Pensions Policy Institute

Technical Report

Modelling of pension policy options, analysis based upon PPI individual modelling

Analysis sponsored by Pensions UK

About this paper

This Technical Report details individual modelling of different policy scenarios undertaken for Pensions UK. It includes:

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

Full results of the modelling are available in the Appendix, which is available as an Excel file.

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 August 2025 – November 2025.

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

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

Section 1: Background to the analysis

Introduction

The modelling described in this report is similar to the work of previous Technical Reports, which have contained results produced by the PPI's individual model. These reports were commissioned by Pensions UK (then called the PLSA).

- One technical report titled Modelling of pension policy options, analysis based upon the Wealth and Assets Survey dataset and PPI individual modelling – updated for 2024 PLSA RLS Update[1] explored the projected retirement outcomes of individuals in different policy scenarios. While the precise policy scenarios differ, and the economic forecasts used have since been updated, this report follows the same approach.
- Another technical report titled 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[2] explored policy options, and was published alongside a limited set of results. This report shares the full set of results generated.

These previous Technical Reports found that retirement standards may be improved by reforms to automatic enrolment, namely, expanding eligibility, increasing employee and/or employer contribution rates, or making employer contributions non-contingent.

This Technical Report outlines:

- The projected retirement outcomes of individuals under different policy scenarios proposed by Pensions UK, including flexible options.

This Technical Report also provides:

- A full set of modelling results generated in a previous round of modelling earlier in 2025.

This report details 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:

What effect could potential reforms to Automatic Enrolment have on the retirement outcomes of individual savers?

[1] Pike, et al.[PPI] (2024)
[2] Pike, et al.[PPI] (2025)

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Section 2: Modelling assumptions

Introduction

This report is accompanied by two sets of results, both produced by the PPI's Individual Model. While they model different individuals and policy options, the modelling assumptions are the same unless otherwise stated. As a result, the only differences between the results are what is modelled, and differences in pensions policy and economic determinants that were current at the time of modelling.

Modelling Assumptions

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%[3] 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.

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.

Characteristics of individuals under individual modelling assumptions

The individuals modelled for this report were assumed to be 18 in 2025. The individuals join a pension scheme at 18 or 22, depending on the policy scenario, and retire at state pension age. The 50th, 75th, or 90th percentiles of earnings for each age, and each gender when modelled, was derived from the

[3] Wilkinson, L. et al. Pensions Policy Institute (2018)

Labour Force Survey,[4] and all individuals modelled were assumed to be earning, throughout their life, one of:

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

It should be noted that the use of the Real Living Wage is consistent with PPI research regarding Low Earners.

Other saving and financial considerations

Defined Benefit (DB) pension schemes

Individuals were modelled as having no DB pension entitlements.

Housing assets and housing benefit

Individuals were modelled as not receiving housing benefit, and retirement income was given without any housing costs deducted. However, for the set and flex modelling, separate housing costs were supplied, for average rents and mortgages for different sizes of property, which can be used to calculate AHC figures.

Formal financial assets

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

Retirement behaviour

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.

[4] Labour Force Survey, 2025

Section 3: Modelling results and implications

Modelling Results

Automatic Enrolment parameters modelling

Representative individuals were modelled, who earn either a Living wage, or the 50th or 75th percentile of the earnings distribution, throughout their life, with their earnings level varying by age and gender when given by percentile. Various policy scenarios and savings behaviours were modelled. The policy options were:

- Lowering the minimum age for automatic enrolment to 18;
- Keeping/removing the Lower Earnings Limit;
- Varying total employee and employer contributions between 8/12/16%.

The savings behaviours followed specific trajectories which are representative of groups of interest, for example, having career transitions between earnings profiles or opting out during different life stages. Full details of these trajectories are given in the appendix alongside their results.

Table 3.1: Projected annual retirement income for men and women under different policy conditions

Minimum Age	22 year old	18 year old
LEL	Yes	No
Employer + Employee contribution	8% contribution	16% contribution
Male		
Living wage	£17976	£21630
Median	£19209	£24316
75th percentile	£20135	£26980
Female		
Living wage	£17976	£21630
Median	£18840	£23364
75th percentile	£19871	£25664
Mixed income (LW - Median)		
Male	£19214	£22675
Female	£18710	£21667

Set or Flex modelling

Representative individuals were modelled, this time, using gender-neutral earnings profiles for each age, and 90th instead of 75th percentile earnings for high earners. Different policy scenarios were modelled, as well as different savings behaviours.

The policy scenarios that were modelled were firstly, the current scenario for comparison purposes, and then combinations of:

- Keeping/removing the Lower and Upper Earnings Limit;
- Employer contributions of 3% which are not contingent on employee contributions for those earning between £5,000 and £10,000 annually;
- Increasing employee/employer contributions to either 6%/6% for all eligible workers, or to 6%/6% for those earning more than a full-time Living Wage, and 3%/5% for eligible workers earning less than a full-time Living Wage.
- Introducing flexibilities so that savers could reduce their contributions without losing employer contributions.

The savings behaviours that were modelled involved opting in/out at various ages, with the precise age depending on their earnings profile and detailed in the appendix. However, broadly speaking the behaviours were:

- Saving consistently throughout working life
- Opting out permanently around the age of having children
- Opting out around the age of having children and opting back in again later
- Opting down to half contributions where the policy scenario allowed this.

Figures were produced to demonstrate the effect of pension saving on working life income, and allow assessment of the impact of different policy scenarios on the affordability of saving.

Finally, the results were produced in a way that allowed any two individuals to be combined to form a household. This allowed the working life and retirement income figures to be given at a household level. Figures allowed for gross/net, AHC/BHC, and equivalised incomes.

Both of these results illustrate that the levers available to policymakers when considering automatic enrolment reform have the capacity to significantly increase the projected pension savings of someone whose entire working life occurs under automatic enrolment. The modelling conducted in this research is comprehensive, listing many different permutations of different policy interventions. These are particularly important when factoring in that a policy that works to improve pensions adequacy for a median or high earner, but may disproportionately impact a low earner's working life finances. For this reason, Pensions UK have proposed varying levels of flexibility in their policy scenarios, which are fully illustrated in the Appendix.

These figures illustrate that for low earners who are unable to make minimum contributions for their whole life, their pension savings may be very low – one model individual illustrated below retires with less than £10,000 of savings. However, for this same individual, the modelling illustrates that policy interventions such as allowing flexible opt-downs and non-contingent employer contributions can increase their pension pot significantly, to over £100,000. However, even for a median earner, the different combinations of policies highlight that increasing contribution rates, or offering flexibilities, both work to increase pensioner adequacy in combination or isolation.

Table 3.1: Projected retirement pots for an individual who earns minimum wage and opts out/down after age 40

Employee/ employer contributions	3+5%	6%+6%	6%+6%	6%+6%
Flexible contributions	None	None	Moderate	High
LEL	Yes	No	No	No
Don't Flex	£63,596	£163,884	£163,884	£163,884
Opt down to ½ if policy allows	£9,743	£55,604	£147,841	£147,841
Opt down to zero	£9,743	£55,604	£115,754	£115,754

Table 3.2: Projected retirement pots for an individual who earns the median salary at each age and who opts out/down between ages 30 and 45

Employee/ employer contributions	3+5%	6%+6%	6%+6%	6%+6%
Flexible contributions	None	None	Moderate	High
LEL	Yes	No	No	No
Don't Flex	£175,202	£319,018	£319,018	£319,018
Opt down to ½ if policy allows	£104,997	£194,312	£287,842	£287,842
Opt down to zero	£104,997	£194,312	£225,489	£225,489

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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)[5] Investment returns are assumed to be 1.5% above the rate of increase in average earnings.

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.

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.

[5] OBR (2025)

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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References

1. Pike, T. et al. Pensions Policy Institute. (2024). Projection of future pensioner household income, analysis based upon the Wealth and Assets Survey dataset
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3. Wilkinson, L. et al. Pensions Policy Institute. (2018). The evolving retirement Landscape.
4. Mitchell and Guled (no date). Average age of withdrawal from the labour market: a methodology update Northern Ireland Statistics and Research Agency (NISRA), Office for National Statistics, Social Survey Division, 2022, Quarterly Labour Force Survey, October - December, 2021, [data collection], UK Data Service, Accessed 18 May 2022. SN: 8915, DOI: 10.5255/UKDA-SN-8915-1
5. Office for Budget Responsibility (2025), Economic and fiscal outlook – March 2025