

**Unfunded Public Service Pension Schemes
2007/08 Cashflow Projections
Methodology, assumptions and data**

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1 Introduction

- 1.1 The *Long-term public finance report: an analysis of fiscal sustainability*¹ was published in March 2008 alongside the Budget. The Long-term public finance report (LTPFR) provides an analysis of the potential pressures of long-term demographic developments on the public finances. This information assists the Government in managing the public finances in the long-term interests of the UK.
- 1.2 HM Treasury commissioned the Government Actuary's Department (GAD) to produce long term cash flow projections of expenditure from the unfunded public service pension schemes, and to prepare a report to describe the methodology, data and assumptions used in the projections. The results of the long term cash flow projections were published in the March 2008 LTPFR. GAD provided Treasury with the projected benefit payments in constant price terms and Treasury have used this in conjunction with its own projections of GDP to calculate the projected percentage of GDP. This report describes the methodology, data and assumptions used in the projections for the March 2008 LTPFR.
- 1.3 The methodology and assumptions adopted for the Long Term Public Finance Report are set by HM Treasury, having obtained advice from the Government Actuary's Department. GAD then takes instructions to produce projections as requested. The projections are based on currently announced policy, but are not intended as statements of future policy. The forward-looking projections of revenue and expenditure in the LTPFR depend on a number of assumptions regarding the future. A number of variant assumptions are used to illustrate the uncertainty in the projections.
- 1.4 HM Treasury takes responsibility for the setting of the assumptions and ensuring that they are appropriate and coherent for the purpose because of the need for consistency with the wider uses of the LTPFR and other HM Treasury projections. GAD's role in supporting the Long Term Public Finance Report is limited to the provision of public service pension projections on the basis of the assumptions set by the Treasury.
- 1.5 Projections of gross expenditure in the five biggest families of unfunded schemes – those covering the NHS (NHSPS), Teachers (TPS), the Civil Service (PCSPS), Armed Forces (AFPS) and the Police (PPS) were calculated with a grossing-up factor applied to allow for the other unfunded schemes. As at March 2006, when the total accrued liabilities of unfunded schemes stood at a total of £650 billion in published resource accounts, these five occupational groups accounted for about 95% of that liability.
- 1.6 The projection model aggregates members into groups based on their age, sex and the pension scheme to which they belong. Members in each group are assumed to have the same characteristics in terms of their average salary and service or pension. The probability that they will change their status in a particular year (e.g. moving from active service to deferred member or deaths of pensioners) is also the same for all individuals in each group. The model projects movements of membership and cashflows over each financial year, commencing with 2007/08, hence the title "2007/08".
- 1.7 Since the 2006 projections which were used in the 2006 LTPFR, the new NHSPS, TPS and PCSPS schemes have taken effect. The new schemes have increased the normal pension age (NPA) of new joiners from 60 to 65 and pensions accrue at a different rate. The employee contribution rate has changed in TPS and NHSPS for all members and the PCSPS has changed its accrual structure from final salary to career average for new entrants. Cost-sharing mechanisms are being introduced for the schemes.

¹ http://www.hm-treasury.gov.uk/budget/budget_08/documents/bud_bud08_longterm.cfm

- 1.8 The 2006 projections took account of the new TPS and NHSPS as the final schemes are largely the same as the proposals published in 2006. In 2006 proposals for the new PCSPS had not yet been finalised and the projections modelled a stylised scheme that achieved the policy objectives of the scheme reform. The 2007/08 projections take into account the new PCSPS as actually formulated.
- 1.9 The 2006 projections were used for the 2006 LTPFR. A methodology paper was published in January 2007.²
- 1.10 The rest of this note describes the data used for the projections and the assumptions adopted for the projections.

² http://www.gad.gov.uk/Documents/Public_Sector_Pension_Cashflow_Projections_Methodology_2006.pdf

2 Data

- 2.1 As with the 2006 projections, the latest available valuation data for the schemes have been taken and uprated in line with information contained in the latest relevant resource accounts for NHSPS, PCSPS, TPS and AFPS. The data have also been uprated to make an allowance for the inclusion of Scotland and Northern Ireland (NHSPS and TPS), and Northern Ireland (PCSPS).
- 2.2 The three largest unfunded schemes (NHSPS, TPS and PCSPS) are subject to a periodic valuation undertaken by the scheme actuaries (Hewitt Bacon & Woodrow (HBW) for the PCSPS and GAD for the other schemes). In addition, less exhaustive valuation exercises may be conducted from time to time to inform policy discussions and new data or new assumptions at hand will be reflected in valuations conducted annually to feed into resource accounts. (The relationship between annual accounts and cashflow projections is discussed at the end of this note.)
- 2.3 The base scheme membership data for the 2007/08 cashflow projection is taken from the most recently available formal scheme valuations - NHSPS (2004), PCSPS (2007), TPS (2004) and AFPS (2005). The data is then rated-up in line with 2007 resource account figures to include Scottish and Northern Ireland schemes and to move from the valuation date to April 2007. The projections of the PPS use data provided as at March 2003 in respect of English and Welsh Police authorities rated-up in line with actual numbers of serving officers and actual pay and pension increases since then. This was further uprated to allow for Scottish and Northern Irish police authorities.
- 2.4 The base data used in the 2006 projections came from the same sources except that PCSPS base data was from 2003 and NHSPS base data was from 2003. The up-rating was to April 2006.
- 2.5 The projections implicitly assume that the age profiles of schemes have not changed since the previous actuarial valuation. A more refined model might make allowance for the fact that, for example, in the TPS there is a concentration of members in their 50s and each year this group gets one year older, changing the membership profile. This means that the pattern of forthcoming retirements from this group and subsequent recruitment of replacements is different from the more refined model. However, this is a short-term effect.
- 2.6 Most of the schemes have a number of deferred members aged over normal pension age (NPA). Some of these members may have died and the scheme not notified, or they may have simply not claimed their benefits. Some of this second group may subsequently claim their pension. After uprating the data, we have removed deferred members aged over normal pension age. This makes approximate allowance for future deferred members not claiming on time and avoids a short-term peak in projected cashflows which is not expected to occur.
- 2.7 No allowance has been made for the PCSPS Partnership plan, which involves employer contributions to third-party personal pension products. The employer contributions score as public expenditure as they are made but the purchase of annuities from these plans and the payment of pensions under those annuity contracts do not score as public expenditure. The Cabinet Office estimates that 5,500 civil servants have opted for PCSPS Partnership, which is less than one percent of the current active membership of the other PCSPS arrangements.

Table 1 Starting data for the projections ^(i, iv)

	2006 Projections					2007/08 Projections				
	NHS	PCSPS	TPS	AFPS	PPS ^(v)	NHS	PCSPS	TPS	AFPS	PPS ^(v)
No of Contributing Members (million)	1.53	0.64	0.71	0.19	0.14	1.50	0.67	0.70	0.20	0.14
Total Salary (£ billion) ⁽ⁱⁱ⁾	36.1	14.7	23.4	5.7	3.7	38.3	15.8	23.8	5.9	3.7
Average salary (£)	23,600	23,000	32,800	29,700	27,500	25,500	23,600	34,000	29,300	27,500
Total No of Pensioners (million)	0.62	0.58	0.54	0.35	0.1	0.65	0.58	0.57	0.38	0.1
Total Pension In Payment (£ billion) ⁽ⁱⁱ⁾	3.7	3.2	4.7	2.6	1.2	4.2	3.4	5.3	2.7	1.2
Average pension in payment (£)	6,000	5,400	8,700	7,600	11,600	6,500	5,900	9,200	7,000	11,600
Total No of Deferreds (million) ⁽ⁱⁱⁱ⁾	0.48	0.3	0.3	0.3	0.01	0.59	0.34	0.34	0.33	0.01
Total Preserved Pension (£ billion) ⁽ⁱⁱ⁾	0.8	0.8	0.7	0.6	0.1	1.0	1.0	0.77	0.73	0.1
Average deferred pension (£)	1,600	2,800	2,300	2,000	4,300	1,800	3,000	2,200	2,200	4,300

Notes:

- i. Figures cover the whole of the United Kingdom except for PPS and monetary amounts are in cash terms.
- ii. All salaries are estimated actual rates of salaries (i.e. not full time equivalent) at April of the particular year. Total pensions in payment and averages derived from them are estimated actual rates of pension as at April, including allowance for the pension increase applied in April and will differ from outturn figures for total pensions paid in the financial reporting year reported in the notes to pension scheme resource accounts for financial years 2005-06 and 2006-07.
- iii. All deferred data are before adjustment in respect of members aged over normal pension age.
- iv. The 2006 projection data is as at April 2006, and the 2007/08 projection data is as at April 2007 except for PPS
- v. The PPS data is as at March 2003 for both sets of projections. This is the most up to date comprehensive data available for the PPS, and covers England and Wales only. The data at 31 March 2003 was rolled forward to the start of the projections using the projection model, allowing for the pension increases, changes in salaries and the number of serving police officers that are known to have occurred in the interim. An adjustment was made so that the injury pensions included in the data as at 31 March 2003 were excluded from the cashflow projections.

3 Financial Assumptions

- 3.1 Earnings growth in excess of the Retail Prices Index (RPI) is assumed to be 2% each year, as specified by the Treasury for the baseline projections in the LTPFR. Variants with 1¾ and 2¼% earnings growth in excess of RPI each year were also generated. Earnings growth in excess of RPI is defined by Treasury to be equal to productivity growth in the long-term.
- 3.2 The increase in average pay per member may not be 2% a year due to the effect of promotional salary increases and the difference between the average pay of those leaving and joining active service. This method makes allowance for the effect on total salary rolls of features in the age and salary profile of active members.
- 3.3 In order to express results in constant price terms, zero RPI was assumed.

4 Demographic assumptions overview

- 4.1 The demographic assumptions that have been adopted for NHSPS, PCSPS, TPS and AFPS are not scheme-specific except that the assumptions for age-retirement differ where differences in the benefit structure would justify this.
- 4.2 In general the assumptions adopted for the AFPS reflect the experience of the three biggest schemes. Data split by gender is not readily available for the AFPS so, for simplicity, assumptions used for female AFPS members have been kept similar to those of male members due to the relatively low number of female members of this scheme.
- 4.3 The Police Pension Scheme has been modelled independently of the other schemes. The demographic assumptions other than pensioner mortality adopted for PPS are considered to be best estimates of what future PPS experience may be.
- 4.4 The assumptions adopted for NHSPS, TPS, PCSPS, AFPS and PPS are considered in more detail in the following sections.
- 4.5 The main changes to the demographic assumptions since the 2006 projections are:
 - 4.5.1 Pensioner longevity improved in line with the Office for National Statistics (ONS) 2006-based population projections.
 - 4.5.2 Age retirement decrements changed for PCSPS in line with the new scheme as implemented.

5 Pensioner mortality

- 5.1 Pensioner mortality for all schemes is based on that underlying the ONS 2006-based population projections. However, members of contracted-out pension schemes experience lower mortality than the general population and so the mortality rates have been adjusted to reflect this. The mortality rates used in the 2006 projections for NHSPS, TPS, PCSPS and AFPS were based on those underlying the GAD 2004-based population projections with a similar adjustment.
- 5.2 The ONS 2006-based population projections were published on 23 October 2007 were the latest projections published at the time of the March 2008 Long-term public finance report.

Table 2 Life expectancies of male scheme beneficiaries reaching age 65:

	2007	2015	2025	2035	2045	2055
2006 projections	20.7	21.6	22.4	23.3	24.2	24.8
2007/08 projections	21.8	22.8	23.8	24.7	25.6	26.6

Table 3 Life expectancies of female scheme beneficiaries reaching age 65:

	2007	2015	2025	2035	2045	2055
2006 projections	23.2	24.0	24.8	25.7	26.4	27.0
2007/08 projections	24.2	25.1	26.0	26.9	27.8	28.7

- 5.3 In contrast the cohort life expectancies are lower for individuals experiencing 100% of the mortality rates underlying the 2006-based population projections:

Table 4 Cohort Life expectancies at 65 underlying the ONS 2006-based principal UK population projection

	2007	2015	2025	2035	2045
Male	20.7	21.7	22.6	23.6	24.5
Female	23.2	24.1	25.0	25.8	26.7

- 5.4 Death in deferment mortality for NHSPS, TPS, PCSPS, AFPS and PPS is based on the same tables as that for pensioner mortality.
- 5.5 The pensioner mortality that was assumed for members of the PPS for the 2006 projections was as follows:

Table 5 Life expectancies of PPS Members reaching age 65 retiring in normal health – 2006 projections

	2005	2015	2025	2035	2045	2055
Male	20.5	21.2	21.8	22.3	22.6	22.9
Female	23.5	24.3	24.8	25.3	25.6	25.8

6 In-service mortality

6.1 The 2006 projections for NHSPS, TPS, PCSPS and AFPS adopted an assumption for in-service mortality based on actual experience. This assumption has been retained for the 2007/08 projections.

Table 6 Assumed number of deaths per 10,000 members of staff in the year following the age stated

Age	Male	Female
20	4	2
25	5	2
30	6	3
35	7	5
40	9	7
45	15	11
50	23	15
55	40	22
60	60	30

6.2 Different assumptions were adopted for the PPS projections based on scheme specific experience, these were as follows:

Table 7 Assumed number of deaths per 10,000 members of staff in the year following the age stated

Age	Male	Female
20	5	3
25	5	3
30	5	3
35	5	3
40	5	3
45	5	4
50	7	5
55	10	7
60	16	12

7 Withdrawals from service

7.1 The 2006 rates were based on the latest experience of the three biggest schemes. The withdrawal rates assumed for 2006 have been retained for the 2007/08 projections.

7.2 The table below sets out the assumptions adopted.

Table 8 Assumed number of withdrawals per 10,000 members of staff in the year following the age stated

2007 assumptions		
Age	Male	Female
25	891	945
30	756	806
35	621	668
40	486	529
45	351	391
50	216	252
55	45	54
60	0	0

7.3 Different assumptions were adopted for the PPS projections based on scheme specific experience. Members in their first two years of membership are assumed to leave at the rate of 500 per 10,000 members. After that the rates assumed are as follows.

Table 9 Assumed number of withdrawals per 10,000 members of staff in the year following the age stated.

Age	Male	Female
25	295	405
30	167	249
35	94	136
40	50	63
45	21	33
50	9	20
55	0	0
60	0	0

8 Progression of pensionable pay

8.1 In 2006 assumed salary progression, over and above general salary inflation (assumed to be 2% in excess of RPI in the base scenario), was based on the experience of the most significant work groups within NHSPS and PCSPS. This experience suggested that the disparity between male and female promotional increases had reduced (mainly reflecting the NHSPS experience – the disparity in PCSPS was not as marked). TPS and AFPS experience is not inconsistent with these assumptions, so no change has been made.

Table 10 Salary scale based on an index of 100 at age 20

Age	Male	Female
20	100	100
25	131	130
30	168	157
35	201	176
40	224	187
45	237	192
50	249	196
55	253	200
60	256	202

8.2 Different assumptions were adopted for the PPS projections based on scheme specific experience, as follows:

Table 11 Salary scale based on an index of 100 at 0 years' service

Completed Years of Service	Males and Female
0	100
5	134
10	158
15	166
20	170
25	175
30	179
35	181
40	181

9 Age retirements

- 9.1 The underlying assumptions used for the 2006 projections remain appropriate. Members assumed to have NPA 60 are assumed to retire over a range of ages from 60 to 65, based on experience in NHSPS, TPS and PCSPS.

Table 12 Assumed age retirement pattern - NPA 60 Members

Age	Male	Female
Range of Retirement Ages	60-65	60-65
Average retirement age	62.1	61.5

- 9.2 Special Class members in the NHS who have NPA 55 have slightly different retirement assumptions to reflect their right to retire before 60 with unreduced benefits.
- 9.3 New entrant members assumed to only have benefits subject to NPA 65 are assumed to retire at age 65.
- 9.4 Different assumptions were adopted for the AFPS projections based on scheme specific experience. Members of the AFPS are often able to retire before 60 with an unreduced pension providing they have sufficient service. The rules vary between officers and other ranks in the AFPS 1975 scheme and are different again in the 2005 schemes. The assumptions adopted for AFPS members are as follows.

Table 13 Assumed age retirement pattern - AFPS active members

Age	Officers in AFPS75	All other members
Range of Retirement Ages	38-56	41-56
Average retirement age	47.8	43.7

- 9.5 Different assumptions were adopted for the PPS projections based on scheme specific experience. Different assumptions have been made for members of the old PPS (mainly applicable to pre 2006 entrants) and members of the new PPS (mainly applicable to post 2006 entrants). In addition, different retirement assumptions have been made based on the member's age at joining PPS. The assumptions adopted are outlined below.

Table 14 Assumed age retirement pattern - Old PPS active members

Age at entry	20	25	30+
Range of Retirement Ages	50-60	50-60	55-60
Average retirement age	50.8	54.9	56.3

Table 15 Assumed age retirements - New PPS active members

Age at entry	20 and Under	23	25+
Range of Retirement Ages	55-60	55-60	55-60
Average retirement age	55.2	56.3	56.7

- 9.6 The new PCSPS scheme has now been introduced. The 2007/08 projections assume that existing members have a NPA of 60 while new entrants have NPA 65.
- 9.7 The 2006 projections for PCSPS were derived as the simple average of two separate projections: one on the basis of staff retaining normal pension age of 60; and the other

on the basis of new entrants having NPA65 and existing staff migrating to NPA65 for future service after 2013. This was done in line with policy intention at the time.

- 9.8 On that basis, for the projection of cash flows in the PCSPS NPA 65 scenario all new staff were assumed to retire at age 65, staff aged over 53 were assumed to retire in line with table 12 above and existing staff aged 53 and below were assumed to retire in line with table 16 below – effectively phasing-in NPA65.

Table 16 Assumed age retirement pattern for 2006 projections - PCSPS NPA 65 scenario - existing active members

Age in April 2006	17 to 33		34 to 43		44 to 53	
	Male	Female	Male	Female	Male	Female
Range of Retirement Ages	62-65	61-65	60-65	60-65	60-65	60-65
Average retirement age	64.6	64.6	64.1	63.5	62.9	62.9

10 Ill-health retirements

10.1 The 2006 assumptions have been retained. These were based on experience within NHSPS, TPS and PCSPS. Where members are assumed to have NPA 65, modified rates are used at the later ages to allow for ill health retirements after age 60.

Table 17 Assumed number of ill-health retirement per 10,000 members of staff in the year following the age stated

Age	Male	Female
25	4	6
30	8	13
35	15	20
40	23	28
45	36	40
50	59	59
55	119	119
60*	180	180

* Extrapolated for members with NPA 65.

10.2 Different assumptions were adopted for the PPS projections based on scheme specific experience. It has been assumed that ill health retirements are going to be different in the old PPS (mainly applicable to pre-2006 entrants) to the new PPS (mainly applicable to post-2006 entrants).

Table 18 Assumed number of ill-health retirement per 10,000 members of staff in the year following the age stated

Age	Old PPS	New PPS
25	11	8
30	19	15
35	29	23
40	40	31
45	63	50
50	112	89
55	0	0

10.3 As in previous projections, for simplicity, ill-health pensioners are assumed to have the same mortality as normal pensioners. In the 2007/08 projections, the assumption for PPS ill health pensioner mortality is the same as in other schemes. In the PPS 2006 projections ill health pensioners were assumed to have a shorter life expectancy than normal retirement pensioners.

11 Commutation and introduction of new schemes

- 11.1 The process of introducing schemes with NPA 65 is now complete. The new schemes for TPS, PCSPS, AFPS and PPS were in place by March 2008 and the new NHSPS was introduced from 1 April 2008. For simplicity, all new schemes are assumed to commence for new entrants from April 2007.
- 11.2 In most new public service pension schemes it is possible for a member to opt to receive a lump sum at retirement at the expense of receiving a smaller pension. This procedure is known as commutation of pension.
- 11.3 In the past a lump sum was generally paid along with the pension and there was no option to commute pension. This lump sum was generally calculated as 3/80 of salary for each year of service. Members of old schemes will continue to receive this lump sum, but they now have the option to commute their pension to increase their lump sum.
- 11.4 HMRC rules limit the amount of pension that can be commuted. In general the maximum lump sum that can be received at retirement is 25% of the capital value, as assessed under HMRC rules, of the benefits crystallised at retirement.
- 11.5 It has been assumed that in final salary schemes, half of the members will commute pension in order to provide the maximum lump sum permitted by HMRC and that the other half will commute pension (if necessary) to provide a lump sum of 3/80 of final salary for each year of service. This is equivalent to commuting 27.2% of pension in a scheme providing a pension where a lump sum is only available through commutation. In PCSPS Nuvos, which is a career average scheme, members are assumed to commute 27.2% of their pension to provide a lump sum.
- 11.6 In practice, there will be a range of levels of commutation. This assumption is stylised but is intended to reflect the average mix of pension and lump sum taken at retirement. The aggregate effect of allowing commutation of pension is to increase expenditure in the short-term due to the larger lump sums being paid, but to reduce it in the long-term due to the smaller pensions being paid.

12 New entrants and membership growth

- 12.1 In the 2007/08 projections the new entrant profiles for the NHSPS, TPS and AFPS are the same as those used for the 2006 projections, with an across the board increase to average starting salaries in cash terms of 3.4%. This increase is based on the increase in national average earnings from March 2006 to March 2007. For the PCSPS, data and experience from the 2007 valuation have been used. In the 2006 projections, the PCSPS new entrant profile was based on 2003 valuation data. For PPS, the average new-entrant starting salary is 3.0% higher than in the 2006 projections.
- 12.2 It is assumed that the active membership for all the schemes will remain constant throughout the projection period (i.e. from April 2007).
- 12.3 This assumption is broadly consistent with the 2006 projections in which the membership was assumed to remain constant after March 2008. For the 2006 projections, the growth rates up to March 2008 were assumed to be:
- 12.3.1 For NHSPS, the active membership was assumed to grow by 2.5% pa from April 2006 to March 2008.
- 12.3.2 For PCSPS, there was assumed to be a net loss of 2.5% pa from April 2006 to March 2008.
- 12.3.3 For TPS, AFPS and PPS, there was assumed to be no change in the active membership throughout the projection period.
- 12.4 The tables below summarise the assumptions for the distribution of new entrants adopted for the 2007 projections for NHSPS, TPS, PCSPS AFPS and PPS.

Table 19 Assumed new entrant profiles for NHSPS, PCSPS, TPS, PPS & AFPS

	NHSPS			PCSPS			TPS			PPS			AFPS		
	Age	Proportion at each age	Salary at joining £	Proportion at each age	Salary at joining £	Age	Proportion at each age	Salary at joining £	Age	Proportion at each age	Salary at joining £	Age	Proportion at each age	Salary at joining £	
Males	16-20	1%	13,000	4%	15,200	21-24	4%	22,500	<19	1%	21,000	16-20	70%	22,100	
	21-25	4%	18,600	9%	17,300	25-29	7%	24,100	19-23	27%	21,000	21-25	23%	27,400	
	26-30	5%	24,800	7%	19,800	30-34	5%	26,800	24-28	30%	21,000	26-30	5%	26,200	
	31-35	4%	26,000	5%	22,200	35-39	4%	28,400	29-33	12%	21,000	31-35	1%	37,900	
	36-40	3%	26,800	5%	24,300	40-44	3%	29,900	34-38	4%	21,000	36-40	2%	42,400	
	41-45	2%	25,900	5%	25,000	45-49	2%	30,900	39-43	1%	21,000	41-45	0%	45,300	
	46-50	1%	24,000	4%	26,500	50-54	2%	34,100	44+	0%	21,000	46-50	0%	55,100	
	51-55	1%	20,500	5%	26,000	55-59	2%	35,000							
	56-60	1%	17,700	3%	23,200	60-64	1%	35,200							
Females	16-20	4%	12,000	5%	13,700	21-24	19%	22,400	<19	0%	21,000				
	21-25	16%	18,100	12%	16,700	25-29	20%	24,000	19-23	9%	21,000				
	26-30	12%	20,400	9%	20,200	30-34	8%	27,200	24-28	10%	21,000				
	31-35	11%	17,300	7%	21,600	35-39	7%	29,200	29-33	4%	21,000				
	36-40	11%	15,100	6%	21,500	40-44	6%	30,400	34-38	1%	21,000				
	41-45	10%	14,700	6%	21,400	45-49	4%	32,800	39-43	0%	21,000				
	46-50	7%	14,600	5%	21,700	50-54	2%	36,300	44+	0%	21,000				
	51-55	5%	13,900	3%	20,600	55-59	2%	36,800							
	56-60	2%	13,200	1%	19,000	60-64	1%	36,800							

Salaries are actual rate of salary paid as opposed to full-time equivalent (full time equivalent rate of salary for PPS) for a member joining the scheme in April 2007.

*AFPS new entrants are assumed to have the characteristics of males due to the lack of data split by gender and the relatively small number of female members of this scheme.

13 Grossing-up

- 13.1 For the 2007/08 projections, GAD projections cover the largest unfunded public service pension scheme groups (Civil Service, Teachers, NHS, Armed Forces and Police) scaled up to allow for their Scotland and Northern Ireland equivalents where necessary. PPS cashflows were modelled for England and Wales and the starting data is in respect of England and Wales. PPS cashflows in respect of the rest of the UK are assumed to be 13% of England and Wales PPS cashflows. The accrued liability at 31 March 2006 for these five occupational groups is 95% of the total accrued liabilities of all the schemes considered for these projections.
- 13.2 Cashflows in respect of the Firefighters' Pension Scheme were assumed to be 21% of those in respect of the Police Pension Scheme. These factors were based on statistics published by the Chartered Institute of Public Finance and Accountancy (CIPFA).
- 13.3 Cashflows in respect of the remaining unfunded schemes are assumed to be 1.9% of the cashflows in respect of NHSPS, TPS and PCSPS combined. This grossing-up percentage is based on the ratios of the schemes' liabilities reported as at 31 March 2006.
- 13.4 For the 2006 projections, a similar approach was used. Cashflows in respect of the remaining unfunded schemes were assumed to be 2.2% of the cashflows in respect of NHSPS, TPS and PCSPS combined. This grossing-up percentage was based on the ratios of the schemes' liabilities reported as at 31 March 2005.

14 Final Notes

- 14.1 The demographic assumptions that have been adopted are not scheme-specific except in cases where differences in the benefit structure would justify this and in respect of the Police Pension Scheme. The model provides useful information about the shape of each scheme's cashflows distribution. However, the absolute values of scheme-specific cashflows need to be interpreted carefully. Whilst the overall results are reasonable for the purpose of the exercise, the scheme specific results might not be appropriate for other purposes.
- 14.2 Cost-sharing and cost-capping mechanisms have been introduced in some of the public service pension schemes. Under these arrangements, increased costs will be shared between the employee and employer. These provisions may reduce the expenditure from the public service pension schemes and quite possibly to a material degree. However, these projections did not take into account the potential savings from cost-sharing / cost-capping because operational details of these policies had not yet emerged. It will be possible to take account of the potential savings in subsequent projections as evidence emerges.
- 14.3 No allowance has been made for deferred pensioners to take cash equivalent transfer values (CETVs) to extinguish their liabilities with the scheme or for members to retire early with an actuarially reduced pension. This has an impact of spreading and delaying the timing of cashflows in respect of them.
- 14.4 No explicit allowance has been made for the aggregation of service of those members who leave a scheme and rejoin in future (or who take advantage of 'club' transfers within the public sector). No allowance has been made for the effect of Guaranteed Minimum Pensions. The pattern of AFPS payments to those who retire below age 55 has also been simplified.
- 14.5 The accrued liability, and the rate at which additions are made to it by further accruals over time, is a different quantity from the cash flow projections published in the LTPFR. The total liability of unfunded schemes of £650 billion as at March 2006 represents only the past service of scheme members up to that date, and it will take longer than the 50 year horizon of these projections for these liabilities to be fully paid out. The cashflow projections include both liabilities accrued to date and those accrued in the future by existing pension scheme members and future pension scheme members. Spending in the future will be increasingly the result of entitlements accrued in the future as spending due to entitlements already accrued gradually falls to zero.
- 14.6 The key assumptions driving the cashflow projections are those relating to levels of future employment and salaries and mortality of pensioners. The key assumptions driving calculations of accrued liabilities are the rate of future salary increases, mortality and the discount rate used.