



Report on the comparative valuation of  
higher education sector pension schemes

Joint Negotiating Committee for Higher  
Education Staff (JNCHES)

16 October 2008



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## To the Joint Negotiating Committee for Higher Education Staff (JNCHES)

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# Section 1: Executive summary

This report sets out the results of our comparative valuation of the pension schemes currently available to employees in the higher education sector and employees of certain public and private sector comparators. The purpose of this report is to provide input on the comparative values of higher education employees' pension benefits to the JNCHES Review of Finance and Pay Data Report.

## **Pension schemes included in the valuation**

This report includes comparative values for pension schemes which fall into four groups. These are:

- six higher education pension schemes available to employees of more than one institution
- three sample higher education Self-Administered Trusts (specific to one institution, provided "in-house")
- five sample pension schemes available to public sector employees or employees of privatised organisations
- four comparators designed to broadly represent pension schemes available to comparator employees in the private sector

More detail on the benefits provided in each of these pension schemes is provided in Section 2.

The choice of the sample private sector comparators and their benefit structures is discussed in Appendix G.

As discussed in Section 3, in recent years there has been a decline in the value of benefits offered in the private sector. This is partly as a result of a significant shift from defined benefit provision (where the employer provides the employees with a fixed promise and takes the risk of providing that promise) to defined contribution provision (where the employer pays a fixed contribution and the employee takes the risk of what benefit can be provided). This trend has not taken place in the public sector, including the higher education sector, where defined benefit provision remains the norm.

## **Valuation approach**

Section 4 discusses the methodology and assumptions adopted for the calculation of the comparative values of the pension benefits. The method adopted calculates the cost of the next year's accrual (net of member contributions) allowing for projected pay increases.

The financial assumptions that we have adopted are best-estimate assumptions based on long-term market expectations.



More detailed discussions of the valuation method and financial and demographic assumptions are set out in Appendices A, B, C and D and E.

### Valuation results

Section 5 sets out the results of our calculations of the comparative values of the pension schemes for each of the four groups of schemes. Charts 5.1 to 5.5 illustrate the values (net of employee contributions) for each group of schemes expressed as a percentage of pay by age of member.

It can be seen from the charts that, based on the methodology and assumptions adopted:

- The values of all the main higher education pension schemes (that is those available to more than one institution) are relatively close together within a range of 3% to 4% of pay in general. The values range from 11% to 14% of pay at the youngest ages to 21% to 25% at the oldest ages. The Superannuation Arrangements of the University of London are the most valuable at older ages, largely due to the higher level of benefits payable on death or ill-health retirement. The schemes for which we have assumed retirement ages of 65 the least valuable.
- The values of the sample higher education Self-Administered Trusts vary widely. Of the two final salary schemes, the South Eastern HEI is most valuable, mainly due to the higher benefit accrual and because the Scottish HEI pension increases are capped at 2.5% pa. The least valuable is the defined contribution scheme, the Midlands HEI.
- The range of values of the sample “public sector” pension schemes is wider than that of the main higher education schemes with a difference of around 7% to 8% of pay between the most and least valuable. It should be noted that only two of the schemes valued are open to new entrants with the remainder being closed. The BT and Civil Service pension schemes, which both have a normal retirement age of 60 and are closed to new entrants, are the most valuable; the LGPS is the least valuable, mainly due to the higher retirement age of 65.
- The values of the typical private sector pension schemes vary widely. The two defined benefit schemes are the most valuable and the two defined contribution schemes are the least valuable.

Chart 5.6 compares the range of values in each group of schemes for a member at age 45 (chosen to represent the average age of employees in the higher education sector). Overall, it can be seen from this chart that the values of the main higher education schemes are relatively close together (between 17% and 21% of pay) and are higher than two of the three sample higher education Self-Administered Trusts. They are within the range of the sample “public sector” scheme values, whose values also include some of the highest (although these highest values relate to schemes which are closed to new entrants). The private sector scheme values are the most varied and include the schemes with the lowest and highest values of all the schemes. However, given the trend in the

private sector, the number of schemes with benefits around the highest value shown is expected to reduce with time.

### **Sensitivity**

The end of Section 5 looks at the sensitivity of the results to the most key assumption, the discount rate. This concludes that changes in the assumed discount rate do not significantly impact the relative values of the final salary schemes but an increase (reduction) in the discount rate reduces (increases) the gap between the defined benefit schemes (including most of the higher education sector schemes) and the (mostly private sector) defined contribution schemes.

### **Conclusion**

In general, it is reasonable to conclude that the values of the main higher education schemes are similar, are within the range of the values of public sector schemes and are higher than the value of the benefits generally available in the private sector.

Sue Field  
Fellow of the Institute of Actuaries

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Watson Wyatt Limited  
Watson House  
London Road  
Reigate  
Surrey  
RH2 9PQ

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The investment and economic assumptions have been derived by Watson Wyatt through a blend of economic theory, analysis and the views of investment managers. They inevitably contain an element of subjective judgement. There is no guarantee that the assumptions made will be borne out in practice.

As our report does not constitute a statutory funding valuation of any of the pension schemes considered, it does not comply with actuarial Guidance Note "GN9: Funding Defined Benefits – Presentation of Actuarial Advice"

# Section 2: Summary of the pension schemes and benefits

## *Pension schemes included in the valuation*

2.1 This report includes comparative values for pension schemes which fall into four groups.

### **Higher Education pension schemes available to employees of more than one institution**

2.2 These are:

- Universities Superannuation Scheme (USS)
- Teachers' Pension Scheme (TPS)
- Scottish Teachers' Superannuation Scheme (STSS)
- Local Government Pension Schemes (England and Wales) (LGPS)
- Superannuation Arrangements of the University of London (SAUL)
- NHS Pension Scheme (NHSPS) and New NHS Pension Scheme (New NHSPS)

2.3 In all cases this report considers only those benefits which members currently accrue. It takes no account of any different benefit structures which may be relevant to past service (as for example is the case in the LGPS).

2.4 Some of these schemes have two categories of members with different benefits, the main difference being that the category that forms the minority of the membership has a higher assumed retirement age. In order to reduce the number of lines on the results charts in Section 5, we have split the benefits into two groups:

- the benefits for the category of members which forms the majority in those schemes; and
- for those schemes where there are two categories of member, the benefits for the minority of members.

### **Sample Higher Education Self-Administered Trusts (specific to one institution, provided "in-house")**

2.5 the representative higher education self-administered Trustees selected are two defined benefit schemes, described as "Scottish HEI" and a

“South Eastern HEI” and one defined contribution scheme, described as a “Midlands HEI.”

- 2.6 These three schemes were chosen to broadly represent the range of 48<sup>1</sup> UK higher education in-house pension schemes, taking into account the type of benefits provided and their location.

#### **Sample pension schemes available to public sector employees or employees of privatised organisations**

- 2.7 These are:

- Local Government Pension Schemes (LGPS)
- NHS Pension Scheme (NHSPS)
- BT Pension Scheme (BTPS)
- Transport for London Pension Fund (TFLPF)
- Civil Service Classic Pension Scheme

- 2.8 These were chosen to broadly represent the range of pension benefits made available to comparative employees of public sector or privatised organisations, considering the type of benefits provided. The Local Government Pension Schemes and NHS Pension Scheme are available to certain higher education employees but the majority of the membership are outside this sector and therefore included in both the higher education sector and other public sector groups.

- 2.9 More detail on the benefits provided in each of the pension schemes in the three groups above is provided in Appendix H.

#### **Sample comparators designed to broadly represent pension schemes available to comparator employees in the private sector**

- 2.10 These are:

- Two defined benefit pension schemes (A and B)
- Two defined contribution pension schemes (C and D)

- 2.11 The choice of the private sector comparators and their benefit structures is discussed in Appendix G.

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<sup>1</sup> According to the British Universities Finance Directors Group (BUFDG) “Pensions Report 2007”

## Summary of key benefit features

2.12 The key features of each of these pension schemes are summarised in the table below. More detailed descriptions of the benefits provided in each scheme are in Appendices G and H.

**Table 2.1**

Scheme	Assumed retirement age (actives)	Accrual rates			Member contribution rate (% pay)	Risk benefits <sup>(1)</sup>
		Pension	Lump sum	Spouse's pension		
<b>Main higher education schemes (majority of members)</b>						
USS (members with right to retire from age 60 onward)	62 <sup>(2)</sup>	1/80	3/80	1/160	6.35%	medium
TPS and STSS (pre 2007 joiners)	60	1/80	3/80	1/160	6.4%	low
LGPS	65	1/60	Nil <sup>(3)</sup>	1/160	7.2% <sup>(4)</sup>	medium
SAUL	62 <sup>(2)</sup>	1/80	3/80	1/120	6.0%	high
NHSPS (ie pre 1 April 2008 joiners)	60	1/80	3/80	1/160	6.5% <sup>(4)</sup>	low
<b>Main higher education schemes (minority of members)</b>						
USS (members whose benefits are reduced on retirement before age 65)	65	1/80	3/80	1/160	6.35%	medium
TPS and STSS (post 2007 joiners)	65	1/60	Nil <sup>(3)</sup>	1/160	6.4%	low
New NHSPS (ie post 31 March 2008 joiners)	65	1/60	Nil <sup>(3)</sup>	1/160	6.5% <sup>(4)</sup>	low
<b>Higher education "in-house" self administered trusts</b>						
Midlands HEI	< defined contribution scheme, employer contributions of 10% of pay>					
Scottish HEI <sup>(6)</sup>	62 <sup>(2)</sup>	1/80	3/80	1/160	7.77%	medium
South Eastern HEI	65	1/60	Nil <sup>(5)</sup>	1/120	6.25%	low
<b>Public sector</b>						
LGPS	65	1/60	Nil <sup>(3)</sup>	1/160	7.2% <sup>(4)</sup>	medium
NHSPS (ie pre 1 April 2008 joiners)	60	1/80	3/80	1/160	6.5% <sup>(4)</sup>	low
BTPS	60	1/60	Nil <sup>(5)</sup>	1/120	6.0%	medium
TFLPF <sup>(7)</sup>	62 <sup>(2)</sup>	1/60	Nil <sup>(5)</sup>	1/120	5.0%	low
Civil Service (Classic)	60	1/80	3/80	1/160	1.5%	low
<b>Private sector</b>						
A (defined benefit upper quartile)	60	1/60	Nil <sup>(5)</sup>	1/120	5.0%	high
B (defined benefit lower quartile)	65	1/80	Nil <sup>(5)</sup>	1/160	5.0%	low
C (defined contribution upper quartile)	< defined contribution scheme, employer contributions of 10% of pay>					
D (defined contribution lower quartile)	< defined contribution scheme, employer contributions of 5% of pay>					

## Notes

- (1) Risk benefits are lump sums and pensions payable on death-in-service and ill-health retirement. It is difficult to summarise these concisely and accurately and so we have given a broad illustration of the relative values of the packages here to give an indication of the impact on the values of the schemes.
- (2) Members have a normal retirement age of 65 and the right to retire from age 60 on unreduced benefits. In practice, most such members choose to retire at a range of ages between 60 and 65 and for the purpose of these calculations an average retirement age of 62 has been assumed (see Appendix D for more on this).
- (3) No separate accrual of lump sum but members assumed to commute 20% of their pension at the fixed terms of £12 for each £1 pa of pension. This is equivalent to assuming a pension accrual rate of 1/75 and a lump sum accrual rate of 3/75.
- (4) Tiered contribution rate depending on salary. Rate assumed is based on an average salary of £45,000.
- (5) Commutation terms are not fixed. We have assumed that they are cost neutral, which is equivalent to assuming the benefit is taken as pension.
- (6) Pension increases are in line with inflation, capped at 2.5% pa. This means that the benefits are less valuable than those of the other schemes where increases are capped at 5% pa or uncapped.
- (7) Benefits are based on pay less the Lower Earnings Limit (currently £4,680). This means that the benefits (per £1 of pay) are less valuable than otherwise.

2.13 It can be seen that the retirement benefits provided by the schemes differ significantly. These differences in benefits drive the differences in values shown in Section 5. Taking each difference in turn:

- A lower assumed retirement age means that benefits are more valuable.
- A higher accrual rate (pension, lump sum or spouse's pension) means that benefit amounts are higher and so benefits are more valuable. Many of the schemes in this report fall into one of two categories: 1/60<sup>th</sup> pension and no accrued lump sum or 1/80<sup>th</sup> pension and 3/80<sup>th</sup> lump sum. For some of the schemes in the first group, we have assumed commutation of 20% of the pension at £12 per £1 pa of pension (see notes (3) and (5) above). Based on the assumptions that we have adopted, a 1/60<sup>th</sup> pension with no commutation is more valuable than a 1/60<sup>th</sup> pension with commutation. Both of these are more valuable than a 1/80<sup>th</sup> pension and 3/80<sup>th</sup> lump sum.

- Because we are calculating values of benefits to members net of member contributions, a lower member contribution rate gives a higher net value.
- Higher risk benefits are more valuable than lower risk benefits.





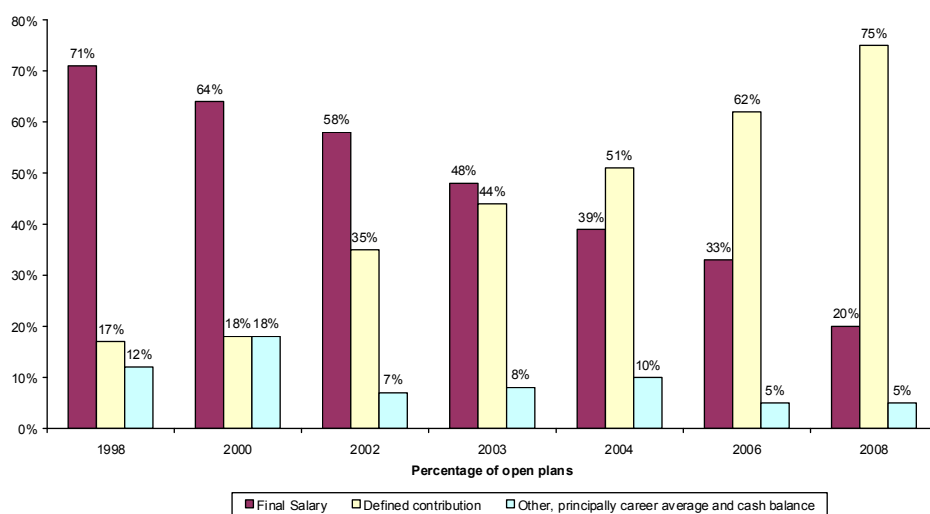
# Section 3: Changes to the occupational pensions environment in the UK

- 3.1 The last decade or so has seen significant changes in occupational pension provision in the UK, with a greater impact in the private sector than in the public sector.
- 3.2 The primary reasons for change have been a focus by employers on reducing risk and costs, together with a desire to make benefits more flexible and relevant to both employees' and businesses needs. As a result of lower expectations of investment returns and increasing expectations of life spans, the cost of providing each £1 pa of pension has almost doubled<sup>2</sup> over the last 30 years or so. Furthermore, regulatory changes, such as those increasing the debt on employer on winding up a scheme and changes to the way in which pension schemes are dealt with in company accounts, have all led employers to reconsider their approach to pension provision.

## Private sector arrangements

- 3.3 The above factors have led to a major move away from defined benefit (mainly final salary) pension provision to defined contribution provision in the private sector. Over the ten years since 1998, the number of defined benefit plans open to new entrants has fallen from 83% to 25% (according to the Watson Wyatt Plan Design Survey 2008 – see chart below).

**Chart 3.1** Trends in pension provision for new employees



<sup>2</sup> Assuming a reduction in the real rate of investment return from 4% pa to 2% pa and a move from PA90 table to 2000 series with long cohort improvements and a 2% pa floor



- 3.4 The above relates to the percentage of plans open to new employees, but the majority of active members of pension schemes in the private sector are still accruing defined benefit pensions in the private sector. In 2007 there were 3.6 million employees with private sector pension provision of which 75% were defined benefits<sup>3</sup>.
- 3.5 In the last 2 years or so there has been an increasing trend towards employers (who have already closed their defined benefit plans to new entrants) transferring future accrual for existing employees in defined benefit schemes to defined contribution plans. This trend is likely to become more significant with time and, combined with employees changing jobs and leaving their defined benefit schemes, will lead to a reduction in the number of employees in the private sector accruing defined benefit pensions.
- 3.6 Where employers are continuing to provide future accrual of defined benefits for existing employees, then there is a clear trend towards reducing costs by, for example, reducing accrual rates, increasing employee contributions or increasing normal retirement ages. More background on recent changes is given in Appendix G.
- 3.7 While the benefit arising from a defined contribution scheme is not necessarily lower than that from a defined benefit scheme, typically the level of employer contributions being paid into such schemes is lower than that required to provide the defined benefit accrual they are replacing. In 2007 the average employer rate of contribution to private sector defined contribution schemes was 6.4% of pay (open schemes) 7.0% of pay (closed schemes) whereas the average employer rate of contribution to private sector defined benefit schemes was 15.0% of pay (open schemes) 16.1% of pay (closed schemes)<sup>3</sup>.
- 3.8 The key difference between defined contribution and defined benefit schemes is who bears the risk of investment returns falling below expectations. The move to defined contribution schemes is a transfer of risk from employers to employees.

### **Public sector arrangements**

- 3.9 In contrast, almost all the public sector pension arrangements in the UK provide members with defined benefits. However many of the drivers for change described above (for example increases in the cost of pension provision and changing work patterns) apply equally to the public sector as to the private sector and changes have recently been implemented in a number of public sector arrangements. The key changes in these reforms have included increasing normal retirement ages, additional flexibility around lump sum retirement benefits, the introduction of cost sharing between employer and employee and moving to career average benefit design. Some of these changes have reduced the value of the benefits provided, most notably the increases in normal retirement ages,

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<sup>3</sup> According to the Office for National Statistics "Occupational pension schemes survey 2007"

but in general the changes have been aimed at modernising the benefits rather than reducing the value.

- 3.10 It seems likely that in the public sector defined benefit provision will continue for the majority of the workforce for some time to come. This may result in an increasing differential between the benefits provided in the public sector, including those available to employees in the higher education sector, and those provided to the private sector.





# Section 4: Methodology and assumptions for the calculation of comparative values

## Methodology - introduction

- 4.1 Retirement benefits may be paid many years in the future with both the amount paid and the timing depending on future circumstances which are currently unknown. Therefore, in order to place a value on the pension benefits provided by a particular pension scheme, consideration must be given to the assumptions to be made about the future and the methodology to be used.
- 4.2 There are various methods that can be used to determine the relative values of pension arrangements. In Appendix A to this report we describe the three main methods giving brief descriptions of the key features together with the advantages and disadvantages of using each of these methods for this exercise.
- 4.3 Our understanding from our discussions with the JNCHES sub-group is that the benefits to be considered are those currently accruing. For individuals of the same age and gender any differences in relative values should arise only as a result of differences in the benefit structure (including assumed retirement age) of the relevant pension scheme and not as a result of differences in individuals' history.
- 4.4 We have agreed with the JNCHES sub-group that we should use the "projected unit method". This method is used to calculate the value of benefits arising over the next year of service (allowing for future increases in pay) and the results are expressed as a percentage of current pay, making it an appropriate measure for comparison with other elements of remuneration and with defined contribution pension schemes. The value of various risk benefits (that is, benefits arising on death-in-service or ill-health retirement that are not linked to past service) is added to the value of the accruing benefits. Where employees contribute to the pension scheme the employee contribution is deducted from the comparative value calculated.



### **Methodology - Earnings Cap**

- 4.5 The Earnings Cap applicable to post-31 May 1989 pension scheme joiners under the tax regime that applied prior to 6 April 2006 is no longer a legal requirement for registered pension schemes. However, some pension schemes have retained it.
- 4.6 The cap for the current tax year is £117,600. We understand that only a small minority of higher education employees have earnings in excess of it and so we have ignored its effect in our calculations.

### **Methodology - valuation of defined contribution schemes**

- 4.7 Members of defined contribution schemes build up a pension 'pot' of invested assets, which they may then use to purchase a pension once they reach retirement.
- 4.8 The appropriate methodology for valuing such arrangements is very different to that for defined benefit schemes. We have valued the defined contribution schemes as the value of the annual contributions paid into the 'pot' by the employer adjusted (downwards) to reflect the annuity conversion terms available to defined contribution members (which are generally offered on terms based on assumptions more prudent than the assumptions we have used to value the defined benefit schemes). We have assumed that the annuities available to defined contribution members are priced in line with the assumptions which are mandated for use in the Statutory Money Purchase Illustrations provided each year to individuals with defined contribution benefits. We have made no allowance for administrative expenses or death or ill-health benefits in this calculation.

### **Methodology - valuation of State benefits for contracted-in schemes**

- 4.9 Pension schemes may be contracted in or out of the State Second Pension (S2P). By contracting out, the sponsoring employer and the individual member pay reduced National Insurance contributions, but will not accrue the additional State benefits during the period.
- 4.10 The Midlands HEI and the sample private sector comparator defined contribution pension schemes are contracted-in.
- 4.11 We believe that it is appropriate for the comparative valuation to take account of this difference by including an allowance for the additional State benefits provided alongside a contracted-in scheme, net of the additional National Insurance contributions payable by the individual (again, the focus is on the value of employer financed benefits). Rather than directly placing a value on the additional State benefits, we have allowed for them by including the additional National Insurance contributions payable by the employer (but not the employee) to finance the additional State benefits in the value of contracted-in schemes. We have used the additional National Insurance contributions for defined

benefit schemes, rather than defined contribution scheme, as the latter include age- and earnings-related rates.

### **Methodology – allowing for member take-up**

- 4.12 Membership of an employer's pension scheme is optional, and some employees choose not to join their employer's pension scheme. This may be especially true for low-earning employees, who may not benefit from membership of a pension scheme if it would reduce means-tested state benefits paid to them.
- 4.13 The approach that we have taken is to calculate the full value of benefits in each pension scheme for an employee who is a member. In other words, we have not attempted to reduce this to allow for the different rates of take-up in each scheme. This reflects the value of the different benefit structures of schemes to a member, rather than the cost of the scheme to the sponsoring employer (which is affected by take up rate).

### **Assumptions**

- 4.14 The value of a pension benefit represents the amount of money that, it is estimated, has to be invested now in order to provide the expected amount of the benefit at some point in the future. Therefore, when placing a value on a pension benefit it is necessary to consider the level of that benefit and also when, and for how long, it is expected to be paid. This involves making assumptions about the timing of the payment of the benefits, the amount of each payment of that benefit and the rate of investment return. The basic valuation process is illustrated by the examples set out in Appendix B.
- 4.15 The comparative values calculated are based upon assumptions, which are required in two areas:
- Financial assumptions, which relate to the level of benefits that might be paid in the future (for example, salary and pension increases) and how a value is placed on payments which will be made, in some cases, many years in the future (the discount rate).
  - Demographic assumptions, which relate to when benefits might be paid and for how long (for example, retirement rates and mortality assumptions).

The key assumptions, to which the results of this review are most sensitive, are:

- investment returns (discount rate) in excess of inflation;
- pay increases in excess of inflation;
- mortality;
- withdrawal rates; and

- assumed age of retirement.

- 4.16 In our opinion, the value placed on benefits should be assessed by reference to long-term financial assumptions. We have therefore used assumptions which, whilst framed in the context of recent market conditions, are not directly related to market conditions at a single date.
- 4.17 We believe that it is appropriate to base the investment return assumption on a best-estimate of the long-term expected return on a portfolio of assets that includes both return-seeking assets (equities and property) and matching assets (bonds).
- 4.18 The financial assumptions adopted are discussed in Appendix C and are summarised in the table below both in nominal and 'real' terms (ie relative to price inflation).

**Table 4.1**

Financial assumptions	Nominal % pa	Real % pa
Retail price inflation	3.5	-
Increases to pensions in payment:		
- inflation up to 5% pa	3.5	-
- inflation up to 2.5% pa	2.5	(1.0)
Increases to deferred pensions	3.5	-
Pay increases	5.0*	1.5*
Investment returns	6.5	3.0

\* in addition, we have made an allowance for promotional increases.

- 4.19 In our analysis we have illustrated the sensitivity of the calculations to the assumed rate of investment return by showing the impact of increasing it by 0.5% pa.
- 4.20 The demographic assumptions adopted are discussed in Appendix D.

# Section 5: Comparative values of the pension schemes

- 5.1 The charts in this section illustrate the comparative values of the pension schemes summarised in Section 2 and described within Appendices G and H, based on the methodology and assumptions described in Section 4.
- 5.2 The values shown on the y-axis of the charts described as “net value (% of pay)” are the value of current benefit accrual (net of member contributions) expressed as a percentage of pay for a member currently at the age shown on the x-axis. This represents the amount of money that a member or employer would need to put aside now to provide the pension that the member is building up over the next year of service if the assumptions adopted are actually borne out in practice. The reason the results are shown “net of member contributions” is that the value that is of interest in this comparison is the part of the total benefits that are financed by the employer (ie the element that is a part of the employee’s remuneration).
- 5.3 It should be noted that the use of different methodology and assumptions could result in significantly different comparative values. In particular, the values shown may differ from the current employer contribution rates to the schemes considered for a number of reasons, including:
- Employer contribution rates may be adjusted to allow for any surplus or deficit in a funded scheme.
  - The contribution rates are averages across the membership profiles of the schemes, and so cannot be directly compared with the age-by-age values shown here.
  - The assumptions used in setting the contribution rates may be different from those used in our report, for example as a result of differences in market conditions or demographic expectations at the time of the valuation or the levels of prudence adopted.



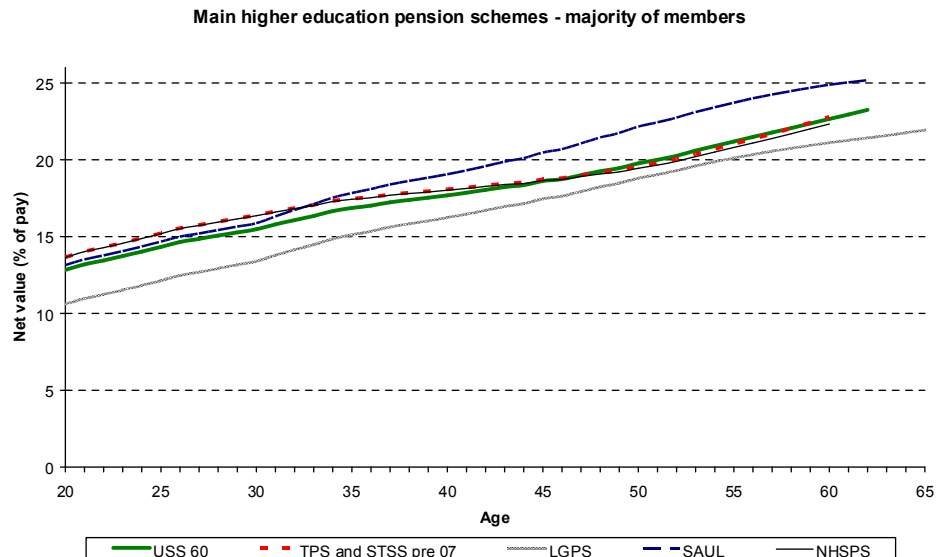
## Main higher education pension schemes

5.4 The following two charts show the value of benefits for members of the higher education schemes available to employees of more than one institution.

5.5 Some of the schemes have two categories of members with different benefit accrual, the main difference being that the category that forms the minority of the membership has a higher assumed retirement age. In order to reduce the number of lines on any chart we have split the results into two:

- Chart 5.1 shows the value of benefits for the category of members which forms the majority in those schemes; and
- Chart 5.2 shows, for those schemes where there are two categories of member, the value of benefits for the minority of members.

**Chart 5.1**



### Key

- USS 60: Universities Superannuation Scheme; members on employment contracts including the right to retire at age 60 on an unreduced pension.
- TPS & STSS pre 07: Teachers' Pension Scheme pre-1 January 2007 joiners and Scottish Teachers' Superannuation Scheme pre-1 April 2007 joiners
- LGPS: Local Government Pension Schemes (England and Wales)
- SAUL: Superannuation Arrangements of the University of London
- NHSPS: NHS Pension Scheme (available to pre-1 April 2008 joiners)

**Chart 5.2**



**Key**

- USS 65: Universities Superannuation Scheme; members for whom pension is reduced on retirement from active service before age 65.
- TPS & STSS post 07: Teachers' Pension Scheme joiners on or after 1 January 2007 and Scottish Teachers' Superannuation Scheme joiners on or after 1 April 2007
- New NHSPS: New NHS Pension Scheme (for joiners on or after 1 April 2008)

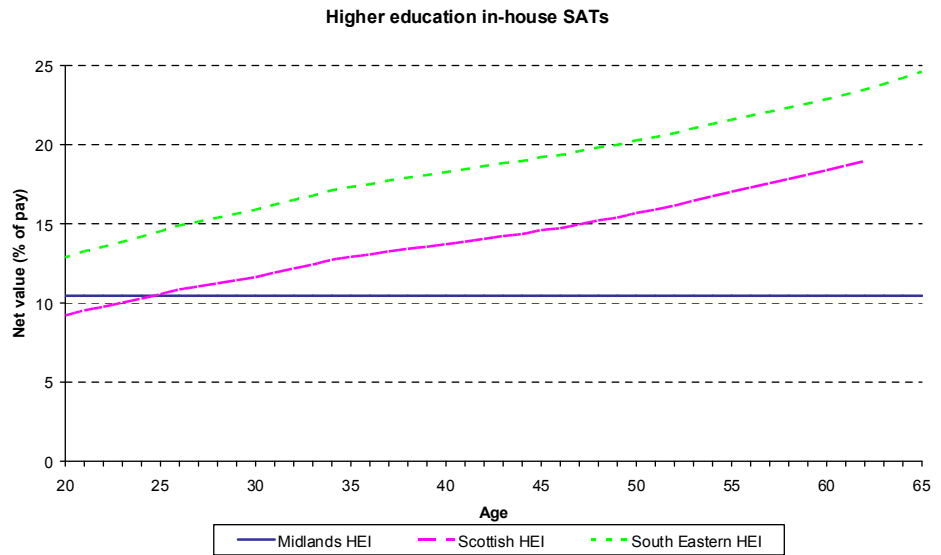
5.6 It can be seen that the values of the main higher education pension schemes are close together. Although, as can be seen in Section 2 and Appendix H, there are many differences in the benefits provided the differences tend to offset each other. For example, USS 60 has a higher assumed retirement age than TPS, STSS and NHSPS but better risk benefits on death or ill-health. SAUL is the most valuable at most ages, partly due to the higher level of risk benefits and spouse's pension provided and the slightly lower member contribution rate. The LGPS and the schemes in the second chart are the least valuable, mainly due to the higher assumed retirement ages of 65.



### Higher education 'in-house' Self-Administered Trusts

5.7 The following chart shows the value of benefits for members of the three sample higher education Self-Administered Trusts (SATs) which are provided "in-house" by one institution to its employees.

Chart 5.3

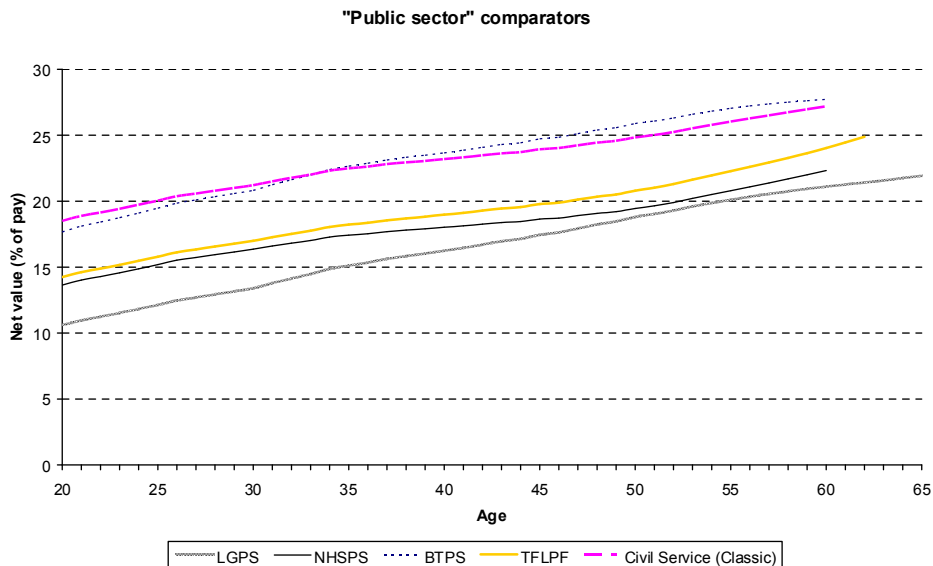


5.8 It can be seen that the values of the three sample higher education Self-Administered Trusts vary widely. Of the two final salary schemes, the South Eastern HEI is most valuable, mainly due to the higher benefit accrual and lower member contribution rate and because the Scottish HEI pension increases are capped at 2.5%. The least valuable is the defined contribution scheme, the Midlands HEI, in which employer contributions are 10% of pay (as explained in paragraphs 4.8 and 4.11, these contributions are adjusted in order to calculate a comparable value).

## “Public sector” comparators

5.9 The following chart shows the value of benefits for members of the five sample pension schemes available to public sector employees or employees of privatised organisations.

Chart 5.4



### Key

LGPS: Local Government Pension Schemes (England and Wales)  
 NHSPS: NHS Pension Scheme (available to pre-1 April 2008 joiners)  
 BTPS: The BT Pension Scheme  
 TFLPF: The Transport for London Pension Fund  
 Civil Service (Classic): The Civil Service Classic Pension Scheme

5.10 It can be seen that there is some variation in the values of the five sample “public sector” pension schemes. The BT and Civil Service pension schemes are the most valuable mainly due to the low normal retirement ages of 60, high BT accrual rates and the low Civil Service member contribution rate. The Local Government Pension Schemes are the least valuable, mainly due to the higher assumed retirement age of 65.

5.11 It should be noted that two of these sample schemes are open to new employees (the Local Government Pension schemes and the Transport for London Pension Fund) while the other three are closed. Where schemes are closed, the benefits of the replacement schemes available to new employees will typically have a slightly lower value than those which they replace. Taking each in turn:

- As can be seen from charts 5.1 and 5.2, the value of the New NHS Pension Scheme benefits (available to joiners on or after 1 April 2008) is around 1.5% to 2.5% of pay lower than the old NHS Pension Scheme benefits.
- The Civil Service (NUVOS) Scheme which is open to joiners on or after 30 July 2007 is a career average scheme rather than a final salary scheme. We would expect that on the assumptions used the value of benefits is provided by the NUVOS scheme would be slightly lower than those provided by the Classic Scheme for younger members but slightly higher for older members.
- BT employees from 1 April 2001 have access to a defined contribution scheme to which BT pay contributions of up to 10% of pay.

### *Private sector comparators*

5.12 We have also carried out comparisons for a sample of benefit structures typically available to private sector employees. A summary of the comparator benefits valued is shown in the table below.

**Table 5.1**

Type of scheme	Member contribution rate	Normal retirement age	Pension accrual rate	Spouse's fraction	Employer contribution rate
A Defined benefit	5%	60	1/60	1/2	n/a
B Defined benefit	5%	65	1/80	1/2	n/a
C Defined contribution	n/a	n/a	n/a	n/a	10%
D Defined contribution	n/a	n/a	n/a	n/a	5%

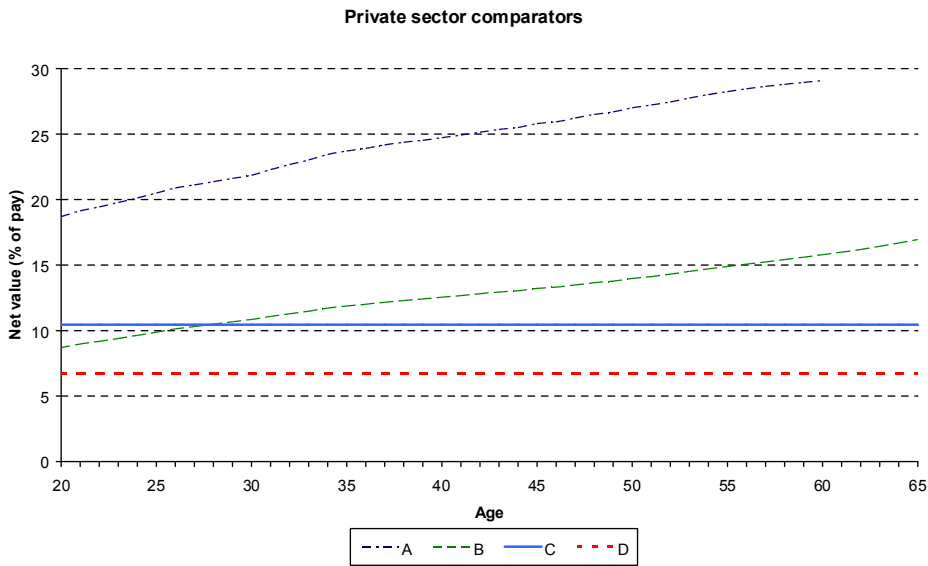
5.13 The "n/a"s shown in this table represent data items which are not relevant to that type of scheme or do not affect our calculations of comparative values.

5.14 Comparators A and B are designed to broadly represent upper and lower quartile defined benefit arrangements, C and D are designed to broadly represent upper and lower quartile defined contribution arrangements.

5.15 Further discussion regarding the choice of these private sector comparators is set out in Appendix G.

5.16 The following chart shows the value of benefits for members of the four typical sample pension schemes available to private sector employees.

**Chart 5.5**



**Key**

- A: defined benefit (upper quartile)
- B: defined benefit (lower quartile)
- C: defined contribution (upper quartile; 10% employer contribution rate)
- D: defined contribution (lower quartile; 5% employer contribution rate)

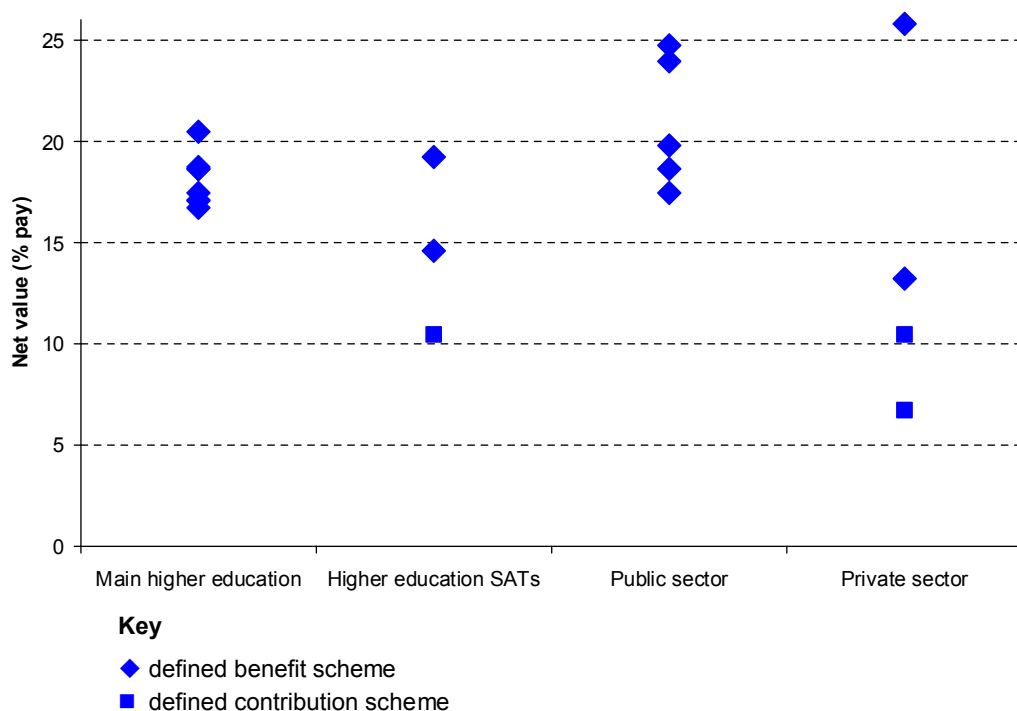
- 5.17 It can be seen that the values of the four typical private sector pension schemes vary widely. The two defined benefit schemes are the most valuable and the values of these differ significantly. The two defined contribution schemes are the least valuable. (As explained in paragraphs 4.8 and 4.11, the defined contribution schemes' employer contribution rates are adjusted in order to calculate a comparable value).
- 5.18 Of course, in comparing the benefits offered to employees of higher education institutions with those in the private sector, it is important to consider all elements of remuneration between the two groups to provide a representative picture. To focus on one element of pay, such as pension benefits, could result in incorrect conclusions being drawn. If pay is generally higher in the private sector, this might act to increase the relative values of the pension benefits in absolute (as opposed to percentage of pay) values. Therefore, the results of this comparison of pension benefits with the private sector should be considered only in the context of a review of total remuneration. This is an area in which we would be pleased to assist the JNCHES sub-group in the future.



### Comparisons of the groups of pension schemes

5.19 The following chart shows the distribution of the values of benefits for a member aged 45 for all of the schemes included in the valuation, split into the four groups of schemes. Age 45 has been chosen to represent a rounded average age of employees in the higher education sector<sup>4</sup>. Note that the “higher education” column includes both the values of benefits to the majority of members in Chart 5.1 and the minority of members in Chart 5.2.

**Chart 5.6**  
**Comparison of the four groups of pension schemes at age 45**



5.20 It can be seen that the values of the main higher education schemes are close together and are higher than two of the three sample higher education Self-Administered Trusts. They are within the range of the sample “public sector” scheme values, whose values also include some of the highest. The private sector scheme values are the most varied and include the schemes with the lowest and highest values of all the schemes.

5.21 As discussed in Section 3, the trends in the private sector are away from defined benefit schemes towards defined contribution schemes and towards lower value defined benefit provision where this is retained. Therefore over time the more common private sector scheme is expected to be towards the lower three points on the right-hand-side of Chart 5.6. Public sector pension provision, including higher education sector

<sup>4</sup> According to the Higher Education Statistics Agency report “Resources of Higher Education Institutions 2006/07” the average age of full time academic staff was 42.9 and the average age of part-time academic staff was 44.7.

provision, will become generally be more valuable than private sector provision.

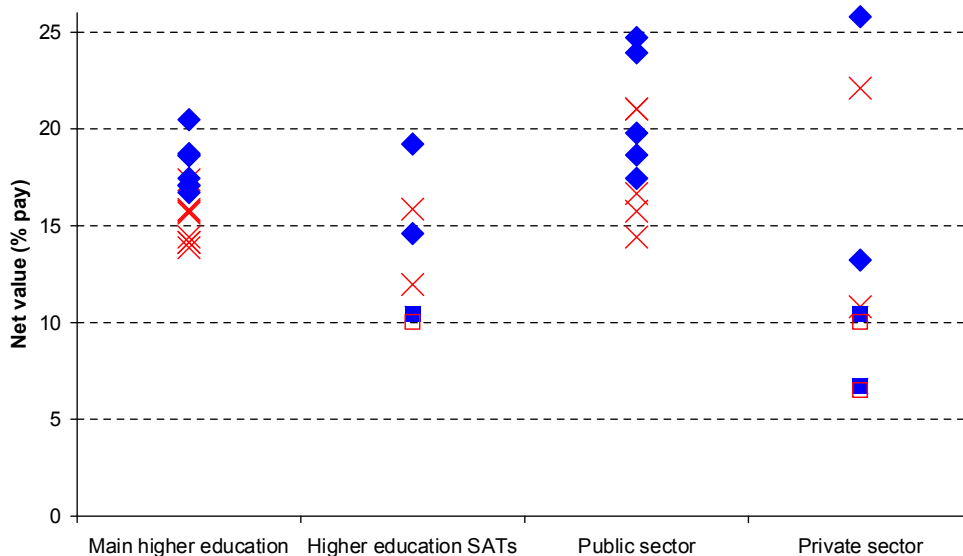
5.22 We have shown in Appendix F two other versions of Chart 5.6 based on values at ages 35 and 55. These show a similar general picture to Chart 5.6, although for each group of schemes there is slightly less variation in the values of defined benefit pension schemes at age 35 and more variation at age 55.

### Sensitivities

5.23 The charts shown above are based on a particular set of assumptions, as described in Section 4 and Appendices C and D.

5.24 The values placed on the benefits are sensitive to the assumptions adopted. The assumed rate of investment return is particularly significant. The following chart is a reproduction of Chart 5.6, with the corresponding distribution of values based on a nominal discount rate of 7.0% pa (ie 0.5% pa higher than the discount rate of 6.5% pa used to produce Chart 5.6).

**Chart 5.7**  
**Comparison of the four groups of pension schemes at age 45**  
**Discount rate sensitivity**



#### Key

- ◆ defined benefit scheme (discount rate 6.5%)
- defined contribution scheme (discount rate 6.5%)
- × defined benefit scheme (discount rate 7.0%)
- defined contribution scheme (discount rate 7.0%)

5.25 This shows that the values based on a discount rate of 7.0% pa differ from those based on a discount rate of 6.5% pa as follows:

- Defined benefit pension scheme values at age 45 all reduce by around 3% to 4% of pay. This reduction is because it is assumed



that future returns on assets are greater, so less money is needed now to pay a given benefit amount in the future. Because the values of each defined benefit scheme move in a similar way, the relative values of the defined benefit pension schemes are broadly unchanged.

- Defined contribution scheme values all reduce by under 0.5% of pay. This small reduction is because the downward adjustment to the values to reflect the difference in the assumptions used to value the defined benefit schemes and the more prudent assumptions used to offer annuities to defined contribution scheme members is more significant. Because the values of each defined contribution scheme move in a similar way, the relative values of the defined contribution pension schemes are broadly unchanged.

5.26 If Chart 5.7 were to be produced based on values at a lower (higher) age, it would show that the value of each defined benefit scheme would reduce by slightly more (less), but the values of defined contribution schemes would be as those shown above.

5.27 This sub-section illustrates that, if the future investment return is assumed to be higher than that we have used, the relative values of the defined benefit schemes remain broadly unchanged but the gap between these and the (mostly private sector) defined contribution schemes reduces. If the investment return is assumed to be lower, the gap between the defined benefit schemes and the defined contribution schemes increases.

# Appendix A: Comparison of valuation methods

The choice of method has a major impact on the relative values of the pension benefits. The three main actuarial valuation methods that could have been used in this assessment are described below, together with their relative strengths and weaknesses. As discussed in Section 4 of this report, we have adopted the projected unit method to calculate the relative values of the defined benefit pension schemes.

## Projected unit method

The *projected unit method* looks at the cost of benefits arising over the next year of service, allowing for future pay increases prior to retirement or earlier exit. This is the approach typically used for funding pension schemes and for assessing pension costs for accounting purposes. It is more suitable for groups than individuals.

### Advantages

- This approach measures the additional benefit accrued over the following year and therefore captures the benefit being earned in addition to pay in the year in which it accrues.
- The approach is relevant to the current profiles of the remit groups.
- For individuals of the same age and gender, the cost is affected by the benefit structure (including assumed retirement age) of the scheme only and not by the individual's history.

### Disadvantages

- The results under this approach will change over time if the age/gender profile of the remit groups changes or the pension schemes to which members belong change.

## Current unit method

The *current unit method* looks at the cost of benefits arising over the next year of service but, rather than allowing for future pay increases, it allows for increases linked to price inflation and in addition takes account of the impact of pay increases above price inflation on benefits accrued in respect of past years of service. This is the approach used for disclosing the value of directors' pension benefits in company accounts and is more appropriate for individual assessments than for groups.

### *Advantages*

- The approach is relevant to the current profiles of the remit groups.
- This captures both the additional accrual of benefits and the effect of pay increases on total pension benefits.

### *Disadvantages*

- Results are dependent on assumptions about individuals' past pension histories, in particular the age at which they join the scheme, as the length of past service is a key factor in the calculated value.
- Costs rise steeply with increasing length of service.

### **Entry age method**

The entry age method looks at the average cost of benefits arising over the whole of a typical career for a new entrant allowing for future pay increases prior to retirement or earlier exit.

### *Advantages*

- The approach captures benefits arising over a full career and is useful for comparing the ultimate value of benefits received by individuals following alternative career paths.
- As the approach looks forward from the start of the career, this approach avoids the complication of treatment of past service benefits.

### *Disadvantages*

- Results are dependent on the assumed age at entry.
- The approach averages benefit accrual over a full career which can mask features such as the accrual rate changing depending on service.
- The results could be difficult to interpret as the entry ages to each group of employees may differ significantly..

# Appendix B: Valuation of pension benefits

## Valuing defined benefit pension schemes

When valuing a defined benefit we need to consider not just the level of that benefit but also when, and for how long, it is expected to be paid. This involves making assumptions about the probability of the timing of the payment of the benefits, the amount of each payment of that benefit and the rate of investment return.

In order to explain how we value benefits, we illustrate the process below with three examples, beginning with the simplest type of benefit - a lump sum payable from a fixed age.

### Example 1

Suppose, we want to calculate the difference in cost of providing lump sum of £1,000 and a lump sum of £1,100, both payable today. The difference in value is clearly £100.

### Example 2

Suppose, we want to calculate the difference in cost of providing a lump sum of £1,000 payable today and a lump sum of £1,100 payable in five years time. The difference in value is not readily apparent since the two benefits are payable at different times. In order to compare them, we need to estimate how much money needs to be set aside at the current time to meet these benefits. How much is £1,100 in five years' time worth now? To calculate this, we need to make an assumption about the rate of investment return expected to be earned over the next five years on money set aside now.

Suppose we assume a rate of return of 10% per annum can be earned. In order to achieve a lump sum benefit of £1,100 in five years' time, we need to set aside £683 since this amount plus investment returns is expected to equal £1,100 in five years' time. Consequently the cost of providing this benefit is £683 under the assumption adopted. This is shown in the table below.

Table B.1

Year	Amount held at start of year	Investment return added over the year	Amount held at end of year
1	£683	£68	£751
2	£751	£75	£826
3	£826	£83	£909
4	£909	£91	£1,000
5	£1,000	£100	£1,100



### Example 3

Suppose we want to calculate the difference in the cost of providing a lump sum of £1,000 in 20 years' time and a lump sum of £1,100 from a comparator pension scheme payable in 25 years' time. Suppose, in addition, that the lump sum amounts increase in line with price inflation between now and the date of payment. Furthermore, suppose that the lump sums are only payable if the individual concerned is still alive at the date of payment.

For this example we need to make three assumptions:

- The expected rate of return – suppose this is assumed to be 10% pa.
- The expected rate of price inflation – suppose this is assumed to be 5% pa.
- The likelihood that the individual will be alive in 20 or 25 years' time - suppose these are assumed to be 90% and 85% respectively.

If the individual will definitely survive to the end of the 20 year period then at that time the benefit payable will be £2,653 (this is the £1,000 increased for inflation by 5% every year). Assuming investment returns of 10% a year means that the amount that would need to be invested if the benefit of £2,653 will definitely be payable is £394 (since this amount plus 10% every year will result in a lump sum of £2,653). However, there is only a 9 in 10 chance (90%) that the payment will be required and so investing 90% of £394 (i.e. £355) would be a sensible provision for the cost of providing this benefit under the investment return and benefit increase assumptions adopted.

Following the same argument for the second lump sum payable in 25 years time suggests that £292 would be a sensible provision for the cost of providing this second benefits.

The difference in cost is then £63, with the cost of the first lump sum being greater since it is more likely to be paid and there is also less time on which investment returns can be achieved in excess of the rate at which the benefit increases.

## **Pension Benefits**

A pension benefit can be thought of as a series of lump sum benefits and to cost these we calculate the present value of each lump sum payable, making allowance for increases, the probability of each one being paid and the rate of investment return. The sum of the cost of providing these individual lump sums represents the cost of the pension.

### **Effect of member contributions**

In many benefit arrangements the member will meet part of the cost of providing the benefit by paying member contributions that are then invested. The balance of the cost is then paid by the employer, typically as an additional contribution invested alongside the member contribution.

### **The value of defined contribution benefits**

The simplest interpretation of cost to an employer providing defined contribution benefits is the contribution paid by that employer. In general this is the extent of an employer's obligation to providing the benefit since the accumulated pot of assets resulting from these contributions (and those made by employees) is typically used to provide a lump sum at retirement which may be converted to a pension on non-guaranteed conversion terms.

We believe that in order to compare the benefits offered by a defined contribution arrangement against a defined benefit arrangement, the value of a defined contribution arrangement should be based around the employer contribution rate relevant at the age of the individual. This should, however, be adjusted (downwards) to reflect the terms under which members can purchase a pension with their accumulated pot ("annuity conversion terms"). These terms are generally offered based on assumptions which are more prudent than those used in valuing the defined benefit alternative, mainly due to the profit margin and buffer against adverse experience used by companies offering to convert money purchase funds into pension. We have assumed that the annuities available to defined contribution members are priced in line with the assumptions which are currently mandated for use in the Statutory Money Purchase Illustrations provided to individuals with defined contribution benefits each year as this is an objective measure on which to estimate future open market conversion terms.





# Appendix C: Financial assumptions

In this appendix we discuss the choice of financial assumptions used to value defined benefit schemes in this comparative valuation.

## **The rate of retail price inflation**

The Bank of England's inflation target for the Consumer Prices Index (CPI) is broadly consistent with retail price inflation (the usual measure for setting pension increases) of around 2.75% per annum. However, market expectations for retail price inflation, as measured by the spread between fixed interest and index linked gilt yields, have been consistently above this target and have fluctuated broadly around 3.5% per annum over the past year.

Bearing in mind that this assumption itself does not have a major impact on the results (it is the gap between the inflation assumptions and the other financial elements which is more significant), we have used an assumption for retail price inflation of 3.5% per annum.

## **Future investment returns (the discount rate)**

The investment return assumption is used to discount the expected future benefit payments, and is the most significant assumption in determining the value of these benefits.

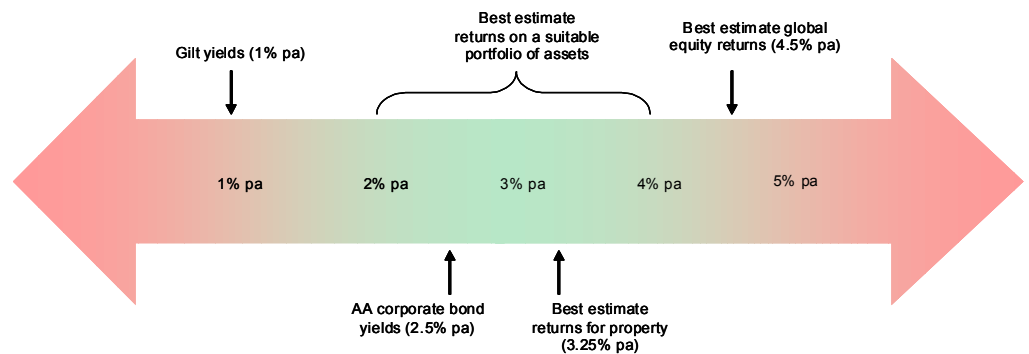
First, we must consider what we mean by 'value'. We define this as the amount of assets required to be held now which are expected, based on some assumptions, to be exactly enough to pay the benefits arising in the future. The future investment return assumption is therefore driven by the type of assets that we assume are being held in order to meet the benefit payments. This, in turn, depends on the risk-appetite of the individual or employer/trustees funding the benefits. There are a number of possible approaches for choosing the rate of future investment returns to be assumed, including:

- By reference to pension scheme accounting requirements – this approach implies the use of a high quality corporate bond yield. High quality corporate bond yields have been volatile over the year to date, but are currently around 2.5% above inflation.
- By reference to an investment strategy designed to match the liabilities to the extent possible – this approach might suggest considering gilt returns, with an appropriate margin reflecting the term and specific nature of the liabilities. Gilt yields are around 1% above inflation. This might reflect the cost to an individual of purchasing the benefits with an insurance company on the open market.
- By reference to the best estimate rate of return one might expect to achieve on a suitable portfolio of assets (which would include a combination of bonds, property and equity) were the scheme to



invest over the long term to provide for the liabilities. This might reflect the assets held by a “typical” funded pension scheme or an “average” portfolio in which an individual, prepared to accept some level of risk, chose to invest their pension contributions. Watson Wyatt's Global Asset Model suggests that the median return over 10 years on a 50/50 mixture of overseas and UK equities might currently be around 4.5% per annum above inflation, the median return on property might currently be around 3.25% per annum and the median return on high quality corporate bonds might currently be around 2.5% pa above inflation.

Based on these options, the range of real discount rates (ie: above price inflation) which could be used for the comparative review are illustrated below:



There is an argument for adopting a lower discount rate for “public sector” schemes (which have Government backing) compared to private sector schemes to reflect the different levels of security for members. This is particularly true of arrangements for which benefit payments are paid directly out of government expenditure rather than being met from an invested fund held for this purpose (as is the case for the pension schemes available to some higher education employees).

We have used the same discount rate to value benefits in all pension schemes. We believe that this is appropriate given the objective of the comparative valuation (to compare differences in benefit design rather than benefit vehicles) and the introduction of the Pension Protection Fund, which narrows (but does not remove) the difference in the risk attached to pension benefits in the private and public sectors.

Given that the cost of providing benefits to higher education employees is to be compared between groups of employees with the alternative provisions of comparator organisations' pension schemes, we believe that it is appropriate to base the investment return assumption on a best estimate of the long-term return expected on a portfolio of assets that includes both return seeking assets (equities and property) and matching assets (bonds). Based on this and current long-term expectations, we have used a long-term investment return assumption of 3.0% per annum above inflation.

In addition, we have produced sensitivity results based on a long-term investment return of 3.5% per annum above inflation.

## Pay increases

This assumption should reflect the expected pay increases (including promotional increases) for higher education employees. We have reviewed the assumptions used in the most recent actuarial valuation or review of each of the six Higher Education Pension Schemes available to employees of more than one institution (except the Local Government Pension Scheme, for which each local authority produces its own scheme's valuation). We have also reviewed the results of Mercer's recent analysis of salary increases over the last three years for members of the Universities Superannuation Scheme.

Pay increases are generally split into general earnings increases and promotional increases. For the former, the most commonly used assumption in the reviews is 1.5% pa above price inflation, and we have also used this assumption. For promotional pay increases a scale which varies by age is usually used. We have used a single scale, calculated as a broad average of the salary scales used in the reviews to be 6.5% pa at age 20 reducing linearly to 0% pa at age 52.5 (for example, the assumption at age 40 is 2.5% pa).

## Summary

The financial assumptions that we have used for the valuation of defined benefit schemes are summarised in Table 2.1 which is reproduced below:

**Table C.1**

Financial assumptions	Nominal % pa	Real % pa
Retail price inflation	3.5	-
Increases to pensions in payment:		
- inflation up to 5% pa	3.5	-
- inflation up to 2.5% pa	2.5	(1.0)
Increases to deferred pensions	3.5	-
Pay increases	5.0*	1.5*
Investment returns	6.5	3.0

\* in addition, we have made an allowance for promotional increases.

In our analysis we have illustrated the sensitivity of the calculations to the assumed rate of investment return by showing the impact of increasing it by 0.5% pa.



# Appendix D: Demographic assumptions

In this appendix we discuss the choice of demographic assumptions used to value defined benefit schemes in this comparative valuation.

## Mortality

Over the past few years there has been much discussion of mortality assumptions within the Actuarial Profession, in particular on the allowance made for future improvements in mortality. Trustees of private sector schemes are now typically assuming much longer life expectancies than they were a few years ago, with increases typically being based on statistics published by the Continuous Mortality Investigation (CMI) and analyses of mortality rates observed in pension schemes.

The most recently published mortality tables are the "00 Series" released in 2005 by the CMI, based on mortality experience from 1999 to 2002; we have assumed current mortality rates consistent with these tables.

It is also important to make an allowance for improvements in life expectancy from 2000 (the date relevant to these tables) to date and in the future, and we have made a commonly used allowance of the "medium cohort" projections published by the Actuarial Profession in 2002, applying a 1% pa "improvement floor". These terms are described in Appendix E.

The life expectancies from age 60 for members currently aged 50 and 60 at the date of the comparative valuation based on these assumptions are shown in the table below.

**Table D.1**

Age at date of review	Assumed future life expectancy from age 60 (years)	
	Males	Females
50	28.1	30.6
60	27.0	29.6

## Assumed age of retirement

We have assumed that early retirement reductions and late retirement uplifts are cost-neutral. Therefore, for schemes where the minimum age at which benefits are payable unreduced (MPAU) is equal to normal retirement age (NRA), we have valued benefits assuming retirement at this age. For schemes where MPAU is less than NRA the assumption must be somewhere within this range. The Superannuation Arrangements of the University of London is an example of

such a scheme, where MPAU is age 60 and NRA is age 65, and for the actuarial valuation as at 31 March 2005 the assumed retirement age for active members was age 62. This appears to be broadly consistent with the early retirement decrements used in actuarial reviews of other Higher Education schemes and therefore we have assumed retirement at age 62 for such schemes.

On retirement from deferred status in the Universities Superannuation Scheme, NRA is age 65 and MPAU is age 63½. For consistency with the above approach, we have valued these benefits based on assumed retirement at age 64 (which is also roughly 40% through the period MPAU to NRA).

The assumed retirement age for schemes where MPAU is different to NPA is stated for actives for each scheme within the “Assumed retirement age (actives)” column in the benefit summary table in Section 2.

### **Rate of withdrawal and rate of ill-health retirement**

These rates vary by age in practice and so an age-by-age decrement table is usually used which has been produced based on recent demographic experience amongst the membership. As such a data analysis is not part of the scope of this valuation, we have reviewed the assumptions used in the most recent actuarial valuation or review of each higher education pension scheme (which would have been based upon experience in that pension scheme) and taken a broad average.

Based on this approach, we have made the following assumptions:

- Withdrawal (ie leaving active service and becoming a deferred member); an assumed rate of 12% pa at age 20, reducing uniformly to 0% pa at age 55 (by which time most members who leave service will retire rather than becoming deferred). So, for example, the assumed rate at age 40 is around 5% pa.
- Ill-health retirement; an assumed rate of 0% pa from ages 20 to 30, increasing arithmetically to 0.2% at age 40, and then increasing broadly geometrically to 0.75% at age 50, 2% at age 60, and 3% at age 65.

### **Male / female ratio**

This assumption should broadly reflect the population of higher education employees. The Resources of Higher Education Institutions 2006/07 report showed that 48% of combined higher education staff were male and 52% were female; we have used these proportions in our calculations.

## Proportion married and age difference

We have used the following commonly used assumptions:

- Proportion married at retirement: 80%
- Age difference: husband 3 years older than wife.

## Allowance for commutation

Under the current tax regime, the maximum lump sum that can usually be paid tax-free is broadly the equivalent value of 25% of the pension, although not all members will choose to commute the maximum amount of pension. For this valuation we have made an allowance for pension schemes in which lump sums are not accrued and in which members may choose at retirement to commute pension for a lump sum at fixed terms, for which we have allowed for commutation of 20% of pension.

## Summary of assumptions adopted

The demographic assumptions adopted for the valuation of the defined benefit schemes summarised in the following table.

**Table D.2**

Demographic assumptions	
Mortality base table	"2000" series
Mortality improvements from 2000	medium cohort with a 1% floor
Male: female ratio	48%: 52%
Assumed age of retirement	see above
Rate of withdrawal	age-by-age table (5% pa at age 40)
Rate of ill health retirement	age-by-age table (0.2% pa at age 40)
Proportion married	80%
Age difference (husband-wife)	3 years
Allowance for commutation	20% of pension commuted where fixed terms and no separate lump sum accrued





# Appendix E: Mortality improvement allowance terms

The terms “medium cohort” and 1% “improvement floor” used in Appendix D relate to allowances for future improvements in mortality.

*What do we mean by mortality improvements?*

If a mortality rate of 1% applies at age 65 (say), for every 10,000 members aged 65, 100 are expected to die before age 66. If this mortality rate improves by 1% then out of a group of 10,000 members aged 65, 99 would be expected to die before age 66.

*What is “the cohort”?*

In the context of mortality, “the cohort” refers to the generation born between 1910 and 1942 and, in particular, centred in 1926. Within the population as a whole, and also within life assurance policyholders, rates of mortality have fallen more rapidly for this group than for previous and subsequent generations. So, for example, mortality rates at age 65 fell most quickly around 1991 (ie those born in 1926) and rates at age 75 fell most quickly around 2001.

*What is the “medium cohort” projection?*

In December 2002 the Actuarial Profession published three illustrative projections of accelerated mortality improvements applied to those born in the cohort generation. These patterns were additions to the standard improvement factors issued with the most up-to-date mortality tables available at the time (the “1992 series”). The “short”, “medium” and “long” cohort projections refer to the period for which additional mortality improvements are assumed to affect the cohort in future.

The “short”, “medium” and “long” cohort projections assume that the additional cohort improvements expire completely by 2010, 2020 and 2040 respectively. However, the additional improvements begin to fall away well before those end dates. The short cohort additional improvements have now almost ceased to have any effect and the medium cohort improvements are now in rapid decline. However there is no evidence of such declines in actual mortality experience.

*What is a 1% “improvement floor”?*

The cohort and standard mortality projections assume that annual mortality improvements eventually fall to zero. Rather than assume that improvements will tail off to zero, some minimum level of annual improvement (an “improvement floor”) might be applied until members reach the maximum age allowed for in the mortality table (typically 110 or 120). For example, under the allowance we will use, the “medium cohort” projection would be used but for any year and age where the assumed improvement is less than 1%, it would be replaced with 1%.

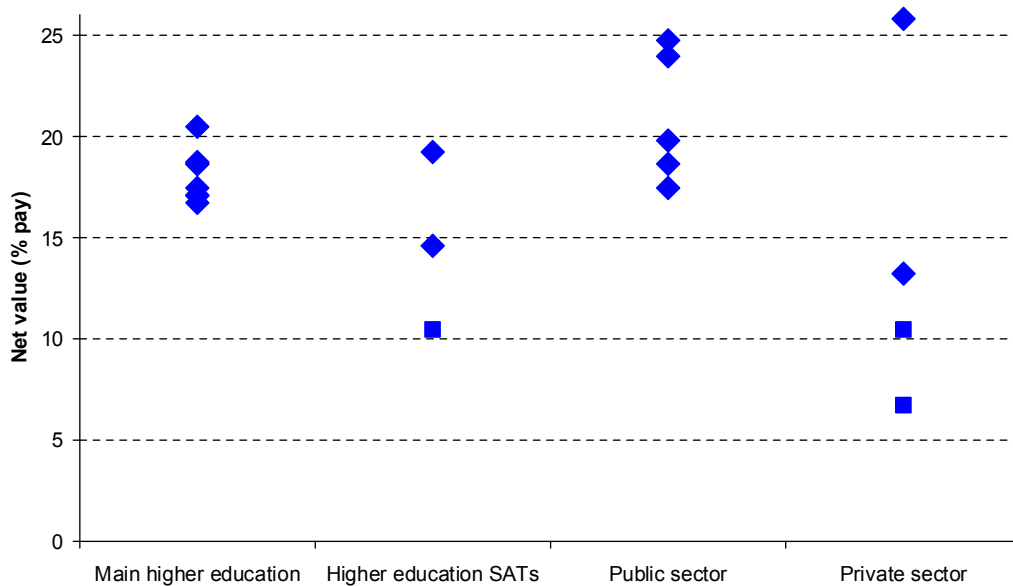


# Appendix F: Grouped values at other ages

This appendix shows the distribution of the values of benefits for members at three different ages for all of the schemes included in the valuation, split into the four groups of schemes.

The first chart, showing values at age 45, is a reproduction of Chart 5.6.

**Chart F.1** Comparison of the four groups of pension schemes at age 45



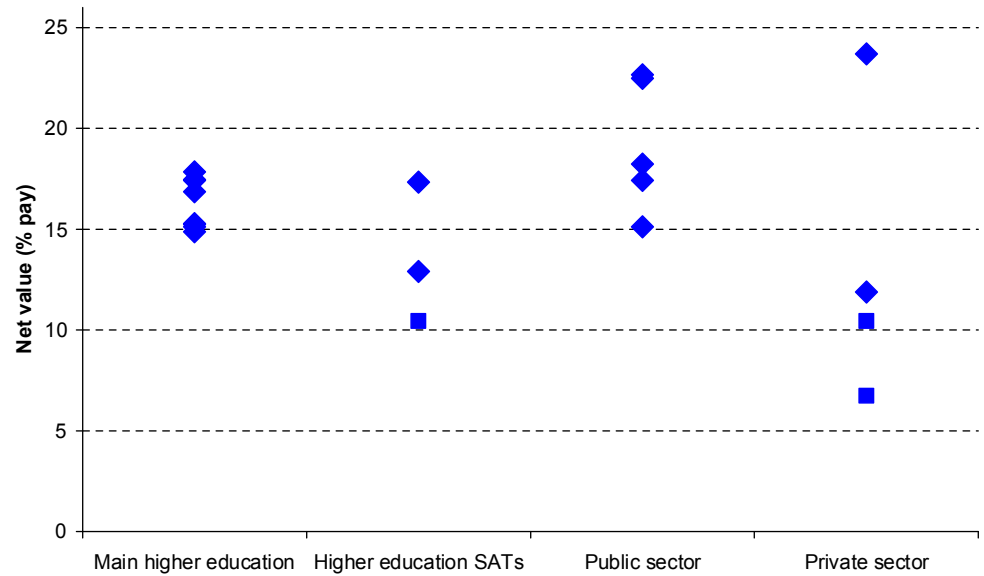
**Key**

- ◆ defined benefit scheme
- defined contribution scheme

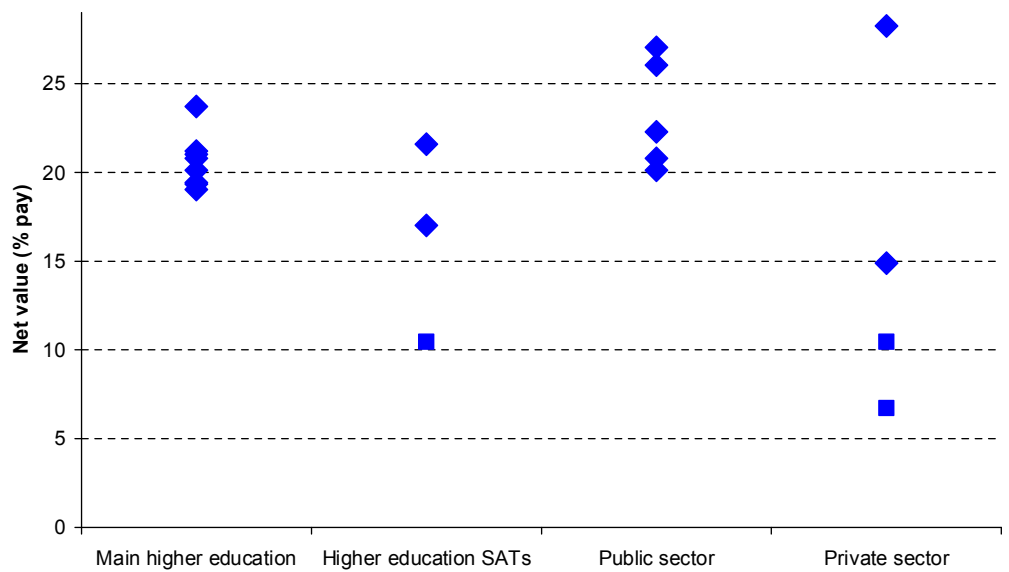


The following two charts show the equivalent values at ages 35 and 55:

**Chart F.2**  
Comparison of the four groups of pension schemes at age 35



**Chart F.3**  
Comparison of the four groups of pension schemes at age 55



**Key**

- ◆ defined benefit scheme
- defined contribution scheme

These charts show a similar general picture to Chart F.1, although for each group of schemes there is slightly less variation in the values of defined benefit pension schemes at age 35 and slightly more variation at age 55 than at age 45.

# Appendix G: Private sector comparators

The purpose of this appendix is to set out and briefly discuss the private sector comparators that have been used in the comparative valuation.

The choice of comparators was originally recommended by us and was then agreed with JNCHES sub-group.

## Different approaches to choosing schemes

### *Actual schemes vs representative schemes*

The comparators could be either:

- the benefits payable to employees of actual selected comparator companies in the private sector, or
- typical schemes which broadly represent the range of benefits commonly available in the private sector for comparator employees.

The first approach would require a handful of private sector companies whose employees the sub-group already considers to be good comparators for higher education employees. We understand that such a group of employees is not known, and so the second approach has been used.

### *New entrants vs existing employees*

The pension benefits offered on employment in the private sector are not always the same as those provided to employees who have been in service for some time (in particular, many defined benefit plans have recently been closed to new entrants or the benefit structure for new accrual has changed). The extent to which allowance should be made in the comparative valuation for these differences in the benefits is an important consideration. For example, for an individual who has been employed in higher education for ten years, should the comparator pension scheme used be the pension scheme available to the individual if they left higher education and joined the comparator now, or should it be the arrangement which would be available if they had been with the comparator for ten years?

The JNCHES sub-group has decided that both closed and open schemes should be considered in comparison and therefore the private sector comparators are based upon a range of pension schemes including both groups of schemes.

### *Roles of comparator employees*

Thirdly, we must consider which individuals in the private sector are appropriate comparators for higher education employees. We understand that appropriate comparators are private sector employees below senior management level.

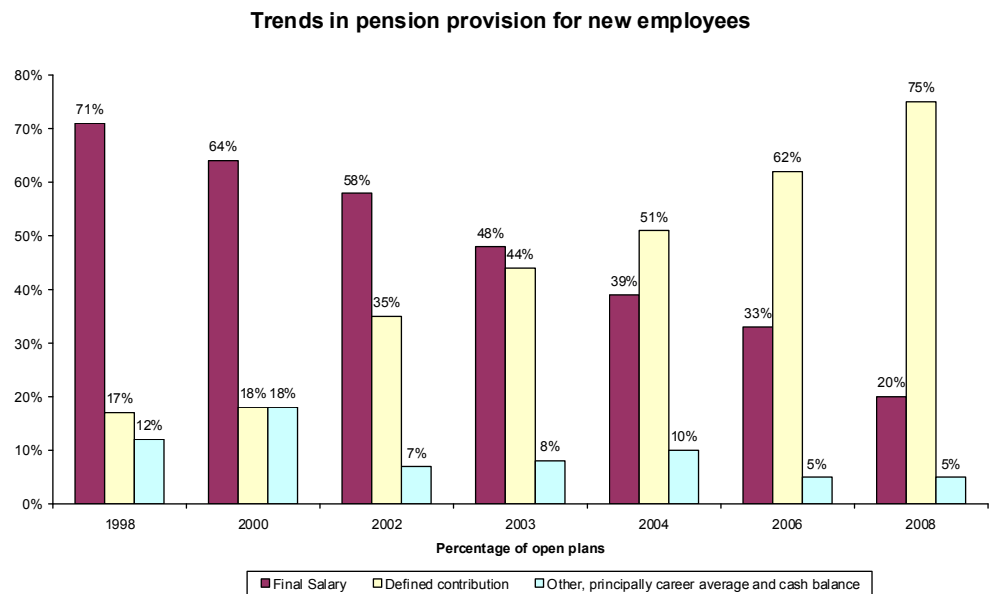
### **Sources of information**

The main sources of information that we have used are the Watson Wyatt 2006 Pension Plan Design Survey (WWPPDS 2006) and some preliminary results of the Watson Wyatt 2008 Pension Plan Design Survey (WWPPDS 2008).

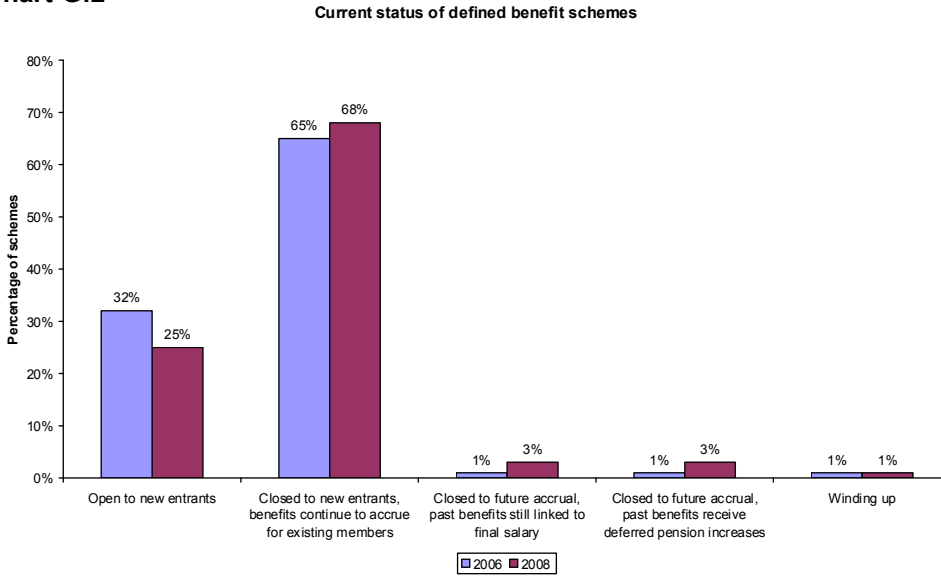
### *Defined benefit vs defined contribution over time*

There has been a general move away from defined benefit (mainly final salary or career average) pension provision to defined contribution pension provision, as illustrated by the following charts from the preliminary results of the WWPPDS 2008:

**Chart G.1**



**Chart G.2**

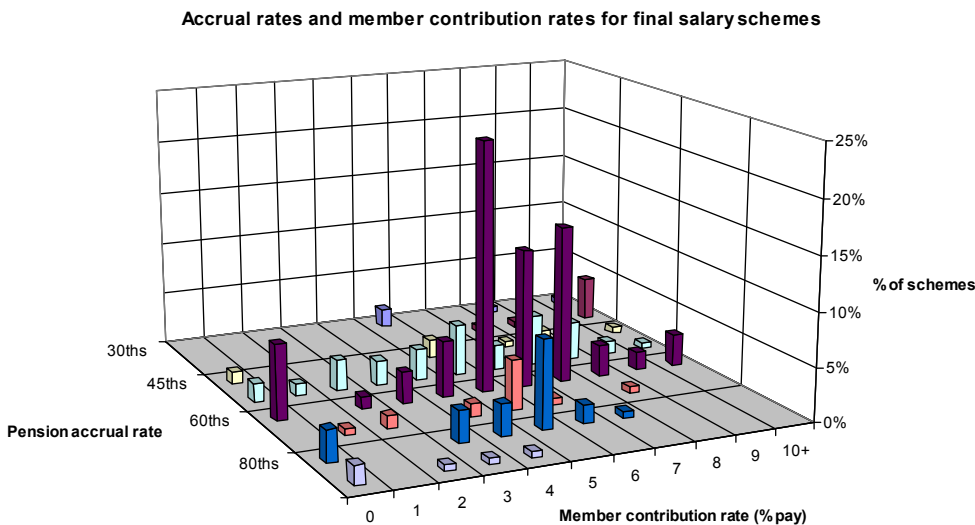


These charts show that now only 25% of new employees in the private sector are eligible to join a defined benefit scheme, whereas a larger proportion of existing employees would have been eligible to join a defined benefit scheme on employment.

*Structure of defined benefit schemes*

Many companies that have chosen to retain defined benefit pension schemes for existing employees have reduced costs by making changes to the benefit structure, for example by reducing accrual rates, increasing employee contribution rates or increasing normal retirement ages. The distribution of accrual rates and employee contribution rates is shown in the following chart from WWPPDS 2006:

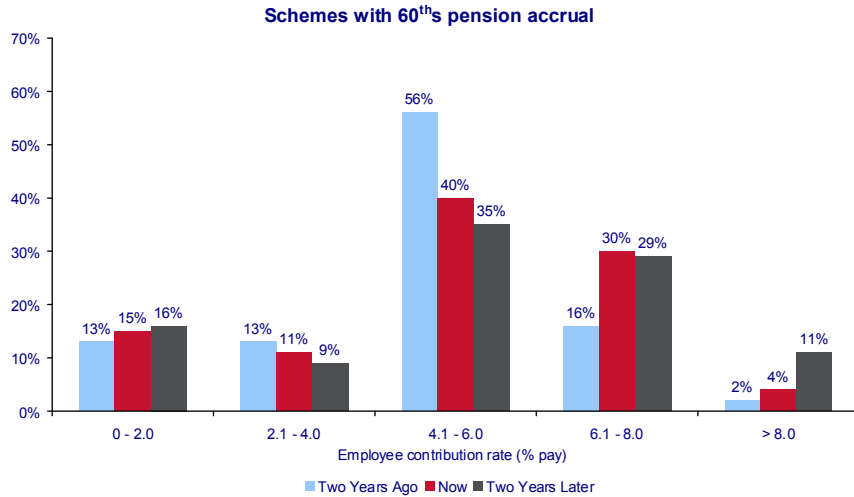
**Chart G.3**



It can be seen that average employee contribution rates for both 1/60<sup>th</sup>s and 1/80<sup>th</sup>s schemes were just under 5% of pay in 2006.

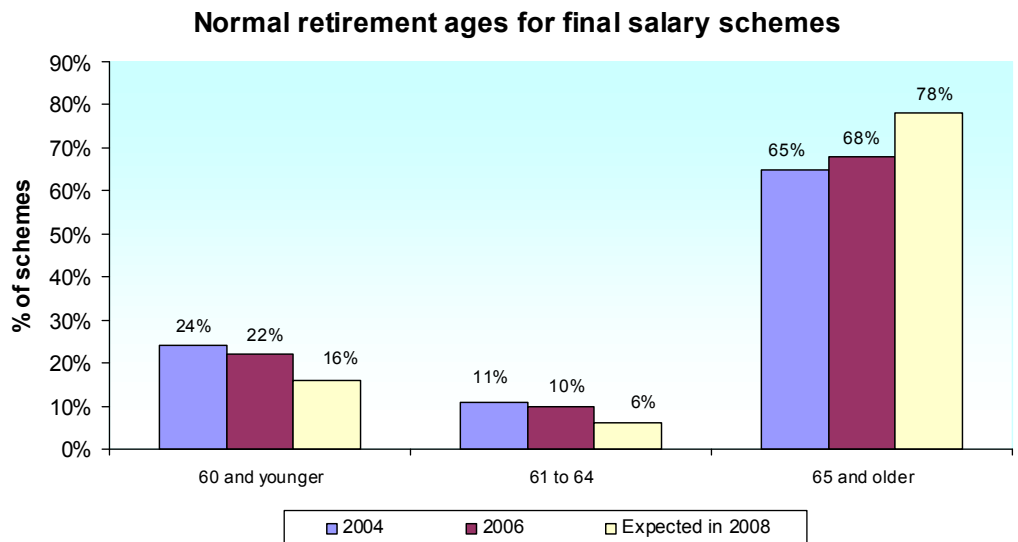
The trend of increasing employee contribution rates in schemes with 1/60<sup>th</sup>s pension accrual is shown in the following chart from WWPPDS 2008:

**Chart G.4**



The distribution of normal retirement ages is shown in the following chart from WWPPDS 2006:

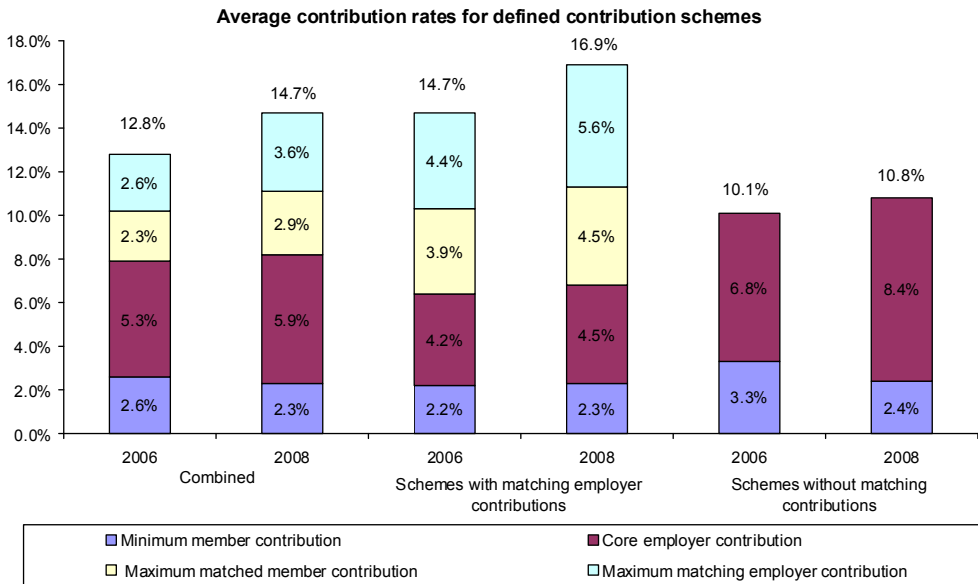
**Chart G.5**



*Structure of defined contribution schemes*

Average contribution rates for defined contribution plans are illustrated by the following chart from the preliminary results of WWPPDS 2008:

**Chart G.6**



This shows that average contribution rates for defined contribution schemes are increasing and, if we assume that employees choose to pay on average half of the additional employer matched contributions, average employer rates are around 7½% of pay.

**Comparators**

Based on the considerations above, the private sector comparators that have been chosen for this valuation are summarised as follows:

**Table G.1**

Type of scheme	Member contribution rate	Normal retirement age	Pension accrual rate	Spouse's fraction	Employer contribution rate
A Defined benefit	5%	60	1/60	1/2	n/a
B Defined benefit	5%	65	1/80	1/2	n/a
C Defined contribution	n/a	n/a	n/a	n/a	10%
D Defined contribution	n/a	n/a	n/a	n/a	5%

The “n/a”s shown in this table represent data items which are not relevant to that type of scheme or do not affect our calculations of comparative values.



For the defined benefit schemes, we have calculated comparative values assuming retirement at the normal retirement age shown.

Comparators A and B are designed to broadly represent upper and lower quartile defined benefit arrangements, C and D are designed to broadly represent upper and lower quartile defined contribution arrangements.

# Appendix H: Summary of pension scheme benefits

This summary compares the key features of the benefits payable from:

- The six Higher Education pension arrangements available to employees of more than one institution,
- The three sample Higher Education Self-Administered Trusts (provided by one institution “in-house”), and
- The five sample pension schemes available to public sector employees or employees of privatised organisations (of which two are also within the first group above and are summarised within that group).

The benefits summarised are those which:

- Members are entitled to for current accrual (except where specified).
- We understand are usually applicable for the majority of members.

The summaries are intended to provide a broad comparison of the key features of the pension schemes and are not intended to describe all benefits payable from the schemes under all scenarios.



## Main higher education pension schemes

Scheme	Universities Superannuation Scheme	Teachers' Pension Scheme
Membership	Mainly academics and senior administrators in pre-1992 universities.	In respect of higher education employees: mainly academic staff in post-1992 universities.
Type of scheme	Defined Benefit: Final Salary	Defined Benefit: Final Salary
Retirement age	<p>Retirement from service: normal retirement at age 65; benefits are reduced on retirement before age 65, or age 60 if this is within the terms of the member's contract of employment (for which we have assumed retirement at age 62 – see Appendix D)</p> <p>Retirement from deferred status: normal retirement at age 65; benefits are usually reduced on retirement before age 63½ (for which we have assumed retirement at age 64 – see Appendix D).</p>	Normal retirement at age 60 for joiners before 1 January 2007 and age 65 for joiners on or after 1 January 2007. Benefits are reduced on retirement before these ages.
Final pensionable salary (FPS)	<p>Salaries over the last 13 years are indexed to leaving service in line with retail price inflation.</p> <p>FPS is then higher of:</p> <ul style="list-style-type: none"> <li>highest annual indexed amount in last 3 years, and</li> <li>highest annual indexed amount averaged over any 3 consecutive years in last 13 years.</li> </ul> <p>FPS is subject to the earnings cap.</p>	Usually the last 12 months of basic salary and some other specified elements of pay.
Benefits on normal retirement	A pension of 1/80 <sup>th</sup> of FPS for each year of service plus a lump sum 3 times pension.	For members who joined before 1 January 2007, a pension of 1/80 <sup>th</sup> of FPS for each year of service, plus a lump sum of 3 times pension. For new members on or after 1 January 2007, a pension of 1/60 <sup>th</sup> of FPS for each year of service.
Increases to pensions in payment	Retail price inflation.	Retail price inflation.
Member contributions	6.35% of pay.	6.4% of pay.
Spouse's benefits on death in service	A pension of 1/160 <sup>th</sup> of FPS for each year of prospective service to age 65, plus a lump sum of 3 times pay.	A pension of 1/160 <sup>th</sup> of FPS for each year of service, plus a lump sum of 3 times pay.
Spouse's benefits on death after retirement	A pension of half the member's pension.	A pension of 1/160 <sup>th</sup> of FPS for each year of service plus, on death within 5 years of retirement, the remainder of the member's first 5 years of pension.
Benefits on ill-health retirement	An unreduced immediate pension calculated as for normal retirement for partial incapacity and also based on prospective service to age 65 on total incapacity.	An unreduced immediate pension calculated as for normal retirement for partial incapacity and in addition with 50% of potential service to age 65 on total incapacity.
Commutation terms	Members accrue a lump sum, although it is possible to commute pension in exchange for an additional lump sum.	Annual pension reduced by £1 for each £12 of lump sum.
Contracted-out?	Yes	Yes

Scheme	Scottish Teachers' Superannuation Scheme	Local Government Pension Schemes
<i>Benefits described are for</i>	<i>All members</i>	<i>Employees in England and Wales.</i>
Membership	In respect of higher education employees, mainly academic staff in post-1992 universities in the Scottish conference sector.	In respect of higher education employees, mainly support staff.
Type of scheme	Defined Benefit: Final Salary	Defined Benefit: Final Salary
Retirement age	Normal retirement at age 60 for joiners before 1 April 2007 and age 65 for joiners on or after 1 April 2007. Benefits are reduced on retirement before these ages.	Normal retirement at age 65; benefits are reduced on retirement before age 65.
Final pensionable salary (FPS)	Usually the last 12 months of basic salary and some other specified elements of pay, subject to the earnings cap.	Usually the last 12 months of basic salary and some other specified elements of pay.
Benefits on normal retirement	For members who joined before 1 April 2007, a pension of 1/80 <sup>th</sup> of FPS for each year of service, plus a lump sum of 3 times pension. For new members on or after 1 April 2007, a pension of 1/60 <sup>th</sup> of FPS for each year of service.	A pension of 1/60 <sup>th</sup> of FPS for each year of service.
Increases to pensions in payment	Retail price inflation.	Retail price inflation.
Member contributions	6.4% of pay.	A tiered contribution rate based on earnings. Members with 2008/09 earnings from £40,000 to £75,000 will pay contributions of 7.2% of pay.
Spouse's benefits on death in service	A pension of 1/160 <sup>th</sup> of FPS for each year of past service, plus a lump sum of 3 times pay.	A pension 1/160 <sup>th</sup> of FPS for each year of prospective service to age 65, plus a lump sum of 3 times pay.
Spouse's benefits on death after retirement	A pension of 1/160 <sup>th</sup> of FPS for each year of service plus, on death within 5 years of retirement, the remainder of the member's first 5 years of pension.	A pension of 3/8 <sup>th</sup> of the member's pension, plus, on death within 10 years of retirement, the remainder of the member's first 10 years of pension.
Benefits on ill-health retirement	An unreduced immediate pension calculated as for normal retirement for partial incapacity and in addition with 50% of potential service to age 65 on total incapacity.	An unreduced immediate pension calculated as for normal retirement, with an enhancement to pensionable service on permanent ill-health and a lower enhancement to pensionable service on partial ill-health.
Commutation terms	Annual pension reduced by £1 for each £12 of lump sum.	Annual pension reduced by £1 for each £12 of lump sum.
Contracted-out?	Yes	Yes

Scheme	Superannuation Arrangements of the University of London	NHS Pension Scheme
<i>Benefits described are for</i>	<i>All members</i>	<i>Employees other than practitioners.</i>
Membership	Support staff in the University of London and area.	In respect of Higher Education employees: some staff in medical schools who joined before 1 April 2008
Type of scheme	Defined Benefit: Final Salary	Defined Benefit: Final Salary
Retirement age	Normal retirement at age 65; benefits are reduced on retirement before age 60. We have assumed retirement at age 62 (see Appendix D)	Normal retirement at age 60; benefits are reduced on retirement before age 60.
Final pensionable salary (FPS)	Usually the last 12 months of basic salary and some other specified elements of pay.	Usually the last 12 months of basic salary.
Benefits on normal retirement	A pension of 1/80 <sup>th</sup> of FPS for each year of service plus a lump sum of 3 times pension.	A pension of 1/80 <sup>th</sup> of FPS for each year of service, plus a lump sum of 3 times pension.
Increases to pensions in payment	Retail price inflation.	Retail price inflation.
Member contributions	6% of pay.	A tiered contribution rate based on earnings. Members with 2008/09 earnings from £19,166 to £63,416 will pay contributions of 6.5% of pay.
Spouse's benefits on death in service	A pension of 1/120 <sup>th</sup> of FPS for each year of prospective service to age 65, plus a lump sum of 4 times pay and a refund of contributions with interest.	A pension of half the member's permanent ill-health pension plus a lump sum of 2 times pay.
Spouse's benefits on death after retirement	A pension of 2/3 <sup>rd</sup> s of the member's pension plus, on death within 5 years of retirement, the remainder of the member's first 5 years of pension.	A pension of half the member's pension, plus, on death within 5 years of retirement, the remainder of the member's first 5 years of pension.
Benefits on ill-health retirement	An unreduced immediate pension calculated as for normal retirement, based on prospective pensionable service to age 65.	An unreduced immediate pension calculated as for normal retirement for partial ill-health and also based on enhanced service for permanent ill-health.
Commutation terms	Members accrue a lump sum, although it is possible to commute pension in exchange for an additional lump sum.	Members accrue a lump sum, although it is possible to commute pension in exchange for an additional lump sum.
Contracted-out?	Yes	Yes

Scheme	New NHS Pension Scheme
<i>Benefits described are for</i>	<i>Employees other than practitioners.</i>
Membership	In respect of Higher Education employees: some staff in medical schools who joined on or after 1 April 2008
Type of scheme	Defined Benefit: Final Salary
Retirement age	Normal retirement at age 65; benefits are reduced on retirement before age 65.
Final pensionable salary (FPS)	Annual average of best 3 consecutive years in the last 10 years of basic salary and some other elements of pay, revalued with inflation to leaving.
Benefits on normal retirement	A pension of 1/60 <sup>th</sup> of FPS for each year of service.
Increases to pensions in payment	Retail price inflation.
Member contributions	A tiered contribution rate based on earnings. Members with 2008/09 earnings from £19,166 to £63,416 will pay contributions of 6.5% of pay.
Spouse's benefits on death in service	A pension of 3/8 <sup>ths</sup> of the member's permanent ill-health pension plus a lump sum of 2 times pay.
Spouse's benefits on death after retirement	A pension of 3/8 <sup>ths</sup> of the member's pension, plus, on death within 5 years of retirement, the remainder of the member's first 5 years of pension.
Benefits on ill-health retirement	An unreduced immediate pension calculated as for normal retirement for partial ill-health and based on enhanced service for permanent ill-health.
Commutation terms	Pension reduced by £1 a year for every £12 taken as a lump sum.
Contracted-out?	Yes

### Higher education 'in-house' Self-Administered Trusts

Scheme	Midlands HEI	Scottish HEI
Membership	New employees from 1 April 2008 (other post-31 July 2002 employees are also encouraged to join).	Non-academic employees of the university.
Type of scheme	Defined Contribution	Defined Benefit: Final Salary
Retirement age	Not applicable; members purchase an annuity at retirement from an insurance company.	Normal retirement at age 65; benefits are reduced on retirement before age 60. We have assumed retirement at age 62 (see Appendix D).
Final pensionable salary (FPS)	Not applicable.	Basic salary in the last 12 months of service.
Benefits on normal retirement	Dependent on annuity rates available at retirement, contributions paid into the plan and investment returns on the fund itself.	A pension of 1/80 <sup>th</sup> of FPS for each year of service plus a lump sum 3 times pension.
Increases to pensions in payment	Determined by the type of annuity purchased upon retirement.	Retail price inflation up to 2.5%.
Member contributions	Between 0% and 5% of pay at each member's choice; employer contributions of 10% of pay.	7.77% of pay.
Spouse's benefits on death in service	The value of member's fund, plus £5,000 from a life assurance scheme.	A pension of half the member's pension based on prospective service to age 65 plus a lump sum of 3 times pensionable salary and refund of contributions with interest.
Spouse's benefits on death after retirement	Determined by the type of annuity purchased upon retirement.	A pension of half the member's pension plus, on death within 5 years of retirement, a lump sum of the remainder of the member's first 5 years of pension.
Benefits on ill-health retirement	No special provisions	An unreduced immediate pension calculated as for normal retirement, enhanced for members with at least 5 years service.
Commutation terms	Not applicable (members can take part of their fund as cash).	Members accrue a lump sum, although it is possible to commute pension in exchange for an additional lump sum.
Contracted-out?	No	Yes

Scheme	South Eastern HEI
Membership	All employees.
Type of scheme	Defined Benefit: Final Salary
Retirement age	Normal retirement at age 65; benefits are usually reduced on retirement before age 65.
Final pensionable salary (FPS)	Usually the last 12 months of basic salary and some other specified elements of pay.
Benefits on normal retirement	A pension of 1/60 <sup>th</sup> of FPS for each year of service.
Increases to pensions in payment	Retail price inflation up to 6%.
Member contributions	6.25% of pay.
Spouse's benefits on death in service	A pension of half the member's pension plus a lump sum of 3 times pensionable salary and refund of contributions with interest.
Spouse's benefits on death after retirement	A pension of half the member's pension plus, on death within 5 years of retirement, a lump sum of the remainder of the member's first 5 years of pension.
Benefits on ill-health retirement	For members with at least 5 years service, an immediate unreduced pension calculated as for normal retirement on partial incapacity and allowing for enhanced service for total incapacity.
Commutation terms	At a rate determined from time-to-time by the Trustees.
Contracted-out?	Yes

**“Public sector” comparators**

Scheme	BT Pension Scheme	Transport for London Pension Fund
<i>Benefits described are for</i>	<i>Section C members (members who joined on or after 1 April 1986 and before 1 April 2001)</i>	<i>Members who joined on or after 1 April 1989</i>
Membership	Employees who joined before 1 April 2001	All employees
Type of scheme	Defined Benefit: Final Salary	Defined Benefit: Final Salary
Retirement age	Normal retirement at age 60; benefits are reduced on retirement before age 60.	Normal retirement from service at age 65 and normal retirement from deferred status at age 60; benefits are reduced on retirement before age 60.  On retirement from active service, we have assumed retirement at age 62 (see Appendix D).
Final pensionable salary (FPS)	Usually the last 12 months of pay. Subject to the earnings cap.	Average salary over the last 12 months of service less the Lower Earnings Limit, subject to the earnings cap.
Benefits on normal retirement	A pension of 1/60 <sup>th</sup> of FPS for each year of service.	A pension of 1/60 <sup>th</sup> of FPS for each year of service.
Increases to pensions in payment	Retail price inflation up to 5%.	Retail price inflation up to 5%.
Member contributions	6% of pay.	5% of pay.
Spouse's benefits on death in service	A pension of 1/120 <sup>th</sup> of FPS for each year of past service plus 1/160 <sup>th</sup> of FPS for each year of potential service to age 60, plus a lump sum of 3 times pay.	A pension of half the member's ill-health pension plus a lump sum of 4 times pay.
Spouse's benefits on death after retirement	A pension of half the member's pension plus, on death within 5 years of retirement, the remainder of the member's first 5 years of pension.	A pension of half the member's pension.
Benefits on ill-health retirement	An unreduced immediate pension calculated as for normal retirement, based on enhanced pensionable service.	An unreduced immediate pension calculated as for normal retirement, enhanced for members with at least 5 years service.
Commutation terms	At a rate determined from time-to-time by the Trustees.	At a rate determined from time-to-time by the Trustees.
Contracted-out?	Yes	Yes

Scheme	Civil Service – Classic Pension Scheme
Membership	Employees who joined before 1 October 2002
Type of scheme	Defined Benefit: Final Salary
Retirement age	Normal retirement at age 60; benefits are reduced on retirement before age 60.
Final pensionable salary (FPS)	Usually the last 12 months of basic salary and some other specified elements of pay, subject to the earnings cap.
Benefits on normal retirement	A pension of 1/80 <sup>th</sup> of FPS for each year of service, plus a lump sum of 3 times pension.
Increases to pensions in payment	Retail price inflation.
Member contributions	1.5% of pay.
Spouse's benefits on death in service	Usually a pension of half the member's ill-health pension, plus a lump sum of 2 times FPS.
Spouse's benefits on death after retirement	A pension of half the member's pension, plus, on death within 5 years of retirement, the remainder of the member's first 5 years of pension less the lump sum paid at retirement.
Benefits on ill-health retirement	An unreduced immediate pension calculated as for normal retirement, based on enhanced pensionable service.
Commutation terms	Members accrue a lump sum, although it is possible to commute pension in exchange for an additional lump sum.
Contracted-out?	Yes





# Appendix I: Glossary of terms

## **Accrual rate**

The rate at which a defined benefit builds up for each year of service. For example, a member with an accrual rate of 1/60th and 40 years service at retirement in a final salary scheme would be entitled to a benefit of 40/60 (or 2/3rds) of final salary.

## **Allowance for improvements in mortality**

See Appendix E.

## **Career average scheme**

A defined benefit scheme where the benefit at retirement is calculated based on the member's salary over their entire career. For the purpose of determining the benefit, earnings in previous years are often revalued (*revalued career average*) in line with an index (for example, inflation or National Average Earnings).

## **Commutation**

Members of most DB schemes have the option at retirement to exchange part of their pension for a lump sum. This conversion is based on terms set out in the scheme's rules; these terms may vary time-to-time as market and mortality expectations change.

## **Contracting-in and contracting-out**

Pension schemes may be contracted-in or contracted-out of the State Second Pension (S2P). Members of contracted-in schemes continue to accrue S2P. Members of contracted-out schemes do not accrue S2P, and, in exchange for this, the members and employers pay reduced National Insurance contributions.

## **Defined contribution (DC, or money purchase) scheme**

Under a DC pension scheme, the contributions paid by the company and/or member are accumulated with investment returns, with the balance at retirement being made available to purchase an annuity or, subject to Revenue restrictions, to take as a lump sum.

## **Defined benefit (DB) scheme**

A pension scheme where the benefit payable on retirement is calculated using a formula which is known in advance, usually based on the member's service in the scheme and salary whilst a member of the scheme.

## **Earnings Cap**

Before 5 April 2006, the Earnings Cap placed a limit on the pensionable salary on which contributions and pension benefits could be based in a registered scheme. The Earnings Cap did not apply to members who joined their current scheme on or before 31 May 1989.

As part of the provisions of the Finance Act 2004, the Earnings Cap was removed with effect from 6 April 2006. However, many schemes elected to retain a



notional Earnings Cap which continues to be published by HMRC. For the 2008/09 tax year the notional Earnings Cap is £117,600 and is expected to increase each year in line with the Retail Prices Index (RPI).

#### **Final salary scheme**

A defined benefit scheme where the benefit at retirement is calculated based on the member's salary over a short period to retirement.

#### **Lower Earnings Limit**

This is the level of earnings over which UK employees must pay National Insurance contributions. It is also used in the pensionable salary definition of some defined benefit pension schemes. The Lower Earnings Limit for tax year 2008/09 is £4,680.