

LCP on point 

“The Ski-Slope of Doom” – is this the most worrying chart in pensions?

April 2021



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Foreword

This report builds on the research of many others.

The Pensions Commission, led by Adair Turner, published the most comprehensive analysis of under-saving for retirement in modern times back in 2004¹, whilst in 2013 the DWP published its ‘Framework for the Analysis of Future Pension Incomes’² showing around 12 million people were not saving enough for their retirement.

What distinguished both of these reports is that they projected income from all types of pensions – state, occupational and private – to model future incomes in retirement and compare them with adequacy benchmarks.

More recently, in 2017 the Resolution Foundation published³ projections of income at retirement for men and women for each of the next 35 years, whilst the Pensions Policy Institute (whose data has contributed to this report), has produced extensive analysis of future pension trends based on its suite of simulation models.

Much of the analysis in this paper builds on these foundations and we are grateful to all those who have contributed in any way to the development of this analytical framework.

We are also grateful to:

- The Pensions Regulator, for providing statistics on the evolving age distribution of deferred members of private sector DB schemes;
- The Office for National Statistics, for providing data from the Wealth and Assets Survey on trends in deferred DB pension entitlements;

None of the organisations named above bear any responsibility for the analysis which follows.

¹ [Contents.qxd \(guardian.co.uk\)](https://www.guardian.co.uk/content/xqd)

² [Framework for the analysis of future pension incomes \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/framework-for-the-analysis-of-future-pension-incomes)

³ <https://www.resolutionfoundation.org/app/uploads/2017/11/Pensions.pdf>

Executive Summary

Every year, roughly three quarters of a million people in the UK reach state pension age. Their regular income at this point is made up of a mixture of state pension, salary-related Defined Benefit (DB) occupational pensions and income from more modern ‘Defined Contribution’ (DC) or ‘pot of money’ pensions.

For many decades, the best retirement outcomes have been achieved by those able to supplement their state pension by a substantial salary-related occupational pension. But whilst such pensions remain the norm in the public sector, the number of private sector workers building up such rights has declined steadily and now stands at only around one million. Instead, most workers today, including most of those newly ‘automatically enrolled’ into workplace pensions, are building up Defined Contribution pensions which will provide them with a pot of money at retirement.

Until now, the assumption (or hope) has been that the ‘legacy’ of past service in DB pensions will tide us over until new DC rights grow to take their place.

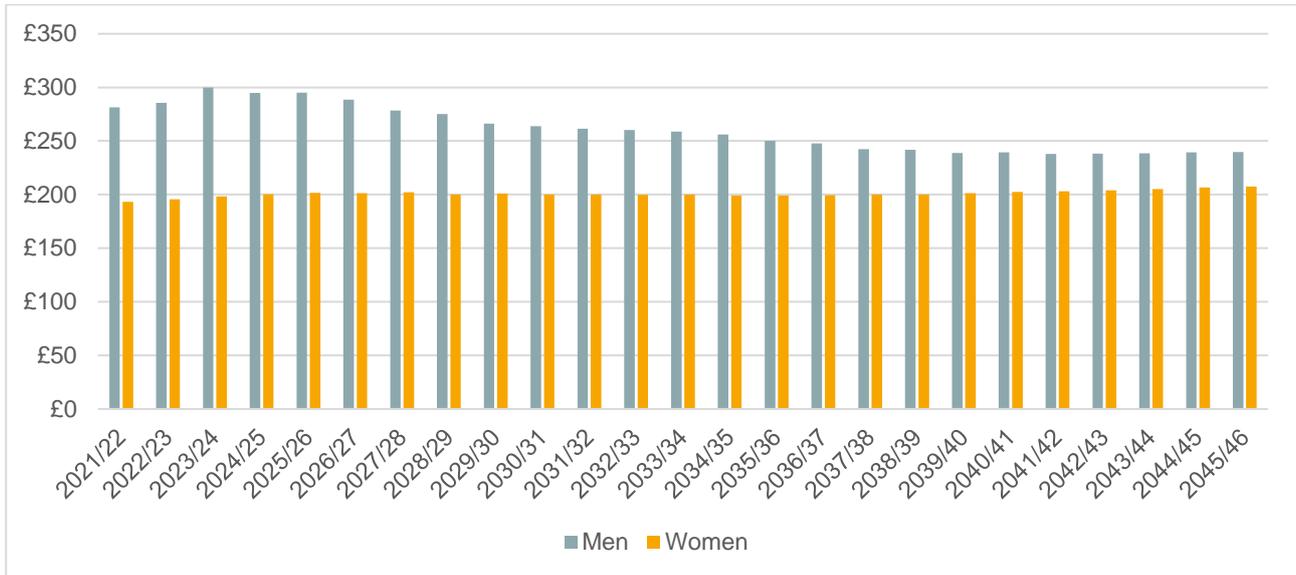
This paper dispels that myth.

We argue that past projections of retirement incomes have been distorted by the inclusion of ongoing DB provision for public servants. Whilst this continued provision is indeed good news for those who benefit, for the vast majority of workers, DB pensions are a thing of the past.

For the first time, this paper strips out the impact of public sector DB pensions and looks purely at what private sector workers can expect to get at retirement. And the story is a bleak one. In essence, private sector DB rights at retirement are currently close to their peak and will decline precipitously in the next 25 years, especially for men. By contrast, DC rights will grow only very slowly and will replace only a fraction of the loss in DB rights, leaving new retirees in years to come substantially worse off than their counterparts retiring today.

We summarise these findings in the chart below (Figure 8 in the main report) which we have dubbed ‘the ski slope of doom’. The chart shows the at-retirement income for men and women in each of the next 25 years, measured in current earnings terms. It highlights the fact that women’s incomes will rise only slightly over that period (mainly because of improved state pension provision) but that male pensions will fall substantially, as the death of private sector DB is not matched by the rise of DC saving.

Total projected pension for newly retired men and women (£ per week, 2021 earnings terms)



The message of our report is clear. Current plans to replace disappearing DB pensions by new DC savings are wholly inadequate. Without a greater sense of urgency, a whole generation of people will experience a worsening retirement outlook.

Introduction

It is possible to tell a relatively optimistic story about pensions in the UK.

- The UK has a new flat-rate state pension system which will soon pay just under £10,000 per year to the large majority of individuals reaching retirement age in coming years; the structure of the new system reduces the gender gap between men and women.
- The UK has implemented a massive programme of automatically enrolling around ten million employees into workplace pensions, with only around 1 in 10 exercising their right to opt out; membership of private sector pensions has surged, with coverage increasing especially amongst the young and amongst women;
- More than six million public sector workers are building up salary-related pension rights through public sector pension schemes; although these schemes have been substantially reformed in recent years, with increased contribution rates and later pension ages, they remain amongst the most generous schemes available to UK employees and benefit from substantial employer contributions;
- Although salary-related pensions in the private sector have been in decline for many years, with only around one million workers now accruing new rights in such schemes, millions of workers still have accrued rights from past service on which they will draw in coming years. Around £1.7 trillion in assets has been set aside to meet present and future liabilities from such schemes to date⁴.

Reflecting this context, in 2017, the Resolution Foundation published⁵ two charts which showed the income (in current earnings terms) at retirement for successive cohorts of men and women, split by state pension, salary-related private pensions and defined contribution pensions. These charts are reproduced below as Figure 1 and show a relatively benign outlook.

Although the charts show the all-too-familiar gender divide in pensions, with women starting off with pensions of less than three quarters of their male counterparts, that gap closes somewhat in the next 5-10 years. Male pensions fluctuate somewhat from year to year but the gradual decline of DB pensions is largely offset (or more than offset in high return scenarios) by the rise of DC pensions through automatic enrolment. Broadly speaking, the issue of under-saving remains relatively stable for men (or improves if DC investments perform well) whilst women enjoy a substantial boost from automatic enrolment and rising DC pensions.

⁴ See: [The Purple Book 2020 | Pension Protection Fund \(ppf.co.uk\)](https://www.ppf.co.uk/)

⁵ <https://www.resolutionfoundation.org/app/uploads/2017/11/Pensions.pdf>

Figure 1. Resolution Foundation projections of incomes at retirement

Figure 27: Projections of mean income at retirement, by source and birth cohort: Men, 2020-2060

Gross income, earnings-deflated to 2017-18 prices, five-year rolling average

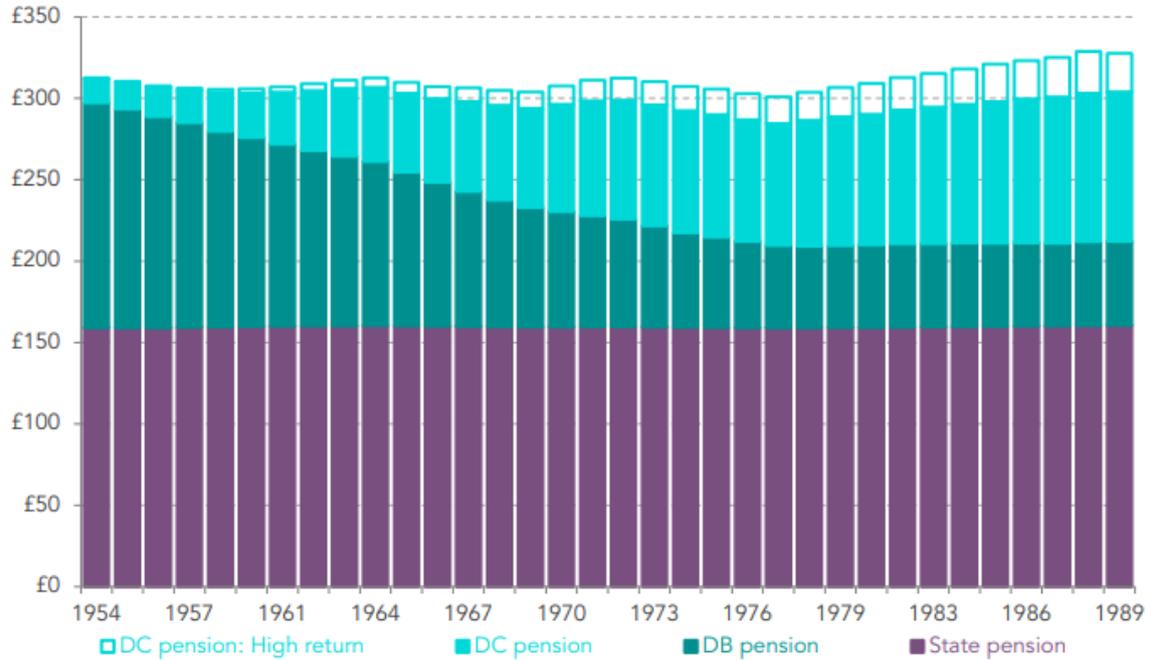
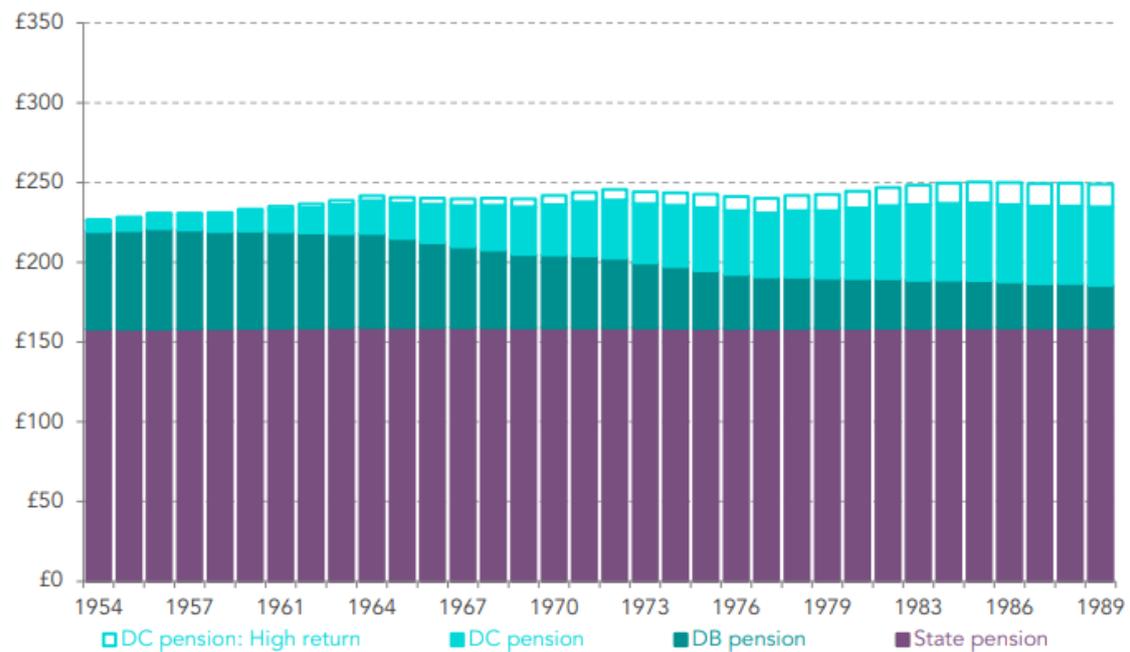


Figure 28: Projections of mean income at retirement, by source and birth cohort: Women, 2020-2060

Gross income, earnings-deflated to 2017-18 prices, five-year rolling average



Notes: Analysis covers Great Britain. See Annex 2 for full assumptions.

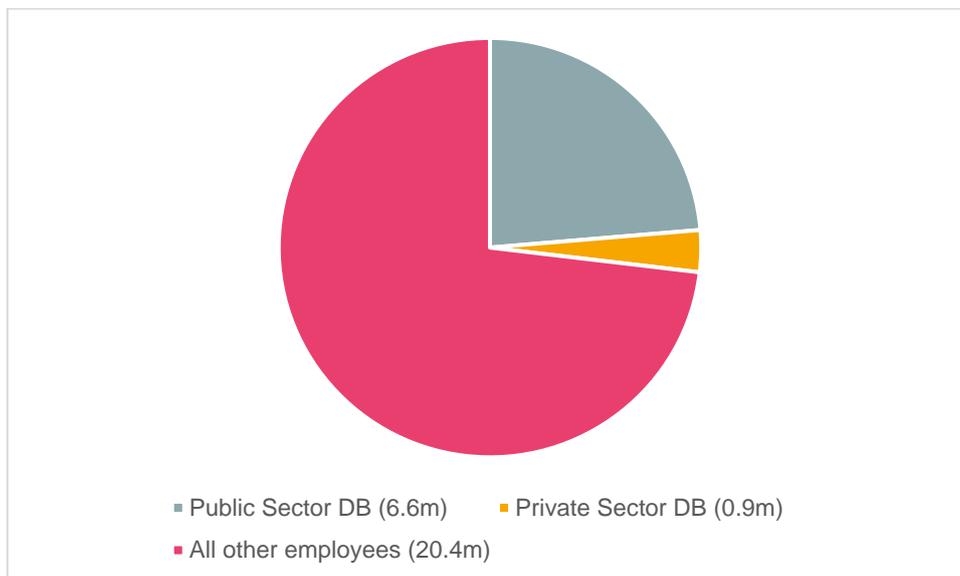
Source: RF analysis using the RF lifetime model, ONS, ASHENESPD 1975-2016 and the Pensions Policy Institute dynamic model

However, these charts risk concealing a more worrying trend. No distinction is made between DB pensions from private sector employment (where membership has been in decline for decades) and those from public sector employment, where the increased size of the public sector in recent decades has actually increased the numbers retiring with such pensions. For those who work largely in the public sector and who do not opt out of their pensions, retirement prospects are generally very positive.

But this masks the rapid decline in income from private sector DB. It is of little comfort to someone working in the private sector and unable to afford to retire to know that the teacher or civil servant who lives next door can expect a secure retirement from a salary related pension. For the private sector worker, automatic enrolment and DC pensions are meant to take up the slack. But the phased introduction of such pensions at a minimum contribution rate of 8% was only completed a couple of years ago and it will take decades before these pots generate meaningful retirement income for millions. As we will see, the DB pensions which sustained previous generations of retiring private sector workers are drying up, but the ‘DC cavalry’ will take a long time to arrive. Without urgent action to speed up the accumulation of DC pension pots, we are concerned that millions of private sector workers will reach traditional retirement ages simply unable to afford to stop work or forced to retire in relative poverty or rely on non-pension savings.

The following chart divides the employed workforce into three groups – public sector workers accruing DB pensions, remaining private sector workers accruing DB pensions, and the rest of the workforce. Barely one quarter of employees, overwhelmingly those in the public sector, are now building up DB pension rights. If we do not get private sector DC policy to deliver, the vast majority of today’s employees are going to have problems in retirement.

Chart 1. Employees in the UK, by whether accruing DB rights or not



Sources: Number of employees – ONS Labour Force Survey ([EMP14: Employees and self-employed by industry - Office for National Statistics \(ons.gov.uk\)](#)); Membership of DB pension schemes – ONS Occupational Pension Schemes Survey ([Occupational pension schemes in the UK - Office for National Statistics](#))

For the purposes of this report we therefore revisit the charts shown above. We make the following changes:

- We update the state pension projections, taking account of administrative data on the early years of the new state pension, showing how it is gradually reducing the state pension gender gap; we also consider how far the ‘triple lock’ policy affects our narrative;
- For the first time, we show the trend in the DB pensions built up by private sector workers alone; we use LCP data on the inflow into retirement from closed private sector schemes to show how rapidly DB income will peak and decline in coming years;
- We use new modelling (kindly supplied by the Pension Policy Institute) of future levels of DC saving for men and women over the coming two decades, which shows a much less rosy picture of the extent to which the ‘rise of DC’ will come in time to offset the ‘decline of DB’;

Having pieced together all of these elements we conclude by considering the implications for public policy of this new analysis.

01 State Pensions

For those who spend their working life under the state pension regime which was introduced in 2016, the new system is very simple. Provided that they build up 35 years of National Insurance contributions or credits, they will receive the full flat rate pension – just over £9,300 in 2021/22. Those who build up less than 35 years receive a pro rata amount provided that they have at least ten years in the system.

Compared with the system which it replaced, the new state pension is much more redistributive. Whereas the old system included an earnings-related element (SERPS or the State Second Pension) on top of a basic amount, the new system treats all qualifying years equally, regardless of whether they were generated by high earnings, low earnings or credits. In simple terms, a year running a top company generates the same amount of state pension as a year caring for a disabled person or bringing up a young child.

When modelling the amounts of new state pension which people retiring in coming years will receive, we cannot however simply assume that the new system was 'switched on' over night. For reasons of fairness, a number of transitional measures were introduced which means that not everyone who retires in the early years of the new state pension will receive the standard flat rate.

The main exceptions are:

- A combination of a basic state pension and a significant earnings-related 'SERPS' pension could generate a higher state pension at point of change in April 2016 than the new flat rate; retirees in this position are able to receive a full flat rate pension plus a '**protected payment**' representing the excess that they had built up by April 2016; the main flat rate is currently uprated in line with the 'triple lock' policy, whilst the protected payment keeps pace with prices;
- Those who had been members of '**contracted out**' occupational or personal pensions used to face a deduction from their state pension; although contracting out was finally abolished in 2016, it was decided that it would be unfair to ignore past years when contracted out workers paid less in to the National Insurance Fund; as a result a one-off deduction for past contracting out is made from the state pension calculation as at 2016; for those retiring in the early years after 2016, this can result in a state pension below the flat rate amount; however, any qualifying years from 2016/17 onwards can be used to top up an individual's state pension entitlement with the result that the impact of past contracting out is gradually working its way out the system;
- Those with **incomplete contribution records**: although coverage of the new state pension is extensive, a minority of people will still reach state pension age without a full record of NI contributions or credits, even if they spent their full adult life in the UK; in the past many women were outside the paid labour market or earned too little to pay National Insurance Contributions, and this has fed through into incomplete contribution records at retirement; however, with the growth in female employment in recent decades, coupled with a more comprehensive system of NI credits, more women are set to retire with complete records than in the past;

The rise in female labour market participation since the early 1980s is shown very clearly in Figure 2 which is based on analysis of the Labour Force Survey by the Institute for Fiscal Studies⁶.

Figure 2. Employment rate for working-age women over time



Note: Shows share of women aged 25–54 in either paid employment or self-employment over time.

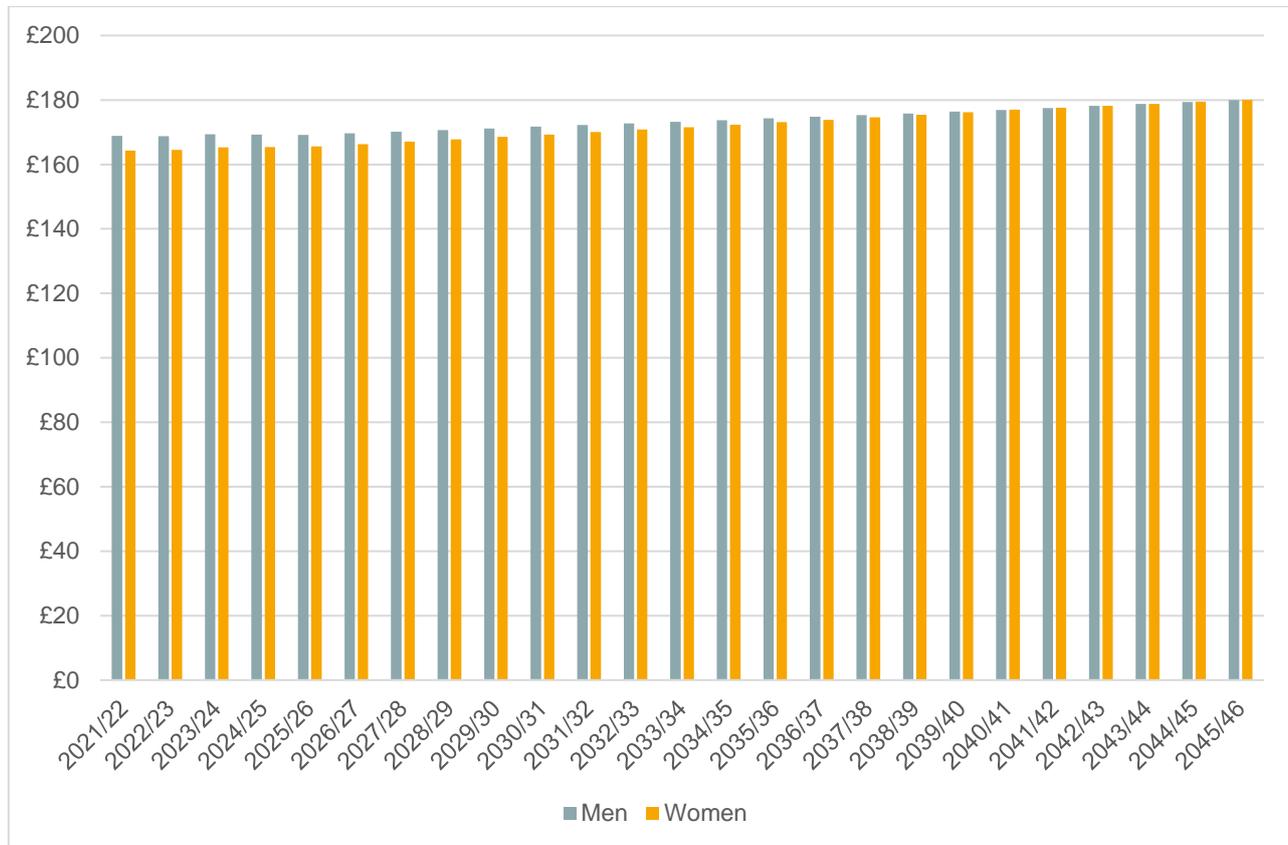
Figure 2 shows that, for women aged 25-54, the proportion in employment or self-employment has risen from under 60% in the early 1980s to nearly 80% towards the end of the 2010s. The chart does not show the additional impact of increasing female state pension age since 2010 which has progressively added to the number of years of ‘working life’ in which women can build up a full state pension record. A combination of these two trends (plus the ending of the ability of married women to pay a reduced rate of NI contributions, effectively opting out of the NI system) can progressively be seen in the contribution records of women coming up to retirement as we see below.

To project future state pension entitlements of each year of new retirees we have looked at DWP administrative data on the actual amounts being paid to men and women at retirement since 2016. Even in the early years of the new state pension, this data shows a closing in the gap between men and women, although it is nearly two decades before full equality is set to be reached.

Figure 3 shows the results of our analysis, separately for men and women. As with all of the charts which we have produced, we have stripped out the impact of earnings inflation over the next two decades, and all monetary amounts are in 2021/22 earnings terms. The modelling assumes a continuation of the ‘triple lock’ policy where the main rate of the state pension increases each year by the highest of the growth in earnings or prices with a minimum increase of 2.5%. We provide more details of the assumptions that we have used in this paper in Appendix 3.

⁶ Source: <https://www.ifs.org.uk/uploads/BN234.pdf>

Figure 3 State pension projections for newly retired men and women
 (£ per week, 2021 earnings terms)



The main points of note are:

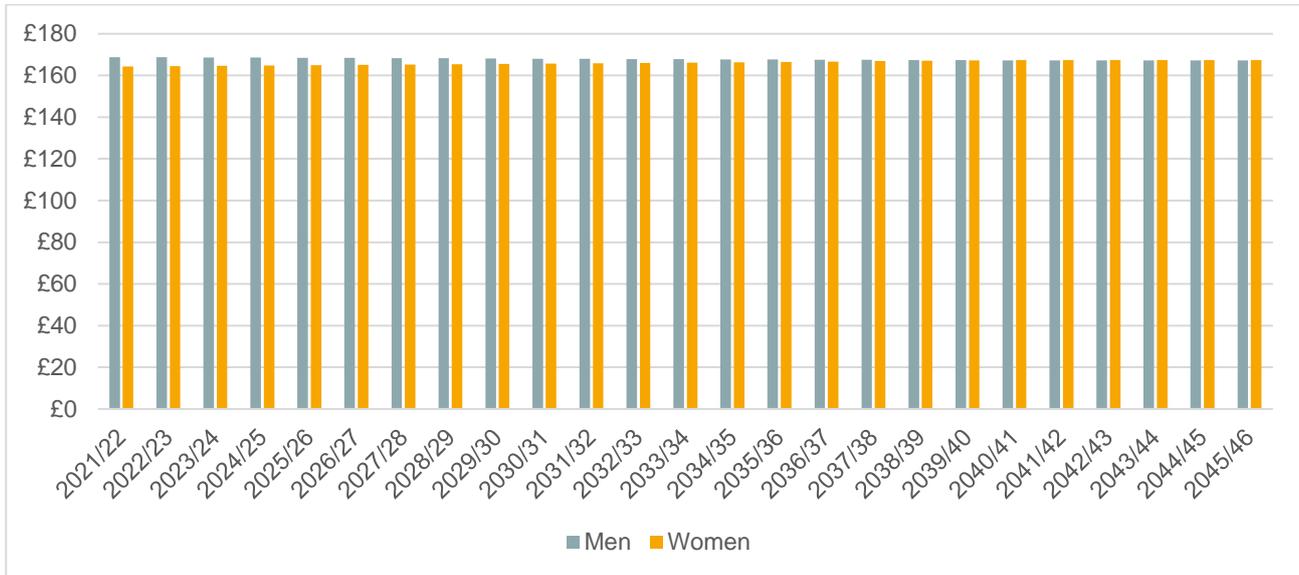
- On average, women retiring in 2021/22 are drawing a new state pension of just under £5 per week less than their male counterparts;
- In the long run, average state pensions for both men and women rise in real (earnings-adjusted terms); for men this is mainly because of the effects of the triple lock (see below), whilst for women it also reflects the gradual improvement in National Insurance records over time;
- Average male state pensions amongst new retirees rise only slowly in the early years, as the average value of the transitional ‘protected payments’ element of their state pension declines each year⁷;

The Office for Budget Responsibility assumes that, in the medium term, the use of the triple lock mechanism will add around 0.36% to the average annual increase compared with a pure ‘earnings link’.

The importance of the Triple Lock can be seen in Figure 3B which shows the state pension of new retirees in current earnings terms if a ‘double lock’ policy were to apply instead.

⁷ FOI data obtained by LCP shows that the role of ‘protected payments’ will gradually decline over time. For example, in 2025/26 around 110,000 newly retired people will benefit from a protected payment. Five years later that number will fall to around 77,000, and the average real value of these payments is falling at the same time.

Figure 3B State pension projections for newly retired men and women
 – double lock only (£ per week, 2021 earnings terms)



Whereas Figure 3 shows a steady upward gradient, Figure 3B is, perhaps not surprisingly, remarkably flat. As we are assuming long-run earnings growth above inflation, state pensions are being earnings-linked and then deflated back to current earnings terms, which leaves them effectively unchanged. Women’s state pensions still rise slightly because of increased NI records, and men’s incomes decline slightly as transitional features of the old state pension system work their way out of the new system. But overall a ‘double lock’ policy removes any meaningful state pension growth relative to current earnings.

What about means-tested benefits?

Throughout this paper we focus on the pension income from the state, occupational and private sources that will be available to each generation of new retirees. But we do not attempt to model the extent to which any shortfalls will be offset by the means-tested benefits available to pensioners.

Leaving aside the huge complexity in modelling potential entitlement to pension credit, housing benefit etc for decades to come, there are two main reasons why we have chosen not to include this element in our charts:

- a) These charts show individual incomes, whereas means-tested benefits are assessed on a household basis; we are trying to see how far each individual man or woman will build up enough income to support themselves independently, without reference to other household members or state benefits;
- b) The bulk of spending on means-tested benefits is tilted towards older pensioners, including elderly widows, whereas our focus is on the incomes of the newly-retired; DWP has estimated⁸ that fewer than one in 10 newly retired pensioners are entitled to pension credit following the introduction of the new flat rate pension; excluding this element for the newly retired does not materially change our narrative;

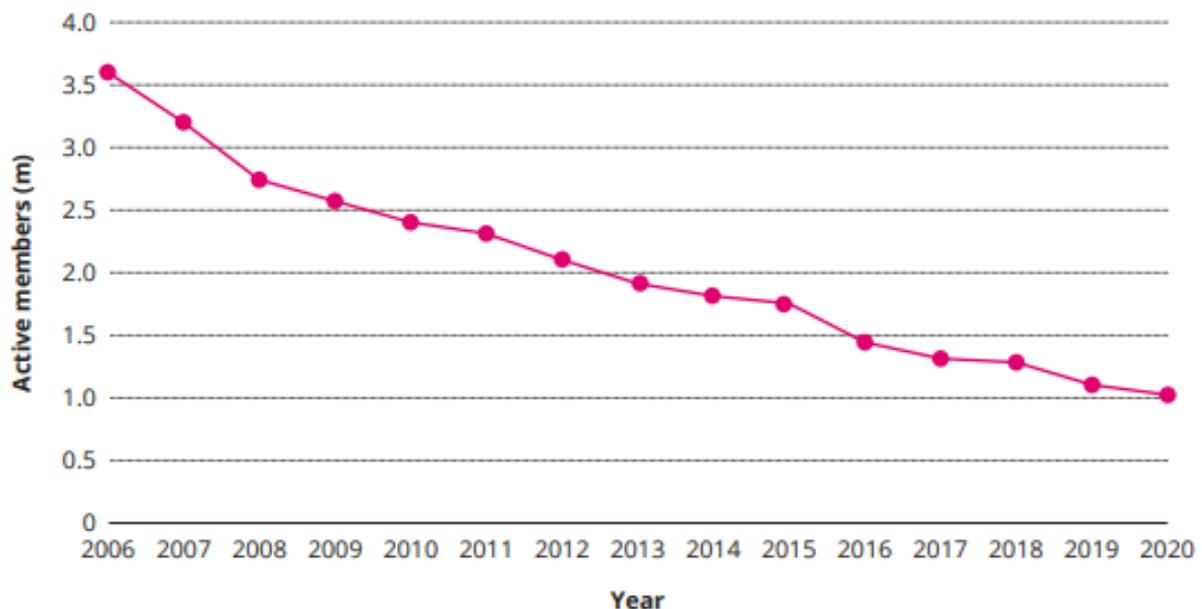
In the next section we move on to consider trends in occupational pension income amongst those who have worked in the private sector.

⁸ See, for example, [single-tier-pension.pdf \(publishing.service.gov.uk\)](https://www.gov.uk/pensions/single-tier-pension) p9

O2 Private Sector Defined Benefit Pensions

Active membership of Defined Benefit occupational pension schemes in the private sector has been in steady decline for the last fifteen years, as shown in Figure 4.

Figure 4. Active members of private sector Defined Benefit pension schemes 2006-2020



Source: Pension Protection Fund 'Purple Book', 2020, based on the 'Purple Book' dataset which covers around 99% of all private sector DB pensions.

In 2006 there were just over 3.5 million workers actively building up rights in Defined Benefit pension schemes in the private sector, but that number has fallen by more than two thirds since then and now stands at around 1 million.

Separate data from the Pensions Regulator⁹ published in March 2021 suggests that around a third of these 1 million remaining workers were in schemes that were closed to new accrual, meaning that in those schemes the only people who were adding to their DB rights were those who already had such rights, whereas new employees were unable to join the scheme. Given the long-term nature of this trend, we would gradually expect to see this manifested in a decline in the number of

⁹ See Table 4 of [DB defined benefit annual report | The Pensions Regulator](#)

people reaching pension age with any private sector DB rights and in the average value of such pensions.

Until now, it has been difficult to use official data sources to estimate the private sector DB pension income of those moving into retirement. There are two main reasons for this:

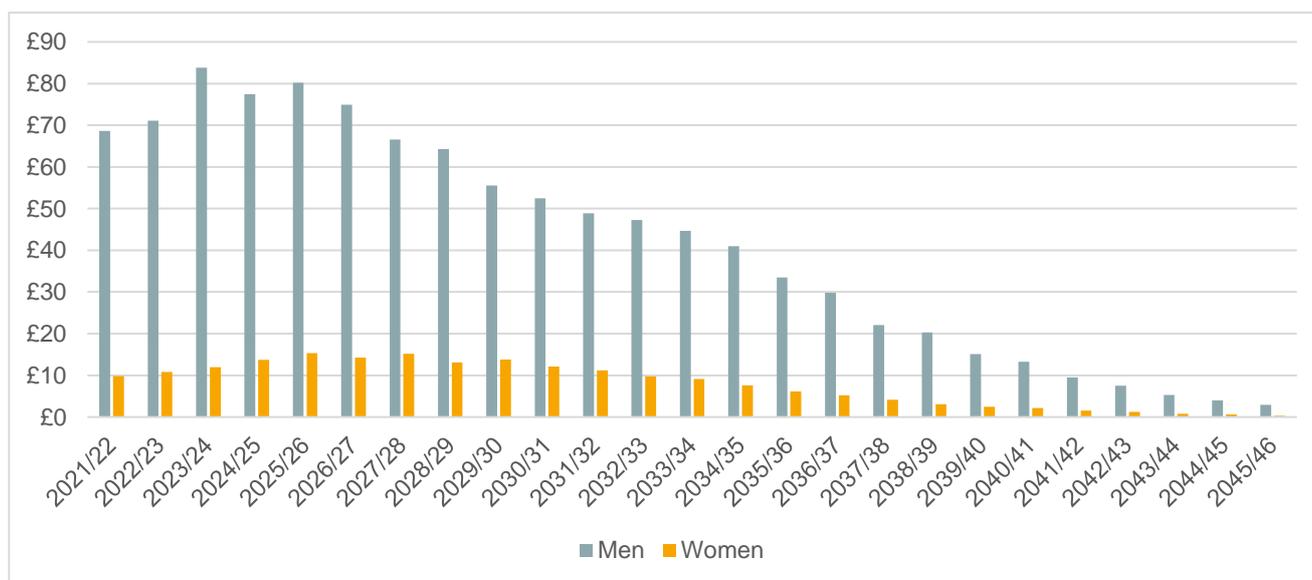
- Much survey data is on the ‘stock’ of pensioners and not just those ‘flowing in’ to retirement, who may have very different characteristics;
- Most surveys only report total income from DB pensions and do not distinguish between pensions from past private sector employment and that from public service schemes;

In order to get round these problems, we have created a novel data source based on LCP analysis of closed private sector DB schemes. We have used a sample of ten schemes across a range of sectors and scheme sizes to model the number of new retirees each year and the average DB pensions of those retirees, separately for men and women. Although these schemes cover a total membership running into over one hundred thousand people, this is still a relatively small sample and so the estimates that follow are subject to a considerable margin of uncertainty.

We should also make clear that we have not included accruals by the relatively small number of workers still in open DB schemes. As noted earlier, the number of workers still build up such rights has fallen by around three quarters in the last fifteen years and continues to fall each year. The large majority of workers in open private sector DB schemes are in a small number of relatively large (10,000+ members) schemes. Because these are increasingly atypical of the experience of most private sector workers, we have excluded them from our analysis. But, clearly, as with public sector schemes, those workers who are fortunate enough to be able to continue to accrue DB rights in these schemes can expect better outcomes in retirement than those who only hold deferred rights from past service.

The results¹⁰ of our modelling of deferred private sector DB pensions are shown in Figure 5.

Figure 5. Projected private sector DB pensions for newly retired men and women (£ per week, 2021 earnings terms)



A number of very striking findings are apparent from Figure 5.

¹⁰ Note that these charts are averaged over all the men or women who are retiring in the year in question, not just those who will receive a DB pension from private sector employment. This helps to capture the impact of declining membership of DB pensions as well as declining average amounts in payment.

The first is the huge difference in average amounts of income coming from private sector DB pensions between men and women. This arises from a combination of two factors:

- a) First, and most important, men are more likely than women to have been members of private sector DB pensions; whilst women make up the majority of the membership of public sector pension schemes (reflecting the gender mix of professions such as teaching and nursing), the balance is very different in the private sector; in part this reflects the fact that access to such schemes was sometimes limited only to higher paid employees and/or to full-time workers, two factors which discriminated against women on average;
- b) Amongst those with DB pensions, average amounts in payment are much higher for men (roughly double); most of these pensions pay out on the basis of length of service (thus damaging those who have career breaks) and are linked to final salary, favouring higher paid full-time workers who are disproportionately likely to be men.

A second interesting factor is the profile of private sector DB income amongst each cohort of newly retired workers. Although these estimates are only based on a sample of schemes and are subject to some uncertainty, it appears that over the next few years we will reach ‘peak DB’. But after this point – and especially for men – the decline is precipitous. Whilst the number of people reaching pension age with any private sector DB continues to rise for the next decade, average amounts in payment fall rapidly, no doubt reflecting the past closure of such schemes to new accrual and the reduced number of years of membership thereby incorporated in the final pension calculation.

Perhaps most importantly for our analysis, these charts tell a very different story from that contained in the Resolution Foundation charts shown in the introduction. Rather than a much more gradual decline in DB pension provision, dampened down by a bedrock of millions of public servants continuing to draw DB pensions through retirement, we see here a dramatic fall off in the contribution of this type of pension. By the end of our period, legacy private sector DB pensions will be largely extinct amongst the newly retired¹¹, save for the dwindling minority who still work for employers with open DB schemes.

Further evidence of the steady ageing of the private sector ‘deferred’ DB population is contained in data kindly supplied by the Pensions Regulator (TPR). DB scheme returns provided to the Regulator includes the average age of deferred scheme members and Table 1 shows how the distribution *of those averages* has changed since 2012.

Table 1. Distribution of average ages of deferred members of private sector DB schemes: 2012 and 2020

	2012	2020
25th percentile	47	49
50th percentile	49	52
75th percentile	50	53

Source: TPR response to FOI request from Steve Webb

Unfortunately, the scheme return does not give a full member-level age distribution but even the summary information in Table 1 gives a feel for the ageing of the deferred DB population. Back in 2012, across all schemes the median average age of deferred members was 49 and now it has risen to 52. For as long as there are still open DB schemes gradually closing, there will still be an inflow of new deferred members in younger age groups. But that ‘tap’ is gradually being turned off.

¹¹ Of course, private sector DB pensions will continue to be paid to those who have *already* retired and then to their survivors for decades to come.

This process is likely to accelerate as the supply of ‘new’ deferred members dries up. Our modelling which suggests that in twenty five years private sector DB income will be all but exhausted amongst new retirees seems very plausible based on these estimates.

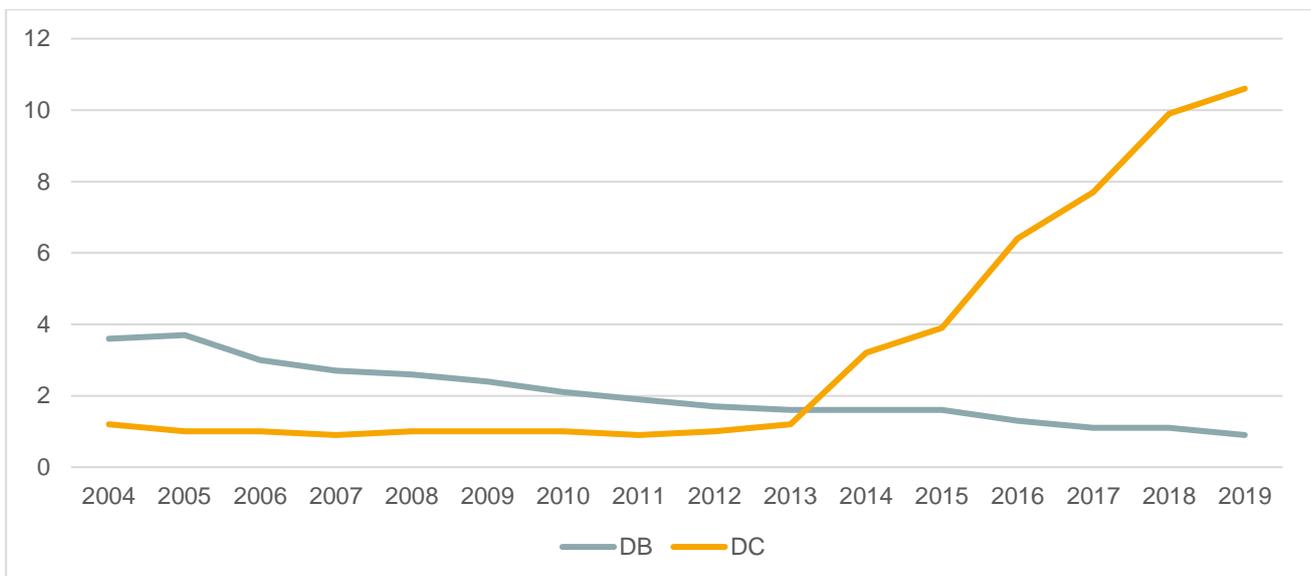
Unless policy is put in place to replace that lost income, a large swathe of the private sector workforce faces a troubling future. In the next section we consider how far Defined Contribution pensions will rise to meet the challenge.

03 Defined Contribution Pensions

Until the advent of Automatic Enrolment, Defined Contribution pensions were very much a minority in the world of occupational pensions. For example, in 2004, there were three times as many private sector workers actively building up rights in DB occupational schemes as in DC schemes. Although the numbers in DB pensions subsequently declined, even in 2011, just before the start of automatic enrolment, active DB members outnumbered active DC members by nearly two to one.

As Figure 6 shows, automatic enrolment changed all of that.

Figure 6. Private sector active membership of occupational DB and DC pensions 2004-2019 (millions)



Source: Occupational Pension Schemes Survey, ONS

At first glance, Figure 6 might be seen to show that our worries about the steady demise of private sector DB schemes are overdone. There is no doubt that automatic enrolment has been a huge success, with around 10 million more people now saving into a workplace pension and benefiting from an employer contribution. The majority of these are in well-regulated and low cost MasterTrust arrangements.

However, there are two reasons why the good news shown in Figure 6 does not translate into a strong story for private sector DC in the sorts of charts we have been examining:

- a) It will take a long time before the growth in *membership* of private sector DC schemes turns into meaningful pensions *in retirement* for large numbers of people; for example, the obligation on all firms to enrol their employees was only fully implemented in 2017 and the

obligation to pay a minimum contribution of 8% of qualifying earnings was only reached in 2019; many of those enrolled will not retire for decades, whilst those closer to retirement age may have a lifetime of under-saving to make good; although the growth in membership is hugely welcome, it will not on its own turn round the oil tanker of under-saving;

- b) What matters on an individual level is how much money is going into the pension, as well as the return achieved on those investments; when it comes to contribution rates, the story so far is concerning; in more traditional private sector DC schemes, the 2011 occupational pension schemes survey found that typical contribution rates were just over 9%, split roughly two thirds from the employer and one third from the employee; although automatic enrolment radically increased total membership, it also sharply reduced average contribution levels; the 2019 survey shows average total contributions into DC at just 5%, with the member paying on average just 1.6%;
- c) Even with the growth in membership shown above, there are still extensive gaps in the coverage of automatic enrolment; even amongst employees, those in low-paid work or with multiple part-time jobs can be excluded as can the youngest and oldest workers; the latest figures from the Pensions Regulator show that out of 32.7m workers at firms who reported to TPR, around 12m were in a pension, around 10m were automatically enrolled but around 10m were excluded; in addition, automatic enrolment duties only apply to employers and so many of the self-employed or those in 'gig' economy jobs can be missed out depending on the details of their work arrangements;

In summary, whilst automatic enrolment will mean that far more private sector workers than in the past will reach retirement with some form of occupational pension income, the size of those pensions, especially in the early years of the policy, is likely to be very small. In addition, early evidence from the early years of 'pension freedoms' shows that many savers are cashing out their small pension pots in full before retirement rather than using them to generate a regular income in retirement.

It is difficult to know for certain what the DC pensions of future cohorts of private sector workers will be at retirement. Even with unchanged policy, key unknowns include:

- The future path of the economy, earnings and employment
- Contribution levels, and the extent to which individuals go beyond statutory minimum rates
- Changes in opt out rates
- The investment performance of the fund
- Future charging levels
- Changes in retirement behaviour
- Annuity rates at retirement for those who decide to convert their DC pot into a regular income

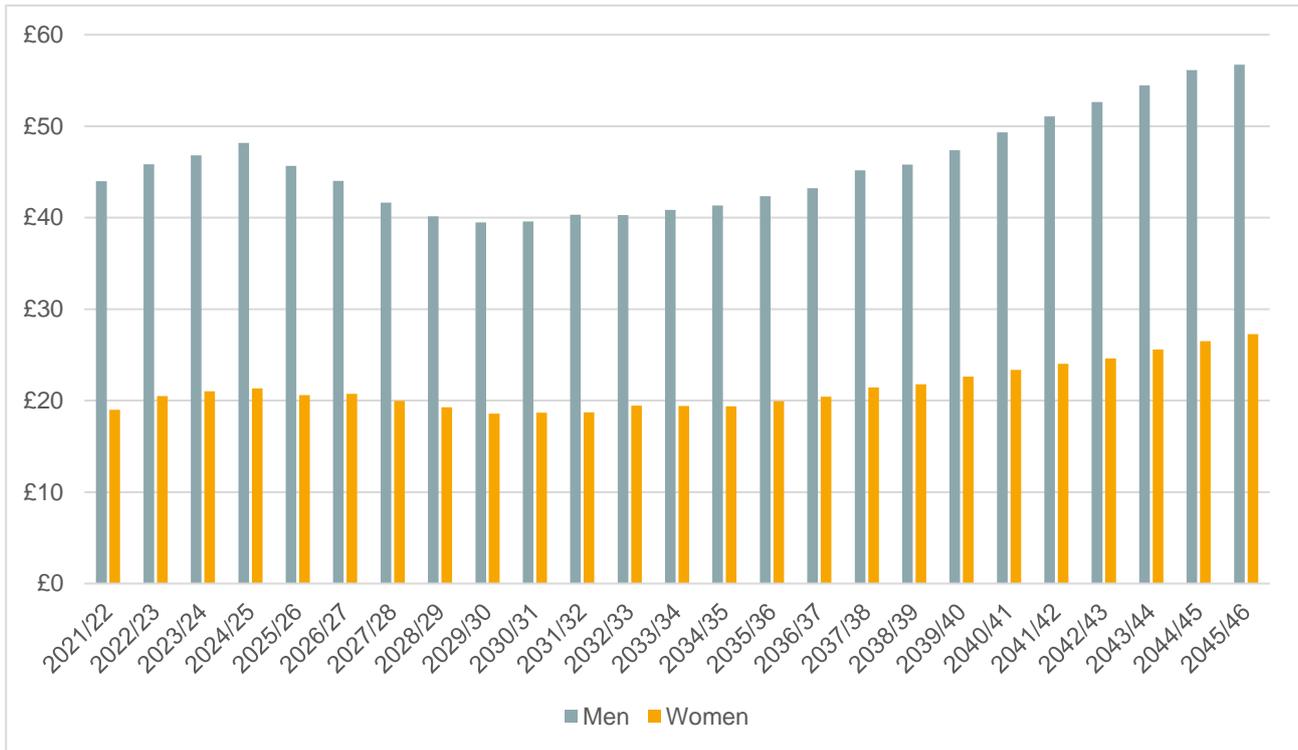
However, the Pensions Policy Institute (PPI) have undertaken a set of simulations for a representative cross-section of the working age population to estimate the size of DC pots they can expect to attain at retirement, and have provided separate estimates for men and women. A more detailed explanation of the basis of these projections is set out in Appendix 1.

These estimates are in the form of capital values. For example, the average DC pot over all men retiring in 2021 is estimated to be around £44,000. We need to convert these into regular income figures so that we can combine them with income from state and DB pensions. Although in practice many of these DC savers may use their 'pension freedoms' and choose not to buy an annuity, using a simple annuity rate probably remains the easiest way of getting a feel for how much a given DC pot could contribute to income in retirement. For simplicity, we assume that the pot could be converted to income at retirement at a rate of 5% per year. The actual rate which individuals

can secure does not (cannot) vary by sex, but it could be higher or lower depending on their health and other individual circumstances.

Figure 7 shows the PPI estimates, converted to weekly income using an annuity rate as discussed, and in current earnings terms, separately for men and women.

Figure 7 Projected income from private sector DC pensions for newly retired men and women (£ per week, 2021 earnings terms)



Source: Based on Pensions Policy Institute projections, adjusted as described

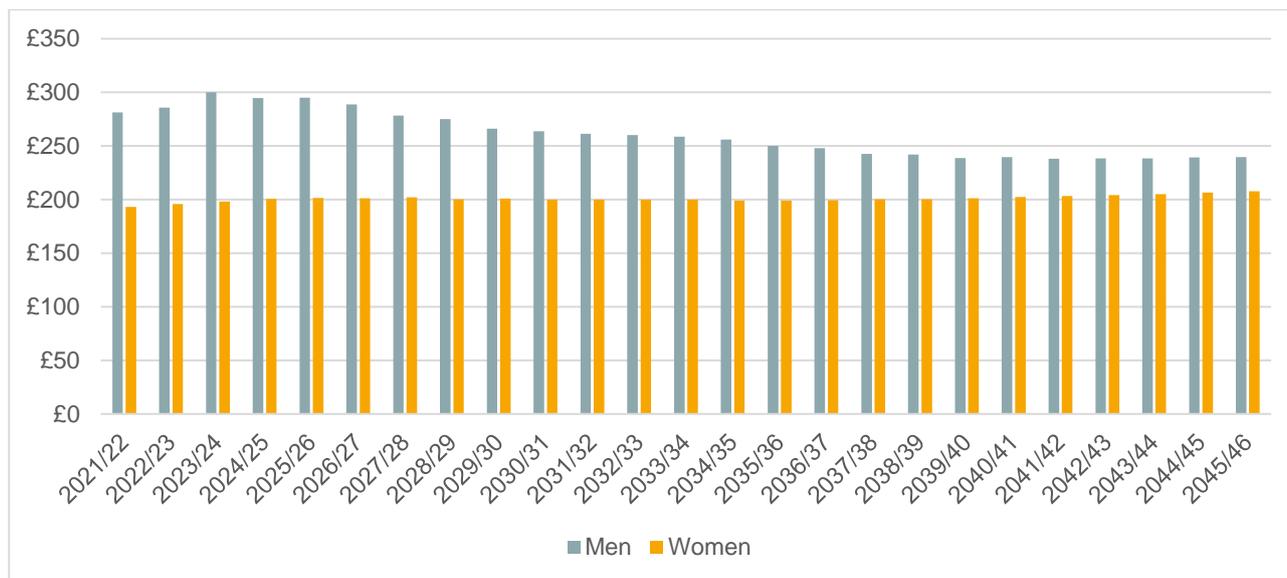
As noted above, all of these charts are in current earnings terms and in the early years the fluctuations in DC income at retirement are partly driven by individuals moving out of jobs with traditional DC arrangements (and relatively high contributions) and joining workplaces where pensions may be more in line with automatic enrolment minimum levels.

However, over time, both for men and women we start to see the impact of automatic enrolment as more people reach retirement with more years of membership of a pension scheme. The key question is how far this (eventual) growth in DC incomes is able to offset the decline in private sector DB pensions. We answer this question in the next section by combining all of our analysis to date.

04 The Overall Picture

We have so far looked separately at income at retirement for successive cohorts of men and women, analysing the contribution of state pensions, private sector DB pensions and DC pensions. Figure 8 shows what happens when we look at the combined picture. We are averaging in all cases over the entire population of newly retired people, but stripping out the contribution of public sector DB pensions to income at retirement. This will, of course, include people who never had the opportunity to build up a workplace pension such as the self-employed, full-time carers and others¹².

Figure 8 Total projected pension for newly retired men and women
 (£ per week, 2021 earnings terms)



The big picture is that, after peaking in a year or two, male pension income at retirement will decline sharply for the next two decades, falling by around 20%. The gap between men and women will fall, mainly because of the collapse in male pension income but partly because of the boost to the state pension driven by the triple lock policy.

To see this in greater detail we repeat this analysis separately for men and women and show in each case the contribution of different types of pensions.

¹² It could be argued that we should exclude 'public sector workers' from the population over which we are averaging. However, as we are mainly concerned in this analysis with trends rather than levels, we leave public sector workers in the population of interest. To strip them out we would need to make rather speculative assumptions about the future size of the public sector and also about the relative state pension entitlements of this group on which we have limited data.

Figure 8a Total projected pension by income source for newly retired men
 (£ per week, 2021 earnings terms)

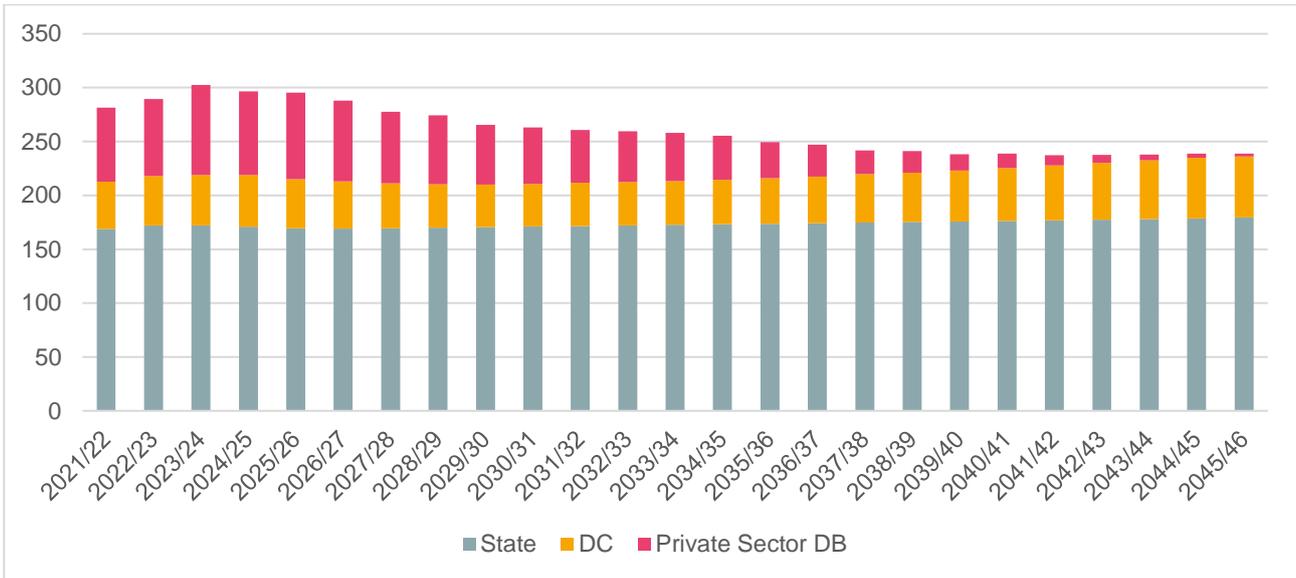
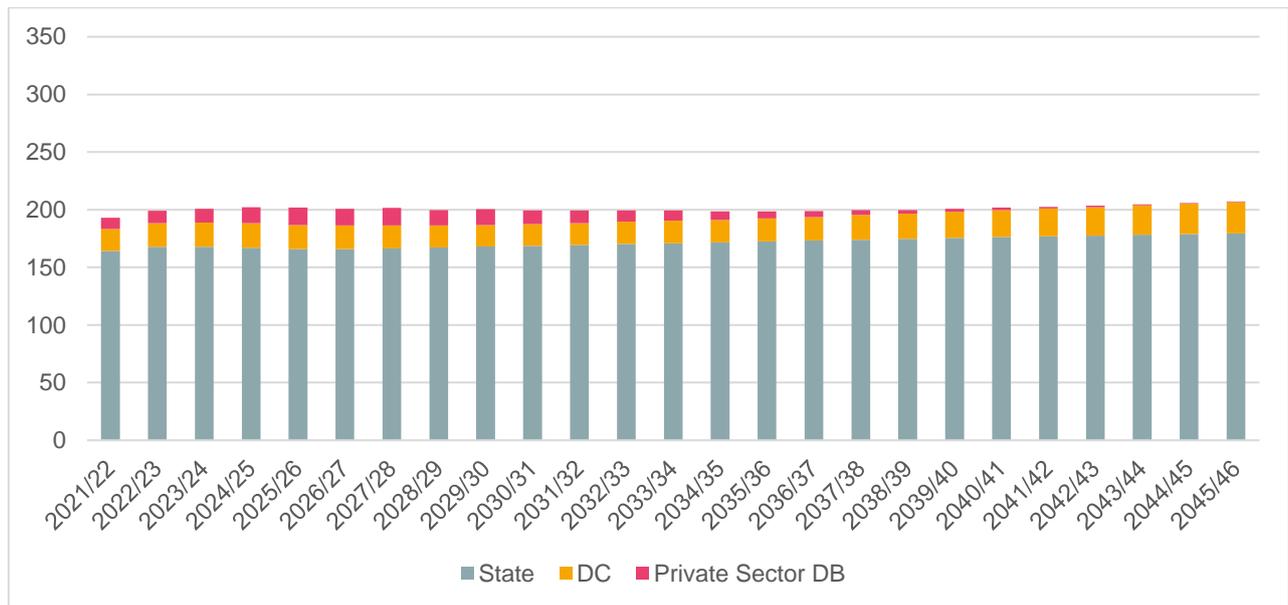


Figure 8b Total projected pension by income source for newly retired women
 (£ per week, 2021 earnings terms)



For people who do not work in the public sector (and excluding the small and dwindling number of people still building up private sector DB rights), the future looks very challenging.

Key messages are:

For men:

- those retiring in the next few years will probably have the highest incomes of any generation before or since; over the following two decades real income at retirement of newly retired men looks set to fall by around one fifth;
- although DC pensions will make an increasing contribution, the rise in income from DC pensions replaces on average only a small fraction of the loss of income from past DB service;

For women:

- Newly retired women today have pensions only around 70% of the level of their male counterparts; that proportion rises significantly to over 85% by around 2040; but the main drive of this closing gap is a decline in male pensions rather than a large rise in female pensions;
- Private sector DB pensions were always a relatively small contributor to the average newly retired woman's income, so they did not lose much from the decline in DB; they do gain from the growth in DC, but the impact is small over the next couple of decades;

For women in particular, but also for men, the central role of the state pension also stands out. For women retiring over the next few years who have not worked in the public sector, the state pension is set to provide on average more than four fifths of their income, and even after two decades of automatic enrolment the state pension remains central to the living standards of such women. All of the net growth in women's incomes by the mid 2040s can be attributed to a rise in the real value of the state pensions they will receive and this in turn is largely attributable to the 'triple lock' policy. As we saw earlier, without this, state pension incomes would be relatively flat in current earnings terms, and women's overall incomes would make no progress in the next quarter of a century.

05 Policy Implications

The message of this paper is a sobering one.

For all the progress that has been made in UK pension policy in recent years, it remains the case that newly-retired workers, and especially those who do not have access to a public service pension, are set to face living standards which are stagnating (in the case of women) or steadily declining (in the case of men). The decline is most marked amongst men, though only because they have most to lose in the first place – namely the private sector DB pensions which are now mostly unavailable to those joining the workforce today.

Until now there has been an assumption that automatic enrolment would fix this problem. In essence, that the ‘DC cavalry’ would arrive over the hill before the ‘DB tide’ went out.

This analysis shows that once you strip out the role of the DB pensions still being accrued by six million public servants and another one million private sector workers, you get a very different picture. Whilst the number of people retiring with some legacy DB rights will continue to increase for some years to come, the average value of those rights will soon start to drop sharply, and there is nothing of similar value set to replace them.

This points to two key policy implications:

- **Think carefully before undermining the state pension** – our analysis has shown the crucial role of the state pension, especially to women, as a buffer against declining DB pension income; even downgrading from a ‘triple lock’ to a ‘double lock’ wipes out most of the projected increase in women’s at-retirement incomes for the next 20 years and exacerbates the sharp fall in men’s incomes; until DC is ready to take the strain, a strong state pension foundation remains essential;
- **Accelerate the build up of DC pensions** – the present plans to expand the scope of automatic enrolment were set out in a review published in 2017 but not expected to be implemented until the ‘mid 2020s’; both key measures – starting at age 18 rather than age 22 and expanding the band of ‘qualifying earnings’ – are welcome, but this paper shows that there needs to be greater urgency in driving forward these proposals, and on their own they are unlikely to make a radical change to the trends that we have described;

Even retaining the state pension triple lock and gradually expanding the scope of the current model of automatic enrolment as set out above will take considerable time to have an impact on at-retirement incomes. Further, more radical steps may be needed, including:

- Urgently reviewing the adequacy of mandatory contribution rates and the band of earnings to which they apply; whilst there is a trade-off between increasing contribution rates and risking opt-outs, current contribution levels are simply inadequate to make sure that new DC pensions replace more than a small fraction of historic DB pension rights;
- Building on ‘automatic enrolment’ with ‘automatic escalation’, ensuring that – by default, and with an opt-out – contribution rates increase as wages rise;

- Reviewing the balance between employer and employee contributions – in most pension systems, employers contribute at least as much as their workers if not more; under automatic enrolment the split is (broadly) 5% gross from the worker and 3% from the firm; if total contributions are to be increased without triggering greater opt outs, the next move towards higher contributions may need to involve a bigger employer contribution;
- Consider whether pension tax relief as currently structured is the most effective way of promoting pension saving; more radical solutions such as government ‘matching’ of individual contributions may be needed, especially for those on more modest incomes;
- Promoting take-up of employer ‘matching’ schemes, where workers can often trigger additional employer contributions if they increase their own individual contributions, or defaulting people into the most generous employer match;
- Further behavioural ‘nudges’, such as defaulting employees into relatively high contribution rates on joining, but with the freedom to ‘opt down’ to lower contributions.
- Exploring ways to improve outcomes from DC arrangements, including the potential for Collective DC, ensuring that DC schemes are run at a cost-effective scale etc.

As the Chair of the Pensions Commission, Adair Turner famously observed, if we want to avoid retiring poor, we have a stark choice between working for longer, saving more or facing higher taxes. In reality, all three of these are likely to be required as we face the bills of an ageing population. The message of this paper is that this is not a distant issue to be tackled in years to come but one where the seeds of future problems have already been sown. Unless we act quickly we will indeed be condemning future generations of retirees to an unattractive future.

Appendix 1. Pension Policy Institute modelling

Note from the Pensions Policy Institute on assumptions used in modelling DC pension pots

Overview of Aggregate Modelling of Defined Contribution Private Pensions

The calculations provided by the Pensions Policy Institute were obtained from the PPI Aggregate Model. The model combines changes in the UK population, the labour market, and economic assumptions to project private (and State) pension savings. The model uses aggregate figures relating to the current level of State and private pensions from a variety of sources to create a baseline snapshot of the level of pensions accrued and in payment, which, combined with future accruals, allow the projection of the future level of state and private pensions.

Population projections and other demographic assumptions are taken from 2018-based figures published by the ONS. The ongoing labour market is derived from activity rates extracted from the Labour Force Survey and is projected using the demographic projections and known policy around the changing State Pension age. Economic assumptions are based on projections set out in the Office for Budget Responsibilities long term economic determinants. The current level of pensions in payment and savings come from a variety of government and industry sources.

Average pension pot at retirement

The Aggregate Model calculates DC savings in each type of pension scheme by age. For each year of the calculation, this amount is advanced one year by applying investment returns and adding contributions and allowances for demographic factors. In this way the amount of pension savings for each age cohort is projected year by year. By the point at which an age cohort is assumed to retire, the total amount of accumulated savings is averaged across the projected population to give an average pension pot at retirement.

Movement of individuals between schemes after the introduction of automatic enrolment

- Overall the private sector workforce is assumed to contribute to either
- private sector DB pension schemes,
- DC schemes which were existing prior to automatic enrolment,
- DC which were set up for automatic enrolment, or
- schemes set up for those that are eligible for automatic enrolment that did not contribute before the implementation of automatic enrolment.

It is assumed that 14% of the workforce change jobs from year to year, which causes individuals to shift from existing DC schemes into new DC automatic enrolment schemes over time.

Automatic enrolment schemes are growing in importance as new employees and people changing jobs are now more likely to be entered into an automatic enrolment scheme. In the model, from 2012, employees in the private sector without workplace DC provision were enrolled in a scheme to represent automatic enrolment, which is split further into master trust schemes and other DC schemes, assuming 80% are automatically enrolled into master trusts and the remaining into other DC schemes.

Contributions to DC schemes

Contributions to existing DC pension schemes are assumed to be at a level similar to that which was experienced before automatic enrolment. That is a total employer and employee contribution of around 9% of earnings, as reported in the Occupational Pensions Scheme Survey 2011. When automatically enrolled, individuals and their employers are assumed to contribute at the minimum levels required under automatic enrolment legislation (this was phased in from a combined contribution of 2% of band earnings in 2012, rising to 8% of band earnings in 2019 in accordance with existing regulations).

Appendix 2 Wealth and Assets Survey data

Wealth and Assets Survey data on deferred DB pension rights

To provide some sense of the representativeness or otherwise of our sample of deferred DB pension rights, we have looked at the Wealth and Assets Survey, using data kindly supplied by the Office for National Statistics.

Our focus in this paper is entirely on deferred pension rights from private sector employment, and no single data source identifies the total accrued deferred DB rights purely from private sector employment. However, we can look at those who are *currently* employed in the private sector and who have deferred DB rights. Whilst there will clearly be some movement between public and private sector employment, in the majority of cases where a private sector worker has deferred DB rights we could assume that this will come from previous private sector employment.

Table A (on the next page) provides an excerpt from the data provided by ONS, based on the most recent wave of the WAS.

Table A shows that:

- roughly 40% more men than women working in the private sector have any deferred DB pension rights (1.66m v 1.18m); this is likely to understate the relative balance between men and women in terms of purely private sector DB because it will reflect some past public sector pension accrual which is much more heavily concentrated amongst women than amongst men¹³;
- the average (mean) capital value of those deferred rights is around 67% higher for men than for women (£154k v £92k); again, to the extent that this sample includes some previous public service employment, this will understate the differences between male and female DB rights purely from private sector employment;

With more men having deferred rights and a higher average value, this is consistent with the charts in Section 2 of this report which show a substantially higher contribution of private sector DB pensions to the at-retirement incomes of men than women. Our sample shows a more extreme ratio between the average contribution of deferred DB rights between men and women than the WAS data, but this is to be expected as there is no deferred public service DB entitlement in our earlier modelling.

¹³ Across the main public sector schemes covering the NHS, teaching, local government and the civil service, the female to male ratio of membership is roughly 2:1

Table A: Wealth and Assets Survey 2016-2018, Private Sector Employees only, Number with Deferred DB pension rights by age and gender, and median/mean capital value of DB rights

	Weighted frequencies	Median (£)	Mean (£)
Men			
16 to 34	195,000	17,000	49,100
35 to 44	437,000	42,100	85,700
45 to 54	674,000	98,000	159,200
55 to < SPa ⁵	343,000	159,200	284,500
SPa ⁵ +
All men	1,660,000	72,500	153,600
Women			
16 to 34	148,000	8,500	29,200
35 to 44	304,000	31,000	66,100
45 to 54	468,000	70,000	116,400
55 to < SPa ⁵	236,000	71,700	112,900
SPa ⁵ +
All women	1,179,000	49,800	91,900
All sexes			
16 to 34	342,000	14,700	40,500
35 to 44	741,000	36,800	77,700
45 to 54	1,142,000	84,600	141,700
55 to < SPa ⁵	579,000	110,000	214,500
SPa ⁵ +	35,000	102,500	170,500
All individuals	2,839,000	62,900	128,000

Source: ONS. Full data tables at: [Individuals with preserved defined benefit pensions, summary statistics \(to include means\) by age band, sex and economic status: Great Britain, July 2008 to June 2014 to April 2016 to March 2018 - Office for National Statistics](#)

Appendix 3. Assumptions used

Further assumptions used in this report

1. Average earnings

The OBR publishes estimates for the growth in average earnings on a financial year basis, and the March 2021 ‘Economic and Fiscal Outlook’ (Table 2.12) provides estimates up to 2025/26 which we have used for the short-term.

For long-term average earnings growth we have assumed 3.7% per year. This is for consistency with the assumptions used in the PPI model, and reflects the long-term assumption set out in the OBR’s ‘Economic and Fiscal Outlook’ of March 2020.

2. Triple Lock

In its July 2020 Fiscal Sustainability Report, the OBR estimates that in the long-run the application of the triple lock will result in annual pension increases 0.36% above the growth in average earnings. As we are using an earnings growth projection of 3.7% in the long-run, this gives us a triple lock assumption of 4.06% for 2026/27 and beyond.

3. The profile of private sector DB pensions

We have used a sample of private sector DB pension scheme data help by LCP to estimate the profile of income at retirement in each of the next twenty years from existing deferred DB pension rights for men and women separately. We scaled our sample up to population estimates using:

- Family Resources Survey data on the recently retired for the total number of men and women receiving occupational pensions;
- Occupational Pension Schemes survey data for the split between public and private sector DB pensions
- Data from annual reports of public service pension schemes to provide a breakdown of membership by sex

Contact us

If you would like more information please contact your usual LCP adviser or one of our specialists below.



Steve Webb, Partner

+44 (0)7875 494184
steve.webb@lcp.uk.com

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Lane Clark & Peacock LLP
London, UK
Tel: +44 (0)20 7439 2266
enquiries@lcp.uk.com

Lane Clark & Peacock LLP
Winchester, UK
Tel: +44 (0)1962 870060
enquiries@lcp.uk.com

Lane Clark & Peacock Ireland Limited
Dublin, Ireland
Tel: +353 (0)1 614 43 93
enquiries@lcpireland.com

Lane Clark & Peacock Netherlands
B.V. (operating under licence)
Utrecht, Netherlands
Tel: +31 (0)30 256 76 30
info@lcpnl.com

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