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Charging structures for Personal Accounts: Sensitivity analysis

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Introduction

The Government has proposed a new low-cost, national pension savings scheme called Personal Accounts. It has sought views on the appropriate charging structure for Personal Accounts.

The PPI's March 2007 publication, ***Charging Structures for Personal Accounts*** investigated in detail the impact of five alternative charging structures:

- An Annual Management Charge (AMC): This is a charge made annually as a proportion of an individual's funds under management.
- A joining charge and an AMC: A joining charge is a one-off payment made by a member on his or her initial entry to the scheme. Since it is unlikely to raise sufficient revenue by itself to finance Personal Accounts, it was assumed to be combined with an AMC.
- An annual flat fee: A flat amount that is the same for all individuals, made annually for as long as the individual is a member of the scheme.
- A contribution charge: A proportion of each contribution made, from the individual, the employer and the state.
- A contribution charge and an AMC: This is an example of a possible hybrid structure and combines a contribution charge with an AMC.

This document accompanies the main report, providing analysis of the sensitivity of the modelling to the assumptions made.

The main report uses two of the PPI's suite of economic models, developed to analyse long-term outcomes under the current and reformed UK pension system. The Individual Model estimates state and private pension income for hypothetical individuals. The Aggregate Model projects long-term government expenditure on pensions and contracted-out rebates, the private pensions system and the fiscal cost of tax relief.

For the report, the Individual Model was used to estimate the impact of different charging structures on the final pension fund of hypothetical individuals. The Aggregate Model was used to project the total amount of revenue that could be raised under the different charging structures. Revenue was compared to a projection of the costs involved with running Personal Accounts. Since the costs could outweigh the amount of revenue raised in the short term, the model was used to project the amount of borrowing that may be required.

Both sets of analyses make assumptions about the future. As with all modelling, the assumptions made are uncertain. Sensitivity analysis is carried out to help understand how 'sensitive' the results presented in the report are to changes in these assumptions. A summary of the results is below, followed by a full list of tables.

Summary of conclusions

All of the assumptions made in the PPI report ***Charging Structures for Personal Accounts*** are uncertain. Sensitivity analysis has been conducted for some of the key assumptions:

- The expected rates of investment returns in Personal Accounts. These were needed for both the individual and financing analyses.
- The interest rate payable by the organisation running Personal Accounts on any borrowing required to set-up the new system (i.e. the cost of capital). This assumption was required in the Financing analysis.
- The number of members in Personal Accounts, which was also an assumption required for the financing analysis only.

Expected rates of investment return

Both the individual and financing models make an assumption about future expected rates of investment returns. In the report, these are assumed to be 3% a year in excess of prices, corresponding to an investment portfolio of 60% equities and 40% bonds. Higher or lower expected investment returns could result from individuals or the body running Personal Accounts choosing a different asset allocation. Also, one could take a different view on the investment returns expected in future from equities and/or bonds. Therefore, sensitivity analysis is carried out testing annual investment returns that are 0.5% higher and lower than the 3% assumed in the central scenario.

Estimates of the proportion of fund value lost in charges for hypothetical individuals are generally not sensitive to different assumptions about investment returns. The only charging structure that is notably affected is the annual flat fee. This is because the amount taken in charges from a flat fee is independent of the performance of the pension fund. So if investment returns are higher than expected, the amount taken in charges from a flat fee could become smaller relative to the size of the overall fund. This is not necessarily the case for a charging structure that incorporates an AMC. For example, if investment returns are higher and the fund grows faster, then the absolute amount taken in charges could be higher but the proportion remains roughly the same.

In the financing analysis, annual investment returns that are 0.5% higher or lower would alter the projected payback periods by less than 1 year and would not substantially change the amount of borrowing needed. This is because the impact of changes to the investment return is most significant over the long term, after borrowing has been paid off.

Cost of capital

The payback period will be very sensitive to the interest rate payable on the borrowing (the 'cost of capital'). This is uncertain as it will depend on prevailing market conditions and on investors' views of the risks involved with investing in the delivery of Personal Accounts. A range of assumptions is used for the analysis in the main report:

- For illustration purposes, the central scenario assumes a nominal cost of capital of 10% a year. This is similar to the typical rate of return required by companies on their capital, assuming a payback period of ten years[1].
- A lower scenario of 5% a year, which is closer to gilt yields.
- A higher scenario of 15% a year. This could be at the higher end of rates required by companies, and may result if the payback period of investing in Personal Accounts was substantially longer than ten years.

The projected time it takes for Personal Accounts under each charging structure to become self-financing (i.e. the payback period) is very sensitive to the cost of capital assumed, particularly with a pure AMC. A cost of capital of 15%, rather than the 10% assumed for the central scenario, could extend the payback period of a pure AMC by 10 years and could increase the peak amount of borrowing required by £2.1 billion. On the other hand, a lower cost of capital of 5% could reduce the payback period by 3 years and decrease the peak amount of borrowing required by £700 million.

Number of members in Personal Accounts

The Government's central scenario for the membership of Personal Accounts assumes that around 8 million people will participate in 2012[2]. The actual number of participants is uncertain. This is because it is very difficult to predict how employers and employees will react to Personal Accounts.

Membership that is 2 million people higher or lower than assumed would alter the projected payback period by 1 year or less. However, under a pure AMC, membership that is 2 million people higher can increase the peak amount of borrowing required by £400 million. This is because of the extra cost of setting up the new policies. Conversely, membership that is 2 million people lower could reduce the peak amount of borrowing required by £400 million.

[1] Deloitte (2003) ***Assessing the likely market impacts of charge caps on retail investment products*** paragraph 7.3.13. Interviews in May 2003 concluded that companies use a typical hurdle rate of 11%

[2] DWP (2006) ***Personal Accounts: a new way to save Regulatory Impact Assessment*** Box 1

Chapter 1: Individual analysis

An Annual Management Charge

An AMC is a charge paid annually as a proportion of an individual's funds under management. It is paid in every year until retirement, including years when no contributions are made. In the report, an AMC of 0.5% is assumed.

Table 1[3]: Estimated percentage of fund value lost to charges under the AMC

Age in 2012	Personal Accounts saving histories for hypothetical individuals	Position in the earnings distribution				
		1st	3rd	Median	7th	9th
Assuming 2.5% real investment returns						
25	Man with full saving history	11%	11%	11%	11%	11%
	Woman with caring breaks	9%	9%	9%	9%	9%
	Man who switches to e'er scheme at 45	15%	15%	15%	15%	15%
	Woman who starts saving at 45	6%	6%	6%	6%	6%
	Woman with short saving period at 25	19%	19%	19%	19%	19%
	Man with short saving period at 50	7%	7%	7%	7%	7%
40	Man with full saving history	7%	7%	7%	7%	7%
	Woman with caring breaks	7%	7%	7%	7%	7%
55	Man with full saving history	3%	3%	3%	3%	3%
	Woman with caring breaks	1%	1%	1%	1%	1%
Assuming 3.0% real investment returns						
25	Man with full saving history	11%	11%	11%	11%	11%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	15%	15%	15%	15%	15%
	Woman who starts saving at 45	6%	6%	6%	6%	6%
	Woman with short saving period at 25	19%	19%	19%	19%	19%
	Man with short saving period at 50	7%	7%	7%	7%	7%
40	Man with full saving history	7%	7%	7%	7%	7%
	Woman with caring breaks	7%	7%	7%	7%	7%
55	Man with full saving history	3%	3%	3%	3%	3%
	Woman with caring breaks	1%	1%	1%	1%	1%
Assuming 3.5% real investment returns						
25	Man with full saving history	11%	11%	11%	11%	11%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	15%	15%	15%	15%	15%
	Woman who starts saving at 45	6%	6%	6%	6%	6%
	Woman with short saving period at 25	19%	19%	19%	19%	19%
	Man with short saving period at 50	7%	7%	7%	7%	7%
40	Man with full saving history	7%	7%	7%	7%	7%
	Woman with caring breaks	7%	7%	7%	7%	7%
55	Man with full saving history	3%	3%	3%	3%	3%
	Woman with caring breaks	1%	1%	1%	1%	1%

[3] PPI analysis using the Individual Model. For a full description of the work and saving histories of the hypothetical individuals in Tables 1 to 5 see Box 1 in the main report.

A joining charge plus an AMC

This section considers a combination of a slightly lower AMC of 0.45% and a joining charge, where members pay a fee equal to three months' worth of their contributions for their first year of their saving.

Table 2[4]: Estimated percentage of fund value lost to charges under the joining charge plus AMC

Age in 2012	Personal Accounts saving histories for hypothetical individuals	Position in the earnings distribution				
		1st	3rd	Median	7th	9th
Assuming 2.5% real investment returns						
25	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	9%	9%	9%	9%	9%
	Man who switches to e'er scheme at 45	14%	14%	14%	14%	14%
	Woman who starts saving at 45	6%	6%	6%	6%	6%
	Woman with short saving period at 25	22%	22%	22%	22%	22%
	Man with short saving period at 50	12%	12%	12%	12%	12%
40	Man with full saving history	7%	7%	7%	7%	7%
	Woman with caring breaks	7%	7%	7%	7%	7%
55	Man with full saving history	5%	5%	5%	5%	5%
	Woman with caring breaks	6%	6%	6%	6%	6%
Assuming 3.0% real investment returns						
25	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	14%	14%	14%	14%	14%
	Woman who starts saving at 45	7%	7%	7%	7%	7%
	Woman with short saving period at 25	22%	22%	22%	22%	22%
	Man with short saving period at 50	13%	13%	13%	13%	13%
40	Man with full saving history	8%	8%	8%	8%	8%
	Woman with caring breaks	7%	7%	7%	7%	7%
55	Man with full saving history	5%	5%	5%	5%	5%
	Woman with caring breaks	6%	6%	6%	6%	6%
Assuming 3.5% real investment returns						
25	Man with full saving history	11%	11%	11%	11%	11%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	15%	15%	15%	15%	15%
	Woman who starts saving at 45	7%	7%	7%	7%	7%
	Woman with short saving period at 25	22%	22%	22%	22%	22%
	Man with short saving period at 50	13%	13%	13%	13%	13%
40	Man with full saving history	8%	8%	8%	8%	8%
	Woman with caring breaks	8%	7%	7%	7%	7%
55	Man with full saving history	5%	5%	5%	5%	5%
	Woman with caring breaks	7%	7%	7%	7%	7%

[4] PPI analysis using the Individual Model. For a full description of the work and saving histories of the hypothetical individuals in Tables 1 to 5 see Box 1 in the main report.

An annual flat fee

An annual flat fee is an amount charged on a regular basis for as long as an individual is a member of the scheme, regardless of whether any contributions are made. It is not based on the size of contributions. The report assumes a fee of £70 a year, increasing in line with average earnings.

Table 3[5]: Estimated percentage of fund value lost to charges under the annual flat fee

Age in 2012	Personal Accounts saving histories for hypothetical individuals	Position in the earnings distribution				
		1st	3rd	Median	7th	9th
Assuming 2.5% real investment returns						
25	Man with full saving history	10%	7%	5%	4%	3%
	Woman with caring breaks	28%	16%	12%	8%	6%
	Man who switches to e'er scheme at 45	21%	13%	9%	7%	6%
	Woman who starts saving at 45	17%	10%	7%	5%	3%
	Woman with short saving period at 25	100%	88%	66%	51%	36%
	Man with short saving period at 50	37%	24%	18%	13%	13%
40	Man with full saving history	10%	6%	5%	3%	3%
	Woman with caring breaks	21%	12%	9%	6%	4%
55	Man with full saving history	11%	7%	5%	4%	3%
	Woman with caring breaks	18%	11%	8%	6%	3%
Assuming 3.0% real investment returns						
25	Man with full saving history	10%	6%	5%	4%	3%
	Woman with caring breaks	28%	16%	12%	9%	6%
	Man who switches to e'er scheme at 45	20%	12%	9%	7%	6%
	Woman who starts saving at 45	17%	10%	7%	5%	3%
	Woman with short saving period at 25	100%	80%	60%	46%	33%
	Man with short saving period at 50	36%	23%	18%	13%	13%
40	Man with full saving history	10%	6%	5%	3%	3%
	Woman with caring breaks	21%	12%	9%	6%	4%
55	Man with full saving history	11%	7%	5%	4%	3%
	Woman with caring breaks	18%	11%	8%	6%	3%
Assuming 3.5% real investment returns						
25	Man with full saving history	10%	6%	5%	4%	3%
	Woman with caring breaks	29%	17%	12%	9%	6%
	Man who switches to e'er scheme at 45	19%	12%	9%	7%	6%
	Woman who starts saving at 45	17%	10%	7%	5%	3%
	Woman with short saving period at 25	100%	74%	55%	42%	31%
	Man with short saving period at 50	35%	23%	17%	12%	12%
40	Man with full saving history	10%	6%	5%	3%	3%
	Woman with caring breaks	21%	12%	9%	6%	4%
55	Man with full saving history	11%	7%	5%	4%	3%
	Woman with caring breaks	18%	11%	8%	6%	3%

[5] PPI analysis using the Individual Model. For a full description of the work and saving histories of the hypothetical individuals in Tables 1 to 5 see Box 1 in the main report.

A contribution charge

A contribution charge is a proportion of each Personal Account contribution made, including the employer and employee contributions plus the Government's tax relief. Unlike other charges, a contribution charge is not levied when contributions are not being made. In the report, a 10% contribution charge is assumed.

Table 4[6]: Estimated percentage of fund value lost to charges under the contribution charge

Age in 2012	Personal Accounts saving histories for hypothetical individuals	Position in the earnings distribution				
		1st	3rd	Median	7th	9th
Assuming 2.5% real investment returns						
25	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	10%	10%	10%	10%	10%
	Woman who starts saving at 45	10%	10%	10%	10%	10%
	Woman with short saving period at 25	10%	10%	10%	10%	10%
	Man with short saving period at 50	10%	10%	10%	10%	10%
40	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
55	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
Assuming 3.0% real investment returns						
25	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	10%	10%	10%	10%	10%
	Woman who starts saving at 45	10%	10%	10%	10%	10%
	Woman with short saving period at 25	10%	10%	10%	10%	10%
	Man with short saving period at 50	10%	10%	10%	10%	10%
40	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
55	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
Assuming 3.5% real investment returns						
25	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	10%	10%	10%	10%	10%
	Woman who starts saving at 45	10%	10%	10%	10%	10%
	Woman with short saving period at 25	10%	10%	10%	10%	10%
	Man with short saving period at 50	10%	10%	10%	10%	10%
40	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
55	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%

[6] PPI analysis using the Individual Model. For a full description of the work and saving histories of the hypothetical individuals in Tables 1 to 5 see Box 1 in the main report.

A contribution charge plus an AMC

This section considers a combination of a lower AMC of 0.25% and a lower contribution charge of 5% of total contributions (i.e. employer and employee contributions plus Government tax relief). The contribution charge is assumed to stop when contributions stop but the AMC is paid until retirement.

Table 5[7]: Estimated percentage of fund value lost to charges under the contribution charge plus AMC

Age in 2012	Personal Accounts saving histories for hypothetical individuals	Position in the earnings distribution				
		1st	3rd	Median	7th	9th
Assuming 2.5% real investment returns						
25	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	12%	12%	12%	12%	12%
	Woman who starts saving at 45	8%	8%	8%	8%	8%
	Woman with short saving period at 25	14%	14%	14%	14%	14%
	Man with short saving period at 50	9%	9%	9%	9%	9%
40	Man with full saving history	8%	8%	8%	8%	8%
	Woman with caring breaks	8%	8%	8%	8%	8%
55	Man with full saving history	6%	6%	6%	6%	6%
	Woman with caring breaks	6%	6%	6%	6%	6%
Assuming 3.0% real investment returns						
25	Man with full saving history	11%	11%	11%	11%	11%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	13%	13%	13%	13%	13%
	Woman who starts saving at 45	8%	8%	8%	8%	8%
	Woman with short saving period at 25	14%	14%	14%	14%	14%
	Man with short saving period at 50	9%	9%	9%	9%	9%
40	Man with full saving history	8%	8%	8%	8%	8%
	Woman with caring breaks	9%	9%	9%	9%	9%
55	Man with full saving history	6%	6%	6%	6%	6%
	Woman with caring breaks	6%	6%	6%	6%	6%
Assuming 3.5% real investment returns						
25	Man with full saving history	10%	10%	10%	10%	10%
	Woman with caring breaks	10%	10%	10%	10%	10%
	Man who switches to e'er scheme at 45	12%	12%	12%	12%	12%
	Woman who starts saving at 45	8%	8%	8%	8%	8%
	Woman with short saving period at 25	14%	14%	14%	14%	14%
	Man with short saving period at 50	9%	9%	9%	9%	9%
40	Man with full saving history	8%	8%	8%	8%	8%
	Woman with caring breaks	9%	9%	9%	9%	9%
55	Man with full saving history	6%	6%	6%	6%	6%
	Woman with caring breaks	6%	6%	6%	6%	6%

[7] PPI analysis using the Individual Model. For a full description of the work and saving histories of the hypothetical individuals in Tables 1 to 5 see Box 1 in the main report.

Chapter 2: Financing analysis

An Annual Management Charge

Projected peak amount of borrowing (£m, 2006/7 earnings) and payback period, under the Annual Management Charge

Table 6: Assuming 6 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£1,400	£1,400	£1,400
	16	15	15
10%	£2,000	£2,000	£2,000
	20	19	19
15%	£4,200	£3,900	£3,800
	34	32	29

Table 7: Assuming 8 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£1,700	£1,700	£1,700
	15	15	15
10%	£2,400	£2,400	£2,400
	19	18	18
15%	£4,700	£4,500	£4,300
	30	28	27

Table 8: Assuming 10 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£2,100	£2,100	£2,100
	15	15	14
10%	£2,900	£2,800	£2,800
	18	18	18
15%	£5,300	£5,100	£4,900
	28	27	25

Joining charge

No borrowing required after 2012 for all of the options.

An annual flat fee

Projected peak amount of borrowing (£m, 2006/7 earnings) and payback period, under an annual flat fee

Table 9: Assuming 6 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£700 3	£700 3	£700 3
10%	£700 3	£700 3	£700 3
15%	£700 3	£700 3	£700 3

Table 10: Assuming 8 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£700 2	£700 2	£700 2
10%	£800 2	£800 2	£800 2
15%	£800 3	£800 3	£800 3

Table 11: Assuming 10 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£800 2	£800 2	£800 2
10%	£800 2	£800 2	£800 2
15%	£900 2	£900 2	£900 2

A contribution charge

Projected peak amount of borrowing (£m, 2006/7 earnings) and payback period, under the contribution charge

Table 12: Assuming 6 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£500 2	£500 2	£500 2
10%	£600 2	£600 2	£600 2
15%	£600 2	£600 2	£600 2

Table 13: Assuming 8 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£600 2	£600 2	£600 2
10%	£600 2	£600 2	£600 2
15%	£600 2	£600 2	£600 2

Table 14: Assuming 10 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£600 1	£600 1	£600 1
10%	£600 1	£600 1	£600 1
15%	£600 1	£600 1	£600 1

A contribution charge plus an AMC

Projected peak amount of borrowing (£m, 2006/7 earnings) and payback period, under a contribution charge plus lower AMC

Table 15: Assuming 6 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£800 5	£800 5	£800 5
10%	£800 6	£800 6	£800 6
15%	£900 7	£900 7	£900 7

Table 16: Assuming 8 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£900 5	£900 5	£900 5
10%	£1,000 5	£1,000 5	£1,000 5
15%	£1,000 6	£1,000 6	£1,000 6

Table 17: Assuming 10 million members of Personal Accounts

	Annual investment returns in excess of prices		
Cost of capital	2.5%	3.0%	3.5%
5%	£1,000 4	£1,000 4	£1,000 4
10%	£1,100 5	£1,100 5	£1,100 5
15%	£1,100 5	£1,100 5	£1,100 5

Acknowledgements and Contact Details

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The authors take responsibility for remaining errors.

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