COLLECTIVE PENSIONS IN THE UK II

Now is the time to act

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The RSA has campaigned for the past three years for the introduction of collective pensions in Britain. They provide better outcomes to savers, with higher and more predictable pensions.

This paper offers a unique evaluation, supported by modelling by Aon Hewitt, showing how collective pensions would have performed over the past 57 years. It concludes that they would have:-

- Given a 33% better outcome as an individual pension
- Would have given a more predictable pensions

Others have joined the RSA in its call for collective pensions. They include the CBI, the TUC, the National Association of Pension Funds and the Association of Member Nominated Trustees. We believe this strong consensus between stakeholders gives a unique moment to introduce collective pensions in the UK.

This month, following the culmination of over a year of research and consultation, the DWP will set out its findings on collective pensions

Now is the time for them to act. British people should be allowed to save for retirement through collective pensions, just like people in Holland, Denmark, parts of the United States, Canada and Sweden. This paper sets out the case urging the government to legislate to make collective pensions possible in the UK within an appropriate regulatory framework.

Endorsements

In countries like Holland and Netherlands collective DC schemes deliver returns that are both better and safer than pure DC. It's time that UK workers were also allowed to save for retirement collectively.
Frances O'Grady, General Secretary, TUC

The CBI has always taken the view that the law should encourage the provision of good pensions, not discourage it. With the closure of DB schemes, schemes which offer an element of risk-sharing – such as CDC – should be an option for those employers willing to offer an alternative to conventional DC.
Neil Carberry, Director for Employment and Skills, CBI

The NAPF would like to see the creation of a simple legal and tax framework with light-touch regulation upon which a wide variety of large scale, risk-sharing schemes, such as CDC, can be built.
Helen Forrest, Head of Policy, National Association of Pension Funds

Collective DC (CDC) offers the potential of better and more DB-like outcomes, but without the same liability risk to employers. Accordingly the AMNT supports the provisioning of the necessary framework which would enable and encourage occupational CDC schemes to be offered in the UK workplace.
Association of Member Nominated Trustees

Summary

> If a typical young Dutch person and a typical young British person were both to save the same amount for their pension, if they were to retire on the same day, and die at the same age, the Dutch person is likely to get a pension which is at least 50% higher… [one reason is]…that in Holland pension saving is typically done collectively.
> **Collective Pensions in the UK, RSA, July 2012**

It is widely recognised that, in theory, saving for and providing pensions collectively can give better outcomes than saving for them individually. Yet, in the UK, individual pension provision is becoming the norm. This is because regulation makes it all but impossible to establish collective pensions, unless the amount of the pension is guaranteed years in advance, and there is a "sponsor" who will underwrite that liability. Since few companies are prepared to make such a large open ended promise, collective pension provision in the UK is withering away.

Last year the RSA undertook a review of the literature comparing the outcomes of individual and collective pensions. Six studies were found. All showed significantly better outcomes for collective provision of 25% or more. These studies were based on informed estimates of likely costs and returns.

In this report we present another study undertaken in conjunction with Aon Hewitt, one of the world's leading actuarial companies. It has taken a different approach. It compares what would actually have happened in the past 58 years to savers who had decided to provide for their retirement through a collective or an individual pension.

It shows that,

- On the best like-for-like comparison, a collective pension would on average have outperformed an individual pension by 33%
- That in 37 of the past 57 years, a collective pension would have outperformed the individual pension
- That the variability of the pension, and thus the risk the saver would have taken, would be lower with a collective rather than an individual pension.

This work is particularly timely. Today, regulation effectively prevents the creation of collective pensions in Britain.

But the government currently has this position under review. Partly as a result of the urging of the RSA, the DWP has been undertaking a consultation on "defined ambition" pensions. This consultation aims at improving both the amount and the predictability of the pension people

receive for their savings, and ensuring sustainability in the UK pensions system.[1] This is an opportunity to create a framework which would allow the growth of collective pensions in Britain. That may sound like a merely technical decision, but its impact on the retirement incomes of British people could be enormous. With the right choices, the young people of this country could be enjoying pensions which are 30% higher than those they will otherwise be entitled to. With the wrong decisions, our retirement system will be little more than a tax advantaged private savings plan.

Collective pensions are not without pitfalls. Badly managed, and ill regulated, they could result in disappointment, as can any long term savings product. However, in Holland, Denmark, the US and Canada, such institutions are in place and work relatively successfully. In this paper, we will discuss the characteristics of a successful collective pension system, and what it can and cannot offer to savers.

On this basis, we show how legislation needs to change to allow collective pensions to flourish. We will lay out the elements, particularly the governance arrangements, which are essential to make such pensions safe. We will also outline how the government can encourage sponsors to participate, and how it can encourage the creation of low cost institutions which will, in turn, maximise pension benefits.

Consensus in building a system that works for both business and the consumer is essential in the creation of a successful pension regime. We are delighted at the support given to collective pensions by key stakeholders including the Association of Member Nominated Trustees, the CBI, the TUC, the National Association of Pension Funds, and by some of Britain's leading companies who came as a delegation with the RSA to ask the DWP to change the law to make collective provision possible and safe.[2]

Neither they, nor the RSA, are suggesting that other forms of pension provision be abandoned. The request is simply that a framework be established which would make good collective pensions permissible. Such a framework would allow British people to enjoy the same pension benefits as are found in Denmark and Holland, and in parts of the USA and Canada, and would establish in Britain a framework for private pension provision which would be "fit for purpose".

1. www.dwp.gov.uk/docs/reinvigorating-workplace-pensions.pdf
2. Private pensions industry faces radical restructuring http://www.ft.com/cms/s/0/9b6e4826-d762-11e2-8279-00144feab7de.html

Background

For five years, the RSA has been campaigning for better pensions in Britain, with lower cost and greater transparency. We have shown that small differences in pension charges make a huge difference to outcomes. We have urged the government to close the loophole which would allow indiscriminate charging and investment by unscrupulous providers of new auto enrolled pensions. These are now under investigation by the Office for Fair Trading. We have received support for these recommendations from the TUC, the CBI, the NAPF and the Association of Member Nominated Trustees, as well as from the DWP Select Committee.

We have noted that British pensioners are denied the detail of the costs charged by their pension provider and asked that this be changed. In response we have received an explicit promise from the industry that this will be remedied. We are waiting for them to honour that promise.

And we have championed collective pensions. The reason is simple. Collective pensions offer savers a higher expected income in retirement. Last year we reviewed all the literature we could find on the difference in outcomes between collective pensions and the individual "defined contribution" pensions which are now becoming standard in the UK private sector. The most relevant studies showed an average increase in pensions of 25–45%. Others showed a much greater advantage. None showed an upside of less than 25%. Given that we spend 6.5% of our GDP annually on private pensions, the move from individual to collective saving would have a considerable positive impact on national welfare, equivalent to a 2% increase in GDP.

Why are collective arrangements so much more effective? The answer lies in the ability to share risks. Someone who saves individually needs to save conservatively, especially as they get older, and they need to insure themselves in case they live for a long time and run out of money. So, when they retire, most people buy an expensive annuity, which will pay an income for the rest of their lives, however long that might be. When all these factors are taken into account, the RSA's calculations suggested that an individual savings plan will cost 37% more than a collective one. That calculation is almost identical to an earlier study by the government actuary which concluded the median upside from a collective plan of 39%. In this paper we present extracts from the Aon Hewitt study, based on actual experience over the past58 years. It comes up with a very similar figure.

While, on average, collective pensions may be better, they are not perfect. For example, they are unlikely to be better than a "defined benefit" (DB) pension, where the employer guarantees the pension. However, few DB pensions are now available in the private sector, since employers are no longer willing to underwrite them. Also, as we have mentioned, one of the

advantages of a collective pension is that the saver does not have to buy an annuity, and may prefer to opt to stay in the pension because it is likely to give higher retirement income. However, that income is not certain, and, if returns fall, pensions can end up being reduced. In Holland, for example, the average pension has been cut by 2% in response to the financial crisis although that 2% cut might be considered modest relative to the 30% plus upside from collective savings.

So there are very powerful arguments for collective pensions. Yet, in the UK, regulation effectively prevents companies from establishing them unless they are accompanied by a defined benefit promise underwritten by the employer, most of which is in turn insured by the Pension Protection Fund. But as mentioned above, since rates of return and predictions of longevity are difficult to make, few employers feel able to make such a promise.

Therefore in the UK there are effectively two forms of private pension provision. DB plans which private sector employers are now closing, and which most expect to vanish from the private sector over the coming years, and individual DC plans which offer low returns, and an uncertain pension provision.

It was this which led to the call by the RSA for the government to pass legislation which would allow a flexible collective pension system to emerge in the UK. Our request, like that of the CBI, TUC, NAPF and others is not that collective pensions should be mandatory, simply that they should be allowed within a proper regulatory framework and that employers and employees should be given a wider range of choice in the type of pension they have available.

In response to this debate, the government published a consultation document on "Defined Ambition". Its general thrust was to open up opportunities for a more flexible promise to be made to savers about the nature of the pension they will achieve. So pensions, while less certain than in the DB regime, were likely to be higher and more certain that in DC. One of the suggestions of the Defined Ambition paper is that flexible collective defined contribution (CDC) pensions should be made possible in the UK, as they are in Denmark, Holland and other jurisdictions around the world. We strongly support that policy.

Road testing collective pensions

But how much better will CDC pensions be than traditional DC saving? In our previous study we reviewed all the literature we could find on the topic, and undertook our own analysis. The results are shown in Appendix 1. All of these studies have been done "in the lab", on the basis of reasonable assumptions about likely future events.

Over the past months we have been working closely with Aon Hewitt, one of the leading actuarial consultancies in the world. They have taken a different approach to evaluating individual and collective pensions.

Aon Hewitt considered the position of a saver whose employer set aside 10% of their income each year from the age of 40, for 25 years. They considered what pension they would have received had they begun saving in 1930, retiring in 1955, and in every subsequent year until 1986, retiring in 2011, covering 57 years in all. They compared outcomes for someone who had saved in a sample collective scheme, with someone who had put their money in different types of individual DC pensions. In particular they explored what proportion of their final salary they would receive in their retirement had they invested in a collective plan, or an individual plan which converted to an annuity. (The assumptions made in this study are briefly summarised in Appendix 2, though readers should refer to Aon Hewitt's forthcoming White Paper 'The Case for Collective DC' for further details.)

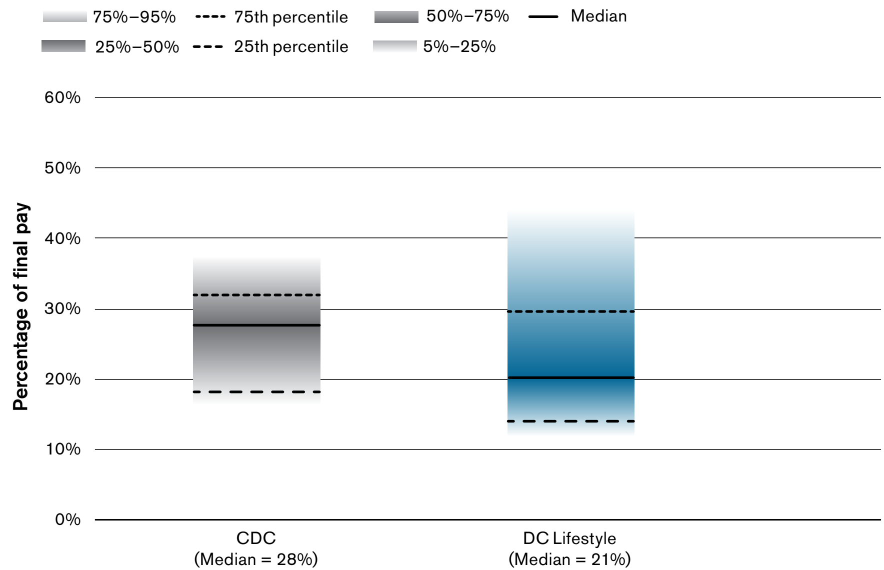
The graph below shows the range of outcomes for a sample collective DC plan invested 60% in equities and 40% in bonds and an individual DC scheme invested as a "lifestyle" pension, where the balance between equities and bonds was adjusted during the period of savings. In the case of the individual DC scheme, at the point of retirement, it is assumed that the pensioner buys an inflation linked annuity. In order to illustrate a fair comparison with the DC schemes, the outcomes shown for the collective DC plan reflect the average pension received by a member during the course of their retirement (expressed in real terms relative to their retirement date).

The CDC pension would, on average, have produced a pension equal to 28% of final salary. There would have been some variation in that benefit. Someone retiring in 1955 would have received only 16% of their final salary, whereas someone retiring in 1996 would have achieved 38%.

Lifestyle DC gave an average pension of 21% of final salary. Its variability is considerably greater, from 9% in the worst year (1978) to over 50% in the best (1999).

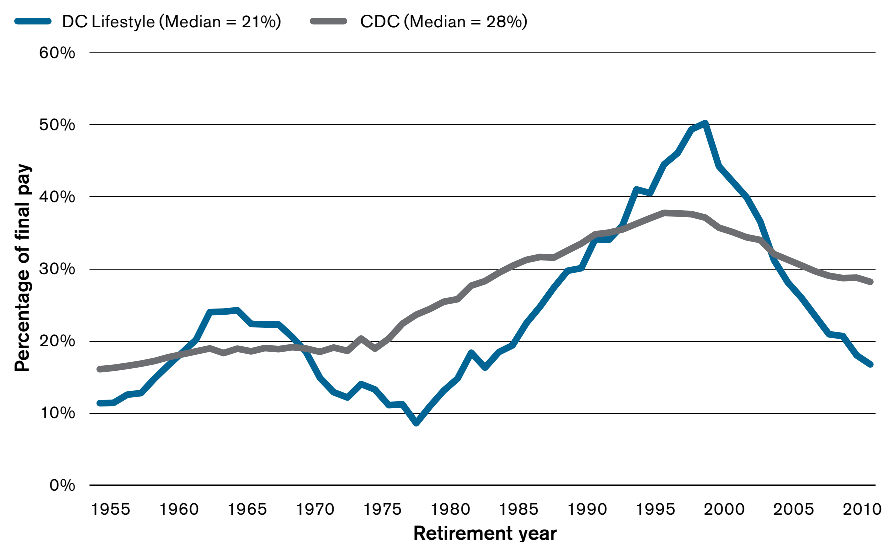
CDC therefore produced a pension which was 33% higher than the lifestyle DC pension and it did so with a lower level of variability. Indeed, on these figures, the variability of the DC pension (between 9% and 50%) was almost twice that of the CDC pension (16% to 38%).

Historic CDC and DC outcomes



The Aon Hewitt study, which has used historical data from 1930 onwards, has come to much the same conclusion as the other studies we have reviewed. That is that collective DC pensions would have provided an average upside of 33% over the study period compared to their individual DC comparators. They would also have been more predictable, leaving savers with less risk than individual DC.

Historic CDC and DC outcomes (by year)



We should note that CDC does not outperform in every year. There are some periods in the 60's and the late 90's when individual DC would have done better than collective DC. But in 37 of the 57 years, savers would have done better in a collective system. Furthermore, there were some periods (such as the late 1970's) when returns were exceptionally low for individual savers in an individual DC arrangement, with a replacement rate of salary of only 10%.

There is however one area where individual DC has the advantage over collective DC: individual DC pensions are paid from an annuity which cannot be reduced. Collective DC must have the option of being able to reduce benefits. Since 1930, there are three periods where pensions might have had to be cut; 1931/32 following the great depression; 1940/41 following the war; and 1952/53. On average, the size of these cuts would have been around 7%. In all cases this loss would subsequently be recouped. On the one hand it might be argued that this is comparatively trivial compared to the 33% uplift provided by collective pensions. However, it is an important aspect of collective pensions, which needs to be understood and managed well. We will return to that subject later in this paper.

In historical terms therefore, collective DC would have provided much better and more predictable outcomes than individual DC pensions.

This study by Aon Hewitt therefore supports the other studies which have concluded that there are substantial advantages from collective pensions. However, such pensions need to be managed and regulated appropriately if they are to prove effective.

The safegaurds

What then are the safeguards needed for the establishment of a CDC pension system?

The first has to do with trust. If people are to be persuaded to place their money in a pool with others, they need to know that those who are managing the money will have the savers' interests in mind at all times.[3] There will of course be conflicts of interest. Firstly they will arise between the beneficiaries and those running the funds. So all collective pension systems need to be directed by **trustees**; that is people who have no interest or ability to profit at the expense of the beneficiaries. Of course such trustees may hire fund managers and others to manage the money, but the final decisions need to be taken by a group which can always be trusted to act in the beneficiaries' interest.

Another conflict can arise between different members of the same pension plan. For example, if things turn out better or worse than expected, who should benefit, or who should take the pain? One solution would be for all to be treated equally. But it might be inappropriate to deal with a 90 year old pensioner in the same way as a 25 year old. The trustees will need to decide and decisions must not be seen as either arbitrary or unexpected. So collective pensions need good **communications** and should as far as possible set out guidelines about how the trustees would intend to deal with unexpected events.

Clarity, in particular **legal clarity**, is also required by the sponsor of any CDC pension. As we noted today's defined benefit pensions are being closed. Many employers feel that over the years the government has placed a tougher liability on them to guarantee pensions, even when they themselves felt that they had not entered into a contract to do so. So it is unlikely that sponsors will be found for collective pensions unless there is absolute clarity on the nature of the promise made, which legislators cannot then change.

Finally collective pensions need to be run with adequate **expertise** and investments, charges, custodial and other arrangements put in place to ensure good practice, just as they are with other pension options.

It is still possible within a collective pension to give some level of protection to the pension benefit should the trustees consider that the costs merit it. So, for example, in Denmark, ATP will offer a guaranteed income in respect of each payment which a saver has made. That guarantee has a value which is less than the payment which the saver has made, and this in turn allows ATP to invest the money in a way which will beat the promise made. TIAA-CREF in the USA has two "pots"; one is a savings pot, invested in high performing assets, the returns of which are

3. These problems were the ones which created problems for "with profits" policies

expected to be higher, but more variable. The other is an annuity pot from which payments are made, and this is invested in lower risk assets, so that pensions in payment are secure. At retirement, TIAA-CREF savers move their money from the saving to the annuity pot, thus protecting pensions in payment.

Other variants, which may be attractive can be found for providing guarantees. They can however have downsides. One is that the more that is spent on "de-risking" the pension prior to retirement, the lower the return which is likely to be received. Another is that the guarantee needs to be well managed and matched by investments to reduce the risk that a disproportionate amount of benefit ends up being paid to one group of beneficiaries at great cost to another group.[4]

Note also that with a CDC pension, it should be possible for a member to know how much money is nominally allocated to them, and hence, in principle, it should be possible for beneficiaries to ask to move their money from one plan to another, or indeed to individual DC should they choose to do so.

All of these elements of collective pensions need to be managed, and to sit within a regulatory framework which provides adequate protection while allowing appropriate levels of choice within a trustee managed system.

The challenge for the government is to establish such a system. For example, the system should not only allow collective pensions to flourish but also encourage other aspects of good pension management. One of these is the creation of pension providers of adequate scale to be able to benefit from low costs. This has long been an objective of the National Association of Pension Funds and one which is strongly supported by the RSA.

4. This issue created problems at Equitable Life

Legal considerations

This autumn the UK government will set out the direction it wishes to take with respect to new legislation to allow collective schemes to be established in the UK. Under the proposed "Defined Ambition" approach, it is hoped that enabling legislation will be brought forward that defines a clear regulatory framework which will help to establish collective DC schemes in the UK. As we have discussed in our previous paper, the legal uncertainty that exists is the inhibiting factor for the uptake of CDC in the UK. We would have the following comments on that legislation

Developing enabling legislation for Collective Defined Contribution schemes in the UK

The context of this reform is that it is **deregulatory**. This government is concerned about the economic cost of unnecessary regulation. Collective pensions will potentially allow a 30% increase in the productivity of an industry which absorbs 6.5% of the GDP.

Nevertheless an enabling framework will be necessary if collective pensions are to be safely introduced. Further, that framework needs to be attractive to potential pension sponsors. Finally, the framework should aim to be one which encourages the evolution of other positive characteristics in pension provision, such as the establishment of large low-cost providers of pensions.

So what areas will need to be addressed if collective pensions are to be safely introduced? The first concerns **governance**. Pension provision is notoriously open to conflicts of interest. And these are exacerbated by the fact that individuals have little knowledge of what their pension provider is doing and little leverage over their actions.

We would therefore strongly recommend that:

1. CDC pensions, like DB pensions should only be introduced under trustee management; that is where the governance of the fund owes loyalty only to its beneficiaries.
2. That the primary duty of the trustees is to represent the interest of the members. The trustee body should have amongst its members adequate expertise to manage the investment and benefit issues they will confront.
3. The trustees should make public their investment and benefit policy, and their proposed response to known risks. These should be made available to all beneficiaries.
4. There should be clear rules as to the decisions which can be made by the trustees and those which need the authorisation of the regulator.

The second area concerns the **management** of the enterprise. As with a stakeholder pension there need to be guidelines as to:

5. The appropriate investment policy and the charges a pension fund can make. These should not be onerous, but they should stop abuse.
6. The actuarial assumptions upon which payments are to be made; that these are not unduly optimistic or pessimistic.
7. Proper custody arrangements being in place.
8. Members being fully informed over time of the likely level of their benefits, and of the nature of the promise being made. This latter point is of particular importance.
9. Members' rights being clearly defined. So there needs to be transparency on how decisions will be reached. Members should also understand their rights with respect to withdrawing from one pension plan and placing their savings in another.
10. It may also be sensible to suggest that any CDC pension plan has an adequate number of members to make it worthwhile (see below). The fundamental question here is whether the pension fund is able to generate scale and thus exploit economies of scale, as well as to share risk effectively.

The third area is how this can be made **attractive to sponsors**. First and foremost must be an absolute assurance that there will be no attempt to ask the sponsor to underwrite promises which they had not signed up to. One reason that employers are unwilling to sponsor pension schemes is that they feel in the past to have been victims of "legislation-creep", with the law forcing them into ever greater responsibilities. Therefore the legislation should:

11. Clarify that this is a defined contribution framework and that the sponsor will not be responsible for any liability beyond their annual contribution to the plan and therefore no liability under Section 75 of the Pensions Act 1995.
12. A 'Henry VIII' protection would act as a safety valve. That would be a protection which ensured that should any liabilities be imposed through changing legislation to the employer, they would have the ability to revert out of the scheme.

The further consideration is to try and trigger the development of a pension system which has **other positive characteristics**, such as low costs, easy pension transfers and so on. To achieve this we might suggest that:-

13. All CDC plans should be licensed on the basis of their having an appropriate cost structure and adequate flexibility.
14. NEST be allowed to offer collective pensions.
15. Various social partners (NAPF, CBI, TUC, perhaps even the RSA or others) be asked to establish one or more fiduciary bodies which can be entrepreneurs for the establishment of multi-employer collective pensions.

Finally, a regulatory body, possibly part of the Pension Regulator, should be charged with overseeing the new CDC regime, and licensing those undertakings which provide collective pensions.

A final consideration: investing in britain

It has often been suggested that pension funds ought to be able to do more to support the economy. Pensions are very long term liabilities and funds should welcome investment in asset classes such as infrastructure or in supporting capital investment in the UK. It might also be hoped that they could invest in an appropriately diverse group of long term risk assets, providing these offered a commensurate return. Such investment is vital for the health of the economy; it is also one which many believe can offer significantly higher returns.

One reason that this has not happened as it might is because of the way the pension industry is structured. If we all save in individual pensions, our investment portfolios are likely to contain simple securities, and ones which are readily valued. So, for example, direct investment in infrastructure is impossible. Any such investment will require a liquid vehicle through which money can be channelled.

DB plans have been better suited to such a role. But because they are now becoming mature, and because they have made fixed promises, advise is increasingly being given to invest in "bond-like" securities which give a fixed monetary return. So the economy is denied the long term patient finance which it needs.

Time and again, the government and others have commissioned studies[5] which call for a longer term investment perspective. Similar reports into infrastructure and housing point to the good returns which can be made if pension funds are encouraged to invest longer term.[6] But individual savings are ill adapted to such opportunities.

CDC would be much better able to respond. A well managed plan would invest in long term assets which promised attractive returns linked to the cost of living. Britain might, over the longer term, enjoy a renaissance in finance for long term investment, helping both the economy and the pensioner.

5. The Kay and Cox reviews would be recent examples

6. One for example, Building the New Homes and Communities Britain Needs, by the Future Homes Commission, estimates a 10% return from new privately financed rental housing

Why act now in 2014?

Now is the time for the government to act. First because the evidence shows the advantages of CDC.

Second because the passage of enabling legislation is supported by all relevant stakeholders, including the TUC, the CBI, the National Association of Pension Funds, and the Association of Member Nominated Trustees. Indeed a delegation of pension funds and sponsors has met the Minister to ask him to act.

Third because action needs to be taken soon if an effective alternative is to be developed to DB pensions. For two generations it is these pensions which have underpinned the retirement income of many British people. However, within the private sector few new DB pensions are being offered. Indeed, over the next few years, it is anticipated that DB plans will be closed even to existing members. If CDC is not introduced, ever more people will be enrolled into expensive and possibly inadequate pensions.

The issue of CDC pensions may seem like a technical matter. It is not. This structure has proved, for all its challenges, to be the one which has underpinned the best pension systems in the world. British employers and British citizens should also be allowed to save through CDC pensions should they choose to do so. We therefore eagerly await the government's intention on this matter.

Appendix 1 – Previous studies of the outcomes of Collective and Individual Pensions

Title	Author	Study Approach	Study Question and Method	What uplift in pension will collective provision provide?	Comment
Risk Sharing in defined contribution schemes[7]	De Haan, van der Lecq, Oerlemans, Van der Wurff	**Compare DB and IDC**	Without annuitisation, how much more will need to be saved to be 97.5% that a DC outcome will cover a DB promise Monte Carlo simulation	**+145%**	This study method may exaggerate the benefit from CDC by assuming people have to "over save" to insure against longevity, rather than buy an annuity
Bang for the Buck[8] 2008	Almeida and Fornia	Ditto	Ditto	**+83%**	Ditto
Modelling Collective Defined Contribution Schemes[9] 2009	Government Actuary	**Compare CDC to IDC** Uses appropriate assumptions on costs and investment policy to project outcomes	Monte Carlo simulation with annuitisation	**+39%**	This study assumed some cases where benefits were fixed. As a result in extreme cases the pension could go bankrupt. CDC schemes can never be designed with foolproof guarantees, though they should be able to hit targets.
Collective Pensions in the UK 2012[10]	David Pitt-Watson and Hari Mann	Ditto	Assuming different levels of returns and costs with annuitisation	**+37%**	(This paper)
Private Study[11]	Hamish Wilson	Ditto	Ditto	**35–45%**	
DWP Risk Sharing Consultation, June 2008[12]	Hewitt Associates	Ditto	Ditto	**+25%**	See footnote

7. Quoted in presentation by van der Lecq, to Conference on Risk sharing in Defined Contribution Schemes, University of Exeter Jan 2010

8. Almeida, Beth and Fornia, William, *A Better Bang for the Buck, The Economic Efficiencies of Defined Benefit Pension Plans*, National Institute on Retirement Security, August 2008

9. *Modelling Collective Defined Contribution Schemes*, Department for Work and Pensions, December 2009

10. Pitt-Watson, David and Mann, Hari *Collective Pensions in the UK*, RSA, 2012

11. Quoted in article by Hamish Wilson, *Collective Bargaining*, Pensions World, November 2011

12. *Risk Sharing Consultation*, DWP, June 2008. Tables b.5 and B.6. Note both tables show significant upside and less risk from CDC. Table B.5. shows the advantage before modeling the lower costs of CDC. This gives a 15% premium, with lower costs. Table B.6. shows a 25% premium. If comparisons were made on an equal risk basis, the upside from CDC would be higher

Appendix 2 – Aon Hewitt methodology and assumptions

Scheme designs	The designs modelled are simply examples to draw out the key features of CDC and DC behaviour. We are not suggesting that the CDC design below is optimal. Where we refer to a 'best estimate' assumption in this appendix we mean one which is expected to have an equal probability of understating or overstating the true value.
CDC scheme design	▪ Target benefits – 1% CARE accrual payable from age 65. – Attaching spouse's pension payable at 50% rate if the member dies after retirement. – Revaluations 100% of CPI (zero floor, no cap). – Company contributions 10% of salary (no member contributions). – Assets held 60% in UK equities, 40% in UK government bonds. ▪ Levers – Each year the scheme's funding level (assets divided by liabilities) is measured based on the CARE-style benefits which have accrued up to that point in time. – If necessary, the assessed funding level is kept within a window of 90% - 110% by adjusting (in order): a. Revaluation target (as 100% of CPI, plus a variable addition, with the resulting revaluation subject to a zero floor); b. One-off benefit reduction (applied uniformly to all members). ▪ The funding assessment is performed using a market value of assets and a set of market-consistent best estimate assumptions for valuing the scheme liabilities. ▪ Pensioner benefits are paid from the scheme during retirement, rather than being bought out with an annuity provider (for example). ▪ Pensioners in payment are exposed to both levers (i) and (ii) above.
DC scheme design	▪ Contribution rate (10%) and annuity basis consistent with Collective DC design. ▪ 'Lifestyle' means a 10 year linear switch from equities to gilts leading up to retirement at age 65. ▪ Contributions are assumed to be invested in the relevant asset class up to retirement and then disinvested to purchase an immediate annuity from the insurance market (with features matching the CDC target design).
Scenario modelled	We have modelled past performance assuming: ▪ The CDC scheme starts with a mature 'steady state' membership profile in 1930, and is fully funded at that point; ▪ Between 1930 and 2012 the scheme develops within its design rules, with a steady flow of new entrants, retirements and deaths, and an allowance for broad historic asset returns and other changes in financial conditions. Corresponding DC outcomes are constructed based on identical financial conditions to the CDC scenario.
Membership profile	For simplicity we have assumed that for each member in the CDC (or DC) scheme: ▪ service commences at age 40, and thereafter contributions are paid to the scheme at a rate of 10% of salary until age 65; ▪ salary rises in line with the UK's National Average Earnings each year, overlaid with an allowance for additional promotional increases; ▪ retirement occurs at age 65, at which point the member ceases contributions and starts to draw their pension.

Liability assessment – financial assumptions	The assessment of liabilities for calculating the CDC scheme funding level each year is based on market-consistent best estimate assumptions, derived from the assumed market yield data at the point of assessment. In particular, the discount rate is taken as ▪ the yield on long-dated fixed interest government bonds, plus ▪ an equity risk premium in respect of that portion of the liabilities backed by UK equity holdings (to make some allowance for expected outperformance of equities over government bonds). – In practice the equity risk premium would be re-calibrated to a suitable best estimate each year by the scheme's actuary based on current market conditions. – Our modelling uses a simplistic formula to attempt to capture the first order impact of this re-calibration, with a cap of 5% p.a. and a floor of 0% p.a. applied to the resulting equity risk premium before use in the discount rate.
Historic data	The historic total return indices, real and nominal government bond yields, annual inflation and National Average Earnings growth figures assumed for the period 1930 to 2012 are based on ▪ Financial data from Barclays' published 2012 'Equity Gilt Study'… ▪ … with suitable extrapolations where series are not available; for example – Real government bond yields did not exist prior to 1983, so before that point we have assumed 'notional' real yields consistent with a 10-year central moving average of realised inflation; – Similarly, for the period prior to publication of the National Average Earnings index we have assumed earnings inflation in line with RPI growth + 0.7% p.a.

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