National Audit Office

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL

HC 662
SESSION 2010–2011

8 DECEMBER 2010

HM Treasury

The impact of the 2007-08 changes to public service pensions

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HM Treasury

The impact of the 2007-08 changes to public service pensions

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Amyas Morse
Comptroller and
Auditor General

National Audit Office

2 December 2010

This report provides a systematic analysis of the impact on future cash costs to taxpayers of changes made in 2007 and 2008 to pension schemes covering the civil service, NHS and teachers.

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Summary

Background

1 This report provides a systematic analysis of the impact on future cash costs to taxpayers of changes made in 2007 and 2008 to pension schemes covering the civil service, NHS and teachers. It builds on our March 2010 report on *The cost of public service pensions* and, like that report, shows pension costs projected over the next 50 years. This report makes recommendations to establish good practice in the programme management of any future changes. It will help inform current consideration, including by Lord Hutton's Independent Public Service Pensions Commission, of the potential need for further changes.

2 The 2007-08 changes affected schemes that account for nearly three-quarters of all United Kingdom public service pay-as-you-go pension payments. In such schemes, contributions from current employees and their employers are used to pay today's pensions, with the Treasury making or receiving balancing payments to cover the difference. The difference arises because pension payments and contributions are driven by different populations and are not designed to balance in any particular year.

3 There were four elements to the changes introduced in 2007-08, which were the first financially significant changes since the 1970s.

- Employee contributions for NHS staff and teachers increased, following earlier increases for civil servants.
- The normal pension age at which employees can take unreduced pensions increased for new staff, from 60 to 65 years in most cases. Negotiations and agreements meant that this change did not apply to existing employees.
- A new cost sharing and capping mechanism was introduced to transfer, from employers to employees, the risk of future additional costs resulting from changes in factors such as pensioners living longer than previously expected. The mechanism is intended to be used at routine actuarial valuations. No valuations have been completed since the mechanism was introduced, so there is no evidence yet of how it will apply in practice.
- Other changes taken together absorbed some of the savings from the first three measures.

4 There have been further developments, outside the scope of our report, since the 2010 general election.

- The new coalition Government asked Lord Hutton to chair an Independent Public Service Pensions Commission, which published interim findings in October 2010 and is expected to report finally before the 2011 Budget. Responding to the interim findings, the Government announced its intention to carry out a public consultation on the discount rate used to set contribution rates in public service pension schemes, and to increase employee contribution rates to most schemes by an average of 3 per cent of pay.
- The Government intends to use the Consumer Prices Index (CPI) rather than the Retail Prices Index (RPI) for increasing pensions in payment each year, which the Independent Public Service Pensions Commission estimates may reduce the value of a pension by around 15 per cent on average over the whole period in which it is received.
- There is a continuing pay freeze for most of the public sector workforce and the expectation of substantial staff cuts across public services, which should reduce the long-term costs of public service pensions but will increase balancing payments from the Treasury in the short term.
- There are proposed changes to the tax treatment of all pensions, whether private sector or public service.

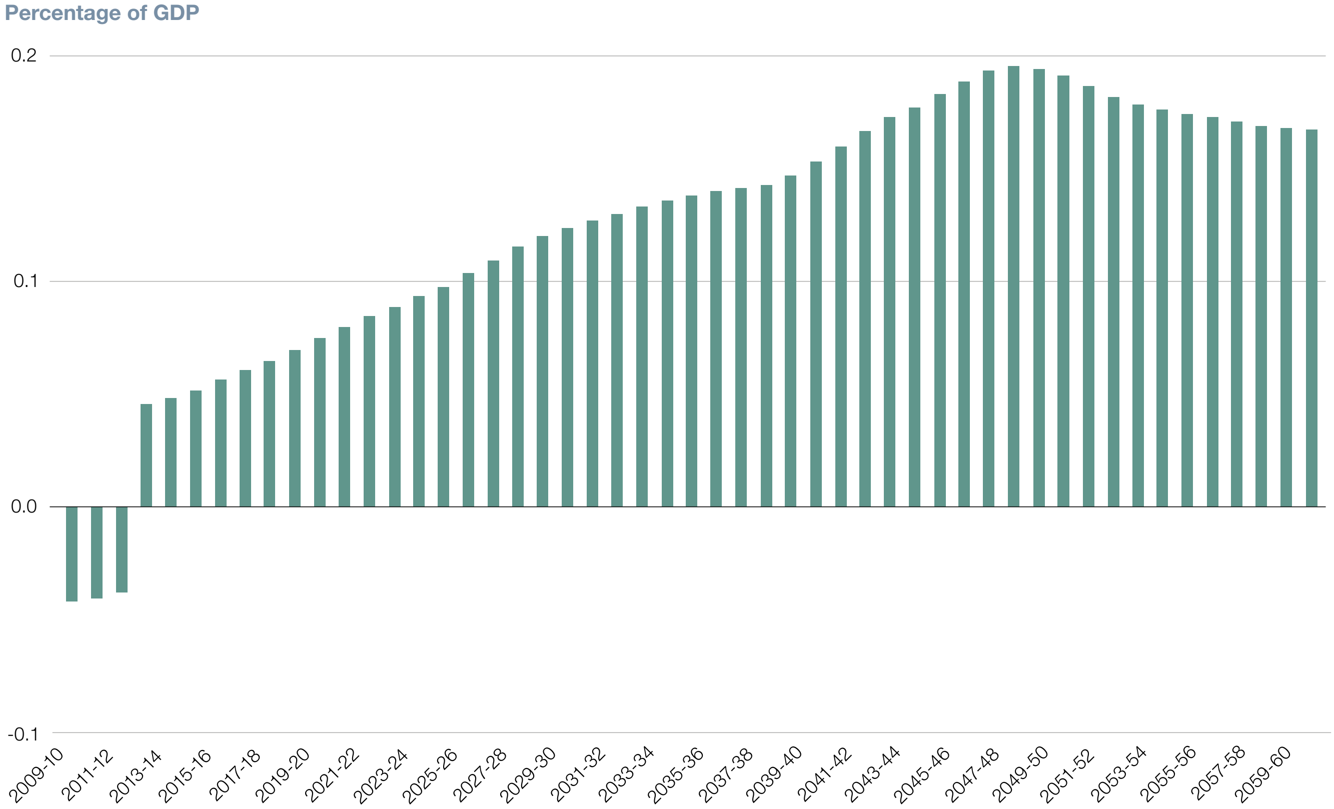
Key findings

Financial impact

5 We estimate that the 2007-08 changes will reduce costs to taxpayers in 2059-60 by 14 per cent compared to what they would have been without the changes. In net present value terms, using the Treasury's discount rate of 3.5 per cent above increases in RPI, aggregate savings over all years in the period to 2059-60 are equivalent to £67 billion in 2008-09 prices. Savings peak at 0.2 per cent of Gross Domestic Product (GDP) in 2047-48, lying between 0.1 and 0.2 per cent of GDP from 2025-26 onwards (**Figure 1** overleaf). The peak occurs because of a temporary reduction in numbers of retirements as the changes start to delay the age at which employees retire. Beyond 2059-60, annual savings will initially remain at 14 per cent, rising slowly from 2065-66. As a consequence of the changes, overall costs to taxpayers will stabilise at around 1.0 per cent of GDP, close to their current levels.

Figure 1

Annual savings to taxpayers from changes to pension schemes for civil servants, NHS staff and teachers lie between 0.1 and 0.2 per cent of GDP from 2025-26 onwards



Source: National Audit Office analysis of Government Actuary's Department pension projections and Treasury GDP projections

6 The size and timing of savings from the cost sharing and capping mechanism, which is designed primarily to prevent costs from changing unexpectedly rather than to reduce them, are subject to particular risk and uncertainty.

- The mechanism gives Ministers discretion in deciding how to implement cost sharing and capping, so it may not have the impact projected in this report. There could be an increased risk of error from administrative complexity if applying the mechanism leads to a growing sequence of different pension calculations for periods between successive actuarial valuations.
- Savings will be smaller if certain cost pressures turn out to be lower than expected, for example if future increases in pensioners' life spans are less than currently projected. Overall costs would, however, stay broadly the same, in line with the design of the mechanism. The reverse applies if cost pressures turn out to be higher than expected.
- The timing of savings depends on the completion of actuarial valuations. Our projections assume that cost sharing and capping will be implemented in 2012-13, as the Treasury currently expects. This accounts for the sudden jump in savings in that year (Figure 1).

7 Within the current spending review period, we estimate savings with a present value of £5 billion in 2008-09 prices between 2010-11 and 2014-15, almost entirely absorbed by additional short-term costs with a present value of £4 billion. The costs are consequences of changes in tax rules that allow employees to take more of their pensions as lump sums on retirement, and are more than offset by longer-term savings through pensions being lower than they would have been without the lump sum exchanges.

8 Our estimate of savings is new information because the Treasury, while it projects and monitors overall spending on public service pensions, has not monitored the specific impact on overall spending of the different elements of the 2007-08 changes. In November 2005, the Treasury set a financial target, or 'cost envelope', which it used to secure savings in employer contribution costs over 50 years. By 2008, the Treasury regarded the 2005 target as 'obsolete'. It has not produced revised estimates of long-term savings to be able to assess for itself, or demonstrate to others, the success or otherwise of the first major changes to public service pension schemes for over 30 years. The results we describe here are distinct from further savings that the Independent Public Service Pensions Commission has estimated as a result of developments in 2010.

Sustainability

9 The Treasury set three criteria for sustainability in introducing the changes: financial affordability and stability in employer costs; fitness for purpose in staff recruitment and retention; and, setting the right example to private sector employers.

10 We do not comment on whether public service pension schemes are financially affordable because that is a political judgement rather than an audit assessment. However, our analysis of savings is relevant to that judgement. Financial stability is about managing risks that costs might turn out to be higher than projected because factors about which assumptions have been made behave differently from what is currently expected, or because those factors are not well enough understood. We found that the changes improve the management of the key financial risk related to longevity, but not the risk related to any permanent change in GDP growth, while three other areas of uncertainty were not considered by the Treasury's sensitivity analyses.

- The cost sharing and capping mechanism, if it is implemented as envisaged in the light of much subsequent change, will transfer from taxpayers to employees most of the financial risk arising if pensioners live longer, on average, than the schemes' actuaries have previously projected. Employees could have to pay substantially larger proportions of their salaries into the pension schemes if projected life spans rise or, alternatively, accept substantially reduced future pension accumulation.
- The cost sharing and capping mechanism does not manage the risk that the cost of public service pensions, as a proportion of GDP, will rise if GDP growth is permanently lower than expected. The focus in this area is, instead, on managing the risk of public sector salaries growing faster then the wider economy. While pensioners were already living longer than previously expected at the time of the 2007-08 changes, there was then no equivalent cause for concern about GDP growth. Nevertheless, the potentially substantial impact of differing GDP growth rates was known at the time, so it would have been reasonable for the Treasury to have investigated means to manage the risk.
- Other uncertainties remain, which could mean that overall costs to taxpayers differ from current projections. The Treasury has not modelled the potential impact of different workforce growth rates on public service pension costs, although the Independent Public Service Pensions Commission has included variants from the Treasury's assumption of an unchanging workforce size in its own modelling, or the potential impact of changes to public service pensions on means-tested benefits and tax receipts.

11 The Treasury and public service employers did not agree a long-term strategy for the role of pensions in recruitment and retention, including what variations might be appropriate among schemes, to underpin the 2007-08 changes. They did not identify the types of employee behaviour they wished to encourage and support through pensions, for example the balance between staff retention and mobility or the flexibility to stress one or the other at different times. Focus group research, carried out in 2004 for the civil service and NHS, indicated that employees did not have a clear financial understanding of the value of their public service pensions.

12 Evidence of the impact of the pensions package on recruitment and retention is not yet clear, largely because it will take time for the changes in pension schemes to have an impact but also because of inadequate understanding among employers of how employees perceive the value of their pensions.

- The civil service adopted a career average salary scheme for new entrants. It is intended to support greater employment flexibility, diversity and mobility and provide a fairer outcome for staff in general, as staff with shorter or flatter career paths should receive better pensions than they would receive on a final salary basis. Other schemes chose to stay with a final salary basis.
- There is poor understanding among staff of the real value of public service pensions, and widespread disagreement about it among experts. There is a risk that frequent changes to pensions, which are inherently long-term assets, will degrade their perceived value to employees and prospective employees. The Office for Budget Responsibility also expects increases in employee contributions to cause some, particularly those on lower incomes, to opt out of their pensions.

13 The continuing closure of defined benefit schemes in the private sector suggests that the use of public service pension schemes to set a wider example is not working.

Conclusion on value for money

14 By making changes in 2007-08 to pension schemes for civil servants, NHS staff and teachers, the Treasury and departments overseeing the schemes acted to tackle potential future growth in costs to taxpayers. As a result of the changes, which are on course to deliver substantial savings, long-term costs are projected to stabilise around their current levels as a proportion of GDP. The changes are also set to manage one of the most significant risks to those costs, by transferring from taxpayers to employees additional costs arising if pensioners live longer than is currently projected.

15 Despite these achievements, the value for money of the changes cannot be demonstrated because the Treasury and employers did not agree a long-term strategy for the role of pensions in recruitment and retention and the Treasury has not monitored the ongoing impact of the changes against a long-term financial objective. In particular, the savings are being provided by public service employees in the form of increased contributions or reduced future pension accumulation, and there has been no assessment of long-term impact on staff motivation and retention.

Recommendations

16 We make the following recommendations so that omissions in the way the 2007-08 changes were introduced are not replicated in any future changes.

a **The Treasury's focus in overseeing the 2007-08 changes was on meeting its 'cost envelope' and its approach was not underpinned by a longer-term strategy and analysis, developed with employers, of what features are desirable in a modern public service pension scheme.** The Government has since established the Independent Public Service Pensions Commission. In the light of the Commission's recommendations, the Treasury, Government departments and public service employers should agree and communicate a clear view of the purpose of public service pensions, including their role in recruitment, retention and mobility, and what aspects of scheme design are delegated and what characteristics are not.

b **Public service employers may not be optimising the use of pensions as recruitment and retention tools.** Building on research carried out for the civil service and NHS schemes in 2004, public service employers, Government departments and the Treasury should improve their understanding of how employees view a pension within an overall pay package and how it influences their employment decisions. They should use this understanding to inform their future decisions about pension arrangements.

c **Before it approved the pension scheme changes, the Treasury conducted sensitivity analyses on longevity and GDP growth, the two main risks to taxpayer costs, but not on three other areas of uncertainty.** The Treasury should improve its understanding of the financial impact of changes to public service pensions by undertaking sensitivity analyses of different workforce size projections and by assessing interactions with the tax and benefits systems.

d **The Treasury set a financial target which it regarded as obsolete after the 2007-08 changes were agreed, and it has not devised an alternative measure to monitor the financial impact of the changes.** The Treasury should set clear long-term financial objectives for any further changes to public service pensions and put in place mechanisms to monitor their achievement.

e **The cost sharing and capping mechanism does not manage the risk that the cost of public service pensions, as a proportion of GDP, will rise if GDP growth is permanently lower than expected.** The Treasury, in reviewing recommendations from the Independent Public Service Pensions Commission, should consider and communicate the extent, if any, to which it can and will manage GDP risk.

f **Despite the potential benefit to taxpayers of the flexibility to change public service pensions further in the future, there is a risk that uncertainty from an impression of constant change may reduce their perceived value to employees and prospective employees.** The Treasury should make clear its intentions on this issue in its response to recommendations from the Independent Public Service Pensions Commission.

Part One

The reasons and process for change

1.1 This report provides a systematic analysis of the impact on future cash costs to taxpayers of changes made in 2007 and 2008 to eight pension schemes[1] covering the civil service, NHS and teachers (**Figure 2**). These were the first financially significant changes since the 1970s. Our report is timely because it will help inform current consideration, including by Lord Hutton's Independent Public Service Pensions Commission, of the potential need for further changes. It makes recommendations to establish good practice in the programme management of any future changes. This report builds on our earlier report on *The cost of public service pensions*[2] and, like that report, shows pension costs projected over the next 50 years.

- Part Two examines the financial impact of the 2007-08 changes; and
- Part Three assesses whether the schemes are now more sustainable.

Figure 2
The changes affected pension schemes covering the civil service, NHS and teachers

Scheme	Open to	When established	Members at 31 March 2010[1]		
			Current employees	Past employees not yet drawing pensions	Pensioners and dependants
Civil service	Civil servants and employees in some non-departmental public bodies	1834	608,000	354,000	617,000
NHS	NHS employees and some employees of 'direction bodies' that provide similar services	1948	1,590,000	581,000	731,000
Teachers	Teachers in state and independent schools, sixth form and further education colleges and post-1992 universities	1922	716,000[2]	451,000[2]	642,000

NOTES

1 These figures cover the whole of the UK.

2 As at 31 March 2009.

Source: Pension scheme resource accounts; Scottish Public Pensions Agency annual report 2009-10; G. Rhodes, Public Sector Pensions, George Allen & Unwin, 1965

1.2 As part of our research, drawing on KPMG's actuarial expertise, we have completed an independent assessment of the model and assumptions that the Government Actuary's Department uses to project public service pension payments over the next 50 years. We concluded that the Government Actuary's Department had exercised appropriate controls and checks in developing the model, managing data and reviewing outputs, and that the assumptions were cumulatively reasonable, based on reliable data sources and scheme experience, and appropriate for the type of model. We comment elsewhere in this report on shortcomings in the extent of sensitivity analysis conducted by the Treasury.

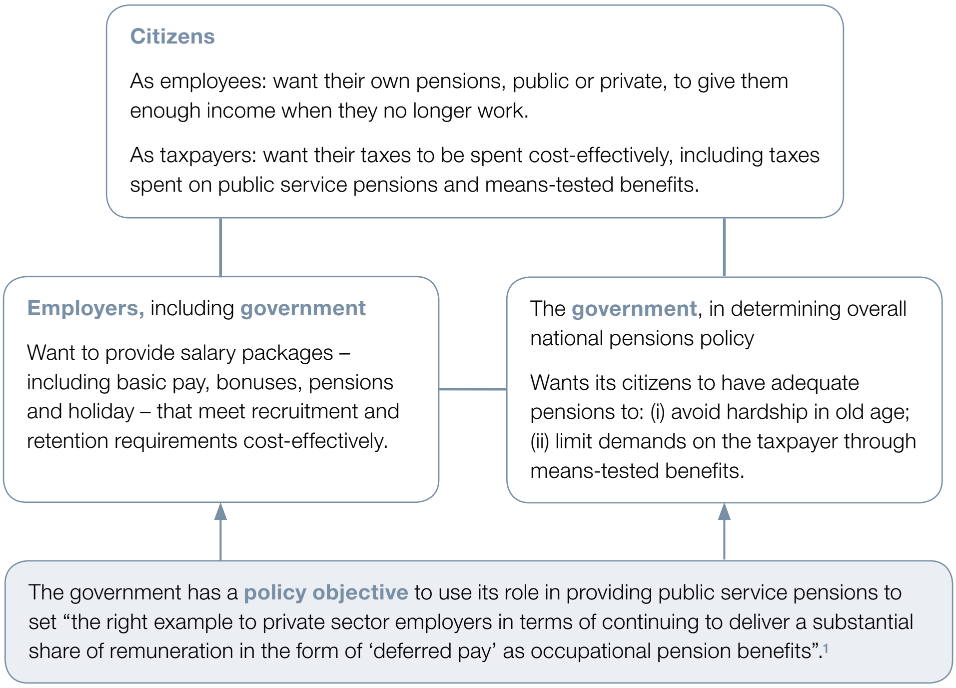
Public service pension schemes in context

1.3 Pension schemes for civil servants, NHS staff and teachers account for three-quarters of annual pension payments by public service pay-as-you-go schemes.[3] Our detailed fieldwork focused on the three largest schemes,[4] which took the lead in negotiations on behalf of other schemes. The Treasury is responsible for developing policy and providing coordination and advice on all public service pension schemes. The schemes themselves are based on statute and are run by individual departments: the Cabinet Office for the largest civil service scheme; the Department of Health for the largest NHS scheme; and the Department for Education for the largest teachers' scheme.

1.4 Our report excludes other public service pay-as-you-go schemes such as those for the armed forces, firefighters and police, which made changes in 2005-06 but with different objectives.[5] We also exclude the local government pension scheme, which is not a pay-as-you-go scheme, and was covered in a recent Audit Commission report.[6]

1.5 The Government's interest in public service pensions is complex, reflecting its role as an employer and its responsibility for broad welfare provision (**Figure 3** overleaf). Recent governments have had a policy objective that public sector employers should set an example and standard to the private sector in occupational pension provision. Occupational pensions, including public service pensions, form an important part of total pension provision in the United Kingdom. Together with personal pensions and other investments, they provide 53 per cent of retirement incomes in the United Kingdom compared to an Organisation for Economic Cooperation and Development (OECD) average of 21 per cent.[7] In contrast, measured in terms of the proportion of average employment earnings, United Kingdom state pensions are among the lowest in the OECD and European Union, which is why people rely more on occupational pensions.[8]

Figure 3
The Government has dual interests in pension provision



NOTE
1 15 November 2005 letter from the Chief Secretary to the Treasury to the Secretary of State for Health.

Source: National Audit Office analysis

Paying for public service pensions

1.6 Pension schemes considered in this report have two main features. First, they involve 'defined benefits', in which the amount of pension a member receives is predictable and determined chiefly by salary, accrual rate and length of service. Second, they are financed on a pay-as-you-go basis, with employer and employee contributions used directly to pay today's pensions, and any difference met through balancing payments to or from the Treasury. In 2009-10, in addition to employees' contributions of £5.2 billion, employers contributed £13.2 billion[9] to the eight pension schemes covering civil servants, NHS staff and teachers, and the Treasury a further £0.9 billion. Employer contributions averaged 15 per cent of payroll costs, forming a deferred element of pay designed to support recruitment and retention.

1.7 The Treasury balancing payment arises because employer and employee contributions are not designed to balance pensions paid to retired staff in any one year as they relate to different populations. The ratio of staff to pensioners is critical. In 1965, there were, respectively, 2.9, 9.0 and 4.0 employees for every pensioner in schemes covering the civil service, NHS and teachers, whereas the current equivalent numbers are 1.0, 2.2, and 1.1.[10] These movements substantially alter the extent to which employer and employee contributions cover pensions in payment. In 1962-63, contributions to the NHS and teachers' schemes were 260 and 130 per cent of pension payments, whereas today they are 130 and 70 per cent.[11] Many of today's public service pensioners are the same people whose contributions funded the schemes in the 1960s, and part of the Treasury balancing payment represents a form of interest for the past use of those contributions.

1.8 There are five measures commonly used for the cost of public service pay-as-you-go pensions (**Figure 4** overleaf). We focus in this report on taxpayer costs, which are annual pension payments net of employee contributions. We consider that the most useful way to report them is as a proportion of projected GDP, the source of the tax revenue that ultimately pays the pensions. For consistency with our previous report, and to isolate our analysis from developments since the 2010 general election, we use GDP projections made by the Treasury in December 2009.[12] Where we quote monetary amounts, we do so in 2008-09 prices, based on RPI, for consistency with our earlier report and the Interim Report from the Independent Public Service Pensions Commission.[13]

Pressures for change

1.9 Pressure for changes to public service pension schemes, leading private sector employers to raise concerns about the tax burden they might impose, came from three developments.

- **Improving life expectancy** meant that, between 1981 and 2010, remaining life expectancy at age 60 increased by a third, to 26 years, for a man and by 28 per cent, to 29 years, for a woman. These remaining life expectancies are projected to increase further to 30 and 33 years, respectively, by 2050.[14] These trends increase the time over which public service pensions will remain in payment, and have led to higher employer contribution rates at routine actuarial revaluations.
- **Changes in lifestyles and employment patterns** generated pressure to modernise scheme designs. Many schemes did not provide survivor pensions for unmarried and same-sex partners, or for widows who remarried, and were not designed for flexible patterns of working, including career breaks and phased or partial retirement.

- **Divergence from private sector practice** grew as private sector defined benefit schemes closed, often initially just to new employees, in response to increasing liabilities arising from higher life expectancies, changes in accounting standards and taxation, and poor performance in financial markets.[15] By 2009, two-thirds of private sector workers were making no pension provision, with only 12 per cent in defined benefit schemes compared to 34 per cent in 1997, and a further 22 per cent in other types of pension scheme. In contrast, membership of public service defined benefit schemes increased between 1997 and 2009, from 75 per cent to 80 per cent of the public service workforce.[16]

Figure 4

There are five main measures in use for the cost of public service pay-as-you-go pensions

Measure	Description	Advantages	Disadvantages
Total pension payments	The cash expected to be paid in retirement lump sums and pensions each year to pensioners.	The clearest measure of total cost, unaffected by short-term changes in the total pay of current employees.	Overstates the actual costs to taxpayers, which are total pension payments less employee contributions.
Taxpayer costs	Total pension payments (see above) less the contributions made by current employees.	The clearest measure of costs to taxpayers. Can also be presented as a proportion of GDP or as a net present value.	Will increase in the short-term if the total pay of all employees drops in real terms, but the impact is less marked than for the Treasury balancing payment (see below).
Employer contributions	The money employers pay towards the expected cost of their current employees' future pensions.	A sound measure in principle of the real cost to taxpayers of pensions being earned now, but this advantage is undermined by the key disadvantage. Useful for assessing the relative costs of different scheme design options.	Depends critically on the discount rate used, over which there is substantial disagreement.
Treasury balancing payment	The difference between total pension payments and employer and employee contributions.	A figure that has no advantages as a measure of pension costs, but which features prominently in some summarised accounts as 'net cash expenditure'.	Subject to sharp fluctuations because it is the difference between two larger figures. Reductions in the total real-terms pay of all employees, for example through a pay freeze and staff cuts, will increase apparent pension costs on this measure.
Liability	The money that would have to be set aside now to pay pensions earned to date by current and past employees, including pensioners.	A single figure that is comparable with how the costs of funded private sector schemes are measured in employers' accounts.	Depends on estimated long-term investment returns and fluctuates substantially as estimates change. Excludes pensions projected to be earned through the future service of current and future employees.

Source: National Audit Office analysis

The process of change

1.10 Figure 5 overleaf sets out the timeline of changes to the civil service, NHS and teachers' schemes in 2007-08. In December 2002, the Government proposed, as part of broader plans for changes to occupational pensions,[17] an increase in the normal pension age for public service employees, from 60[18] to 65 in most cases. Negotiations with trade unions and employer representatives led the Government to agree, in October 2005, a set of principles to guide changes to the schemes. These principles included leaving the normal pension ages for existing employees unchanged, provided the schemes achieved by other means cost savings that would have come from raising the normal pension age for all staff.

1.11 The Treasury set out its requirements in a letter of 15 November 2005 from the Chief Secretary.

- **Financial requirements** – Each scheme had to generate a 'cost envelope' of savings based on estimates of savings in employer contributions over 50 years if a higher normal pension age had been applied to all staff as originally envisaged, and after allowing half of the savings to be 'recycled' in improvements to the pensions. Overall, the 'cost envelopes' amounted to savings in employer contributions of £13.5 billion over 50 years in net present value terms, using the Treasury's discount rate of 3.5 per cent above increases in RPI.
- **Sustainability objectives** – The Treasury expected schemes to secure further savings through arrangements that would: i) provide affordability and stability in employer costs to convince taxpayers that the schemes were under firm control and providing good value for money; ii) be fit for purpose in the recruitment, retention and motivation of staff; and, iii) set the right example to private sector employers in delivering a substantial share of remuneration in the form of 'deferred pay'.

Figure 5

The timeline of changes to the three schemes ran from 2002 to 2008

October 2002

The civil service introduces a new scheme, with improved pensions funded by higher employee contributions. It also introduces the partnership pension account: a stakeholder pension with an employer contribution[1].

December 2002

A Green Paper on occupational pensions proposes increasing, from 60 to 65, the normal pension age for most public service employees.

June 2003

The Government announces it will proceed with the Green Paper proposals through consultation with employers and unions. The higher pension age will apply to new employees from late 2006 and to the future service of existing staff from 2013, with some cost savings 'recycled' into improved pensions.

2003-2005

The civil service, NHS and teachers' schemes carry out reviews and publish consultation documents, with the civil service and NHS schemes conducting market research on employees' views.

Spring 2005

The Prime Minister instructs the Trade and Industry Secretary to negotiate an agreed way forward after trade unions oppose raising the pension ages for existing staff, and their members vote for strike action.

18 October 2005

After negotiations, the Government, public service employers and trade unions agree principles for changes.

- Pensions should be sustainable, defined benefit and index-linked.
- The normal pension age of existing staff is to be retained, provided schemes find equivalent savings by other means.
- Schemes are to be given flexibility to determine their details consistent with these principles and the Treasury 'cost envelope'.[2]
- Savings equivalent to 1 per cent of payroll will be available to schemes to 'recycle' to improve benefits, including to dependants.
- The new schemes should provide greater flexibility for 'phased' retirement and for recognising service beyond normal pension age.

15 November 2005

The Chief Secretary to the Treasury writes to the Secretaries of State responsible for the schemes, outlining financial requirements and sustainability objectives for pension changes.

February 2006

The schemes agree, with the Treasury, proposals for meeting the financial requirements and sustainability objectives.

2006-2007

The schemes negotiate with employers and trade unions to agree a package of changes.

2007-2008

New schemes are introduced for teachers (January 2007), civil servants (July 2007) and NHS staff (April 2008).

NOTES

1 The partnership pension account is an individual pension arrangement in which employers, and employees if they choose, pay contributions into a fund which a pension provider invests, building up 'pension pots'. Around 10,000 civil servants had partnership pension accounts on 31 March 2010.

2 The 'cost envelope' is explained in paragraph 1.11.

Source: National Audit Office analysis

Overview of the changes

1.12 The new pension schemes were introduced in January 2007 for teachers, July 2007 for civil servants and April 2008 for NHS staff, following negotiations involving sponsoring Government departments, scheme managers, employers and unions. Under the NHS Pension Choice exercise, which runs from 2010-13, existing NHS staff have the option to move to the new scheme. Civil servants already had an opportunity to move, in 2002, to a scheme with equivalent changes. The 2007-08 changes covered three main aspects (**Figure 6**).

Figure 6
There were three main aspects to the 2007-08 changes

To reduce and better manage taxpayer costs

- **Employee contribution rates** were increased for NHS staff and teachers.
- The **normal pension age** rose from 60 to 65 years for most new staff.
- A **'cost sharing and capping'** mechanism (explained in paragraph 1.13) was introduced to spread future cost increases between employers and employees.

To increase the value of pensions to employees and their dependants

- The **accrual rate** increased on the new final salary scheme for teachers and NHS staff.
- **Dependants' and survivors' benefits** were improved for NHS staff and teachers, with increased death-in-service payments and survivor pensions for unmarried partners and widows who remarried. Similar changes had been made to the civil service scheme in 2002, funded from higher employee contributions.

To incorporate other changes

- The basis on which the pension was calculated changed from final salary to **career average salary** for new civil servants.
- Employees were allowed to exchange more of their future annual pensions for **tax-free lump sums** on retirement, in line with changes to tax rules that apply to all occupational pension schemes.
- New **phased retirement provisions** were introduced to enable staff to receive part of their pensions while continuing to work beyond normal pension age.
- Two-tiers of **ill health retirement benefit** were introduced for NHS staff and teachers, reflecting similar 2002 changes for civil servants.

Source: National Audit Office analysis

1.13 A novel element of the changes was the cost sharing and capping mechanism. It is intended to determine how any increases or decreases in pension contributions – required, for example, if new projections show current and future pensioners likely to live longer than previously expected – are spread between employees and employers. Increases that fall within the mechanism are shared equally by employees and employers until the employer contribution reaches a cap, after which all increases fall to employees. The mechanism provides for schemes to consult on whether increases falling to employees are taken as higher employee contributions, reduced future pension accumulation or a combination of the two. The mechanism is intended to be used at routine actuarial valuations of pension schemes, which take place every three or four years. No valuations have been completed since the mechanism was introduced, so there is no evidence yet of how it will apply in practice. The effects of changes in certain financial assumptions might not be shared with employees under the mechanism.

Part Two

The financial impact of the changes

The impact of the changes on projected taxpayer payments

2.1 We estimate, from projections produced for us by the Government Actuary's Department,[19] that the 2007-08 changes to the eight pension schemes for the civil service, NHS and teachers will reduce annual costs to taxpayers in 2059-60 by 14 per cent compared to what they would have been without the changes. In net present value terms, savings over the period to 2059-60 are equivalent to £67 billion in 2008-09 prices.[20] Savings derive from the combination of lower total pension payments and higher employee contributions, including the potential impact of cost sharing and capping on both elements, reducing taxpayer costs for the eight schemes in 2059-60 from 1.2 per cent of GDP without the changes to 1.0 per cent with the changes. The savings lie between 0.1 and 0.2 per cent of GDP from 2025-26 onwards (Figure 1 on page 6). They peak at 0.2 per cent of GDP in 2047-48 because of a temporary reduction in numbers of retirements as the changes start to delay the age at which employees retire. Beyond 2059-60, our analysis suggests that annual savings will initially remain at 14 per cent, rising slowly from 2059-60. As a consequence of the changes, overall costs to taxpayers will stabilise at around 1.0 per cent of GDP, close to their current levels (**Figure 7** overleaf).

2.2 The size and timing of savings from the cost sharing and capping mechanism, which is designed primarily to prevent costs from changing unexpectedly rather than to reduce them, are subject to particular risk and uncertainty.

- The mechanism gives Ministers discretion in deciding precisely how to implement cost sharing and capping, so it may not have the impact projected in this report.
- Savings will be smaller if certain cost pressures turn out to be lower than expected, for example if future increases in pensioners' life spans are less than currently projected. Overall costs will, however, stay broadly the same, in line with the design of the mechanism. The reverse applies if cost pressures turn out to be higher than expected.
- The timing of savings depends on the completion of actuarial valuations. Our projections assume that cost sharing and capping will be implemented in 2012-13, as the Treasury currently expects. The delay from previous expectations is partly because the Treasury has suspended actuarial valuations while it reviews what discount rate to use in them.

Figure 7

Taxpayer costs for pensions paid to retired civil servants, NHS staff and teachers are projected to be lower because of the 2007-08 changes

With the changes

NOTE

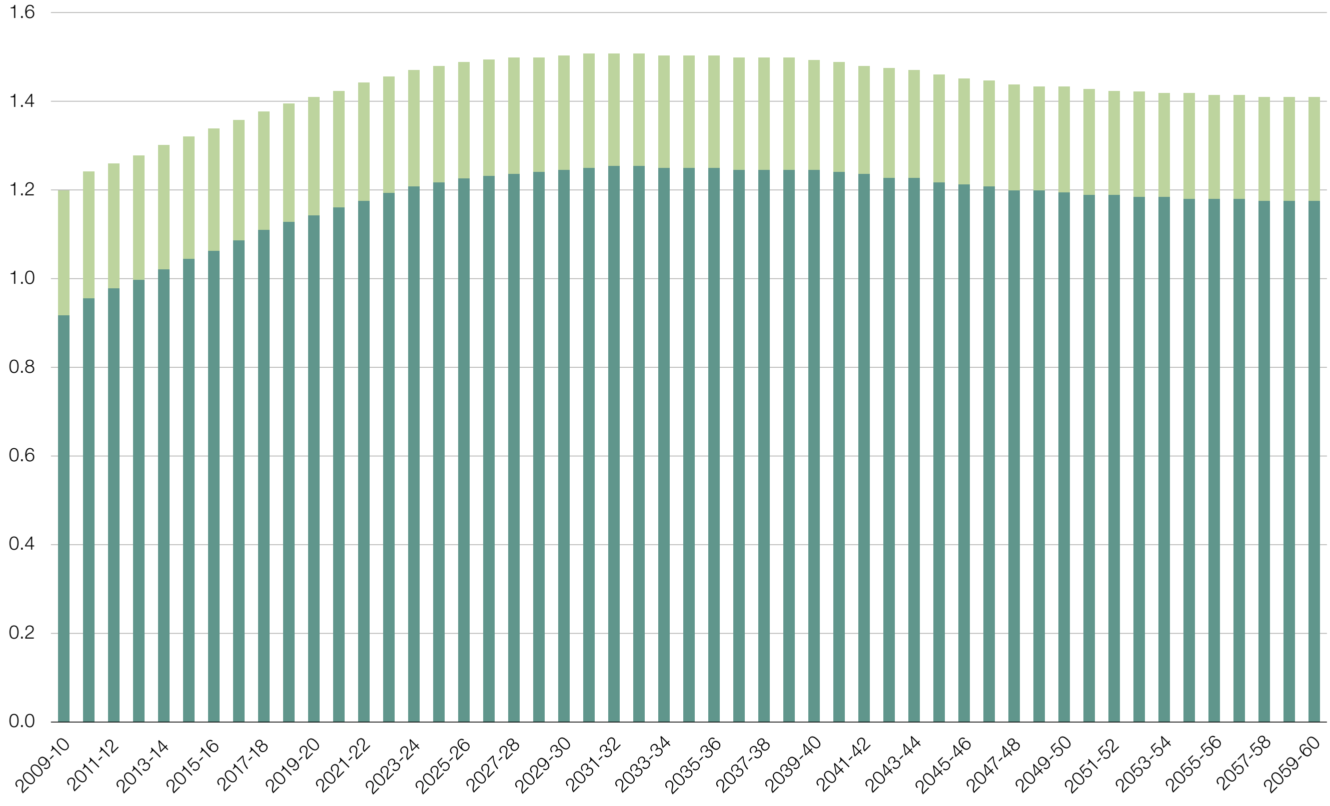
1 These projections differ from Figure 13 of our March 2010 report on *The cost of public service pensions* because they cover pensions only for civil servants, NHS staff and teachers only.

Source: National Audit Office analysis of Government Actuary's Department pension projections and Treasury GDP projections

2.3 Within the current spending review period, we estimate projected savings with a net present value of £5 billion in 2008-09 prices between 2010-11 and 2014-15. These savings are almost entirely absorbed by additional short-term costs with a net present value of £4 billion, resulting from changes in tax rules that allow employees to take more of their pensions as lump sums on retirement. The projections reflect the Treasury's assumption about the extent to which employees are likely to exercise this new option. The short-term additional costs are more than offset by longer-term savings through lower pensions resulting from the lump sum exchanges.

Without the changes

Total pension payments as a percentage of GDP



2.4 Our estimate of savings is new information because the Treasury has not calculated this information itself. It regards the original £13.5 billion 'cost envelope' target (paragraph 1.11) as 'obsolete'[21] and has not tried to monitor it. While it projects overall spending on public service pensions in its Long-Term Public Finance Reports, the Treasury has not devised any alternative measure of the impact of the different elements of the 2007-08 changes.

2.5 Our estimate does not include savings, which we have not examined, resulting from changes to other public service pay-as-you-go schemes, including those for the armed forces, firefighters and police, that account for around a quarter of all public service pay-as-you-go pension payments.

2.6 The savings we describe in this report are also distinct from the changes in costs that the Independent Public Service Pensions Commission has estimated from the combined effect of developments in 2010.[22] The Commission estimated a 27 per cent reduction by 2059-60 in taxpayer costs on all public service pay as you go pension schemes, compared to what was previously projected in the Treasury's 2009 Long-Term Public Finance Report.

The main elements of the savings

2.7 The financial impact of the 2007-08 changes comprises three main elements of cost savings, offset in part by other changes which add to costs:

i an immediate increase in employee contribution rates, which accounts for 8 per cent of savings in 2059-60, but starts before the other elements (**Figure 8**) and so contributes 15 per cent of total savings in the whole period to 2059-60 (**Figure 9**) and 32 per cent in the spending review period to 2014-15;

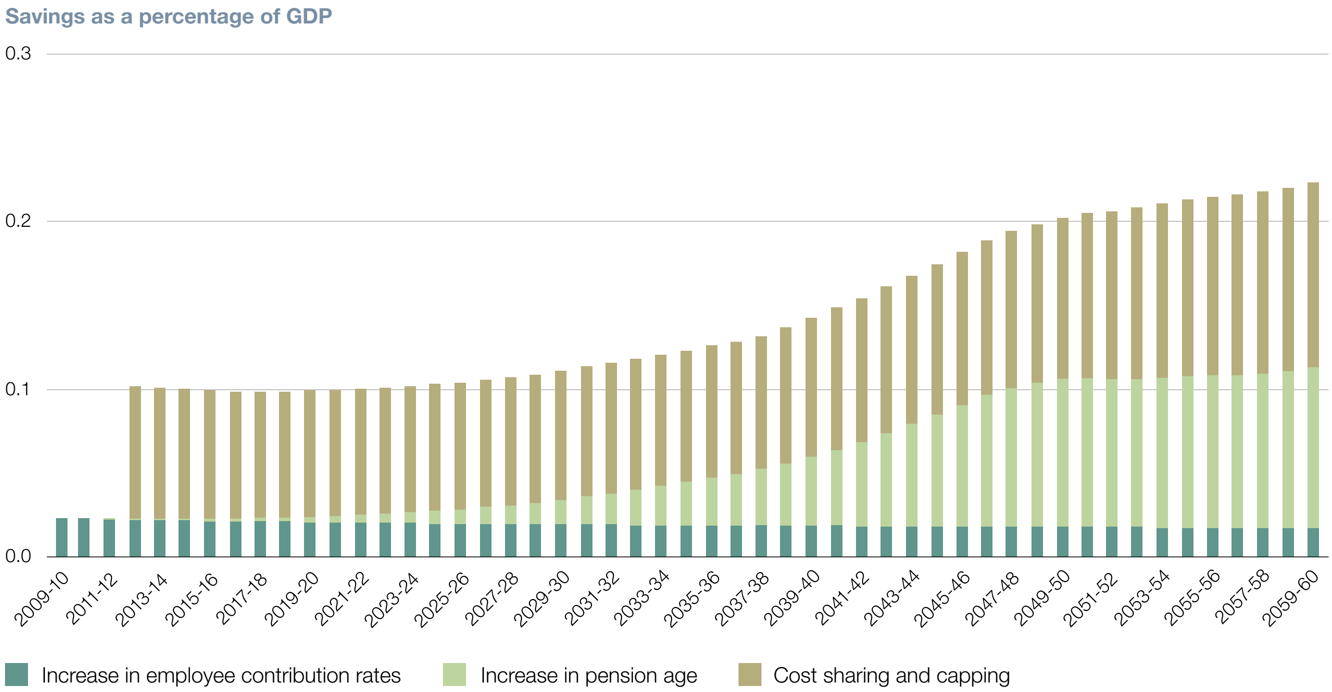
ii an increase in the normal pension age for new employees, from 60 to 65 in most cases, which accounts for 43 per cent of savings in 2059-60 but has a delayed impact (Figure 8) and so contributes only 25 per cent of savings over the whole period (Figure 9) and one per cent over the spending review period;

iii cost sharing and capping, which has not yet had an impact but, if it works as expected, will account for 49 per cent of savings in 2059-60 (Figure 8), 60 per cent over the whole period (Figure 9), and 67 per cent over the spending review period; and

iv other changes (Figure 13 on page 30), including pension enhancements agreed alongside the higher normal pension age (see paragraph 1.11), have the largest impacts at the start and end of the projection period, so are projected to absorb 25 per cent of the annual savings from the three main elements in 2059-60, 12 per cent over the period to 2059-60, and 81 per cent over the spending review period.

Figure 8

There are three main elements of savings in taxpayer contributions to pensions



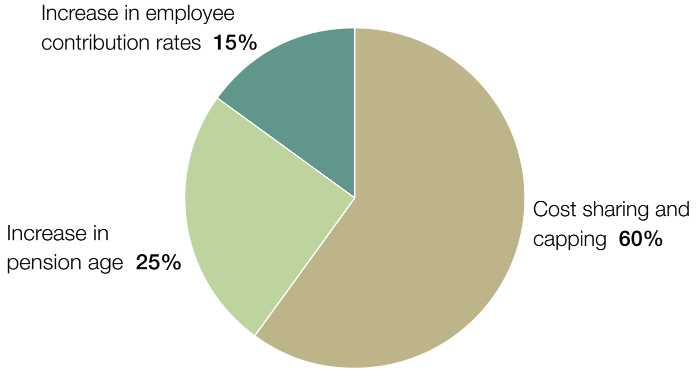
NOTE

1 The gross savings presented here differ from those in Figure 1 because they cover only the three main cost saving elements and exclude the impact, presented in Figure 13, of other changes which absorb some of the savings and lead to lower net savings.

Source: National Audit Office and KPMG analysis of Government Actuary's Department pension projections and Treasury GDP projections

Figure 9

Three main elements make different contributions to overall savings in taxpayer costs over the period 2009-10 to 2059-60



NOTE

1 The savings over the period 2009-10 to 2059-60 are calculated as net present values using the Treasury's annual discount rate of 3.5 per cent over changes in RPI.

Source: National Audit Office and KPMG analysis of Government Actuary's Department pension projections

Increasing employee contribution rates

2.8 The 2007-08 changes resulted in increases in employee contribution rates for NHS staff and teachers.

- The employee contribution rate for **teachers** in England and Wales rate rose from 6 per cent to 6.4 per cent of pay for the scheme from 1 January 2007.
- Employee contribution rates for **NHS** staff in England and Wales, which had been 5 per cent of pay for manual staff and 6 per cent for others, moved to new tiers of 5 per cent, 6.5 per cent, 7.5 per cent and 8.5 per cent, depending on pay levels, from 1 April 2008.
- Employee contribution rates for **civil servants** remained unchanged. Over half of employees were in the old scheme with an employee contribution rate of 1.5 per cent of pay, while others were in new schemes with an employee contribution rate of 3.5 per cent, reflecting enhanced pensions introduced in 2002.

Raising the normal pension age

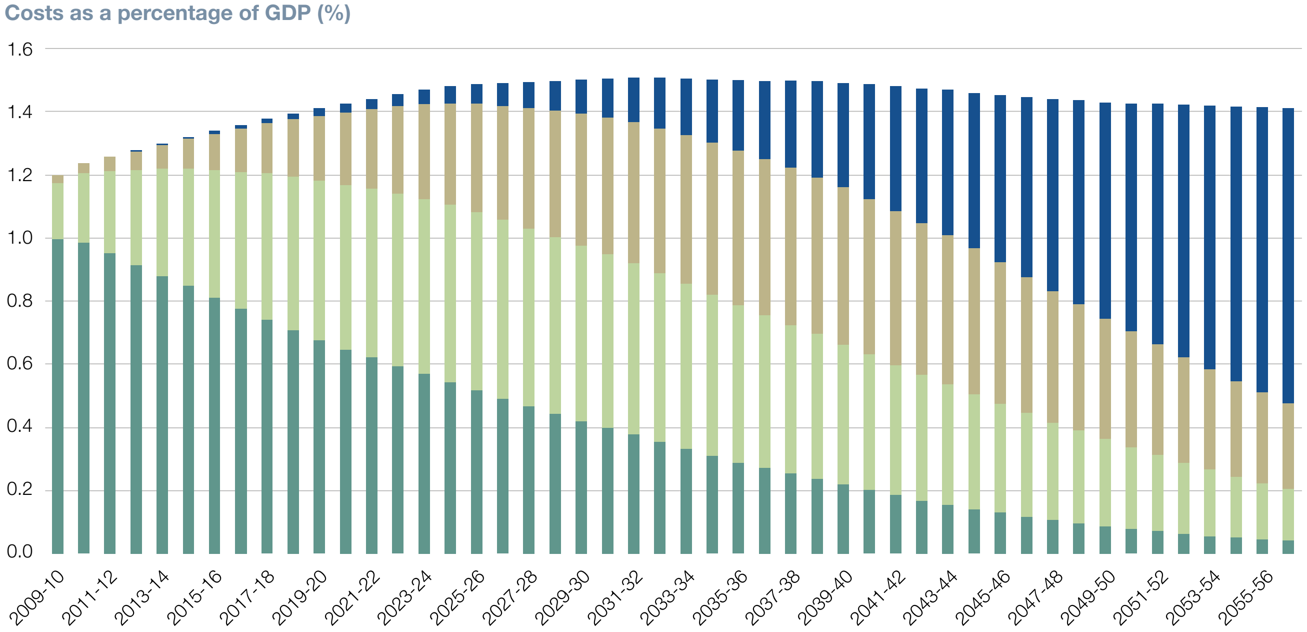
2.9 The increase in normal pension age to 65 for most new employees will not begin to deliver significant annual savings until the 2030s (Figure 8 on page 25). This delay is the direct consequence of the decision to apply the change only to new entrants (**Figure 10**).

Cost sharing and capping

2.10 The cost sharing and capping mechanism has not yet had a financial impact but, if it works as intended, the Government Actuary's Department projections suggest it will bring substantial savings from 2012-13. However, the timing and size of the savings are subject to particular uncertainty (paragraph 2.2). Although discussed with relevant unions, and agreed by most, the mechanism is not currently well understood by staff. Employee reaction to its first application, expected in 2012, is therefore unknown. The mechanism could remain poorly understood and be complex to administer if applying it leads to a growing sequence of different pension calculations for periods between successive actuarial valuations. Some schemes are already close to the cap (**Figure 11** on page 28).

Figure 10

Applying the higher normal pension age only to new employees delayed its impact



- Pension payments for rights accrued before April 2007 by past employees, including those who were already pensioners: this element was not affected by the change in normal pension age
- Pension payments for rights already accrued by existing employees before April 2007: this element was not affected by the change in normal pension age
- Pension payments for the future service of staff in post before April 2007: most of this element would have been affected by the change in normal pension age had it been applied as originally intended
- Pension payments for the future service of staff joining from April 2007: only this element of all future payments was affected by the change in normal pension age

NOTE

1 The costs, which are taxpayer costs plus employee contributions, are those that would have applied without the pension changes, since the analysis is relevant to the position before making those changes.

Source: National Audit Analysis of Government Actuary's Department pension projections and Treasury GDP projections

Figure 11
The pension schemes have different employer contribution caps

	Civil service (%)	NHS (%)	Teachers (%)
Employer contribution rate at the time of the 2007-08 changes[1]	19.4[2]	14.0	14.1
Cap on employer contributions	20.0 from 2012	14.2 from 2012 to 2016	14.0 from 2011
		14.0 from 2016	

NOTES
1 These are for the three main schemes: the Principal Civil Service Pension Scheme, the NHS Pension Scheme (for England and Wales) and the Teachers' Pension Scheme (for England and Wales).
2 Average rate – the actual rate varies from 17.1 per cent for lower earners to 25.5 per cent for higher earners.

Source: National Audit Office analysis

2.11 The cost sharing and capping mechanism provides for schemes to consult on whether any cost increases falling to employees are taken as higher employee contributions, reduced future pension accumulation, or a combination of the two. Reductions to future pension accumulation could take a variety of forms, including lower accrual rates, higher pension ages and reduced dependants' pensions. The timing of savings to taxpayers depends on the balance between changes to employee contributions and changes to future pension accumulation, since the impact of higher contributions is immediate while the effect of lower pensions lies in the future. Projections described in this report are based on the assumption that one-third of employee costs are taken as higher contributions and two-thirds as lower pensions, with lower pensions implemented through lower accrual rates.[23] Different choices about the split would give different savings profiles over time (**Figure 12**).

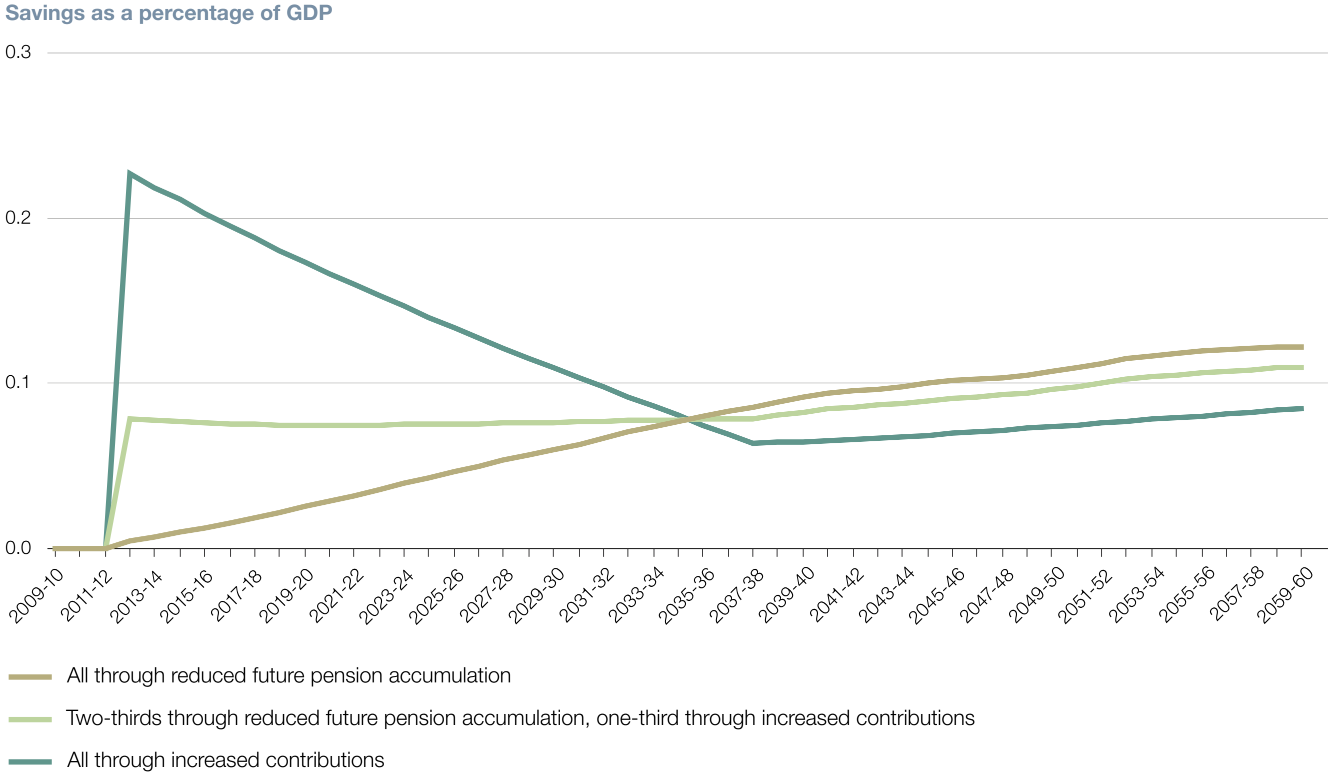
Other changes

2.12 Other changes to the pension schemes reduce net savings, but not uniformly, and bring forward an element of cost from later years, so there is a period of small additional savings between 2026-27 and 2047-48 (**Figure 13** on page 30). After 2059-60, the combined effect of the main savings elements and these changes leads to slowly increasing overall savings from 2065-66 (paragraph 2.1).

- The initial effect is an increase in costs, resulting mainly from the Treasury assumption that employees will choose to exchange more of their annual pensions for lump sums on retirement (paragraph 2.13).[24]
- Such exchanges will reduce subsequent annual pension payments from what they would have been, leading to the later cost savings.
- The increase in costs from 2047-48 results mainly from the new schemes having higher accrual rates (paragraph 2.14).

Figure 12

Different ways of incorporating increased employee costs under cost sharing and capping lead to different savings profiles

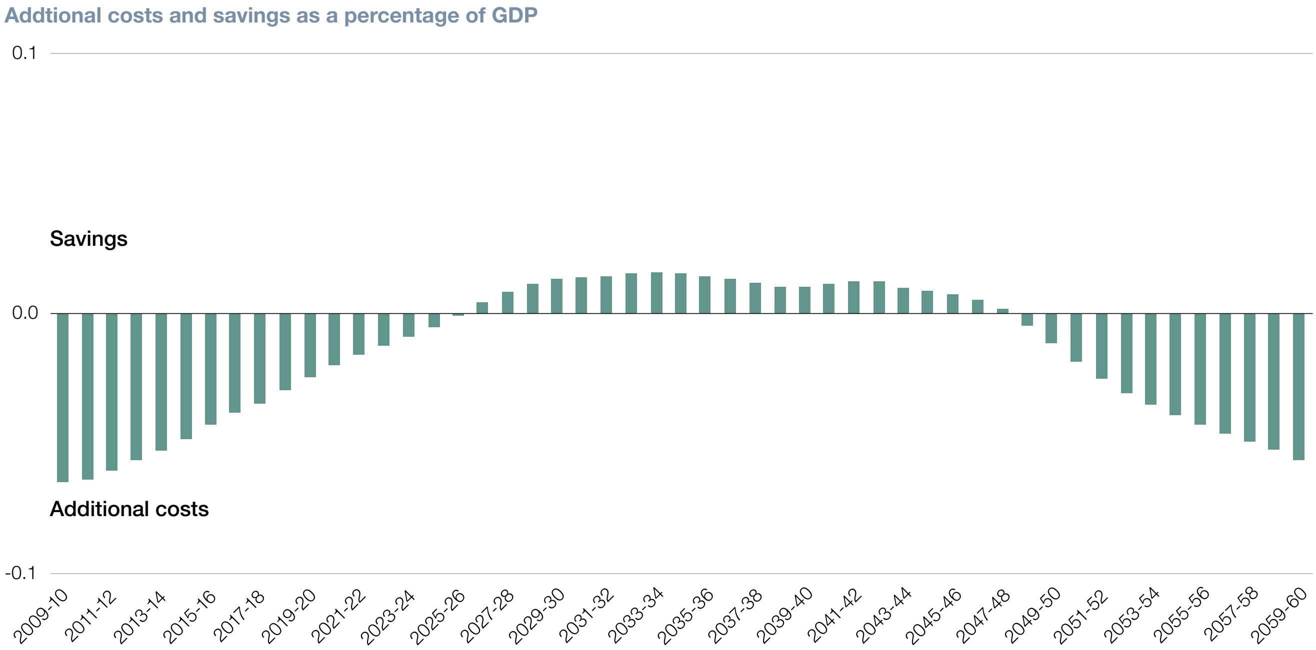


Source: National Audit Office analysis of Government Actuary's Department pension projections and the Treasury's GDP projections

2.13 The option for employees to exchange parts of annual pensions for tax-free lump sums on retirement was added to bring public service pensions into line with wider practice rather than to affect costs. There will be an increase in immediate payments from the schemes, more than offset by savings in the future. Overall savings to taxpayers will be less than to the schemes because of the lower tax paid through exercising the option. This has not been taken into account in any Treasury modelling or in projections for Long-Term Public Finance Reports.

Figure 13

Pension enhancements and other changes reduce overall savings



Source: National Audit Office and KPMG analysis of Government Actuary's Department pension projections and Treasury GDP projections

2.14 The main pension scheme enhancements, included as part of the agreement over higher pension ages, were in accrual rates.

- Civil servants in the new career average salary scheme have an accrual rate of just under 1/43. Accrual in such a scheme needs to be higher than in a final salary scheme, if the two schemes are to be equivalent, because career average salaries are generally lower than final salaries.
- Teachers and most NHS staff[25] have accrual rates of 1/60, compared to 1/80 under the previous schemes. The effect of the change, which will lead to higher pensions paid over a shorter period following the change in normal pension age, is partly offset because the earlier schemes provide lump sums of three times annual pension automatically whereas the new scheme provides such sums only in exchange for some reduction in annual pension.

2.15 Enhancements to pensions for surviving dependants increase costs, but to a much lesser extent than the higher accrual rates. Changes to ill health retirement benefits were intended to reduce costs, but have a much smaller impact than the three main measures already discussed.

Part Three

The impact of the changes on sustainability

3.1 This part of the report examines the impact of the 2007-08 changes in terms of the Treasury's three sustainability criteria:

- financial affordability and stability in employer costs;
- fitness for purpose in staff recruitment and retention; and
- setting the right example to private sector employers.

Financial affordability and stability

3.2 Whether public service pension schemes are financially affordable is a political judgement rather than an audit assessment, but Part 2 considered the cost projections relevant to that judgement. Financial stability, on the other hand, is about risk management: how cost projections behave under different assumptions about the future. Our previous report highlighted the two main risks: longevity and growth in GDP.

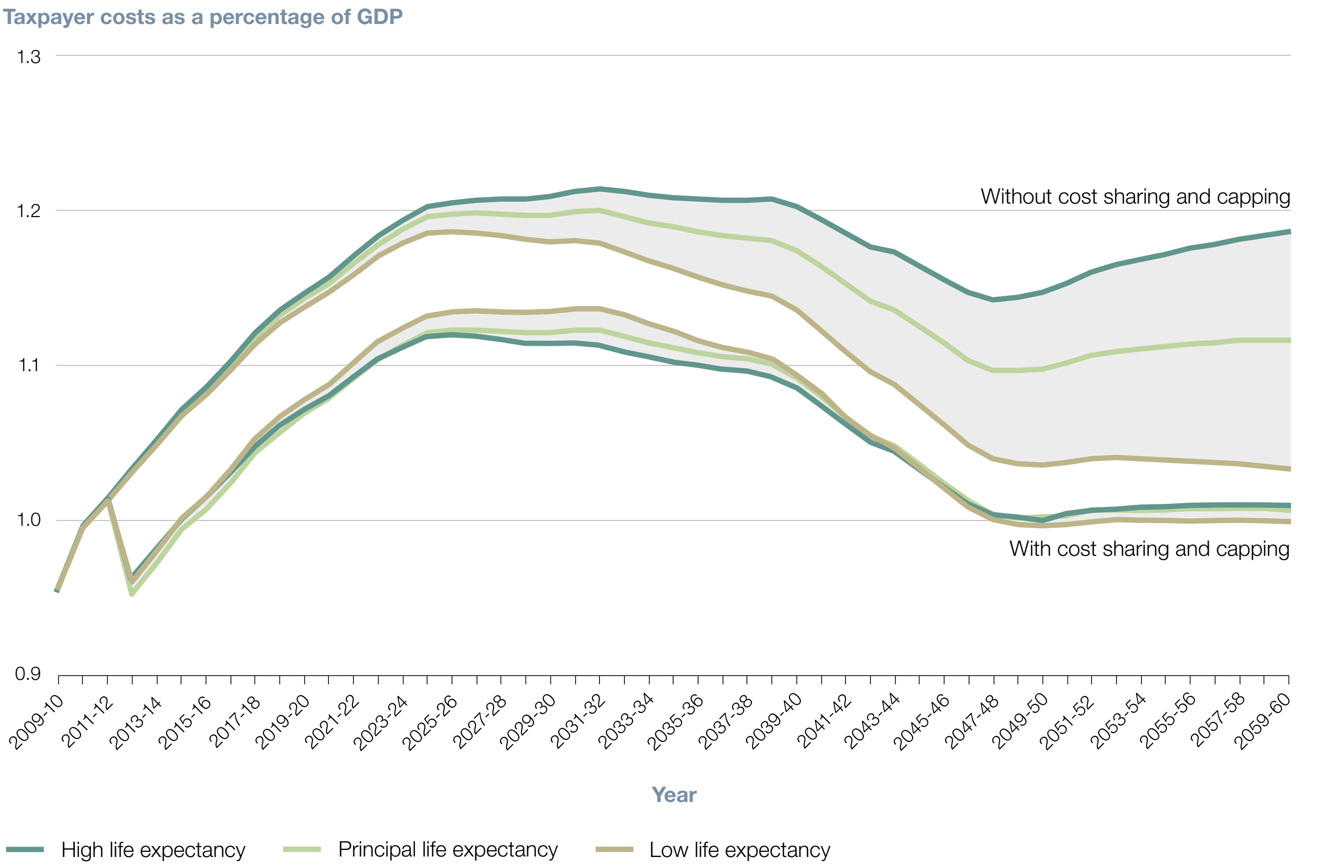
Longevity risk

3.3 The cost sharing and capping mechanism, if it is implemented as envisaged in the light of much subsequent change, will transfer from taxpayers to employees most of the financial risk arising if pensioners live longer, on average, than the schemes' actuaries have previously projected. If life expectancy is significantly higher than the schemes currently expect, the annual cost to taxpayers will change little under cost sharing and capping but would be 6 per cent greater without it in 2059-60 (**Figure 14** overleaf).[26]

3.4 The impact of cost sharing and capping on employees depends on what happens in practice to life expectancies. Of all the projections from the Government Actuary's Department, the one with the largest impact on employee contributions is the high life expectancy scenario with all additional employee costs taken as higher employee contributions. Under these conditions, average employee contribution rates would increase by 70 per cent from their current levels by 2059-60, so, for illustrative purposes only, an employee contribution rate of 6.4 per cent of salary would rise to 10.9 per cent. The balance between increasing contributions and reducing future pension accumulation would be decided at the time, and the increase to contributions would be smaller if more of the cost was taken as reduced future pension accumulation. Conversely, employee contribution rates would be unchanged from now under the low life expectancy scenario.

Figure 14

Cost sharing and capping manages longevity risk to taxpayers



NOTES

1 These projections differ from Figure 13 of our March 2010 report on *The cost of public service pensions* because they show taxpayer costs, which are net of employee contributions, not total pension payments. They also cover pensions only for civil servants, NHS staff and teachers.

2 With cost sharing and capping, there is a projected initial reduction of costs in 2012-13 under all assumptions because life expectancies under the principal assumption are now higher than under the equivalent assumption when the cost sharing and capping mechanism was introduced. This known development is expected to transfer costs from taxpayers to employees from 2012-13 onwards.

3 Taxpayer costs in the middle of the projection period are lower in the high life expectancy scenario with cost sharing and capping, and higher in the low life expectancy scenario, because changes in expectations of future life expectancy affect employee contributions through cost sharing and capping before affecting pension payments.

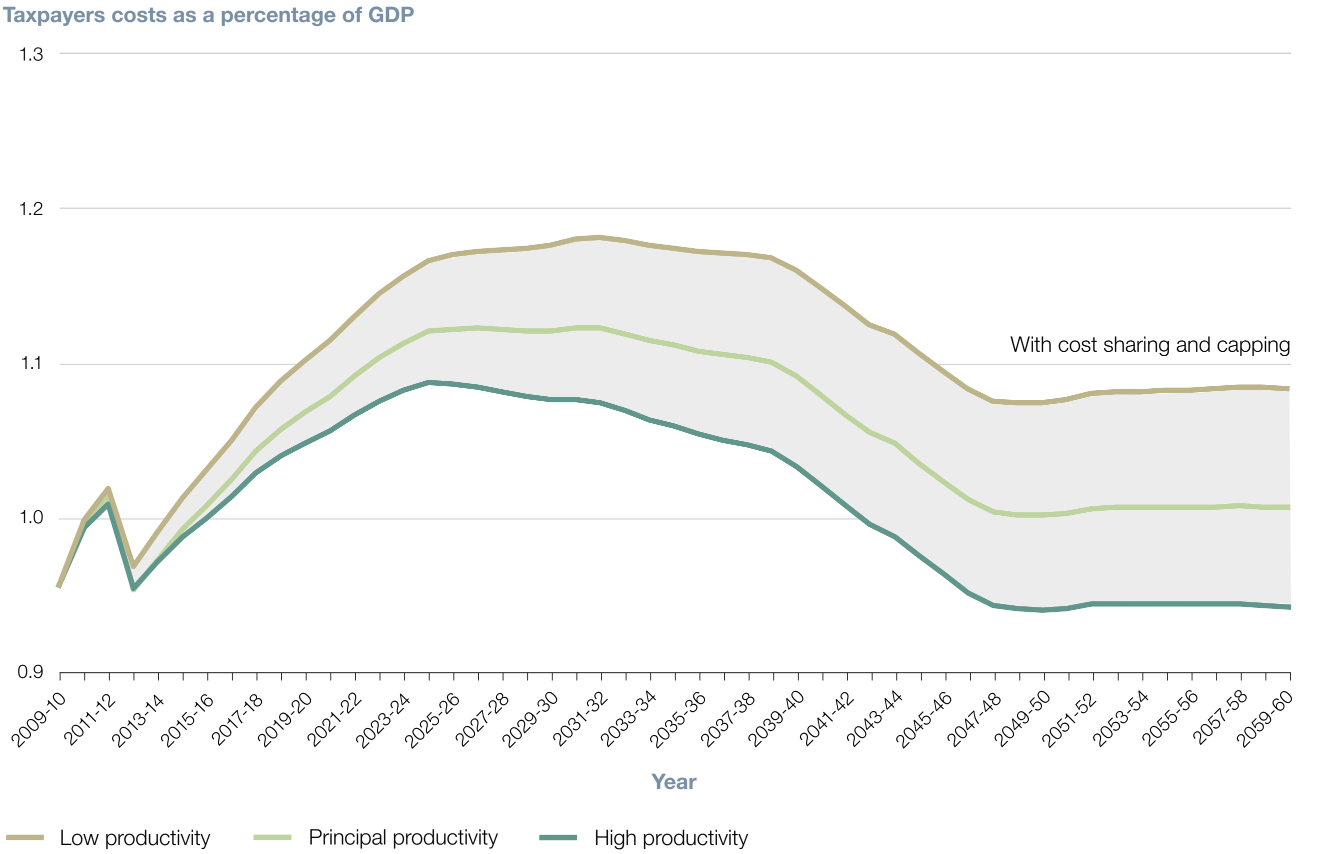
Source: National Audit Office analysis of Government Actuary's Department pension projections and Treasury GDP projections

GDP risk

3.5 Cost sharing and capping does not manage the financial risk arising if growth in GDP, the source of the tax revenue that ultimately pays the pensions, is permanently lower than assumed. Different assumptions about GDP growth, driven by different assumed productivity growth rates, have a large impact on public service pay-as-you-go pension costs as a proportion of GDP (**Figure 15**). Taxpayer payments, expressed as a proportion of GDP, would be 8 per cent higher in 2059-60 under a low productivity growth rate assumption than they would be under the principal assumption.[27] The cost sharing and capping mechanism does not manage the risk that the cost of public service pensions will rise, as a proportion of GDP, if GDP growth is permanently lower than expected. Its focus in this area is, instead, on managing the risk of public sector salaries growing faster then the wider economy.

Figure 15

Different GDP growth rates have a large impact on the cost of public service pensions relative to GDP



NOTES

1 These projections differ from Figure 13 of our March 2010 report on *The cost of public service pensions* because they show taxpayer costs, which are net of employee contributions, and not total pension payments. They also cover pensions only for civil servants, NHS staff and teachers.

2 There is a projected initial reduction of costs in 2012-13 under all assumptions because life expectancies under the principal assumption are now higher than under the equivalent assumption when the cost sharing and capping mechanism was introduced. This known development is expected to transfer costs from taxpayers to employees from 2012-13 onwards.

Source: National Audit Office analysis of Government Actuary's Department pension projections and Treasury GDP projections

Other uncertainties

3.6 The Treasury conducted sensitivity analyses on longevity and GDP growth, which are the two main risks to taxpayer costs, but it did not do so in three other areas of uncertainty before approving the pension scheme changes.

- The Treasury has not modelled the potential impact on pension costs of different public service workforce sizes and instead assumed, for its annual Long-Term Public Finance Reports, that overall numbers of employees in public service pension schemes will remain at March 2008 levels. Projections reported by the Independent Public Service Pensions Commission include variations from the Treasury's assumption but these projections, even were the Treasury to adopt them, do not constitute a sensitivity analysis because the different employment assumptions are not isolated from changes in other assumptions.
- The Treasury did not assess any potential impact of the 2007-08 changes on income tax receipts. Overall savings, like overall costs, are calculated before taxation, and both are reduced once the impact on taxation is taken into account.
- The Treasury did not assess any potential impact on benefit payments. Reductions in annual pensions under cost sharing and capping could reduce some public service pensions to an extent that would increase demand on means-tested benefits. This would partially offset taxpayer savings from lower public service pensions if means-tested benefits were to remain in their current form.

Staff recruitment and retention

3.7 The Treasury's focus in overseeing the 2007-08 changes was on securing changes to schemes that would meet its 'cost envelope' and was not underpinned by a longer term strategy and analysis, agreed with employers, of what features are desirable in a modern public service pension scheme to support employers' and taxpayers' objectives, and what variations might be appropriate among schemes. The Treasury stated that it expected amended pension schemes to be 'fit-for-purpose' in supporting public service recruitment and retention, but did not define what it meant by this. It did not make a clear statement about the purpose of public service pensions and the types of employee behaviour it wished to encourage and support through them, for example the balance between staff retention and mobility or the flexibility to stress one or the other at different times.

3.8 Four elements of the 2007-08 changes have potential impacts on recruitment and retention:

i changes to the pension basis from final salary to career average salary;

ii phased retirement;

iii ill health retirement rules; and

iv reductions in the value of pensions provided.

Changes to the pension basis

3.9 The civil service adopted a career average salary scheme for new entrants. It is intended to support greater employment flexibility, diversity and mobility and provide a fairer outcome for staff in general, as staff with shorter or flatter career paths should receive better pensions than they would receive on a final salary basis. Other schemes chose to stay with a final salary basis.

Phased retirement

3.10 All the schemes have introduced phased retirement provisions, under which employees can work part-time beyond their normal pension age and draw some of their pension. Phased retirement has the potential, through encouraging experienced employees to continue working into their sixties, to reduce the challenge and costs of replacing a large cohort of key staff approaching pension age.

3.11 Over recent years, employees have been retiring progressively later, so the average age for public servants at retirement is now over 62 years even though most employees have a lower normal pension age. The phased retirement provisions are intended to assist this trend, but it is too early to assess their impact.

Changes to ill health retirement rules

3.12 The annual number of ill health retirements has reduced in the NHS and teachers' schemes since 2007-08. The reduction continues a trend pre-dating the 2007-08 changes: for example, the number of teachers retiring for ill health reasons more than halved to 527 between 2007-08 and 2009-10, following a reduction from 2,630 in 2000-01 when ill health retirements represented a quarter of all retirements. It is not yet clear to what extent the higher normal pension age might increase the number of ill health retirements if more employees experience health problems as they work past the previous pension age.

The value of pensions to employees

3.13 Public service employers may not be optimising the use of pensions as recruitment and retention tools. Focus group research, carried out in 2004 for the civil service and NHS to inform the design of new schemes, found that employees did not have a clear financial understanding of the value of their public service pensions, although pensions were valued elements of overall pay and key sources of retirement income, appearing to have more influence over retention than recruitment. Some schemes, notably the civil service, provide members with annual pension benefit statements, but pension awareness tends to remain limited among employees until they approach retirement age.

3.14 There is substantial disagreement among experts about the real value of public service pensions. Different valuations are based on different assumptions about people's preferences for money today rather than later and expected long-term investment returns, also known as discount rate assumptions. A lower assumed discount rate substantially increases the estimated value of public service pensions. The Treasury sets a discount rate of 3.5 per cent above changes in RPI for determining the level of employer contributions, although its own guidance recommends lower rates for appraising projects lasting more than 30 years.[28] At the other end of the spectrum, a Public Sector Pensions Commission, sponsored by the Institute of Economic Affairs and the Institute of Directors, has proposed a discount rate equal to the return on index linked gilts,[29] equal to 0.8 per cent in real-terms at the time of the Commission's report.[30] In between, the Pensions Policy Institute has used a real-terms rate of 2.5 per cent.[31]

3.15 Whatever discount rate is assumed, the 2007-08 changes have reduced the value of occupational pensions as an element of 'deferred pay' within the pay package offered by public service employers. The Pensions Policy Institute[32] and the Institute for Fiscal Studies[33] have assessed independently, using different methodologies, that the changes have substantially reduced the value of public service pensions to staff in the new schemes.

3.16 The decision not to apply the change in normal pension age to existing staff means there are different pension arrangements for public service employees doing the same jobs. A pension with a lower normal pension age has a higher value and a higher cost than a pension with a higher normal pension age. For example, scheme actuaries estimated average employer costs for the civil service pension scheme, following the 2007 changes, to be 20.4 per cent of pensionable pay for existing staff and 18.2 per cent for staff who joined after 30 July 2007. It is not clear what long term effects this disparity will have on staff morale and motivation, nor on the mobility of staff who retain the lower pensionable age for as long as they stay in the same job.

3.17 Despite the potential benefit to taxpayers of the flexibility to change public service pensions further in the future, there is a risk that uncertainty from an impression of constant change to pensions, which are inherently long-term assets, may reduce their perceived value to employees and prospective employees. The Office for Budget Responsibility also expects increases in employee contributions to cause some, particularly those on lower incomes, to opt out of their pensions.[34]

Setting an example to private sector employers

3.18 The growing disparity in pension provision suggests that the use of public service schemes to set an example for the private sector is not working, with continued closure of private sector defined benefit schemes since 2007-08.

Appendix One

Methodology

Method	Purpose
1 Semi-structured interviews with civil service, NHS and teachers' pension scheme managers, actuaries, employers and trade unions, supported by analysis of key papers on negotiation meetings and supporting papers, unpublished data and actuarial analyses.	To understand the options considered during scheme reviews and negotiations in 2005-06, why particular changes were made and the cost implications.
2 Analysis of schemes' financial, membership and behavioural information from resource accounts, actuarial reviews and valuations and unpublished scheme data.	To understand financial, membership and behavioural trends.
3 Commissioning the Government Actuary's Department to provide projections of annual payments 2009-10 to 2059-60: with and without different elements of the 2007-08 changes; and under different life expectancy, cost sharing and capping, and GDP growth scenarios.	To understand the likely impact of specific changes and the overall package of changes, as well as sensitivities to alternative assumptions, and to analyse the contributions of different elements of savings.
4 External actuarial advice, from KPMG, supported by internal modelling expertise, to review the robustness of the Government Actuary's Department's model to generate long-term projections on public service pension cashflows, and to advise on, and provide further analysis of, commissioned projections.	To gain assurance as to the reliability of the projections.
5 Semi-structured interviews with Treasury staff and review of correspondence between the Treasury and schemes and their departments during 2005-06.	To understand the objectives and parameters of the 2007-08 changes and what the Treasury expected of and agreed with schemes.
6 Review of Cabinet Office notes and minutes on the 2004-05 Public Services Forum meetings.	To understand what was discussed and agreed at the Public Services Forum.
7 Semi-structured interviews with academic experts and key stakeholders.	To understand the wider national and international context of the 2007-08 changes and views on their impact.

Appendix Two

Glossary

Accrual rate	The rate at which pension entitlements accumulate: for example, an accrual rate of 1/60 means that pension entitlement equivalent to one-sixtieth of salary (final salary or, in a career average scheme, current salary) is built up each year.
CPI	The Consumer Prices Index, which the Government intends to use in future for increasing public service pensions in payment each year.
GDP	Gross Domestic Product, which this report uses as the basis for presenting the annual cash cost of public service pensions.
Net present value	The value in today's prices of a stream of future cash payments.
Normal pension age	The age at which an occupational pension can be taken without reduction.
Pay-as-you-go scheme	A pension scheme in which contributions from current employees and employers are used to pay today's pensions.
RPI	The Retail Prices Index, which the Government has used until now for increasing public service pensions in payment each year.

Endnotes

1 The Principal Civil Service Pension Scheme (for England, Scotland, Wales and some employees in Northern Ireland), the Principal Civil Service Pension Scheme (Northern Ireland), the NHS Pension Scheme (for England and Wales), the NHS Superannuation Scheme (Scotland), the Health and Social Care Pension Scheme (Northern Ireland), the Teachers' Pension Scheme (for England and Wales), the Scottish Teachers' Superannuation Scheme and the Northern Ireland Teachers' Superannuation Scheme.

2 National Audit Office, *The cost of public service pensions*, HC 432 2009-2010, March 2010.

3 The main other pay-as-you-go schemes cover the armed forces, police and firefighters.

4 The three largest schemes are the Principal Civil Service Pension Scheme, the NHS Pension Scheme (for England and Wales) and the Teachers' Pension Scheme (for England and Wales).

5 For example, none of these schemes introduced cost sharing and capping.

6 Audit Commission, *Local government pensions in England: an information paper*, July 2010.

7 Organisation for Economic Cooperation and Development, *Pensions at a Glance: Retirement-Income.*

8 Office for National Statistics, *Pensions Trends, Chapter 5: State Pensions*, June 2009, Figure 5.1.

9 This included one-off employer contributions of £0.5 billion into the Health and Social Care Pension Scheme (Northern Ireland) to take account of actuarial revisions to past payments of employer contributions.

10 2009-10 figures from resource accounts; 1960s figures derived by National Audit Office analysis of G. Rhodes, *Public Sector Pensions*, George Allen & Unwin, 1965.

11 The civil service schemes did not have employer contributions in the 1960s so comparison of changing patterns in contributions and payments is not possible.

12 Later projections, prepared by the Office for Budget Responsibility in June 2010 and used with other changes since the 2010 general election in the Interim Report of the Independent Public Service Pensions Commission, reduce GDP by just under 7 per cent in most years to 2059-60.

13 *Independent Public Services Pension Commission: Interim Report*, October 2010.

14 Office for National Statistics, *Cohort expectations of life based on historical mortality trends from 1981 to 2008 and assumed calendar year mortality rates from the 2008-based principal projections, http://www.statistics.gov.uk/downloads/theme_population/NPP2008/wUKcohort08.xls*. These projections are for the whole population rather than for public sector workers, some of whom, for example teachers, have a higher overall life expectancy but are projected to share similar trends for longevity improvements.

15 For example, A. Thomas and A. Allen, *Employer attitudes to risk sharing in pension schemes: a qualitative study*, Department for Work and Pensions research report 528, August 2008.

16 *Annual Survey of Hours and Earnings*, Office for National Statistics, 1997 and 2009.

17 Department for Work and Pensions, *Simplicity, security and choice: working and saving for retirement*, Green Paper, December 2002, Cm 5677, p. 106.

18 Some employees had a lower normal pension age of 55: for example, prison officers in service before October 1985 and mental health officers and 'special class' nurses, physiotherapists, health visitors and midwives in service before March 1995.

19 Further details of the assumptions used and scenarios tested for these projections are set out in the detailed methodology appendix which accompanies this report on our website.

20 This is based on a net present value calculation using the Treasury's discount rate of 3.5 per cent a year above RPI.

21 *http://www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090402/text/90402w0022.htm column 1387W*

22 The savings are reported in the *Independent Public Services Pension Commission: Interim Report*, October 2010. The three developments are: the change from RPI to CPI as the basis for annual pension increases; a two-year pay freeze; and an assumption that the public service workforce will decrease by 10 per cent over the next five years and then increase annually by 0.25 per cent.

23 This is the assumption made by the Treasury for its 2009 *Long-Term Public Finance Report*.

24 There will be a small effect, for civil servants only, as older entrants to the new career average scheme retire on average salaries that are weighted towards the end of their careers and so closer to final salaries, which are generally higher than career average salaries.

25 General practitioners and dentists are part of the NHS scheme but retain a long standing career average salary basis, reflecting lifetime earnings patterns that are not typical of other NHS staff. Accrual rates were enhanced to a similar degree to the changes for other NHS staff.

26 The principal life expectancy assumption is the Office for National Statistics' central, or medium, assumption. Under the high life expectancy assumption, men would live 7.1 more years on average, and women 6.4 more years, than under the principal assumption.

27 The Treasury's principal assumption for productivity and real earnings growth, which underlies GDP growth, is 2.0 per cent a year. Its low productivity assumption is 1.75 per cent a year and its high productivity assumption 2.25 per cent a year.

28 HM Treasury, *The Green Book: appraisal and evaluation in central government*, 2003, pp. 27 and 90. For projects between 31 and 75 years it recommends using a discount rate of 3 per cent.

29 Inflation-linked securities issued by the Government to finance its borrowing.

30 Public Sector Pensions Commission, *Reforming public sector pensions: solutions to a growing challenge*, July 2010, pp. 20-21.

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