation of the pension pot, allowing for tax-free cash lump sum and the chosen decumulation style (e.g., annuity or drawdown).
- Other State benefits
  - Other benefits contributing to post-retirement income, such as Pension Credit.
- Tax
  - Tax payable on the post-retirement income, to understand the net income available to the individual.

These cashflows are calculated as nominal amounts and restated in current earnings terms.

[12] OBR (2023)

Outcomes are expressed in current earnings terms for two reasons; it improves the comprehension of the results and reduces the liability of either overly optimistic or cautious economic assumptions.

Application of output

The models are best used to compare outcomes between different individuals, policy options, or other scenarios. The results are best used in conjunction with an appropriate counterfactual to illustrate the variables under test.

Key data sources

The specification of a model run is based upon three areas:

1. The individual

The individual to be modelled is specified based upon an earnings and career profile. Saving behaviour for private pension accumulation is considered, as well as the behaviour at retirement.

These are generally parameterised according to the project in question, designed to create vignettes to highlight representative individuals of the groups under investigation.

2. The policy options

The policy option maps the pension framework in which the individual exists. It can accommodate the current system and alternatives derived through parameterisation. This allows flexing of the current system to consider potential policy options, in order to assess their impact upon individuals under investigation.

This area has the scope to consider the buildup of pensions in their framework, such as the automatic enrolment regulations for private pensions and the qualification for entitlement to State benefits.

The framework in retirement allows for the tax treatment and decumulation options taken by the individual, as well as other sources of State benefits which influence the post-retirement outcomes for individuals.

3. Economic assumptions

The deterministic assumptions used in this analysis are taken from the OBR's EFO to ensure consistency. They cover both historical data and future projected values.

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