PENSIONS POLICY INSTITUTE

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An assessment of pension reform proposals:
A PPI paper for the EEF

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Contents

An assessment of pension reform proposals

Summary

1. This document is provided for the EEF as an independent assessment of the future cost and distributional implications of their proposal for state pension reform, which includes:
   - An increase in the level of the Basic State Pension to the Guarantee Credit level and a higher rate for the over 75s
   - More generous qualification criteria
   - Abolishing State Second Pension and contracting-out
   - Abolishing Savings Credit but retaining Guarantee Credit
   - Compulsory pension contributions for employees and employers, with the employee part paid by the state for low earners and those on certain benefits
   - A phased increase state pension age to 68 by 2055

   It is proposed that the reforms are introduced in 2015.

2. If the extra cost of the reform is paid for by an increase in employee and employer National Insurance contributions, the required increase in contributions could be around 2% each in 2015, rising to between 2% and 3% each by 2055, depending on the uncertain future cost of Pension Credit under the current system.

3. The cost to the state of the employee part of the compulsory pension contributions for low earners and those on certain benefits would be in the range of £320 million to £670 million (0.2% of GDP to 0.4% of GDP) in 2015, depending on exactly what benefits are included. This would increase as the rate for compulsory contributions increases.

4. Most people retiring in 2055 would have a higher income under the EEF proposals than under the current system from age 78 when the higher BSP comes into payment. At age 68, it is likely that the reforms would give most people roughly the same income that they would get under the current system, although it is possible that some people (typically median earners) could lose from the abolition of Savings Credit depending on their savings behaviour.

5. To reach target pension income, individuals who have had lower income while in work would not need any further saving on top of the compulsory minimum. Higher income individuals would need to make voluntary saving on top of the compulsory contributions or work later.

Introduction

1. The Pensions Policy Institute (PPI) is independent and does not make policy recommendations, but exists to contribute facts and analysis to help all commentators and policy decision makers. The PPI has extensively analysed possible reforms of the state pensions system.

2. The EEF has commissioned the PPI to provide an independent assessment of the potential costs and distributional implications of their proposals for state pension reform:
   - An increase in the level of the Basic State Pension to 21% of National Average Earnings for the under 75s and at 25% of National Average Earnings for 75 year olds and over
   - More generous qualification criteria for the Basic State Pension with the aspiration of increasing women's entitlements to the level of men's
   - Abolish future accruals to State Second Pension and contracting-out
   - Abolish Savings Credit but retain Guarantee Credit as a safety net
   - Compulsory pension contributions at 2% of earnings for employees and employers each, rising to 4% of earnings each by 2025, with the employee part paid by the state for low earners and those on certain benefits
   - Increase state pension age to 67 by 2035 and to 68 by 2055, during which the minimum age for the higher Basic State Pension tier would rise by the same amount

   It is proposed that the reforms are introduced in 2015.

3. Pensioners already resident overseas when the reforms are introduced in 2015 would continue to receive what they would receive under current government policy. Pensioners who move to countries after 2015 with a reciprocal social security agreement with the United Kingdom, such as countries in the European Union, would continue to be treated no differently to pensioners resident in the United Kingdom under the proposals while pensioners moving to other countries would continue to have the pound amount of their pension frozen when they move abroad.

4. The new eligibility criteria for the Basic State Pension have not been decided but would be designed with the aspiration of increasing women's entitlements to the level of men's. The analysis in this paper assumes that this aspiration is met immediately. In practice, not all reforms could be made retrospectively and entitlements would take time to improve. Consequently, the analysis in this report is likely to overestimate the actual cost of the reform at least in the short-term, so that the cost (and women's entitlements) would be lower than shown.

The potential future costs of the proposed state pension reform

5. This section presents the initial results of PPI modelling of the future cost of the proposed reforms to the state pension system. These costs do not include the costs of introducing pre-funded credits for the system of compulsory pension contributions, which are considered in the next section.

6. State expenditure on pensions (the annual cost to the public purse of paying Basic State Pension, SERPS, State Second Pension, Pension Credit and contracted-out rebates) under the EEF proposal is projected to be around 6.5% of GDP (£110 billion) when it is introduced in 2015 rising to around 8.0% of GDP by 2055 (Table 1).

7. This projection includes allowances for:
   - Reduced Pension Credit, Housing Benefit and Council Tax Benefit payments resulting from the more generous state pension
   - Savings through an increase in income tax paid by pensioners resulting from the more generous state pension. This saving is based on tax thresholds being uprated with average earnings in each future year. If instead current government policy of uprating with prices were continued into the long-term then fiscal drag would mean pensioners pay higher rates of tax and the savings would be greater than shown.

8. Changes in the cost of tax relief on private pension saving have not been allowed for in the projection. The extent to which this cost is increased or decreased by the proposals depends on whether compulsory contributions attract tax relief and to what extent they increase pensions saving. Tax relief forms a large part of annual government spending on pensions (over £11 billion or 1% of GDP in 2003/4[1]).

[1] John Hills (2005) Speech to the PPI Annual General Meeting
www.pensionspolicyinstitute.org.uk

9. Government projections of future state expenditure on pensions under the current system are 5.7% of GDP in 2015 and 6.0% of GDP in 2055[2]. We have used this as a baseline. PPI projections give comparable results[3].

10. The government assumptions on Pension Credit underlying the their projections of the future cost of the current pensions system may turn out to be optimistic, resulting in higher than expected spending.
    - Government assumes that income taken into account in Pension Credit will increase in line with average earnings. This has been the case over the last 20 years. However, average state pension income is projected to increase slower than earnings in the future and average private pension income is expected to decline[4]. There is uncertainty that non-pension saving and/ or earnings will be enough to make up the difference[5].
    - Government assumes that Pension Credit take-up remains at 75%, although it is government policy to try to increase take-up levels.

11. A more likely (but still conservative) scenario is that state pension income grows more slowly, reflecting its indexation to prices, private pension income grows slightly less than earnings[6], while non-pension saving / earnings grow with earnings. Allowing for a conservative increase in Pension Credit take-up as Pension Credit becomes a larger part of people's income, the cost of the current pension system, including Pension Credit, in 2055 increases to around 6.8% of GDP. The PPI estimates in this paper use this scenario as a 'base case' although it should be noted that with different assumptions the cost could reasonably be higher.

[2] DWP projections for the 2005 budget. DWP projections are not published for the years shown and the figures have been interpolated from the published figures for 2014 and 2054.
[3] PPI estimates use more up-to-date data and a different methodology. Using the same underlying assumptions as the government, PPI projections suggest the future cost of the current system would be around 5.4% of GDP in 2015 rising to around 5.9% of GDP by 2055.
[4] Pensions Commission (2004) *Pensions: Challenges and Choices* Chapter 4
[5] PPI (2005) PPI Response to the Pensions Commission First Report
[6] PPI analysis using the Aggregate Model based on the assumption that the Defined Benefit / Defined Contribution shift will lead to a reduction in contributions to private pension schemes

12. A pessimistic scenario is that all income grows more slowly and take-up of Pension Credit increases to 100%. Assuming that private pension income and non-pension saving / earnings grow with prices, the cost of the current pension system in 2055 increases to around 7.8% of GDP.

13. Estimates of the extra cost of the EEF proposals on top of the cost of the current system must therefore be given as a range, with the exact cost depending on the uncertain future cost of the current system. The extra cost in 2055 would be around 2.0% of GDP if the assumptions underlying the government projections were borne out in practice, or around 1.2% of GDP based on the PPI base case scenario (Table 1).

14. If this extra cost is paid for by an increase in employee and employer National Insurance contributions, the required increase in contributions could be around 2% each in 2015. In the long-term, the required increase in contributions depends on the uncertain future cost of Pension Credit under the current system. An increase of around 3% would be required by 2055 if the assumptions underlying the government projections were borne out in practice, or around 2% by 2055 based on the PPI base case scenario (Table 2).

15. This assumes that contributions are collected on all recorded earnings above the Lower Earnings Limit (as for the NHS allocation) rather than on all earnings between the Lower Earnings Limit and the Upper Earnings Limit for employees (as for other contributions currently payable).

Table 1[7]: Projected expenditure on pensions as a percentage of GDP and in £ billion in 2005/6 prices

		Funnel of doubt for the future cost of the current system		
	EEF proposal	Government	PPI base case: allows for state pension increased with prices	Assuming slower growth in all income and take-up of PC increases to 100%
2015	6.5%	5.7%	5.5%	5.7%
2025	7.2%	5.6%	5.5%	6.0%
2035	7.9%	5.9%	6.4%	7.1%
2045	8.2%	5.8%	6.5%	7.4%
2055	8.0%	6.0%	6.8%	7.8%
2015	110	90	90	90
2025	140	110	110	120
2035	190	140	150	170
2045	240	170	190	210
2055	280	210	230	270

Table 2[8]: Projected additional increase in Class 1 National Insurance contribution rates for each of employees and employers (as a percentage of all earnings above the Lower Earnings Limit) required to finance the proposed reform on a pay-as-you-go basis

	Using the government projections for the future cost of the current pensions system	If state pension income for Pension Credit under the current system grows as modelled
2015	2%	2%
2025	3%	3%
2035	3%	3%
2045	4%	3%
2055	3%	2%

[7] PPI estimates using the Aggregate Model and Distributional Model. Government estimates from DWP projections for the 2005 Budget.

[8] PPI analysis using the Aggregate and Distributional Models. Assumes that the extra National Insurance contributions shown will be broadly shared between the employee and the employer equally. The figures would vary if the employee : employer split were significantly different. Assumes that any savings through Pension Credit, income tax, Council Tax Benefit and Housing Benefit resulting from reform can be used to reduce the amount of National Insurance contributions needed.

The single year cost to the state of introducing pre-funded credits

16. Under the EEF proposal, the state would pay the employee part of the compulsory pension contributions for:
    - Low earners earning less than 25% of NAE.
    - People in receipt of certain benefits, in which case the contribution would be calculated as a percentage of the amount of benefit they receive.

17. The cost would be in the range of £320 million to £670 million (0.2% of GDP to 0.4% of GDP) in 2015, depending on exactly what benefits are included. The contribution rate is proposed to double from 2% to 4% from 2025 and all other things being equal this would double the cost.

18. This estimate assumes that benefit expenditure grows with prices between now and 2015. The costs would be higher if the numbers of people on the benefits increased between now and 2015.

Table 3[9]: Estimated cost to the state of introducing pre-funded credits in 2015/6 for low earners and those in receipt of certain benefits in £ million in 2005/6 prices

	Paid at 2%	**Paid at 4%**
Cost of contributions for low earners	**320**	**640**
Unemployment Benefit and Jobseekers' Allowance	40	80
Maternity Allowance / Statutory Maternity Pay	30	60
Statutory Sick Pay	.	.
Cost for out of work benefits	**70**	**140**
Incapacity Benefit	130	270
Disability Living Allowance	100	200
Severe Disablement Allowance	20	30
Industrial disablement benefits	10	20
Invalid Care Allowance / Carer's Allowance	20	40
Cost for disability and caring benefits	**280**	**560**
Total cost	**670**	**1,340**

[9] PPI analysis based on DWP (2005) *Benefit Expenditure Tables* and *Family Resources Survey 2003/4* assuming that benefit expenditure increases in line with prices between 2005/6 and 2015/6. Figures have been rounded to the nearest £10 million and costs less than £5 million have been marked "."

Distributional impact of the proposed state pension reform

19. This distributional analysis illustrates how much seven illustrative individuals, all of whom reach state pension age in 2055, could gain or lose from the EEF proposals (Box 1). This section summarises the results. Full results are given in Appendix B.

20. In the absence of any obvious alternative, the EEF proposal is compared to the current pension system, assuming the same structure and uprating conventions hold for the next 50 years. Given the uncertainty surrounding Pension Credit[10], this may not be a realistic assumption.

21. A range of state pension income is shown for the current system because income from Pension Credit depends on the uncertain amount of voluntary saving and whether the benefit is claimed.

[10] For example, rates are set annually at the discretion of ministers

Box 1: Individual analysis

The analysis in this chapter uses the PPI Individual Model to estimate the pension income that seven hypothetical individuals reaching age 68 in 2055 would get under the EEF proposals and the current system. This gives an indication of the long-term impact of the proposals.

For the current system, the individual analysis assumes a continuation of current government uprating policy, and so it is consistent with the projections of the future costs of the proposals. Future parameters are uncertain and so it is impossible to be certain whether the individuals would be better or worse off under the EEF proposals.

The hypothetical individuals used to assess the level of pension income provided by the different options are:

- A low earning, median earning and high earning woman
- A low earning, median earning and high earning man
- A median earning man with a period of self-employment

Further details of the working lives of the individuals are shown in Appendix B along with the full results of the analysis.

It has been assumed in the analysis that the more generous qualification criteria proposed would mean that all individuals would receive the full Basic State Pension under the proposals. In practice, some gaps in qualifications and credits are likely to remain so that some individuals (more likely women) would do worse under the proposals than shown.

A range of state pension income is shown for the current system because of uncertainties surrounding Pension Credit.

- The higher end of the range is the state pension income that is received if the individual has no other income (such as private pensions, savings of earnings), and claims Pension Credit.
- The lower end of the range shows the amount of state pension income that would be received if the individual either has enough other income to take him or her above the Pension Credit level, or does not claim Pension Credit.

Conclusions from the distributional analysis

22. Most people retiring in 2055 would gain from the EEF proposals, at least from age 78 when the higher Basic State Pension comes into payment. At age 68, it is likely that the reforms would give most people roughly the same income that they would get under the current system, although it is possible that some people (typically median earners) would lose from the abolition of Savings Credit, depending on their savings behaviour.
    - A low earning woman retiring in 2055 is unlikely to be much better off from the proposals at age 68 but would not have to claim Pension Credit. Not everybody claims Pension Credit, so this reduces the risk of poverty.
    - A median earning man retiring in 2055 would be better off under the proposals at age 68 unless he had a substantial amount of voluntary savings and claims Savings Credit.
    - A high earning man retiring in 2055 is likely to be slightly better off under the proposals at age 68.

23. To reach target pension income, individuals who have had lower income while in work would not need any further saving on top of the compulsory minimum. Higher income individuals would need to make voluntary saving on top of the compulsory contributions or work later.

24. Although the compulsory pension income of the median man is reduced if he is spends time self-employed, self-employment would no longer mean he accrues less state pension.

25. Where income is higher under the EEF proposals, this needs to be set against the pension being payable from age 68 rather than age 65. The EEF proposals include an increase in state pension age from age 65 under current government policy to age 68 by 2055.

26. The low earning woman retiring in 2055 is likely to gain from the proposals from age 78. At age 68, she is unlikely to be much better off from the proposals but would not have to claim Pension Credit. Not everybody claims Pension Credit, so this reduces the risk of poverty (Table 4):
    - The Basic State Pension proposed by the EEF (21% of NAE) would be more than she would receive from Basic State Pension and State Second Pension combined in the current system (16% of NAE).
    - In addition, she would receive around 3% of NAE income from her compulsory pension contributions, some of which would have been paid by the state. This is likely to be mostly new saving for her as she is unlikely to have otherwise contributed to a pension.
    - She also has around 2% of NAE in State Second Pension which has been built up before the reforms are introduced.
    - If she does not claim her Pension Credit under the current system then she is much better off from the proposals (getting 26% of NAE rather than 16% of NAE).
    - Her Pension Credit would be worth around 12% of NAE so if she does claim it then she gets about the same under either system. Around 85% of people claim their Pension Credit if they are entitled to both the Guarantee Credit and Savings Credit components as she is, so this is the most likely outcome[11].
    - She is likely to gain from the proposals when the higher Basic State Pension would be paid at age 78. She would receive around 29% of NAE at age 78 under the proposals compared to around 25% of NAE under the current system, if she claimed her Pension Credit.

[11] Pensions Policy Institute (2004) *PPI submission to the Work and Pensions Select Committee.* www.pensionspolicyinstitute.org.uk No later figures have been published and so take-up may have improved.

Table 4[12]: Income of the low earning woman at age 68 and at age 78 as a percentage of National Average Earnings under the current system and the reform proposal

	Current system with no private saving	Current system with voluntary contributions	Reform proposal with no extra saving
Basic State Pension at age 68	5%	5%	21%
State Second Pension at age 68	9%	9%	2%
Compulsory pension at age 68	N/A	N/A	3%
Voluntary pension at age 68	0%	3%	0%
Pension Credit at age 68	0% - 12%	0% - 10%	0%
Total income at age 68	**14% - 26%**	**17% - 27%**	**26%**
Total income at age 78	**12% - 25%**	**14% - 27%**	**29%**

27. The median earning man retiring in 2055 is likely to gain from the proposals from age 78. He would only be better off under the current system at age 68 if he had a substantial amount of voluntary savings and he claims Savings Credit (Table 5):
    - The Basic State Pension proposed by the EEF (21% of NAE) would be more than he would receive from Basic State Pension and State Second Pension combined under the current system at age 68 (18% of NAE).
    - Under the proposals, he would also receive around 12% of NAE from his compulsory pension contributions.
    - If he did not make any voluntary pension saving under the current system, then the 12% of NAE from compulsory saving makes him better off than he would be under the current system. He would receive around 34% of NAE under the reforms but less (28% of NAE) under the current system, if he claimed his Pension Credit.

[12] PPI analysis using the Individual Model. "Current system with voluntary contributions" assumes that she makes voluntarily savings which deliver the same amount of income as she would receive from the proposed system of compulsory contributions.

- If he made these contributions voluntarily under the current system, then whether he is better off under the proposals depends on whether he claims his Savings Credit under the current system.
- If he does claim, then he is very slightly better off under the current system (receiving 35% of NAE under the current system rather than 34% of NAE under the proposals). Take-up of Pension Credit is currently low (around 38%) amongst people who are entitled to only the Savings Credit component as he is[13]. If he does not claim, he is better off under the proposals (receiving 34% of NAE under the proposals rather than 30% of NAE under the current system).
- He is likely to be gain from the proposals from age 78, receiving 35% of NAE rather than at most 32% of NAE under the current system.

Table 5[14]: Income of the median earning man at age 68 and at age 78 as a percentage of National Average Earnings under the current system and the reform proposal

	Current system with no private saving	Current system with voluntary contributions	Reform proposal with no extra saving
Basic State Pension at age 68	6%	6%	21%
State Second Pension at age 68	12%	12%	1%
Compulsory pension at age 68	N/A	N/A	12%
Voluntary pension at age 68	0%	12%	0%
Pension Credit at age 68	0% - 10%	0% - 5%	0%
Total income at age 68	**18% - 28%**	**30% - 35%**	**34%**
Total income at age 78	**15% - 27%**	**24% - 32%**	**35%**

[13] Pensions Policy Institute (2004) *PPI submission to the Work and Pensions Select Committee.* www.pensionspolicyinstitute.org.uk No later figures have been published and so take-up may have improved.
[14] PPI analysis using the Individual Model

28. Although the compulsory pension income of the median man is reduced if he is spends time self-employed, self-employment would no longer mean he accrues less state pension. Under the EEF proposal he would pay only the employee part of the compulsory contribution when he is self-employed, and not the employer part. However, while the self-employed do not accrue State Second Pension under the current system, they would still benefit from the higher Basic State Pension under the EEF proposals.

29. The high earning man retiring in 2055 is also likely to gain from the proposals from age 78. He is likely to be slightly better off under the proposals at age 68 (Table 6):
    - The Basic State Pension proposed by the EEF (21% of NAE) would be more than he would receive from Basic State Pension and State Second Pension combined under the current system at age 68 (19% of NAE).
    - In addition, he would receive around 23% of NAE from his compulsory contributions under the proposals. He may have chosen to save at least this much voluntarily, so compulsion may not have increased the amount he saves.
    - Assuming that he saves enough under the current system not to be entitled to much Pension Credit, he is better off at age 68 under the proposals, because of the higher state pension.
    - At age 78, the 25% of NAE he would receive in Basic State Pension under the proposals is more than the 15% of NAE he would receive in Basic State Pension and State Second Pension combined under the current system. If he saves enough under the current system to not be entitled to much Pension Credit, he would be better off under the proposals.

Table 6[15]: Income of the high earning man at age 68 and at age 78 as a percentage of National Average Earnings under the current system and the reform proposal

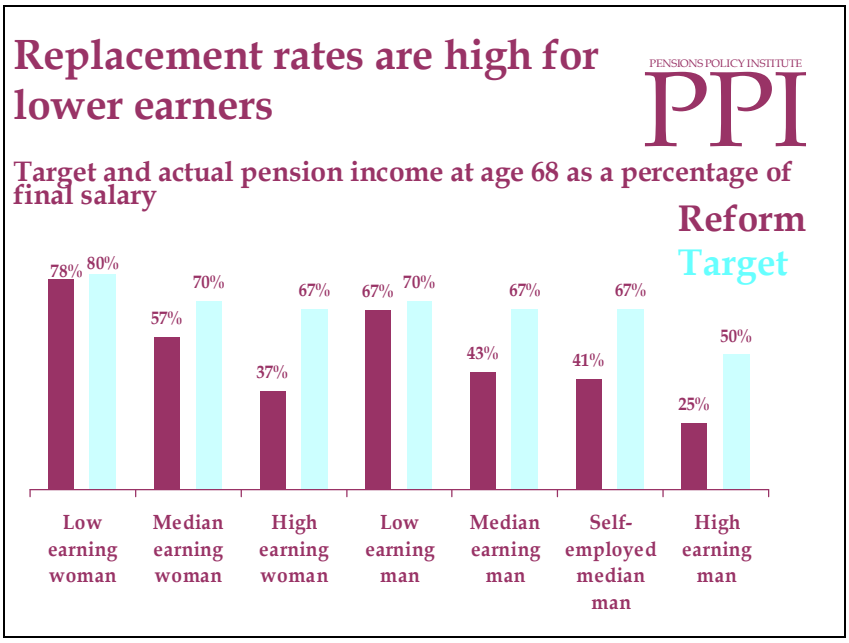
	Current system with no private saving	Current system with voluntary contributions	Reform proposal with no extra saving
Basic State Pension at age 68	6%	6%	21%
State Second Pension at age 68	13%	13%	2%
Compulsory pension at age 68	N/A	N/A	23%
Voluntary pension at age 68	0%	23%	0%
Pension Credit at age 68	0% - 10%	0%	0%
Total income at age 68	**19% - 29%**	**42%**	**46%**
Total income at age 78	**15% - 27%**	**34% - 38%**	**45%**

[15] PPI analysis using the Individual Model

30. To reach target pension income, individuals who have had lower income while in work would not need any further saving on top of the compulsory minimum. The low earning woman would have an income from state and compulsory pensions at age 68 of around 78% of her final salary (Chart 1).

31. Higher income individuals would need to make voluntary saving on top of the compulsory contributions or work later. The higher earning man would have an income from state and compulsory pensions at age 68 of around 25% of his final salary (Chart 2).

Chart 1[16]



[16] PPI analysis using the Individual Model. Target levels of pension income taken from Pensions Commission (2004) *Pensions: Challenges and Choices.* Actual income is that from the state and compulsory parts of the EEF proposal only.

Appendix A: Assumptions and methodology used for the projections

The projections in this paper have been produced using the PPI Aggregate Model, Distributional Model and Individual Model. These models have been developed by the PPI to assess the impact of long-term policy options. The development of the models has been funded by the Nuffield Foundation.

The Aggregate Model has been used to project future expenditure on Basic State Pension, State Earnings Related Pension, Second Pension and contracted-out rebates.

The projections of future expenditure are based on a projection of the UK labour market which assumes a constant rate of earnings growth and constant employment rates, after the state pension age for women has been increased to 65 in 2020. The projections for the current system allow for a continuation of current trends in contracting-out and entitlements to the Basic State Pension.

The Distributional Model has been used to project future expenditure on Pension Credit and also to assess the impact of the reform proposals on the amount of income tax paid by people over state pension age.

The projections of future Pension Credit expenditure are based on a projection of the distribution of pensioners' incomes. This underlying projection is based on the 2003/4 Pensioners' Income Series dataset but has been trued-up to the Aggregate Model results to allow consistent analysis.

The PPI Individual Model has been used to estimate the pension income that seven hypothetical individuals reaching age 68 in 2055 would get under the EEF proposals and the current system. This gives an indication of the long-term impact of the proposals.

Further details of the working lives of the individuals are shown in Appendix B.

All projections are ultimately driven by the data and assumptions they use and are subject to considerable uncertainty, even in the short-term. The costings are best interpreted as an illustration of the possible differences in cost between the different reform options considered, rather than what the cost would be under each individual option.

Assumptions have been made on future pensions policy and on the UK economy as a whole.

The current state pension system

The projections for the current system in this paper assume that the current state pension system continues, with the same uprating conventions as are used today[17]:

1. The Basic State Pension and State Second Pension when in payment are assumed to be increased in line with prices. The Basic State Pension is assumed to remain the minimum level of entitlement to Savings Credit.
2. The Guarantee Credit is assumed to be increased in line with earnings.
3. The Lower and Upper earnings limits for State Second Pension are assumed to increase in line with prices. The Lower Earnings Threshold (the LET – the 'flat-rate' part of State Second Pension) is assumed to increase in line with earnings. The Upper Earnings Threshold is assumed to increase to reflect the changes in the LET, ensuring that higher earners receive the same in State Second Pension as they would have received in SERPS. When the Upper Earnings Threshold overtakes the Upper Earnings Limit, it is assumed to be uprated in line with prices.
4. The baseline costings assume that Pension Credit take-up[18]:
   - Remains at 85% for people who are entitled to both the Guarantee Credit and Savings Credit components.
   - Remains at 74% for people who are only entitled to the Guarantee Credit component.
   - Increases from the current level of 35% to around 60% for people who are only entitled to the Savings Credit component, as Savings Credit becomes a more significant part of older people's income.

[17] For more details, see *The Pensions Primer*, www.pensionspolicyinstitute.org.uk
[18] Current take-up levels from Pensions Policy Institute (2004) *PPI submission to the Work and Pensions Select Committee.* www.pensionspolicyinstitute.org.uk No later figures have been published and so take-up may have improved.

Macroeconomic assumptions

5. Prices are assumed to grow by 2.5% each year
6. Earnings are assumed to grow by 2.0% each year in excess of prices
7. The age, sex and marital structure of the population is assumed to follow the Government Actuary's Department's 2003-based projections
8. Employment rates are assumed to increase for women over age 50 as state pension age increases between 2010 and 2020 to be more in-line with today's employment rates for younger women
9. Contracting-out in the private sector is assumed to halve between now and 2035 as defined benefit schemes are closed down but to remain at current levels in the public sector
10. The assumptions used in setting contracted-out rebate rates are unchanged
11. The amount of non-state pension income taken into account in Pension Credit rises with growth in average earnings but the aggregate amount of state pension income taken into account rises with the Aggregate Model projections, except where stated otherwise

Additional assumptions for the Individual Model

- Real investment returns of 3.0% a year before charges
- Management charges of 1.0% a year
- Annuity rates are calculated consistently with the assumed investment return and the mortality underlying current market annuity rates, adjusted to allow for future expected mortality improvements

Appendix B: Details of the distributional analysis

Illustrative individuals

Typical policy analysis assumes that individuals remain in full-time work at the same earnings level from the day they leave education to the day they reach 65. Rather than use these artificial assumptions, the individuals analysed here illustrate some of the range of characteristics that exist in the working population that affect current and future pension income. They are similar to individuals analysed in previous PPI studies.

The illustrative individuals used are:

- **Low earning woman:** She started work at the age of 21, working full-time until age 28. She then had a career break to care for her children for six years, but the break did not coincide with the financial year, so she lost two credits to BSP and S2P. She returned to part-time work for five years. She then worked full-time until taking another career break for 5 years in her 50s to care for an elderly relative, for which she received no carer benefits or credits. She returned to full-time work again, until reaching state pension age. When in full-time work, she earned at the 10th percentile of the distribution of age-specific earnings for women.
- **Median earning woman:** As the low earning woman but she earned at median age-specific earnings for women when she was in full-time work.
- **High earning woman:** As the low earning woman but she earned at the 90th percentile of the distribution of age-specific earnings for women when she was in full-time work.
- **Low earning man:** He worked mainly full-time from age 21, but was unemployed for two years in his twenties and worked part-time between age 55 and age 60. When in full-time work, he earned at the 10th percentile of the distribution of age-specific earnings for men.
- **Median earning man:** As the low earning man but he earned at median age-specific earnings for men when he was in full-time work.
- **Median earning man with a period of self-employment:** As the median earning man but self-employed between ages 40 and 50.
- **High earning man:** As the median earning man but he earned at the 90th percentile of the distribution of age-specific earnings for men when he was in full-time work.

Typical policy analysis tends to assume that individuals stay on a percentage of the median or average earnings of all workers throughout his or her working life. The earnings levels used here are instead 'age-specific', that is, based on the earnings received at different ages. For example, the median earning woman is assumed to have the median earnings of all full-time employed 21 year-old women when she is aged 21, and the median of all full-time employed 22 year-old women when she is aged 22. As earnings tend to be higher in the middle of working life than at younger and older ages, using age-specific earnings in this way should give a more realistic picture.

Full results of the distributional analysis

In the results below, a range of state pension income is shown for the current system because of uncertainties around Pension Credit take-up.

- The higher end of the range is the state pension income that is received if the individual has no other income (such as private pensions, savings of earnings), and claims Pension Credit.
- The lower end of the range shows the amount of state pension income that would be received if the individual either has enough other income to take him or her above the Pension Credit level, or does not claim Pension Credit.

Table A1[19]: Projected income at age 68 and age 78 as a percentage of NAE under the EEF proposal

	Basic State Pension at age 68	State Second Pension at age 68	Compulsory private pension at age 68	Total at age 68	Total at age 78
Low earning woman	21%	2%	3%	26%	29%
Median earning woman	21%	2%	5%	28%	31%
High earning woman	21%	2%	10%	33%	35%
Low earning man	21%	1%	6%	28%	31%
Median earning man	21%	1%	12%	34%	35%
Median earning man with a period of self-employment	21%	1%	10%	32%	34%
High earning man	21%	2%	23%	46%	45%

Table A2[20]: Projected replacement rate (pension income at age 68 as a percentage of final salary) under the EEF proposal

	Basic State Pension	State Second Pension	Compulsory private pension	Replacement rate
Low earning woman	64%	5%	9%	78%
Median earning woman	43%	4%	10%	57%
High earning woman	23%	2%	11%	37%
Low earning man	49%	3%	15%	67%
Median earning man	27%	2%	15%	43%
Median earning man with a period of self-employment	27%	2%	12%	41%
High earning man	11%	1%	12%	25%

[19] PPI analysis using the Individual Model
[20] PPI analysis using the Individual Model

Table A3[21]: Projected income at age 68, age 65 and age 78 as a percentage of NAE under the current system assuming no private pension saving

	Basic State Pension at age 68	State Second Pension at age 68	Pension Credit at age at 68	Total at age 68	Total at age 65	Total at age 78
Low earning woman	5%	9%	0% - 12%	14% - 26%	15% - 26%	12% - 25%
Median earning woman	5%	10%	0% - 11%	15% - 26%	16% - 27%	13% - 25%
High earning woman	5%	11%	0% - 10%	16% - 26%	17% - 27%	13% - 26%
Low earning man	6%	11%	0% - 10%	17% - 27%	18% - 28%	14% - 26%
Median earning man	6%	12%	0% - 10%	18% - 28%	19% - 29%	15% - 27%
Median earning man with a period of self-employment	6%	9%	0% - 11%	15% - 26%	16% - 27%	12% - 25%
High earning man	6%	13%	0% - 10%	19% - 29%	20% - 29%	15% - 27%

[21] PPI analysis using the Individual Model. Total pension income is shown at state pension age (assumed to be 65 under the current system) for completeness.

Table A4[22]: Projected income at age 68, age 65 and age 78 as a percentage of NAE under the current system assuming all individuals save at the level of the compulsory pension contributions proposed

	BSP + S2P at age 68	Private pension saving at age 68	Pension Credit at age 68	Total at age 68	Total at age 65	Total at age 78
Low earning woman	14%	3%	0% - 10%	17% - 27%	19% - 28%	14% - 27%
Median earning woman	15%	5%	0% - 9%	20% - 29%	22% - 30%	17% - 28%
High earning woman	16%	10%	0% - 7%	26% - 33%	27% - 34%	21% - 31%
Low earning man	17%	6%	0% - 8%	23% - 31%	25% - 32%	19% - 29%
Median earning man	18%	12%	0% - 5%	30% - 35%	31% - 36%	24% - 32%
Median earning man with a period of self-employment	15%	10%	0% - 7%	25% - 32%	26% - 33%-	20% - 30%
High earning man	19%	23%	0%	42%	44%	34% - 38%

[22] PPI analysis using the Individual Model. Total pension income is shown at state pension age (assumed to be 65 under the current system) for completeness.