A toolkit for assessing reform of public sector pensions

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1.   This note sets out a series of questions to help assess the Hutton Report on public service pensions (Independent Public Service Pensions Commission, 2011) and proposed reforms of other pension schemes such as the Universities Superannuation Scheme (USS).

2.   Section 1 discusses good pension design, in particular:

- Career average or final salary?
- Where do risks fall? Where should they fall?
- When should people retire, and how much choice should they have?
- How should indexation of accrued rights during working life be arranged?
- How should pensions in payment be indexed?

Section 2 looks at principles of orderly reform, in particular:

- Are rights to date fully protected?
- How should pension age be adjusted upward?
- The accrual rate: what conversion rate from final salary to career average?

1 Principles of good pension design

1.1 Career average or final salary?

3.   In a final-salary scheme, benefits are based on final salary but contributions are broadly on the basis of career average. At its extreme, if someone's salary doubles in his final year, his pension will double. Thus there is a cross-subsidy from people whose earnings grow more slowly to those whose earnings grow rapidly later in their career. The former group tends to be those with lower earnings, the latter the high flyers. Thus on average, final-salary schemes redistribute from care workers to senior managers. Many regard this as unfair.

4.   A second problem is that final-salary schemes encourage mischief in the form of spurious promotions late in a person's career, favouring the well-connected.

5.   Except in national schemes, final-salary pensions also have the effect of excessively locking a worker into his or her current job. Historically, that was one of the purposes of that benefit design. In a modern economy, labour immobility is a serious impediment to national economic performance.

6.   Properly-designed career-average pensions are fairer for workers and better for the economy. With proper indexation of deferred benefits and benefits in payment (sections 1.4 and 1.5) and with a suitable accrual rate (section 2.3), there is little or no cross-subsidy to workers with rapid earnings growth, little incentive to distort promotions and little or no impediment to labour mobility.

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1.2 Where do risks fall? Where should they fall?

7.   WHO BEARS THE RISK? In a defined-benefit pension, the risks of financial market turbulence are borne by the employer and/or taxpayer. This is true both of final-salary and career-average schemes. In contrast, with a defined-contribution scheme (for example a system of individual accounts), the individual worker faces the risks of financial market turbulence. A move from final-salary to career-average pensions, since both are defined-benefit, continues to protect workers and pensioners from short-run financial turbulence.

8.   A different aspect of risk concerns the overall sustainability of pensions over the long term as people live longer. A central purpose of pensions is as a long-term institution to enable people to redistribute from themselves during working years to themselves in retirement. Sustainability is therefore paramount to avoid sharp, short-run shocks. As discussed in section 2, changes to a pension system should take affect only gradually, not introduced as an emergency response.

9.   IF PENSIONS COST MORE, WHO PAYS? If pensions become more expensive, the costs have to fall somewhere. Costs can fall:

- On pensioners as a lower monthly pension or through later retirement on a non-reduced pension; or

- On workers, employers, and/or taxpayers through higher contributions.

These ways of paying for pensions can be used individually or in combination; there are no other ways of paying for pensions. It follows that if the aim is an unchanged pension at an unchanged retirement age with no additional contributions by workers, the costs have to fall on employers or taxpayers. As life expectancy rises, those costs rise. As discussed below, this situation is not sustainable. The right policy aim is to optimise across all these instruments so as to provide good pensions without contributions rising so much that employers or workers opt out.

1.3 When should people retire, and how much choice should they have?

10.   I tell my students that we all play by the same rules: they have as much freedom to express their views as I do; but, like me, they are accountable for the analytical quality of their argument. There is, however, one exception. The 'ageing problem' is an ideologically unsound term whose use is not allowed.

11.   There is not an ageing problem. Increased life expectancy is perhaps the greatest welfare gain of the twentieth century. It means that many more people reach retirement age and that people live longer in retirement. But an inescapable consequence is that people will need to work longer to be able to finance a reasonable level of pension. Failure to grasp that nettle means that at some future date the system will blow a gasket, that is, become so unsustainable that it will no longer be possible to reform gradually and in good order. Failure to reform now puts at risk the long-run safety of people's pensions.

12.   Though retirement should on average be later, it should also be more flexible. When retirement was invented in the nineteenth century, it was intended to get doddering workers off the factory floor, where they lowered the productivity of younger workers. At that time, people who were 65 were very old – already older than the life expectancy of their generation – and often frail, so it made sense that retirement was mandatory and complete.

13. Since then, two things have changed. People are living longer healthy lives. Thus it is possible to raise retirement age but at the same time for each generation to be retired for longer than its predecessors. The second change is that societies have become richer, making retirement possible for people who are still active. That, however, means that the purpose of retirement has changed – it no longer exists primarily to clear dead wood out of the labour force, but to provide a period of leisure in later life, as part of a civilised society. Given this new purpose, it is bad economics, bad politics and bad social policy to force people to retire completely on a fixed date. They should be given choice over how they move from full-time work to full retirement.

14. Bottom line: an important part of the response to population ageing is later retirement, on average, but more flexible retirement. This should not be surprising. If we were designing a pension system for a brand new planet whose native life form was living longer and longer we would never consider a fixed retirement age of 65; instead we would suggest a default retirement age that bore some sensible relationship to life expectancy.

15. Thus the Hutton Report is right in building on the increase in state pension age that is already taking place. It is also right in its argument that if someone works for a year beyond normal retirement age, his or her pension should increase actuarially, and vice versa for early retirement. Thus someone who wants a larger pension has the option to work longer. A parallel recommendation is that someone who wants to combine pension with part-time work can choose to do so with no loss of pension. Such choice is desirable for its own sake. People vary widely in their preferences and personal circumstances. Thus many people do not want to retire fully as soon as they are allowed, because of the extra income, because of possible extra pension and/or because they continue to enjoy working in their current job or another one.

1.4 How should indexation of accrued rights during working life be arranged?

16. The calculation of a person's career-average pension should be based on his or her record of earnings indexed each year to earnings not prices, so as to ensure that the pension a worker gets when he or she retires bears a clear relation to earlier real earnings. One way of doing so is to record a person's earnings each year as a fraction or multiple of average earnings in that year. The Hutton Report is right to recommend earnings indexation during working years, both for active and deferred members. Price indexation of a person's contributions record during working life will not provide adequate consumption smoothing (and capped price indexation still less); as a result, pensions will fail to achieve one of their fundamental purposes.

1.5 How should pensions in payment be indexed?

17. Pensions in payment are frequently indexed to price inflation, as the Hutton report suggests.

18. WHAT PRICE INDEX? Whatever index is used should be an accurate measure of inflation faced by pensioners. Under-indexing erodes the capacity of pensions to fulfil their purpose; if pensions have to be reduced for whatever reason, the reduction should be explicit. The move from RPI-indexation to CPI is certainly a benefit cut; whether it implies under-indexation is less clear. I do not discuss this issue further because the next issue is at least as important but has received much less attention.

19.   CAPPED INDEXATION. A number of schemes have capped price indexation. Whether or not this is bad design depends on whether the cap is annual or cumulative. The example below assumes an initial pension of 100 and indexation capped at 5% (all numbers rounded).

- Case 1: inflation is 5% in year 1 and 4% in year 2. Thus the pension rises to 105 in year 1 and to 109 in year 2. The person's real pension stays constant.

- Case 2: inflation is 9% in year 1 and 0% in year 2. The pension should rise to 109 in year 1 but because of the cap rises only to 105. What happens in year 2?

    - Case 2(a): if indexation is strictly year by year, inflation in year 2 is 0% so the pension stays at 105;

    - Case 2(b); inflation in year 2 is 0%, but the 4% above the cap in year 1 is applied cumulatively, so that the pension rises to 109.

20.   In case 2(a), inflation above 5% in any single year during a person's retirement *permanently* reduces his or her real pension. This arrangement – the proposal for USS (Appendix 1) – is very bad design. The earlier during retirement there is a burst of inflation above 5%, the larger the loss of pensions in present value terms. Since the timing of high inflation during a person's retirement is arbitrary the resulting effects are arbitrary across cohorts of retirees. In addition, under-indexation prevents pensions from fulfilling their role of consumption smoothing across a person's life cycle. This element of the proposed reforms to USS imposes an unacceptable and unnecessary risk on future pensioners.

21.   In case 2(b), a person's pension falls below its long-term trend during times of high inflation but its real value is restored when stability returns. Thus pensioners share some of the pain of turbulent times but the effect is not permanent. It is important to protect pensioners, who have fewer ways of adjusting than younger people. But it does not follow that pensioners should necessarily receive complete protection.

22.   Case 2(b) is one way of protecting pensioners in the long-run but not necessarily fully in the short-run, but there are other ways, for example indexing pensions 80% to prices and 20% to wages (for fuller discussion, see Barr and Diamond, 2010, pp. 74-6).

2 Principles of good reform

2.1 Are rights to date fully protected?

23.   The Hutton Report proposes that all promises to date will be kept; the USS proposals do likewise. Thus there will be little or no change for workers close to retirement. This is the right policy, given the importance of ensuring that changes are gradual and give workers a long time to adjust.

2.2 How should pension age be adjusted upward?

24.   Any increase in pensionable age should be based on four principles.

- Changes should be announced a long time in advance, so that nobody faces any short-run shocks.

- The rules should relate to date of birth, not date of retirement; otherwise there will be a wave of retirements just before any increase in retirement age goes into effect. Such an incentive to retire is inefficient.

- Changes should be made annually (or monthly), to avoid the situation where two people born only a few days apart face a large difference in pensionable age.

- The rules should be explicit. Automatic adjustment with explicit rules leads to greater predictability and decreased political pressure. As with the indexation of income tax brackets, there always remains the option of legislation to change whatever the automatic rules produce.

25.   The increase in women's pensionable age in the UK illustrates all four principles. The change was announced in 1991. The key date is April 6, 1950. For women born before that date, the state pensionable age continued to be 60. The pensionable age for a woman born on May 6, 1950 (one month after the key date) is 60 years and one month, which occurred in 2010, 19 years after the legislation, for a woman born on June 6, 1950, 60 years and two months, and so on. For women born on or after April 6, 1955, the pensionable age will be 65.

2.3 The accrual rate: what conversion rate from final salary to career average?

26.   A critical element in determining the size of a person's pension is how the translation from final salary to career-average is calibrated, discussed in more detail in Appendix 2. To illustrate, consider someone with 40 years' service whose final salary is 200 and career-average earnings 100, with an accrual rate of 1/80 per year of service. His final-salary pension would be 40/80 of 200, i.e. 100.

- If the accrual rate remains unchanged, his career-average pension would be 40/80 of 100, i.e. 50, or half of his final-salary pension.

- In contrast, if the accrual rate were raised to 1/40 of career-average earnings per year of service, his pension would be 40/40 of 100, i.e. 100, fully protecting his pension.

27.   The calibration question is whether the move from final-salary to career-average pensions should be accompanied by a change in the accrual rate from 1/80 to 1/40, or to somewhere in between. Though there is a very strong case for increasing the accrual rate, it does not follow that full adjustment is the best option. The need for a long-run view has already been stressed.   Thus changes should optimise across a range of variables, including (a) the size of the pension, including the choice of accrual rate, (b) the age at which pension is first paid, and (c) the level of contributions and their division between worker and employer.

28.   Thus changes could include (examples chosen only for arithmetic simplicity):

- A move to an accrual rate of 1/60, with full pension after 40 years of service, i.e. partial compensation but at an unchanged retirement age;

- A move to an accrual rate of 1/45, with full pension after 45 years' service. This move would give an average worker a career-average pension at about the same level as his or her previous final-salary pension, but five years later;

- An increase in contributions from workers, employers and/or taxpayers.

29.   I am not advocating any particular approach, but arguing that discussion of reform should consider all these elements.

3 Conclusions

30.   The following aspects of reform are the ones to fight for.

- Full protection of rights earned to date.

- Future benefits to be career average, not defined contribution.

- Career-average benefits to be based on earnings indexation of a person's earnings record, not price indexation.

- An accrual rate (e.g. 1/45 of career-average earnings per year of service) chosen to optimise across (a) size of pension, (b) age at which the pension is first payable and (c) the cost of pensions.

- The normal retirement age should bear a sensible relationship to life expectancy. There should be no precipitate increase in retirement age.

- There should be choice over retirement age, and over options for combining pension with part-time work.

- Pensions in payment should be fully price indexed, or subject to indexation with a cumulative cap, or indexed to a proper weighted average of price and wage change.

References

Barr, Nicholas and Diamond, Peter (2008), *Reforming pensions: Principles and Policy Choices*, (New York and Oxford: Oxford University Press, 2008, ISBN 978-0-19-531130-3) http://www.oxfordscholarship.com/oso/public/content/economicsfinance/9780195311303/toc.html

Independent Public Service Pensions Commission (2011), Independent Public Service Pensions Commission: Final Report, London: TSO http://www.hm-treasury.gov.uk/indreview_johnhutton_pensions.htm

Appendix 1: Capped indexation under USS

Two changes have been proposed to the way pensions in payment are indexed under USS. First, the price index is being changed from RPI to CPI. Second, a 5% cap on pension increases has been introduced for pension accrued from the date of the change onwards. Note that people already receiving USS pensions will not be affected by the cap, since their pensionable service is all pre- change.

The new rules for indexation are:

CPI Increase	USS pension increase
5% or less	5% or less
More than 5% and less than 15%	5% plus 50% of increases above 5%
15% or more	Overall ceiling of 10%

Thus if, as discussed in the text, inflation were 9 per cent in year 1 and zero in year 2, pensions would rise by 7 per cent in year 1 and 0 per cent in year 2. Thus there is a decline in the real value of pensions in payment of 2 per cent. In contrast, if inflation had been 5 per cent in year 1 and 4 per cent in year 2, the real value of pensions would remain constant.

Appendix 2: Calibrating accrual rates in final-salary and career-average pensions

Assumptions

1.   The examples in the table below assume:

- A 40-year career;
- All earnings are in real terms. Thus the calculation of a person's career average revalues his/her earnings each year in line with changes in average earnings;
- A person's pension is 1/80 of the relevant earnings base per year of service.

Examples

2.   Case 1: no earnings growth. Career-average earnings are 100; final salary is 100. In both cases, the pension is 40/80 of 100, i.e. 50.

3.   Case 2: real earnings grow by 2% per year. The figures in the table are normalised so that career-average earnings remain 100. Thus the career-average pension remains at 50; the final-salary pension is 40/80 of 143.36 = 71.68.

4.   Case 3: real earnings grow by 4.209% per year. Again the figures are normalised to keep career-average earnings at 100. The earnings growth rate of 4.209% is chosen because it leads to a final salary of 200 after 40 years, making the arithmetic simple. Thus the career-average pension remains at 50; the final-salary pension is 40/80 of 200 = 100.

Conclusions

5.   If real earnings stay constant there is no difference between career-average and final-salary pensions.

6.   With positive real earnings growth, a person's final salary will be higher than his/her career average. It follows that with a constant 1/80th rule, a pension based on career-average earnings will be lower than one based on final salary. The reduction is greater the higher the rate of earnings growth: with 2% earnings growth, the move reduces a person's pension from 71.68 to 50; with 4.029% earnings growth the reduction is from 100 to 50.

7.   If the aim is to ensure that the move to career average leaves a person's pension unaffected, each year of service has to accrue pension at more than 1/80th. With earnings growth of 4.209%, the person's final salary is 200; thus a career-average pension accruing at a rate of 1/40 would be same (100) as a final-salary pension based on the 1/80 rule.[2]

8.   As noted in the main text, however, making sure that nobody loses from the change to career average is not necessarily the right objective. The accrual rate should be adjusted to take simultaneous account of the level of pension, the age from which it is paid, and the level of contributions necessary to finance the system.

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[2] For a 40-year career, the fractional equivalent to 1/80th is 1/k, where k = 40*E/P, where E = the person's career-average earnings and P = his/her final-salary pension.

Final salary and career-average pensions

		Real earnings growth		
	Year	0%	2%	4.09%
	1	100	66.22	40.06
	2	100	67.55	41.75
	3	100	68.90	43.51
	4	100	70.28	45.34
	5	100	71.68	47.24
	6	100	73.12	49.23
	7	100	74.58	51.31
	8	100	76.07	53.47
	9	100	77.59	55.72
	10	100	79.14	58.06
	11	100	80.73	60.50
	12	100	82.34	63.05
	13	100	83.99	65.70
	14	100	85.67	68.47
	15	100	87.38	71.35
	16	100	89.13	74.36
	17	100	90.91	77.49
	18	100	92.73	80.75
	19	100	94.58	84.15
	20	100	96.47	87.69
	21	100	98.40	91.38
	22	100	100.37	95.22
	23	100	102.38	99.23
	24	100	104.43	103.41
	25	100	106.52	107.76
	26	100	108.65	112.30
	27	100	110.82	117.02
	28	100	113.04	121.95
	29	100	115.30	127.08
	30	100	117.60	132.43
	31	100	119.95	138.00
	32	100	122.35	143.81
	33	100	124.80	149.87
	34	100	127.30	156.17
	35	100	129.84	162.75
	36	100	132.44	169.60
	37	100	135.09	176.74
	38	100	137.79	184.17
	39	100	140.54	191.93
	40	100	143.36	200.00
Average salary		100	100.00	100.00
Final salary		100	143.36	200.00
Career average pension		50	50.00	50.00
Final salary pension		50	71.68	100.00
Accrual rate to ensure no losers			1/55.81	1/40