HM Treasury

Public service pensions:

actuarial valuations and the employer cost cap mechanism

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Executive summary

The UK faces a substantial long-term challenge to ensure the public finances remain sustainable. The government has taken action to address the fiscal pressures that will result from an ageing population, including bringing forward a package of reforms to public service pensions to rebalance taxpayer and member contributions and ensure that the schemes are sustainable. This package of reforms, including the new scheme designs, the rebalancing of contributions between members and the taxpayer, and a switch to uprating by the Consumer Prices Index, is forecast to save £430 billion by 2061-62, while also ensuring that the pensions offered to public service workers remain among the very best available.

Conducting full actuarial valuations of the new pension schemes is a key part of the implementation of these reforms. These valuations will measure the full costs of paying pension benefits. The valuations will inform the future contributions to be paid into the schemes by employers, to ensure that these costs are fully recognised by employers in the future.

Treasury Directions, made under the Public Service Pensions Act 2013, provide the legal framework for carrying out these valuations. The Directions will ensure that future valuations are carried out every four years (every three years for the local government schemes). The Directions will also ensure that these valuations are done on a transparent and consistent basis across all of the schemes.

Another key objective of public service pension reform is to ensure a fair balance of risks between scheme members and the taxpayer. To achieve this, the government will establish an employer cost cap mechanism in the new public service pension schemes. This will provide backstop protection to the taxpayer, and will ensure that the risks associated with pension provision are shared with scheme members.

The Treasury Directions provide the framework for this mechanism. All schemes must set a cap, expressed as a percentage of pensionable pay, and calculated in accordance with these Directions. If a future valuation shows that the costs of a scheme have risen more than 2 percentage points above the cap, or have fallen more than 2 percentage points below the cap, action will be taken to return costs to the level of the cap. This may be achieved via adjustments to member benefits accruing in respect of future service, or adjustments to member contributions. There will be a procedure to allow stakeholders to reach agreement on the adjustments required before any change is made. A default adjustment, that will be made if agreement cannot be reached, will be set out in scheme regulations.

The cost cap will control the cost risks associated with the new pension schemes, and the cost risks associated with active members who have service in the existing, pre-reform schemes (including those with transitional protection). Changes in costs which arise from technical or financial changes will not affect the cost cap. Only those which relate to members – such as changing expectations about life expectancy, salary growth or career paths – will be included in the cap mechanism.

Taken together, the new framework for valuations of the public service pension schemes and the establishment of an employer cost cap will ensure that the full costs of providing the public service pension schemes are recognised and remain sustainable in the future.

1 Introduction

Policy context

1.1 It is clear that the UK faces a significant challenge in ensuring that the public finances remain sustainable in the long term. The latest Fiscal Sustainability Report (FSR), published by the independent Office for Budget Responsibility (OBR), shows that, without additional policy change, an ageing population will increase age-related spending (health, education and pensions) by 4.4% of GDP between 2017-18 and 2062-63. Public sector net debt is expected to reach 99% of GDP in 2062-63 in the absence of further policy change.[1]

1.2 The government is committed to ensuring that the fiscal position remains sustainable in the long term, and has brought forward a package of reforms to public service pensions which are forecast to save £430 billion by 2061-62.

1.3 This package of reforms will rebalance taxpayer and member contributions in the short term, and ensure that the costs of the schemes remain sustainable and fair in the long term. In line with the recommendations of the Independent Public Service Pensions Commission (IPSPC), chaired by Lord Hutton, the government will introduce new "career average revalued earnings (CARE)" scheme designs which will put the schemes on a more sustainable footing, while ensuring that the pensions offered to public service workers remain among the very best available.

1.4 The new schemes for the major public service workforces will be introduced in April 2015, with the exception of the new Local Government Pension Scheme for England and Wales (LGPS), which will come into effect in April 2014. Small schemes providing pension benefits to staff of other public bodies are also expected to reform at later dates.

1.5 The Public Service Pensions Act 2013 ("the Act") provides the legislative framework for the introduction of these new schemes. In addition to providing the basis for the new scheme designs, it also provides for costs to be measured via regular actuarial valuations of the schemes, and for the establishment of an employer cost cap mechanism to ensure that these costs remain sustainable. The Act confers powers on the Treasury to make Directions and Regulations specifying how valuations are to be carried out and how the employer cost cap mechanism is to operate. The completion of actuarial valuations and the establishment of the employer cost caps are a key part of the implementation of the pension reforms.

1.6 Directions have now been made using these powers.[2] Valuations of the schemes, which have not been completed for a number of years, will be carried out in accordance with these Directions. For the unfunded schemes, these valuations will inform the schemes' employer contribution rates to be paid from 2015 onwards. For all of the schemes, including the funded schemes for local government workers, these preliminary valuations[3] will also set the level of the employer cost cap, with future valuations comparing scheme costs against these caps.

[1] 'Fiscal Sustainability Report', Office for Budget Responsibility, July 2013. Available at: http://budgetresponsibility.org.uk/fiscal-sustainability-report-july-2013/
[2] The Public Service Pensions (Valuations and Employer Cost Cap) Directions 2014. These are available at: https://www.gov.uk/government/publications/public-service-pensions-actuarial-valuations-and-the-employer-cost-cap-mechanism
[3] See paragraph 2.17 for more details.

Regulations specifying further details of the operation of the employer cost cap mechanism have now been made and laid before Parliament.[4]

1.7 This paper sets out more detail on the government's policy regarding the valuations, how the employer cost cap will be set, and how the cap mechanism will operate to control costs. It also provides further guidance on the operation of the Directions and Regulations.

Scope and timing

1.8 The Act also provides for the new pension schemes and any connected schemes to be valued together. Connected schemes are defined in the Act as those schemes which make provision for persons of the same description – i.e. for the same categories of public service workers.[5] The Directions therefore provide for old and new schemes for similar categories of employees to be valued together. This means that the cost cap will control the costs associated with the new schemes and some of the costs of the existing schemes, as explained later in this document.

1.9 In addition to these main schemes which are being reformed by April 2015, there are a number of public service pension schemes run for the staff and office holders of non-departmental public bodies, non-ministerial departments, arms length bodies and similar bodies and offices ("public bodies"). The government's policy is to reduce the number of different pension schemes that operate across the public services, and it is anticipated that most of these pension schemes will be reformed by moving the staff and office holders into one of the new schemes established by the Act. However, in some cases, this will not be possible or appropriate. In these circumstances, public bodies will reform their current small schemes or establish new bespoke small schemes in line with the public service pension reforms. The expectation is that these arrangements will be finalised by 2018.

1.10 Where public bodies do set up their own defined benefit schemes under the Act, the requirements for actuarial valuations and an employer cost cap in sections 11 and 12 of the Act will apply to these schemes. The Treasury Directions and Regulations will therefore apply, and so provision has been made in the Directions for valuations of any new public body schemes.

1.11 The timing of scheme valuations is specified in the Directions and will be reflected in scheme regulations. Valuations will be carried out every four years in the unfunded schemes, and every three years in the local government schemes (to match the cycle of local funding valuations). It is expected that the Directions will be updated from time to time to ensure they remain suitable for use at each valuation. Further detail about the timing of valuations is given in paragraph 4.18 below.

Consideration of equality impacts

1.12 The Directions set up a process to be followed by the responsible authorities for the public service schemes when carrying out their valuations, setting the employer cost cap and measuring scheme costs against the cost cap at future valuations. The actuarial process to be followed to calculate these figures, as set out in the Directions, will not in itself have any direct impact on scheme members, and therefore will not directly impact on persons with protected characteristics. The valuations will simply inform the employer contribution rates and set the employer cost cap figures.

1.13 The Regulations made under section 12 of the Act establish the margins above and below the employer cost cap within which the cost of the scheme must remain, and the target cost to

[4] Available at: https://www.gov.uk/government/publications/public-service-pensions-actuarial-valuations-and-the-employer-cost-cap-mechanism
[5] See section 4(6) of the Act.

which costs must return if they move beyond those margins. As with the Directions, the Regulations will not directly impact on scheme members. They simply establish part of the cost control framework for schemes.

1.14 Scheme regulations will include provisions for a process to be followed if a scheme design needs to be adjusted to meet the target cost. The outcomes of this process (e.g. amendments to regulations to adjust benefits accruing in respect of future service, and/or adjustments to member contributions) may have an impact on particular groups. Any potential impacts will be considered at a scheme level when decisions are taken on those outcomes.

2 Cost control in the public service pension schemes

2.1 The Treasury Directions and Regulations, made under sections 11(2), 12(3) and 12(5) of the Act, give effect to the government's policy on valuations and cost control in the public service pension schemes. Valuations will both inform the employer contribution rate, and be used in the operation of the employer cost cap mechanism.

Principles informing valuations of the public service pension schemes

2.2 The Treasury has had regard to the following principles in preparing the Directions:

2.2.1 Completeness – the Directions should ensure that for each unfunded scheme, taken together, employer and employee contributions reflect the full expected costs of the benefits provided by the scheme. These costs should include any past service effects that have arisen since previous valuations.

2.2.2 No bias – the Directions should lead to valuation results which do not contain any bias, as far as is reasonably practicable. No bias means assumptions used to assess costs should be "best estimates", which means that assumptions underlying valuation results should not include any margins for prudence or optimism.

2.2.3 Discount rate – the discount rate will be 3% per annum + the Consumer Prices Index (CPI). Unless there is a significant change in circumstances before 2016, the level of the discount rate will next be reviewed in 2016. This discount rate and process for review are as per the conclusions of the government's consultation on the discount rate set out in April 2011.[1]

2.2.4 Consistency – the Directions should provide consistency across all valuations for all of the public service pension schemes. The Directions should allow for comparisons of the valuation results to be made across schemes, in line with recommendation 6 of the IPSPC.[2] There should also be consistency over time, to allow for comparisons of scheme costs over time. Where different scheme workforces have different characteristics (e.g. where there are differences between workforces' mortality rates, ill health retirements or any other factors which may affect the valuation), then there should be consistency in the way that these different assumptions are set.

2.2.5 Clarity – the Directions should lead to valuation reports that include sufficient information to allow those who are technically competent to understand how the valuation has been carried out. Valuation reports should provide clear and transparent assessments of schemes' costs, and reports should include information that may be helpful to scheme members and stakeholders in understanding the costs of providing benefits.

2.2.6 Cost control – the Directions should ensure that, for each scheme, the first and each subsequent valuation report includes valuation results for the purposes of measuring changes in

[1] 'Consultation on the discount rate used to set unfunded public service pension contributions: Summary of responses', HM Treasury, April 2011. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/190119/consult_discount_rate_summary_responses.pdf

[2] 'Independent Public Service Pensions Commission: final report', HM Treasury, March 2011. Available at: https://www.gov.uk/government/publications/independent-public-service-pensions-commission-final-report-by-lord-hutton

the cost of the scheme against the employer cost cap (as envisaged in Section 12(4)(b) of the Act and as required by Section 12(5) of the Act).

2.2.7 Sustainability – the Directions should ensure that, for each scheme, the measurement of changes in the cost of the scheme against the employer cost cap (as envisaged in Section 12(4)(b) of the Act and as required by Section 12(5) of the Act) includes effects of scheme experience and future valuation assumptions differing from the assumptions used to determine the employer cost cap.

2.2.8 Technical immunity – the Directions should ensure that, for each scheme, the measurement of changes in the cost of the scheme against the employer cost cap excludes effects caused by changes to the discount rate, the long-term earnings assumption or changes in the actuarial methodology used in the valuations.

2.2.9 Stability – the Directions should ensure that, for each scheme, the measurement of changes in the cost of the scheme against the employer cost cap excludes:

- costs of the scheme which relate to the payment of benefits to deferred members and pensioner members in existing/connected schemes; and
- changes in the cost of the new schemes which arise due to the effects of members having service in the existing schemes.

2.3 In line with the requirements set out in the Act, the Treasury has consulted the Government Actuary before making these Directions – the outcomes of that consultation process have now been published alongside this document.[3] The Treasury has also sought the views of interested parties, including employer and member representatives, in the development of the Directions and Regulations on valuations and the cost cap.

Valuations and employer contribution rates

Measuring the costs of the pension schemes

2.4 Actuarial valuations will be used to measure the costs of the pension schemes, expressed as a percentage of pensionable pay,[4] and will be carried out for both the unfunded and funded schemes.

2.5 The unfunded schemes are those schemes which do not hold a fund of assets. Instead, current contributions from employers and employees are used to pay for current pensions in payment. The balance is provided by the Exchequer if current contributions are lower than pensions in payment, and any surplus is returned to the Exchequer if contributions exceed pensions in payment. Even though there is no "pot" of money to account for the assets or liabilities of these schemes, it is important that the pension contributions paid by employers and employees reflect the future value of the benefits being earned, so that the full costs of the scheme are taken into account when financial decisions are made by employers. Actuarial valuations are used to measure these costs.

2.6 The schemes for local government workers (the LGPS England & Wales, and the LGPS Scotland) differ from the other large public service schemes as they are funded schemes, and are comprised of a number of individual funds.[5] In accordance with current practice, the individual funds will carry out their own valuations at fund-level to determine the contributions to be paid by employers. However, an employer contribution rate for two "model funds" – one comprised

[3] Available at: https://www.gov.uk/government/publications/public-service-pensions-actuarial-valuations-and-the-employer-cost-cap-mechanism
[4] Excluding any contributions made by employers to the costs of administering and governing the scheme.
[5] There are separate pension schemes for local government workers in England and Wales (constituted of 89 separate pension funds), and for local government workers Scotland (constituted of 11 separate funds).

of all funds in England and Wales, and one comprised of all funds in Scotland – will be calculated to allow for transparent and consistent comparisons of costs across all of the public service schemes, including these two local government schemes. For the remainder of this paper, references to valuations of the local government schemes will relate to the model funds, unless otherwise stated.

Types of costs in public service pension schemes

2.7 The costs of providing pension benefits can be broken down into several different elements:

- past service and future service costs;
- the costs of pre- and post-reform schemes; and
- the costs associated with the active, deferred and pensioner members of the schemes.

2.8 Future service costs are the expected costs of the pension rights that members will accrue over a specified period in the future. Pension benefits being accrued in the current period will be paid out over many decades to come, and the costs of these will depend on many different factors – such as members' future salaries, when they retire and their life expectancy. These can increase or decrease between valuations if assumptions or the scheme membership profiles change.

2.9 Past service costs – which may be deficits or surpluses – arise if the costs of pension rights that have already been accrued turn out to be higher or lower than expected. This may happen if the scheme experience – for example, about retirement behaviour – differs from previous assumptions, and so the contributions paid do not match the cost of the pension rights accrued during a previous period. Changes in assumptions can also give rise to past service costs. This is because changes in assumptions are effectively an update to the expected value of pension rights that have already accrued.

2.10 Past service costs may relate to members who have already retired (pensioner members) or who have left the scheme but are yet to retire (deferred members), or to rights which active members have already accrued (i.e. benefits in respect of service they have already worked). Pensioner and deferred members will have accrued their rights in the existing schemes, and active members may have service in these schemes. Therefore valuing these existing schemes together with the new schemes means that past service costs may arise from the existing schemes, even after the reformed schemes are introduced in 2015.

2.11 Valuations will be used to set the level of contributions that should be paid now to cover these costs. It is important that these employer contribution rates are calculated on a transparent and consistent basis. Previous valuations of the public service pension schemes have typically been carried out using different data, methodology and assumptions, meaning that the results cannot easily be compared across schemes. The final report of the IPSPC recommended that, where possible, data on pension schemes should be produced to common standards and using common methodologies, to allow comparisons of scheme costs to be made. Using Directions to provide a consistent and transparent framework for the measurement of scheme costs will allow for these comparisons.

2.12 The Directions set out how and when actuarial valuations should be carried out in order to measure the costs of the pension schemes (including for connected schemes and members with transitional protection)[6] over a specified future period, and, for the unfunded schemes, to

[6] Those public service workers who, as of 1 April 2012, had 10 years or less until they reach their Normal Pension Age (NPA) will see no change in when they can retire, or any decrease in the amount of pension they receive at their current NPA. In addition to this transitional protection, scheme designs also include mechanisms to provide some protection to those who were between 10-14 years from their current NPA on 1 April 2012.

inform an employer contribution rate which is sufficient to meet these costs if paid over that period. With reference to the above, this means that the valuations will calculate the combined future service cost and past service cost for each unfunded scheme (and its connected schemes).

Establishing an employer cost cap mechanism

2.13 The IPSPC recommended that the government establish a mechanism to control future spending on public service pensions, by setting a fixed proportion of pensionable pay that public service employers would contribute to schemes in the long term. The Commission recommended that, if this cost is exceeded, then the government should consult on how to reduce costs, with an automatic default to be applied if agreement cannot be reached.

2.14 In response to this recommendation, section 12 of the Act makes provision for an employer cost cap to protect against changes in scheme costs. The cost cap will provide backstop protection to the taxpayer, to ensure that the risks of increased costs can be shared between scheme members and public service employers. The cap arrangements will be symmetrical, so that if costs fall below a certain threshold, the savings will be used to the benefit of scheme members. Once the level of the employer cost cap has been calculated, this will be set out in scheme regulations, together with details of the procedure to be followed if the margins around the cap are breached. Further details about the legislative framework can be found below.

2.15 The cost cap will operate in this way for the main public service pension schemes. The arrangements for cost caps in some other public body schemes are currently under consideration.

Setting the level of the employer cost cap

2.16 The Directions set out the technical details on how the initial level of the cost cap should be set, and how scheme costs will be measured against the cost cap at future valuations.

2.17 Preliminary valuations of the schemes, valued "as at" 31 March 2012, will form the basis for the new cost control framework and will be used to set the cost cap. The preliminary valuations will be conducted subject to an assumption that the schemes will be reformed in line with agreed proposals from 2015 (2014 for LGPS in England and Wales). The level at which that cap will be set will be based on an assessment of only the future service costs of the new schemes – the costs of the benefits being accrued by current members. It will not take into account any past service costs that have arisen in the existing schemes due to previous over- or under-estimation of costs before those schemes closed. This means that when the level of the cap is set, it is likely to be different from the employer contribution rate actually paid. This is because the rate paid from 2015 will also reflect past service costs associated with members of the pre-2015 schemes.

2.18 The preliminary valuation of the new schemes will calculate a cost cap based on the costs of providing the new scheme benefits from 2015-19, using assumptions relevant to that period. This is consistent with the approach to calculating the future service element of the employer contribution rate in the preliminary valuation, except that there will be three adjustments made in the way that these costs are calculated. These adjustments will take account of changes in scheme costs which the government expects to take effect after 2019.

2.19 Firstly, the government's commitment to provide transitional protection to those closest to retirement means that there will be members of the existing schemes who will continue to accrue benefits in those schemes after they are closed. The contribution rate as calculated by the preliminary valuations will reflect the costs of providing these benefits. However, these are likely to be different to the costs of providing benefits under the new schemes in isolation, meaning that the overall employer contribution rate will change as protected members gradually retire or leave the existing schemes. The cost cap will therefore be set assuming that no members are entitled to this protection, to ensure that the level of the cap is not distorted by this transitional effect.

2.20 The second effect arises because the new schemes may be cheaper to provide during the period 2015-19 than in later years. This is because there will be scheme members with substantial amounts of service in the existing schemes who will also earn pension benefits in the new schemes – which have different Normal Pension Ages (NPAs) – before they retire. Having this pre-2015 service means that these members may make different choices about retirement – especially about when they retire – than if they only had new scheme benefits. As these scheme members gradually retire or leave the schemes, a growing proportion of the scheme membership will only have the benefits that they have accrued in the new, post-2015, schemes. When people have no or negligible amounts of pre-2015 service, the costs of providing the post-2015 schemes will change (all other things being equal), even though the benefit package on offer will be the same.

Box 2.A: Change in costs of the new schemes – the Firefighters' Pension Scheme

The Firefighters' Pension Scheme provides an example of how the costs of the new schemes may change over time:

- members with significant amounts of 1992 scheme service are more likely to retire at or before age 55 to access their 1992 scheme benefits.
- for those without transitional protection, their post-2015 scheme benefits would then be assumed to become deferred and payable at the member's State Pension age, rather than age 60 (which is the NPA in the new scheme).
- this means that these members' post-2015 benefits are cheaper than they would have been if the member had stayed in active service.
- this is because these benefits will be subject to a lower rate of revaluation for those years that they are left in deferment (they will be revalued using a prices index, currently CPI), compared to the revaluation rate that would have been applied if the member had stayed in active service (an average weekly earnings measure).
- therefore the employer contribution rate payable in respect of post-2015 scheme benefits accruing in 2015-19 will be lower than for later periods, due to more people having more pre-2015 service.

2.21 Excluding these effects from the cost cap is consistent with the government's intention that the employer cost cap mechanism will be triggered only by unexpected changes to scheme costs. This approach will prevent these expected cost changes – which are anticipated to arise due to the expected change in retirement patterns as people with existing scheme service leave the workforce – from affecting future members' benefits, and will ensure that the cap is set at a fair and sustainable level.

2.22 Thirdly, a minor adjustment will be made in the way the cost cap will be set for the schemes that will revalue active members' CARE benefits in line with earnings. At present, this will be relevant to the schemes for firefighters and the armed forces, although it is possible that other schemes made under powers in the Act in future will also be affected if they choose to revalue accruals with reference to earnings.

2.23 Currently, the OBR's short-term forecasts for the relevant earnings measure are lower than their steady state forecast for the longer term. This means that using this short-term forecast would lead to these schemes setting a cap at an inappropriate level, meaning it would be more likely to be breached. For this reason, the Directions provide that the employer cost cap for these schemes will be set with reference to the long-term forecast. The changes bring the cost caps for these schemes into line with those for the other schemes which will revalue CARE benefits with reference to prices, as the level at which the cost cap will be set for those schemes is unaffected by differences between short-term and long-term assumptions about growth in prices.

Costs that will be controlled by the cap

2.24 As set out in paragraphs 2.7 to 2.11, the employer contribution rates calculated by the valuations will reflect all future and past service costs associated with the schemes (and connected schemes). However, the cap mechanism has been designed so that some of these elements are excluded from it. As only active members will see their future benefits or contributions adjusted if the ceiling or floor is breached, the government considers that it would be unfair to control all of the costs associated with pensioner and deferred members of the existing pension schemes. These elements of costs will therefore not be controlled by the cost cap mechanism.

2.25 The cost cap will control all other member cost risks, including the past and future cost risks associated with:

- active members of the reformed schemes, including any service they have in the existing schemes;[7]
- deferred and pensioner members of the reformed schemes; and
- transitionally protected active members of the existing schemes.

2.26 Public service employers, and ultimately taxpayers, will bear the additional risk associated with pensioner and deferred members of the existing schemes, rather than the members themselves.

2.27 The Directions provide for the implementation of this policy at future valuations. In order to capture just the cost risks that will be managed via the cost cap mechanism, the Directions provide a way of tracking just the assets and liabilities associated with the pension benefits that will be captured by the cap. This will be done via the creation of a "cost cap fund". This fund will be a "notional pot" of assets, which will be set equal to liabilities at the start date of the new schemes, and rolled forward in a way which excludes the past service liabilities associated with pensioner and deferred members of the existing schemes. This will mean that any cost risks associated with these liabilities will be excluded from the cost cap mechanism. The operation of notional assets in the valuations of the public service pension schemes, and the cost cap fund, are discussed further below.

The operation of the mechanism

2.28 There may be fluctuations in scheme costs between valuations. So that these do not lead to frequent changes in the scheme design after each valuation, Treasury regulations (made under section 12(5) of the Act) specify that there will be a 2 percentage point margin above and below the cap. The upper margin will form a "ceiling" on the employer contribution rate, with

[7] The cost risks arising from active members' service in the existing schemes will be controlled by the cap where there has been no break in service of longer than five years between membership of the existing and new schemes. This is in line with the retention of the final salary link for members that rejoin active service within five years.

the lower margin forming a "floor". For example, if the employer cost cap is set at 14% of pensionable pay, the ceiling and floor will be set at 16% and 12% respectively.

2.29 As set out above, at future valuations the "cost cap cost of the scheme" will be compared to the employer cost cap. If there is a change in costs, and this measure of scheme costs rises above the ceiling or falls below the floor, the Act requires action to be taken to bring costs back to a "target cost". The Treasury regulations define this target cost as being the same as the employer cost cap. Bringing costs back to the level of the cap will ensure that there is no long-term increase or decrease in the costs of the scheme – a long-term increase would not be fair to taxpayers, whereas a long-term decrease would not be fair to scheme members.

2.30 Costs may be rebalanced by amending scheme benefits for future accruals to alter the overall cost of the scheme, or by altering the level of employee contributions so that a higher or lower level of employer contributions is required. Scheme regulations will set out a process for agreeing the necessary action with stakeholders, and a default action to be taken if agreement cannot be reached within a reasonable time limit.

"Employer costs" and "member costs"

2.31 Many of the assumptions that must be made to carry out a valuation relate to the profile of scheme members – for example the expectations about their life expectancy, growth in salaries, or career paths. For the purpose of the operation of the cost cap, these will be defined as "member costs". Other decisions and assumptions that must be made to carry out a valuation are financial or technical in nature – these will be defined as "employer costs".

2.32 The government has stated that the cost cap mechanism will only capture changes in costs arising from changes in the "member costs". Changes in costs that arise solely from changes in "employer costs" will not be captured by the employer cost cap and will not trigger changes in member contributions or future benefit accruals. Public service employers, and ultimately the Exchequer, will bear the risks of changes in "employer costs".

2.33 For the purpose of the cost cap mechanism, the changes in costs arising from the following will be regarded as "employer costs", and will not affect the cost cap mechanism:

- the discount rate used for measuring costs in the unfunded schemes.[8] This is currently set at 3% per annum + CPI, and has been derived from the OBR's long-term forecast for growth in the economy. This discount rate is subject to a regular review process.
- the long-term earnings assumption. The long-term earnings assumption has also been derived from the OBR's long-term growth forecast and, as such, is intrinsically linked to the discount rate. Capturing changes in the long-term earnings assumption in the cost cap could lead to asymmetries in the mechanism given the exclusion of the discount rate. The long-term earnings assumption will therefore also be regarded as an "employer cost".
- the actuarial methodology used for calculating scheme costs. The Directions specify that scheme actuaries should use the projected unit methodology to carry out valuations. As actuarial methods develop, it may become appropriate for a different methodology to be used, which could have an impact on the measurement of scheme costs, but this should not affect scheme members.

[8] 'Consultation on the discount rate used to set unfunded public service pension contributions: Summary of responses', HM Treasury, April 2011. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/190119/consult_discount_rate_summary_responses.pdf

- the price inflation assumptions (based on CPI). All of the valuation costs are measured in CPI-real terms, and therefore changes to CPI will not affect the employer cost cap mechanism.

2.34 The government is committed to ensuring that any changes to these financial/technical aspects of the Directions do not lead to any breaches of the employer cost cap, and therefore do not impact on scheme members. This is in line with the principle of technical immunity, as set out in paragraph 2.2.8 above. The Directions will meet this principle automatically at the preliminary valuation, as the cost cap cannot be breached until a future round of valuations. However, the method by which this principle will be met at future valuations – for example, an adjustment to the level of the cost cap or an adjustment to the measure of costs which is compared against that cap – will depend on the nature of any future changes to these assumptions.

2.35 Given this uncertainty, it would not be practical for the current set of Directions to cover every possible eventuality with regard to employer costs. Instead, the government will amend the Directions to ensure that this effect is achieved after taking into consideration the nature of the change and the best way to exclude these costs. The government will engage with stakeholders before any changes of this nature are made, and will consult the government Actuary, as is required by the Act.

Future reviews of Directions and the cost cap

2.36 The government will set the cap to take account of expected changes in future scheme costs. However, there may be future changes in scheme costs which the government may not wish to affect members via the cost cap mechanism, even though they are unexpected. For example, improvements in scheme data may lead to changes in the costs of the schemes as measured by the valuations. Similarly, there may be one-off shifts in the costs of the schemes.

2.37 There may also be some potential changes in scheme costs which cannot be easily quantified at the preliminary valuation. For example, increases in the State Pension age may lead to an increase in the average age of the public service workforces. All things being equal, this would lead to a rise in scheme costs. However, there is no way of accurately forecasting the potential impact of such changes at this stage.

2.38 Any decisions about whether such changes should feed through to the employer cost cap mechanism, and therefore to scheme members, will need to be taken on a case-by-case basis. If, at a future valuation, it can be demonstrated that the cost cap mechanism has been affected by such a change, the government will need to decide how this should be taken into account in that mechanism. In making such a decision, the government will need to balance the interests of scheme members against the need to protect the taxpayer and ensure that the costs to employers remain sustainable. If any adjustments are made, these may be via an adjustment to the level of the cap, to the valuation process, or by some other means.

2.39 In addition, some of the valuation assumptions which are specified in the Directions are likely to become out of date as new data becomes available (for example, assumptions derived from the OBR's economic forecasts, which are updated biannually, and assumptions derived from the Office for National Statistics population projections, which are updated biennially). These elements of the Directions will need to be updated to ensure that the most appropriate assumptions are used at future valuations, and to take account of any new evidence which may impact on the costs of the schemes as measured by the valuations. Similarly, as the programme of reform of public body pension schemes progresses it may also be necessary to amend the Directions to cover any specific circumstances relating to the valuations of those schemes.

2.40 For these reasons, the Treasury will keep the Directions under review after they have been made. This will ensure that they continue to reflect Treasury policy, and also ensure that they take into account any future developments that are relevant to public service pension scheme cost measurement and control, such as the release of new data or changes in assumptions. It is anticipated that such reviews will take place before each round of scheme valuations.

2.41 The government will discuss any potential changes of this nature with stakeholders, and consult the Government Actuary, before any final decisions are made.

3 Measuring costs of the unfunded schemes – the SCAPE approach

3.1 Part 2 of the Directions sets out how actuarial valuations will be carried out to measure the costs of both the unfunded public service pension schemes, and the model funds which will be used to measure the costs of the funded schemes for local government workers.

3.2 As set out in paragraph 2.5 above, there is no "pot" of assets which is used to fund pension payments in the unfunded public service pension schemes. However, it is important that the costs of providing these benefits are fully recognised by employers.

3.3 The unfunded schemes are therefore valued using a "notional pot" of assets. This notional pot of assets is set equal to the scheme's total past service liabilities[1] at the first valuation at which this approach is used. This approach to valuing unfunded pension schemes is known as the "Superannuation Contributions Adjusted for Past Experience (SCAPE)" approach. This notional pot enables schemes to be treated as if they were funded with a conventional pot of assets. It enables the calculation of the appropriate level of contributions to be paid into the scheme to meet the cost of accruing benefits, and the recovery of past service costs over a 15 year spreading period.[2] As average member contribution rates have been set out in proposed final scheme designs for each of the new public service schemes, valuations will inform the level of employer contributions needed to cover each scheme's costs. This will be done by adding together the future service costs with any past service costs that are uncovered, and deducting member contributions.

3.4 The SCAPE approach to valuing the unfunded public service pension schemes has been established at previous valuations, and the values of existing "SCAPE funds" can be found in Schedule 2 of the Directions. However, some of the public service pension schemes had not established SCAPE funds before the 2012 valuations. Without these, past service impacts are not well defined, as there is no fixed point in the past from which these effects are measured. This is inconsistent with the principle that employer contribution rates should reflect the full costs of providing pension benefits, including past service effects, and could lead to inconsistencies between schemes.

3.5 This issue has been addressed by retrospectively setting the funds equal to schemes' liabilities, building on old data and/or assumptions from previous valuations. This approach will capture past service effects arising between previous valuations and the 2012 valuations. These values of the starting balances for these SCAPE accounts are also included in Schedule 2 of the Directions.

[1] The scheme liability is the total cost of all benefits accrued in the scheme by all members (active, deferred and pensioner) and due to be paid out in the future.
[2] Past service costs caused by emerging experience and changes in assumptions have generally been spread over a 15 year period in the unfunded public service schemes. The government has seen no evidence to suggest that a different spreading period would be appropriate.

4 The Directions

Legal framework

4.1 The Act provides the legal framework for actuarial valuations of the new public service pension schemes, and for the establishment and operation of the employer cost cap mechanism.

4.2 Under section 11, all defined benefit pension schemes made under the Act must provide for actuarial valuations of that scheme and any connected schemes in scheme regulations. This means that the existing and new pension schemes, which provide for the same groups of workers, will be valued together as one scheme. Full details of the schemes that are deemed to be connected to the new schemes can be found in Schedule 1 of the Directions.

4.3 Section 11 of the Act confers powers on the Treasury to make Directions which specify details of how schemes should carry out valuations, in particular:

- how and when a valuation is to be carried out;
- the time in relation to which a valuation is to be carried out;
- the data, methodology and assumptions to be used in a valuation;
- the matters to be covered by a valuation;
- whether connected schemes should be valued separately or together, and how they are to be valued if they are to be valued together; and
- the period within which any changes to the employer contribution rate for a scheme under section 1 must take effect following a valuation.

4.4 The Act places a requirement on the Treasury to consult the Government Actuary before making or amending these Directions. The Government Actuary has now been consulted on these Directions and the relevant correspondence is available alongside this document. As set out above, it will be necessary to keep these Directions under review – the Government Actuary will be consulted before any further changes are made to the Directions.

4.5 Taken together, these provisions will allow for the establishment of a consistent and transparent framework for the measurement of pension costs, in line with the IPSPC's recommendations.

4.6 Section 12 of the Act requires scheme regulations to set an employer cost cap expressed as a percentage of pensionable pay. Section 12 also confers powers on the Treasury to make Directions specifying:

- how the first valuation under section 11 of a scheme under section 1 may be taken into account in setting the cap;
- the costs, or changes in costs, that may or may not be taken into account on subsequent valuations of a scheme under section 1 for the purposes of measuring changes in the cost of the scheme against the cap;

- the extent to which costs, or changes in the costs, of any statutory pension scheme which is connected with a scheme under section 1 may or may not be taken into account for the purposes of the cost cap mechanism.

4.7 While there is no statutory requirement to do so, the Treasury has also consulted the Government Actuary on the Directions relating to the employer cost cap.

4.8 Section 12 of the Act requires the Treasury to make and lay regulations governing other aspects of the cost cap mechanism. Regulations must include:

- provision requiring the cost of a scheme (and any connected scheme) to remain within specified margins either side of the employer cost cap; and
- for cases where the cost of a scheme would otherwise go beyond either of those margins, provision specifying a target cost within the margins.

4.9 The Treasury has laid regulations specifying that the margins within which the cost of the scheme must remain will be 2 percentage points of pensionable pay above or below the cap. The regulations also specify that if the cost of the scheme does go beyond these margins, the target cost is to be the level of the employer cost cap.

4.10 As set out above, scheme regulations will make provision for the procedure to be followed if the margins around the cost cap are breached, and a default mechanism for adjusting scheme costs if agreement cannot be reached under that procedure. Scheme regulations made under this section will be subject to the normal consultation requirements as specified by section 21 of the Act.

The Directions

Structure of the Directions

4.11 The first part of the Directions (Part 1: General) makes provision about how the Directions are cited and come into force, and sets definitions.

4.12 The second part of the Directions (Part 2: Valuations) sets out the arrangements for future valuations of the schemes (the "as at" 2016 valuations onwards). This section of the Directions sets out how these valuations are to be conducted, and how the scheme costs are to be calculated with the purpose of carrying out a comparison with the employer cost cap. The "as at" 2016 valuation will be deemed the "first valuation", with subsequent valuations deemed the second, third, and so on.

4.13 This part also provides for the valuations of any new public body schemes which may be made under the Act.[1] Part 2 also contains modifications relating to specific schemes, including the schemes for local government workers[2] and the schemes for the police and firefighters in Scotland.[3]

4.14 The third part of the Directions (Part 3: Employer Cost Cap) sets out how the "preliminary valuation" will be carried out (see paragraph 2.17 above). This part of the Directions sets out how the employer cost cap will be set with reference to this valuation, with an assumption to

[1] See sections 30 to 32 of the Act.

[2] With reference to the schemes for local government workers, the valuation of the model fund will not be used to calculate employer contribution rates for that scheme – these contribution rates will be determined at local fund level. Direction 44 modifies the application of these Directions to the schemes for local government workers in recognition of this.

[3] Prior to April 2010 employers in these schemes did not make pension contributions. Instead, member contributions were supplemented by a top-up from the Scottish Government to meet the costs of pensions in payment. Without modification, this would create a deficit at the first valuation as no employer contributions would be credited to the SCAPE fund in 2009-10. To mitigate this, the Directions specify that notional contributions should be assumed to have been credited to the SCAPE fund over 2009-10 at the level of employer contributions rates subsequently implemented at April 2010.

include the future effects of the planned new schemes within these valuations. The employer contribution rate to be paid in the unfunded schemes from 2015 will be derived from the preliminary valuations, and will be implemented via scheme regulations.

4.15 Schedule 1 lists the schemes which are connected to the new pension schemes (i.e. those which make provision for the same groups of public service workers). The Directions require that these connected schemes are to be valued in accordance with the Directions. These include all other existing pension schemes for the relevant groups of workers where the inclusion of the scheme would have a material impact on the valuation. Some very small schemes have been excluded where these would not have a material impact on the valuation results.[4] Schemes providing injury and compensation benefits to these groups of workers are outside the scope of the Directions.

4.16 As set out in paragraph 3.4, the existing notional asset balances for schemes valued using the SCAPE approach are listed in Schedule 2. These notional asset balances will form the starting point for the valuation to be carried out under the Directions. Some public body pension schemes have been valued using the SCAPE methodology in the past. Where this is the case, a notional fund may already have been established in respect of these pension schemes, so it may be possible to include the opening balance of this notional fund in Schedule 2 of the Directions. If so, the Directions will be amended to include this information.

4.17 Not all of the necessary regulations relating to the new schemes have yet been made. In order to carry out valuations of the new scheme benefits, the Directions therefore require the scheme actuary to assume that the new scheme benefits and transitional arrangements will be established by a specified date. The Directions require the scheme actuary to assume that the new scheme benefits are as specified in the Proposed Final Agreement (or equivalent document) for each of the schemes. The relevant documents, and the date at which the new scheme benefits should be assumed to start, are listed in Schedule 3.[5]

Timing and implementation

4.18 Valuations are typically based on a "snapshot" of detailed data on scheme membership at one particular point in time. An "as at" date of 31 March 2012 will be used for the preliminary valuation for the main unfunded schemes. The Directions define this date as the "effective date" in the Directions. This date provides a suitable balance between ensuring this data is as recent as possible and leaving enough time to perform and implement the valuation in time for the introduction of the new schemes in 2015.

4.19 For the LGPS in England and Wales, an effective date of 31 March 2013 will be used for the preliminary valuation, so that data from the triennial local fund valuations can be used in the model fund valuations. The preliminary valuation for the LGPS in Scotland will be based on an effective date of 31 March 2014 for the same reasons.

4.20 Following these valuations, the Directions set out that future valuations will take place every four years in the unfunded schemes, and every three years in the local government schemes. The next valuations will therefore have effective dates of 31 March 2016 for the unfunded schemes and LGPS (England & Wales), and 31 March 2017 for LGPS (Scotland).

[4] For example, the Partnership Pension Account Ill Health Benefits Scheme and Partnership Pension Account Death Benefits Scheme, which provide ill health and death benefits to members of the Partnership scheme (which is a defined contribution scheme available to civil servants).

[5] The proposed new scheme for fire and rescue workers in Wales will be modelled on the new scheme for fire and rescue workers in England. Schedule 3 therefore mandates that the Proposed Final Agreement for the Firefighters' Pension Scheme in England is used to make assumptions about the future benefit design for the Welsh equivalent.

4.21 The Directions also specify that the employer contribution rate must be based on an "implementation period" which starts within three years and one day after the effective date. This implementation period will last for four years from the implementation date.

Data

4.22 As set out above, datasets based on the effective date of the valuation will be required before a valuation can be carried out. The Directions specify that the scheme actuary must specify the data needed for the purposes of carrying out the valuation – this data may relate both to the new schemes and any connected schemes. The Directions require the responsible authority for the pension scheme to designate a person to be responsible for providing this data – this may be the responsible authority, the scheme manager or any other person who can ensure that this is supplied.

Actuarial methodology

4.23 The valuations will determine the contribution rate needed to meet the costs of pension promises that will be made in the future. There are a number of different actuarial methodologies that may be used to calculate these costs – for example the "entry age" or "projected unit" methodologies. While the choice of actuarial methodology does not affect the cost of providing the benefits, it may affect the timing and amounts of contributions. This could have implications for members via the operation of the employer cost cap. It is therefore important that schemes use a consistent methodology.

4.24 The Directions specify that the projected unit methodology should be used to carry out the valuations. Specifying the actuarial methodology to be used will introduce greater consistency in the way that costs are measured across the different schemes. This is also the methodology used when schemes prepare their annual resource accounts, and was the methodology used to inform the design of the new schemes.

Assumptions

4.25 The nature of an actuarial valuation – which is measuring the cost of benefits to be paid out many decades into the future – requires a number of assumptions to be made. The Directions set some central assumptions to be used in all scheme valuations – these are assumptions which cannot be informed by an analysis of scheme experience. All of the economic and financial assumptions are based on the economic forecasts produced independently by the OBR. Setting these assumptions centrally will also aid comparisons between different schemes.

4.26 Some of the central assumptions specified in the Directions have been derived from particular economic forecasts. Others specify particular projections or data sources to be used to derive these assumptions. Where this is the case, these assumptions will be used for all of the preliminary valuations of the new schemes, even if some schemes complete their valuations after new figures become available. This will ensure consistency between schemes, which is particularly important in setting the level of the employer cost cap.

4.27 The Directions will be reviewed before each round of scheme valuations for both the unfunded and the local government schemes (which are on different valuation cycles) to ensure that these assumptions are updated where appropriate.

4.28 It is appropriate to set other assumptions on a scheme specific basis where this can be informed by an analysis of experience of specific scheme members, or to take account of characteristics of particular workforces. Where assumptions are not specified in the Directions, the Directions set out that these should be determined by the responsible authority. They should be determined following consultation with persons (or representatives of persons) as appear to the responsible authority likely to be affected by them, as the authority considers appropriate. The Directions specify that all such assumptions should be set as "best estimates" and should not include any margins for prudence or optimism.

Discount rate

4.29 As people generally prefer to receive goods and services now, rather than in the future, some adjustment must be made to costs and benefits that occur at different time periods in the future. Making these adjustments is known as discounting. For public service pension schemes, the discount rate is used to place a single value on all of the pension benefits that will be paid out under the scheme.

4.30 For valuations of the public service pension schemes using the SCAPE methodology, the same discount rate is used across all schemes (including the valuation of the model funds for local government workers). Following a review of this discount rate, the government announced at Budget 2011 that the appropriate discount rate for calculating unfunded public service pension contribution rates should be based on the long-term expectation of Gross Domestic Product (GDP) growth. A rate of 3% above CPI inflation was therefore determined to be an appropriate rate to use at future valuations.

4.31 The Directions therefore specify that the discount rate to be used by scheme actuaries should be the assumed rate of increase awarded in line with the Pensions (Increase) Act 1971 – i.e. the assumed rate of CPI – compounded by 3%. For future valuations the Directions will be amended to ensure that updated forecasts of CPI are always used in scheme valuations.

Future price changes

4.32 In order to make assumptions about the future rates of indexation of pension benefits, it is necessary to make assumptions about the future rates of pension increases to be awarded in line with the Pensions (Increase) Act 1971.[6] Pensions increases made under this Act are currently based on the September to September CPI, the government's preferred measure of price inflation.

4.33 The government's central forecast of future changes in CPI is provided by the OBR. The assumptions for rates of pension increases specified by the Directions are therefore taken from the OBR's central forecast for September to September CPI growth. In line with the OBR's forecasts, the Directions require scheme actuaries to use different assumptions for CPI in the short and long term.

4.34 In some of the new CARE schemes, CPI will also be used to revalue the benefits accrued by active members of the schemes. The Directions specify that the same CPI assumptions should be used by scheme actuaries when calculating these future revaluation rates.

Earnings growth

4.35 The Directions also specify some of the assumptions to be used for earnings growth. Actuarial valuations typically use two types of assumption about future earnings growth. These two types of assumptions are explained in more detail below.

4.36 The first are assumptions about general earnings growth. These cover the increase in paybill per head which is assumed for each member of the scheme. These assumptions capture the effects of pay awards (such as the 1% pay policy announced at Autumn Statement 2011)

[6] The Pensions (Increase) Act 1971 provides the legislative framework for the indexation of most public service pensions in payment, including any pensions payable from the new pension schemes.

and "pay drift". Pay drift typically refers to changes in paybill per head which are not caused by basic pay awards, but are typically caused by changes in the composition of the workforce (for example, if workforce restructuring leads to fewer highly paid people in the workforce, then all things being equal, paybill per head will fall).

4.37 In the short term (up to 2019), the assumptions specified by the Directions for general earnings growth are derived from the OBR's projections for paybill per head for government employment.[7] These take future pay awards across the public sector (assuming 2% beyond the period for which policies have been announced) and apply a central pay drift assumption based on observed trends. The government believes it is appropriate to use these central assumptions across all scheme valuations. This is because all workforces are subject to broadly the same announced pay awards, and pay drift is an observed trend but is difficult for schemes to forecast where specific workforce plans are not available in future years.

4.38 In the long term (after 2019), the Directions specify a general earnings growth assumption of 4.75% per annum. The OBR does not disaggregate long-term pay growth between increases due to pay awards and pay drift, or between government and non-government employment. This means that this assumption is based on the OBR's long-term central earnings growth forecast for the whole economy.

4.39 However, unlike other economic assumptions, which are derived from the November 2013 Economic and Fiscal Outlook, this assumption is consistent with the OBR's long-term earnings forecast made in November 2010.[8] Using this figure is necessary to ensure the assumption is consistent with the underlying economic forecast that was used to set the discount rate as equal to 3% per annum + CPI, since this correlated to long-term GDP growth at the time. It ensures that the earnings assumption used to project the cost of future payments is consistent with the discount rate used to express those earnings in current terms. To use a different assumption would lead to asymmetries in the methodology.

4.40 The second type of assumption used to model salary growth relates to earnings increases due to promotion and/or progression. These are the changes in earnings per scheme member remaining in the scheme for a year which result from promotional or progression pay increases (i.e. pay increases that are not a result of pay awards). Given that these kinds of pay increases will vary between workforces, these assumptions will be scheme specific best estimates set by the relevant responsible authority.

4.41 In some of the new CARE schemes the revaluation of active member benefits will be based on a measure of earnings rather than prices. The Average Weekly Earnings measure produced by the Office for National Statistics will be used to revalue these benefits. This is the government's preferred measure of earnings for pension indexation, is used to index Additional State Pension and forms part of the "triple lock" for the basic State Pension.

4.42 For future valuations, the Directions will be amended to ensure that updated OBR forecasts are used to set these assumptions.

Post retirement life expectancy

4.43 In setting assumptions about mortality, separate assumptions are generally made for:

- the current ("base") level of experienced mortality (i.e. current life expectancy); and

[7] Table 2.27, 'Economic and Fiscal Outlook', Office for Budget Responsibility, December 2013. Available at: http://budgetresponsibility.org.uk/economic-fiscal-outlook-december-2013/
[8] 'Economic and Fiscal Outlook', Office for Budget Responsibility, November 2010. Available at: http://budgetresponsibility.org.uk/economic-and-fiscal-outlook-november-2010/

- the rate of improvements in life expectancy that may be experienced in the future.

4.44 For the large public service pension schemes, it will be possible to make reasonable "best estimate" assumptions for the base level of mortality using scheme-specific experience. The assumptions about the base level of mortality will therefore vary between schemes.

4.45 However, it is impossible to accurately predict future improvements in life expectancy. There is no consensus among academics or actuaries on whether rates of improvement will stay the same, increase or tail off. Given these uncertainties, scheme specific data will not be used to make assumptions about future changes in life expectancy.

4.46 The Directions therefore specify that the principal population projections, as calculated by the ONS, should be used in the valuations of the public service schemes. These projections are produced independently and impartially, after consultation with an expert academic group, and are based on data for the whole population. They are also used across a range of government departments to estimate future demands for public services. Taking this approach will provide consistency between pension data and other figures produced by government.

4.47 The Directions specify that the most recent ONS National Population Projections – the 2012 projections published in December 2013 – will be used for scheme valuations.[9] For future valuations the Directions will be amended to ensure that updated population projections are always used in scheme valuations. In line with the population projections themselves, the assumptions based on these projections will generally be gender specific.

State Pension age

4.48 The Directions specify the assumptions that should be made with regard to the State Pension age of scheme members. These assumptions are in line with the proposed increases in State Pension age to 67, to be phased in between 2026 and 2028.

4.49 This assumption does not take into account the government's proposed framework for future increases in the State Pension age, which will be underpinned by the guiding principle that people should expect to spend, on average, up to one third of their adult life in receipt of the State Pension. This is because the impact of this framework on State Pension ages is not known. The Directions will be updated to reflect any future changes made to the State Pension age as a result of the operation of the new framework.

Commutation

4.50 Where schemes offer members an option to commute/exchange pension for a tax free lump sum at the point of retirement, an assumption is made about the proportion of pension that scheme members will commute/exchange. The proportion that members opt to exchange is likely to be influenced by whether or not scheme members also receive an automatic lump sum at the point of retirement.

4.51 In the new schemes members will not receive an automatic lump sum. However, the majority of experience of retirements in the public service schemes is from schemes which do have automatic lump sums. There is therefore relatively limited scheme evidence available to determine how much pension people are likely to commute in the new schemes.

4.52 Given this limited evidence, to ensure that a consistent approach is used between schemes, the Directions now specify that scheme actuaries should assume that 15% of pension is

[9] More information on the National Population Projections is available at: http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2012-based-projections/stb-2012-based-npp-principal-and-key-variants.html

commuted. The Treasury considers this to be a reasonable across the board assumption for each scheme within the scope of the Directions, based on analysis of relevant experience data. The assumption will be kept under review, and the approach may be revised as more scheme evidence becomes available.

Assumptions where there is a limited underlying evidence base

4.53 There are a number of different assumptions needed for the preliminary valuations of the new schemes which cannot be based entirely on an analysis of scheme experience. This is because the schemes lack experience data to inform these assumptions. For example, there are currently few active scheme members over the age of 65, and therefore there is little robust evidence on which to base assumptions about the rates at which these members leave the schemes.

4.54 Where there is limited experience data on which to base assumptions, the approach to be taken in setting these assumptions has been set by the government. This approach will be applied by all schemes within scope of the Directions and will ensure a consistent approach is taken between schemes. The paper setting out the agreed approach to setting these assumptions is attached at Annex A.

4.55 The Treasury will keep the approach to setting these assumptions under review. Over time, as more scheme evidence becomes available, it may be appropriate for different approaches to be taken by schemes in terms of how these assumptions are set.

Analysis of demographic experience and valuation reports

4.56 The Directions specify that the scheme actuary is to carry out an analysis of the demographic experience of the scheme where sufficient data is available, and that this must be summarised in the valuation report. Directions also specify a number of key outputs of the valuation which must be included in the valuation report, including a summary of the data used, a statement of the assumptions, the employer contribution rate and the details of the operation of the cost cap mechanism. The report may also contain any other information which the scheme actuary considers to be relevant.

Employer contribution rates

4.57 The Directions specify how an employer contribution rate for the unfunded schemes is to be derived, by tracking the valuation of the notional fund. The SCAPE approach sets out that in the notional fund the scheme "assets" provide a guaranteed rate of return which is in line with the SCAPE discount rate. This means that, between valuations, the SCAPE fund:

- increases in line with amounts of contributions made;
- increases with notional returns, in line with the discount rate, currently set at 3% per annum plus CPI; and
- decreases when benefits are paid.

4.58 At each valuation, to evaluate whether a shortfall or overpayment has been made in respect of past pension promises, the liabilities are compared with the new SCAPE fund. If any shortfall emerges between the value of assets in the SCAPE fund and the calculated liabilities, the contribution rate will be increased such that the shortfall is removed over 15 years. Similarly, if the calculations show that overpayments have been made in the past, the contribution rate will be reduced.

4.59 Adding actual inflation to the notional returns has the effect of ensuring the size of the fund, and the results of the valuation, are not affected by inflation being higher or lower than expected. As there are no real assets, the valuation is also unaffected by the investment return on any asset portfolio.

4.60 The Directions specify how this approach is to be used for the valuations of the unfunded schemes. They set out how the notional liabilities of the scheme and the notional asset fund should be calculated. The notional asset pot is derived as:

- notional assets at previous valuation + (income received – benefits paid) + notional asset returns

4.61 The values of the notional asset balance at previous valuations for each of the schemes are listed in Schedule 2 of the Directions.

4.62 The valuation report must set out a contribution rate, expressed to the nearest 0.1% of pensionable payroll, to meet the costs of:

- past service effects – the rate needed to meet the difference between the notional assets and the liabilities of the scheme as at the effective date using a 15 year spreading period;
- benefits being accrued between the effective date and the implementation date – the rate needed to meet the difference between the costs of benefits accrued and the contribution rates paid over that period; and
- future service costs – the costs of benefits to be accrued over the implementation period.

4.63 The employer contribution rate is the total of these costs, minus the expected contributions to be received from scheme members. Where schemes make provision for employers to pay contributions at different rates within the scheme, the responsible authority must confirm whether or not the average of those contributions is expected to be equal to the employer contribution rate derived from the valuation.

4.64 In calculating the SCAPE fund for the Armed Forces Pension Scheme, the Directions provide for the exclusion of assets and liabilities associated with members of that scheme who began to draw their benefits before 1 April 2001. The Armed Forces Pension Scheme has an unusual member profile, with a large number of pensioners compared to a relatively small base of active members. This means that past service effects can have a disproportionate effect on current contribution rates. The long-standing practice of excluding pre-2001 pensioners is in recognition of this.

Operation of the employer cost cap

4.65 The Directions also specify details of the calculations that should be performed by the scheme actuary to allow the employer cost cap mechanism to operate.

4.66 As set out above, the contributions payable in respect of a pension scheme typically relate to two elements – past service and future service costs. The past and future service costs to be calculated for the purposes of the employer cost cap mechanism will differ from the calculations carried out for the purposes of determining the employer contribution rate.

4.67 The future service costs will be calculated ignoring the effect of accruals that members may have in the existing schemes and the costs of providing transitional protection to those members entitled to it, and, where relevant, with reference to the OBR’s long-term earnings assumption (as set out in paragraphs 2.19 to 2.23 above). This cost is referred to as the “cost cap future service cost” in the Directions.

4.68 Past service costs relating to deferred and pensioner members of the existing schemes will be excluded from the cost cap mechanism. In order to achieve this, the Directions establish the concept of a "cost cap fund", which is separate from the notional fund used to derive employer contribution rates. This fund will be used to measure all costs which relate to members of the new schemes, but will only measure costs which relate to members of the existing schemes while they remain in active service.

4.69 At the first valuation, the value of the cost cap fund will be set equal to the liabilities in respect of active members of the schemes at the closing date of the connected schemes - i.e. the date from which the new schemes will be established. "Baselining" the cost cap fund at this date will ensure that any past service effects that have arisen before the closure of the existing schemes will be excluded from the cost cap mechanism.

4.70 From the second valuation, the value of the cost cap fund will be recalculated, taking into account the income received (in the form of contributions and notional investment returns), and the benefits that have been paid out in respect of these members. The fund will also be adjusted to take account of members with service in the existing schemes who have left active service. This new value of this cost cap fund will be compared with the liabilities associated with active members of the existing schemes, and members of the new schemes, to determine if a past service effect has arisen. This will be termed the "cost cap past service cost".

4.71 The cost cap future service cost and the cost cap past service cost, minus expected employee contributions, will be defined as the "cost cap cost of the scheme". This is the key figure that will be compared with the level of the employer cost cap to determine if the cost of the scheme has remained within the 2 percentage point margins. The Directions require the scheme actuary to make this comparison in the valuation report and to identify any noticeable differences arising from particular changes (e.g. a change in the average age of members, or a change in the scheme experience leading to different assumptions). If this analysis determines that the margins around the cost cap have been breached, then procedures in scheme regulations will be triggered to bring costs back to the level of the cap.

5 Arrangements in the local government pension schemes

5.1 Special arrangements will apply in the case of the funded schemes for local government workers (and other groups of workers who participate in those schemes, as specified by scheme regulations).

Statutory employer cost cap mechanism

5.2 An employer cost cap will be put in place for the local government schemes in the same way as in the unfunded schemes. This will be based on a valuation of the model fund, which measures the costs of the benefits being accrued in the scheme at the national level. The employer cost cap mechanism will operate in the same way in the local government schemes as in the unfunded schemes, as set out in the Directions. The employer cost cap, and a process to be followed if this moves beyond the 2 percentage point margins, will be included in the scheme regulations in the same way as in the other schemes. The employer cost cap for the LGPS in England and Wales will be set with reference to the 2013 model fund valuation, which will be based on data from the 2013 fund valuations. The employer cost cap for the LGPS in Scotland will be set using data from the 2014 fund valuations.

Additional control arrangements in England and Wales

5.3 Alongside the employer cost cap as set out in the scheme regulations, the LGPS Scheme Advisory Board for England and Wales will run an additional cost control process with the aim of providing greater control over the contribution rates actually paid by employers participating in the scheme.[1]

5.4 The Board's cost control mechanism will be based on a target future cost of the scheme set at 19.5% of pensionable payroll, measured using LGPS fund data and the assumptions used to measure the initial scheme design cost.[2] The Scheme Advisory Board will measure:

- the Future Service Cost (FSC) – a calculation performed using model scheme membership and experience data and assumptions, as determined by the Board; and
- the Average Future Service Cost (AFSC) – a weighted average (by pensionable paybill) of calculations performed using fund level membership and experience data and assumptions, as determined by the Board.

5.5 The costs of the LGPS, as measured on these bases, are expected to be similar to the scheme costs as measured by the statutory model fund. However, there will be differences in the way the two metrics take account of the benefits to be provided by the LGPS. The model fund valuation which will set the statutory employer cost cap will assume that no members have taken the "50/50 option" – the option to accrue 50% of the main scheme benefits in return for

[1] The contribution rates paid by employers are determined by valuations of individual LGPS funds.
[2] For an explanation of the "cost ceiling" process used to determine the designs of the new pension schemes, see 'Public Service Pensions: Good pensions that last', HM Treasury, November 2011. Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/205837/Public_Service_Pensions_-_good_pensions_that_last._Command_paper.pdf

a payment of 50% of the normal contribution rate.[3] This is to prevent changes in the take up of the 50/50 option from triggering action under the cost cap mechanism. If take up of this option is higher than expected, the employer contribution rate may fall – this could trigger an improvement in scheme benefits under the cost cap mechanism even if there had been no reductions in the costs of the benefits actually being accrued.

5.6 The cost control process overseen by the Scheme Advisory Board will include the effects of take up of the 50/50 option in the arrangements for that scheme. This is because the aim of that process is to more closely control the employer contribution rates actually paid by employers and to ensure that employer contribution rates are set at as constant a rate as possible.

5.7 Any movements in the FSC and the AFSC which are viewed by the Board to be structural and/or permanent in nature will trigger action to review the costs of the scheme as follows:

- movement of up to 1 percentage points from the target in either direction may result in agreed recommendations for action to move back to the target;
- movement between 1 and 2 percentage points from the target in either direction should result in agreed recommendations for action to move back to the target;
- a movement of 2 percentage points or more from the target in either direction must result in agreed recommendations for action to move back to the target; and
- if there is a movement of 2 percentage points or more but no agreed recommendations there will be a default process to move back to the target.

5.8 For these triggers to be hit there must be a change of relevant magnitude in both the FSC and the AFSC. In the case that both measures exceed a trigger, but differ in extent, then the measure with the lower divergence from the target will be used for the purposes of this process.

5.9 Any agreed recommendations should take into account the action that would be appropriate to bring scheme costs back to the target of 19.5%. As with the statutory mechanism, this may be a change in the scheme design, or a change in employee contribution rates. Any changes to the schemes that are agreed as result of this process would need to meet the requirements set out in section 22 of the Act before they could be made.[4]

5.10 As with the statutory cost cap, certain drivers of scheme costs will not affect the cost control mechanism run the by the Scheme Advisory Board. In addition to existing past service effects and changes in financial assumptions, risk associated with investment performance will also be excluded from both the statutory cost cap and the Board's cost control mechanism. Investment risk will instead be dealt with via improved governance.

Interaction between the two cost control systems

5.11 The statutory employer cost cap will take precedence over the cost controls overseen by the Scheme Advisory Board. If the statutory employer cost cap mechanism is triggered, the costs of the scheme will need to be returned to the level of the statutory cap, as set out in the Treasury regulations. This will be the case even if this moves the costs of the scheme, as measured by the FSC/AFSC, away from the target of 19.5%.

5.12 However, if the government accepts the Board's recommendations for changes to the scheme arising from the Board's cost control process, the statutory employer cost cap will be

[3] See regulation 10 of the Local Government Pension Scheme Regulations 2013.
[4] Section 22 of the Act provides for an enhanced consultation and report procedure to be followed if changes to certain protected elements of the new schemes are proposed before 31 March 2040.

adjusted to take the new scheme designs into account. This will allow the two mechanisms to run in parallel.

Cost control for the Local Government Pension Scheme in Scotland

5.13 The Scottish Government does not plan to establish any additional cost control arrangements beyond the statutory mechanism.

A Determining assumptions where there is a limited evidence base

A.1 The forthcoming valuations of the public service pension schemes will require a number of assumptions to be made which cannot be based only on scheme experience, but which may have a material effect on valuation results.

A.2 This annex sets out the approach that the government has agreed that schemes should take when setting these assumptions. This approach is intended to be used for all schemes within scope of the Treasury Directions on valuations and the employer cost cap made under sections 11 and 12 of the Public Service Pensions Act 2013.

A.3 The Treasury Directions specify a number of assumptions that should be used by all schemes when conducting valuations. Where assumptions are not specified, Directions state that the assumptions to be used should be the responsible authority's best estimates, and not include margins for prudence or optimism.

A.4 The proposed approaches to setting these assumptions must therefore be in line with the responsible authority's views as to what constitutes the "best estimate" of scheme assumptions.

Assumptions that cannot be based on scheme experience

A.5 There are a number of different assumptions which cannot be based entirely on scheme experience. Some of the assumptions which are likely to have a more material impact on valuation results are set out below.

A.6 For each assumption, this annex sets out:

- an explanation of why the assumption is required; and
- the preferred approach to setting the assumption, and the reasons for this.

A.7 A table setting out which of the valuation results will be impacted upon by these assumptions is also included at the end of this annex.

Assumed retirement patterns when Normal Pension Age is higher than the Normal Pension Age of current age retirees

A.8 There will need to be adjustments to retirement assumptions based on currently observed retirement patterns to calculate the cost of benefits accruing to members with higher Normal Pension Ages (NPAs) than current retirees. These assumptions will also be used to set the employer cost cap (when existing scheme benefits are ignored so that the expected drift in cost caused by the proportion of existing scheme benefits diminishing over time does not impact on the cost cap mechanism).

Approach

A.9 The approach is fourfold:

- apply current experienced early retirement patterns below current NPAs to future NPAs;
- assume no one retires later than future NPAs once SPA ceases to be higher than NPA (unless late retirements are best estimate and are expected to have a material impact on valuation results);
- apply adjustments to early retirement assumptions where scheme specific benefit designs include improved early retirement terms, and when applying these adjustments have regard to the approach used in scheme reforms to adjusting these assumptions; and
- allow adjustments to experienced early retirement patterns where these are the responsible authority's views as to what constitutes the "best estimate" of possible impact of changing take up of partial retirement provisions.

A.10 This is a realistic approach to adjusting for future expected changes in current retirement behaviours and is likely to be necessary on materiality grounds, although it does add additional complexity. It recognises the alignment of NPAs and the State Pension age.

Assumed change from current retirement patterns to retirement patterns used in respect of higher NPAs

A.11 Given that retirement patterns are expected to change in line with the assumption above, assumptions are needed about how retirement patterns will change over time as those with significant amounts of existing scheme service gradually leave and are replaced with those with only new scheme service.

Approach

A.12 Assume that:

- the youngest current active scheme members exhibit retirement patterns in line with the assumption in respect of retirement patterns when NPA is higher than the NPA of current retirees, as above; and
- retirement patterns change over time, from currently observed patterns to the retirement patterns used in line with the assumption in respect of retirement patterns when NPA is higher than the NPA of current retirees, in a manner consistent with the NPA provisions of the old and new schemes. This is generally expected to mean that retirement patterns will change smoothly and gradually over time. However, where schemes have normal retirement ages that differ from deferred retirement ages in their new schemes, a less smooth change in retirement behaviours is anticipated in the future (when scheme members with considerable new scheme service significantly delay receipt of their existing scheme service). Such stepped changes should be allowed for where this is expected to have a significant impact on valuation results.

Assumptions about active members leaving service at higher ages for reasons other than age retirement

A.13 There is currently limited evidence on how many scheme members leave pensionable service around current NPAs (e.g. due to resignations or ill health retirement), due to the small numbers of members currently working beyond the current scheme NPAs.

Approach

A.14 Develop from scheme analysis of experience using an extrapolation approach consistent with the extrapolation approach taken when setting reform assumptions, unless there is sufficient reliable evidence to suggest an alternative approach would give a better fit with "best estimate".

Salary scale assumptions – future promotion and progression

A.15 Assumptions need to be made about the degree to which expected policy on future progression and promotion scales should be considered in conjunction with analysis of experience results when setting salary scales for promotion/progression. This will include assumptions to be applied beyond the period for which general government pay policy has been announced.

Approach

A.16 Analysis of experience results should be the main influence on assumptions set. If additional adjustments are proposed, the Treasury will seek to ensure that a consistent approach is taken. This appears to be the most realistic approach and may be necessary on materiality grounds.

Salary scale assumptions – promotion and progression towards the end of longer working lives

A.17 There will need to be additional assumptions about promotion and progression for older scheme members for whom there is limited evidence about progression/promotion experience.

Approach

A.18 Develop from scheme analysis of experience using an extrapolation approach consistent with the extrapolation approach taken when setting the assumptions which informed the new scheme designs, unless there is sufficient reliable evidence to suggest an alternative approach would give a better fit with "best estimate".

Impacts

A.19 Table A.1 sets out the elements of the valuations that the assumptions outlined above may potentially impact upon.

Table A.1: Impacts of assumptions where there is limited evidence on valuation outputs

Assumption	Employer contribution rate	Employer cost cap	Whether or not the cost cap is breached
Assumed retirement patterns when NPA is higher than the NPA of current age retirees	✓	✓	Potential
Assumed change from current retirement patterns to retirement patterns used in respect of higher NPAs	✓		Potential

Assumption	Employer contribution rate	Employer cost cap	Whether or not the cost cap is breached
Assumptions about active members leaving service at higher ages for reasons other than age retirement	✓	✓	Potential
Salary scale assumptions – future promotion and progression	✓		Potential
Salary scale assumptions – promotion and progression towards the end of longer working lives	✓		Potential

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