



Department
for Work &
Pensions

Framework for the analysis of future pension incomes

September 2013

Executive summary

Since the turn of the century, pensioner incomes have been increasing faster than earnings¹ as a new generation of pensioners retires with occupational pension income. This fact, coupled with a more rapid increase in the level of pension benefits compared to working age benefits, has resulted in pensioner poverty being at its lowest level for 30 years.

However, there has been a fall in the number of people saving into occupational pension schemes over the last two decades, and a shift away from Defined Benefit to Defined Contribution pensions. This has been accompanied by lower contribution levels, leading to the prospect of lower incomes in retirement in the future.

The Government's aim is to help people maintain their standards of living in later life through providing a firm yet affordable foundation from the state to support private saving. To achieve this, the Government is legislating to introduce a new state pension, is rolling out Automatic Enrolment into workplace pensions, and has brought forward increases to State Pension age.

This document shows that, based on a cautious set of assumptions about changes in future saving behaviour, the Government's pension reforms will:

- Reduce the number of people facing inadequate retirement incomes by 1 million;
- Increase the incomes (and replacement rates) of 73 per cent of those facing inadequate retirement income, bringing them closer to their target income; and
- Halve the proportion of future pensioners who will retire with no private income at all from 27 per cent to 12 per cent in 2050.

With the Government's reforms in place, over half of people currently of working age considered in our analysis are expected to build adequate retirement incomes and maintain their living standards during their retirement. However, this leaves an estimated 12.2 million people facing inadequate retirement incomes. Roughly half of these are within 20 per cent of their target amount, with the remainder facing a more significant challenge. This is a particular issue for moderate and higher earners.

It is likely that the impact of the Government's major pension reforms will be greater than predicted as the modelling does not include the behavioural impacts of new policies, including the impact of the clarity of the single-tier state pension on private saving.

These estimates use the Pensions Commission benchmarks which give a good overall guide to how much income in retirement is needed to maintain living

¹ DWP, 2013, *Pensioner Income Series 2011-12*

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standards. However, the level of pension saving that is right for individuals, of course, will vary. This estimate of the number of people facing inadequate incomes is an update to that published in July 2012.² It reflects new economic assumptions, an improved methodology for measuring couples' income, and an adjustment to reflect different housing costs (more detail can be found in the technical annex).

The reasons people face inadequate retirement incomes vary between income groups:

- **Not working:** for most low earners (earning up to £20,000 a year), the combination of the state pension and saving at the minimum contribution level into default funds through Automatic Enrolment will be enough to maintain similar living standards in retirement. For those low earners who face inadequate retirement incomes, the problem is mostly due to significant periods out of work.
- **Not saving while in work:** for moderate earners, the challenge is to ensure that they are saving for every year of working, and in some cases saving enough.
- **Not saving enough:** to ensure that they retire on at least half to two-thirds of their working age income, moderate and higher earners will need to save significantly more than the default Automatic Enrolment minimum combined contribution of 8 per cent of their earnings.³

Given this, the responsibility lies with individuals to take action to ensure that they are building up the retirement incomes they desire. As people often find making the decisions necessary to achieve this difficult, there is a need for Government, alongside employers and the pensions industry, to help. The Government is working to restore confidence in the system so that individuals:

- do not opt out of automatic enrolment unnecessarily;
- save enough into their pensions; and
- get the most out of what they save into their pensions.

The Government is working with industry to enable savers to have more certainty in their pension outcomes.

This document provides an overview of projected future retirement incomes, in order to:

- look at the impacts of the Government pension reforms as a whole;
- identify where remaining challenges exist, and for whom; and
- recognise that these are long term challenges and we need to think about them well in advance.

We intend to update the modelling as evidence becomes available on the impact of Automatic Enrolment, the single-tier state pension, and State Pension age changes on work and saving.

² DWP, 2012, *Estimates of the numbers of people facing inadequate retirement incomes*

³ Minimum contributions of 8 per cent on a band of earnings (£5,668 to £41,450 per year in 2013/14) must be paid in respect of the member, of which at least 3 per cent must come from the employer.

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1 Overall impacts of pension reforms

The Government has responded to the long term challenges of an ageing population, an overly complex state pension system and a decline in private saving by increasing State Pension age, legislating to introduce a new, simpler state pension, and rolling out Automatic Enrolment into workplace pension schemes. Overall, this will make a positive difference for the large majority of people facing inadequate incomes.

The current pensions reforms are expected to make a real difference

- 1.1 Even based on a cautious set of assumptions, we expect the introduction of the single-tier state pension and Automatic Enrolment reforms to:
- Reduce the numbers heading towards inadequate retirement incomes by 1 million;
 - Increase the incomes of 73 per cent of those who face inadequate retirement incomes; and
 - Halve the number of people retiring without any private pension at all by 2050.⁴

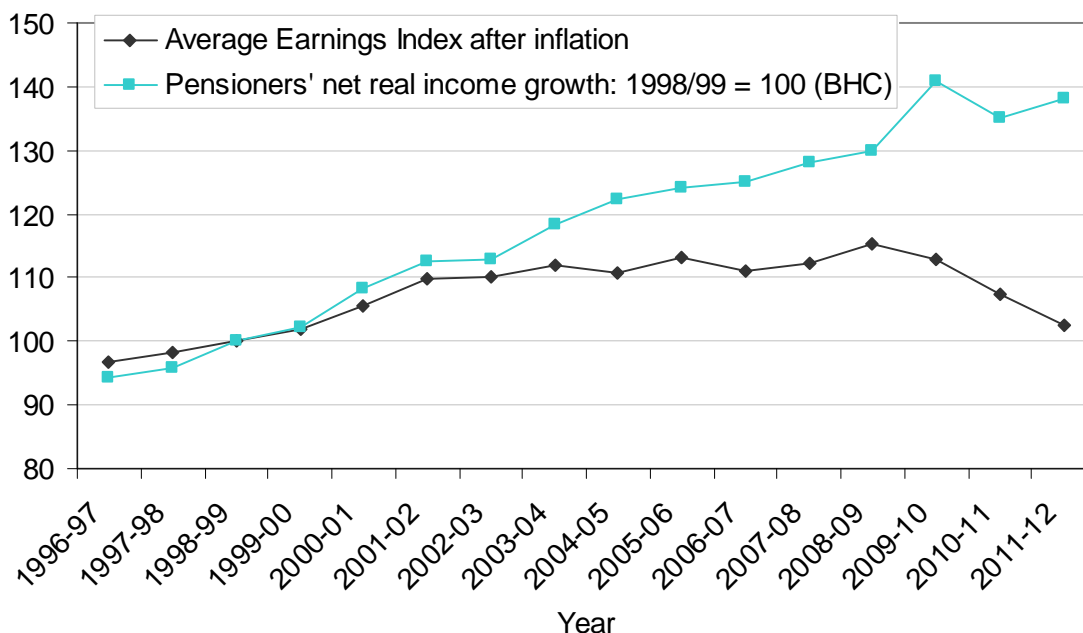
The background context

- 1.2 For more than a decade we have seen **pensioner incomes increasing** faster than earnings,⁵ as a new generation of pensioners retires with private pensions, and the level of pension benefits has risen more rapidly than working age benefits. Pensioner poverty is at its lowest level for 30 years.

⁴ DWP modelling using Pensim2

⁵ DWP, 2013, *Pensioner Income Series 2011-12* Net income After Housing Costs for pensioner households has grown by 35 per cent between 1998/99 and 2011/12 in real terms, whereas Average Weekly Earnings for the whole economy have risen by 12 per cent in real terms over the same period.

Figure 1: Real growth in pensioners' incomes and working-age earnings since 1996/97



But maintaining this progress will be a challenge

1.3 The United Kingdom, along with most of the developed world, is an **ageing society**. This brings challenges. In particular, much of the UK's pensions system was developed in a period where people had relatively short retirements - principally due to shorter life expectancies. And until recently our State Pension age had remained largely unaltered. As people live longer, and spend more of their life in retirement, it becomes increasingly costly for the state, employers, insurance companies and individuals to support retirement at an adequate level.

1.4 At the same time, there has been a **decline in private pensions** saving, so this is not filling the gap. Recent history has been characterised by very incomplete, and shrinking, private pension coverage, particularly in the private sector. Around one-third of private sector employees in 2012 were members of employer sponsored schemes. Coverage has shrunk markedly in the recent past from 48 per cent in 2002 to 34 per cent in 2012. This has largely been driven by a decline in Defined Benefit coverage, which has fallen from 28 per cent to 11 per cent over the same time period.⁶

The Government has acted to address these long term challenges

- 1.5 The Government has acted on these challenges by:
- o Legislating for a **single-tier** state pension. The single-tier pension has been designed to clarify savings incentives, through people knowing what pension to expect from the State and being able to plan for any additional provision needed to achieve their expected level of income in

⁶ Office for National Statistics, 2012, *Annual Survey of Hours and Earnings*,

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retirement. The reforms will improve retirement incomes for many, addressing historic inequalities in the pension system for women and the low paid.

- Introducing **Automatic Enrolment** which is expected to get between 6 and 9 million people newly participating or saving more in a workplace pension.
- Accelerating the equalisation in State Pension ages between men and women and bringing forward increase to the **State Pension age (SPa)** 66 to 2020 will ensure that the system remains sustainable in the short to medium term. Legislating to bring forward the rise to 67 to 2028, and to introduce a six yearly review of the State Pension age to ensure that the system remains sustainable. Accelerating the increase in SPa to 67 by 2028 is projected to result in net savings of £71bn between 2026-2036 and will raise approximately £10.6 billion in extra National Insurance and income tax receipts over the same period.⁷
- Restoring the earnings link for basic State Pension from 2012 which will also underpin the uprating of the single-tier pension. In addition, the Government operates a **triple lock** guarantee which means the value of the basic State Pension increases in line with the highest of earnings, prices, or 2.5 per cent.

It's important to reflect on where future challenges remain in ensuring people have the opportunity to build up the retirement income that is right for them

1.6 This document aims to

- set out the pensions challenge overall;
- look at the difference Government reform has made; and
- set out where remaining challenges exist, and who they exist for.

1.7 In particular, the document aims to set out an approach to analysing changes in policy, and its overall impact on enabling people to retire with adequate income. The DWP will update the analysis over time.

1.8 These are long term challenges and we have to think about them well in advance. The challenge is to get people to work and save more to provide sufficient funds for their retirement.

1.9 In their 2013 long-term fiscal sustainability report the Office for Budget Responsibility said pension spending will rise from 6.0 per cent of GDP in 2012 to 8.4 per cent by 2062.⁸ Given this long term challenge this document does not look at options which involve further public spending.

⁷ DWP, May 2013, *Pensions Bill Impact Assessment*

⁸ OBR, July 2013, *Fiscal Sustainability Report*. The figures refer to spending on State Pension, Pension Credit, Winter Fuel Payment, and Over-75s TV Licences. Housing Benefit, Council Tax Benefit and disability benefits are excluded.

2 Adequate incomes in retirement

The Government aims to help people maintain their standards of living in later life. This can be measured by comparing people's retirement income with their income in work. The Government's pension reforms are expected to get 73 per cent of people facing inadequate retirement incomes closer to their target amount.

One approach to adequacy is to look at whether retirement incomes are above a poverty threshold.

- 2.1 The Government's pension policy aims to ensure an adequate retirement income. However, 'adequacy' of retirement income means different things to different people. One approach is to look at whether income is above a basic minimum or poverty threshold. The most common low income measure of poverty is 60 per cent of median income. On this measure, pensioner poverty is at its lowest level for 30 years, with 14 per cent of pensioners in poverty in 2011/12.⁹
- 2.2 We know that poverty is a complex problem. Low income does not necessarily result in a pensioner being materially deprived, and similarly material deprivation can often be caused by other factors which make it hard to make ends meet.¹⁰

A second approach to adequacy is to look at whether savings allow people to maintain the same broad living standards in retirement

- 2.3 For most people the challenge is not whether they see a basic minimum level of income, but whether their savings allows them to maintain the same sort of lifestyle in retirement which they had whilst in work.
- 2.4 Research has shown that those with low income in working life can feel better off in retirement, whereas those who've seen a big drop in income through poor planning feel worse off in retirement.¹¹ An example from *Understanding Older People's Experiences of Poverty and Material Deprivation* illustrates how a dramatic fall in income can have a vast impact on all aspects of life:

Mr Jenkins, a man in his 60s: *"I feel 25 per cent as good as when I was working. It's diminished very substantially. A good income gives you confidence, it gives you courage, it inspires you and it gives you impetus to go out and do things that you wouldn't do if you didn't have that money. It's not just financially impoverished,*

⁹ DWP, 2013, *Households Below Average Incomes 2011-12*

¹⁰ As explored in DWP, 2013 *Understanding Material Deprivation Among Older People*

¹¹ DWP, 2006, *Understanding Older People's Experiences of Poverty and Material Deprivation*

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you're socially impoverished, you're culturally impoverished..... What you're trying to do is survive."

- 2.5 So a second approach is to assess adequacy using **replacement rates**. A replacement rate is the ratio of income in retirement to income in work. For example, a replacement rate of 50 per cent means someone has half the income in retirement that they had in work. These can be used to judge whether someone's income in retirement is likely to provide them with adequate income to maintain their living standards. This is the approach used in this document.
- 2.6 Replacement rates are often compared to a benchmark to judge whether income is adequate. The analysis here uses the Pensions Commission benchmark replacement rates to judge what levels of income will be adequate – see the box below and technical annex for more details.
- 2.7 The estimates of the number of people facing inadequate retirement incomes presented here have been updated from the numbers published by DWP in 2012.¹² In particular the methodology now reflects changes to economic assumptions, an equivalised income for couples to reflect the different living standards they face, and an adjustment for housing costs.

¹² DWP, July 2012, *Estimates of the numbers of people facing inadequate retirement incomes*,

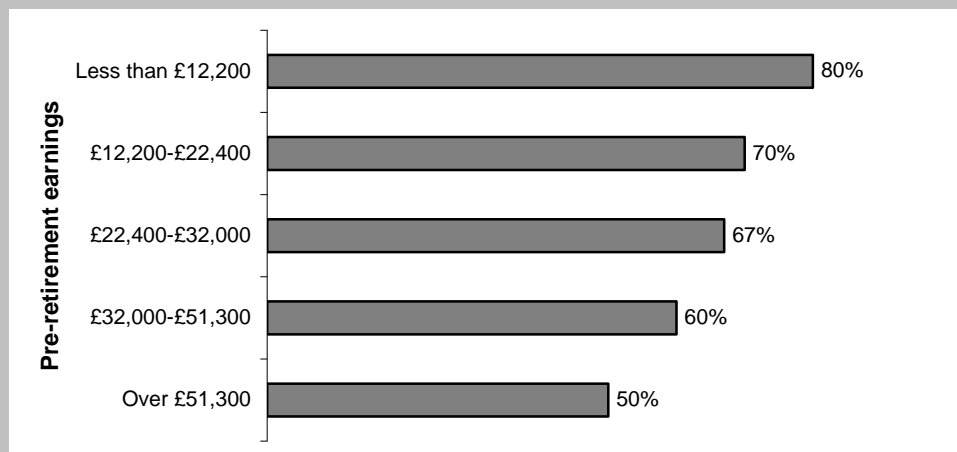
What do we mean by Inadequate Retirement Incomes?

We measure adequacy using replacement rates. Replacement rate is defined as someone's income in retirement divided by their income in work. Exact definitions can differ, but our analysis is based on family income, where:

- Income in retirement uses pension income averaged across the whole of retirement (and adjusted for inflation).
- Income in work is based on average earnings for those years in work between age 50 and State Pension age.

We say someone's income is inadequate if their replacement rate does not meet a set of benchmarks suggested by the Pensions Commission, which would broadly allow them to maintain their living standards. The benchmarks are less than 100 per cent as adequacy doesn't mean having the same income in retirement as in work. Many costs are likely to be lower in retirement, for example, mortgage payments, travel to work costs and the costs of raising children.

Figure 2: Replacement Rate Benchmarks for different income levels as used by the Pensions Commission 2004, expressed in 2013 earnings terms.



NB: We use a modified version of these benchmarks, to account for housing costs pre and post retirement

There are a number of reasons why people face inadequate incomes

2.8 The **main reasons** that people face inadequate retirement incomes are:

- Taking time out of the labour market, including leaving work before State Pension age – this is often an issue for those with lower incomes;
- Not saving into a pension whilst in work. Automatic Enrolment is predicted virtually to eliminate this problem; and
- Not contributing enough into a pension when saving – this is more likely to be the case for moderate to higher earners.

2.9 Chapters 3 to 5 discuss the issues behind people facing inadequate retirement incomes ('undersaving') in more detail.

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- 2.10 There are **other factors** that can influence the level of retirement income but may be less substantial in terms of overall numbers facing inadequate retirement incomes. These include getting poor returns from savings, and having extra living costs in retirement especially for renters. These are discussed further in Chapter 6.

Our modelling of pension reforms is cautious

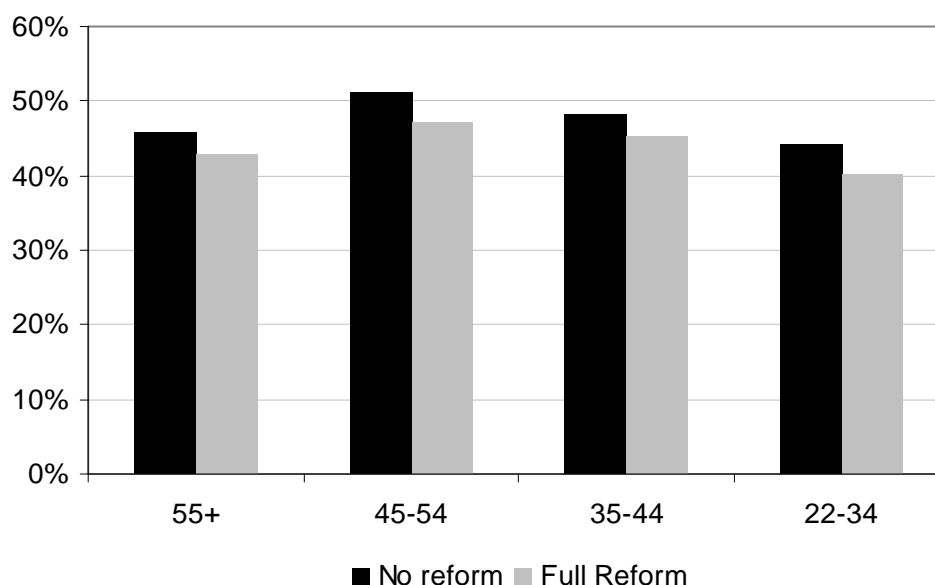
- 2.11 We have updated the analysis to see how the numbers facing adequate and inadequate retirement incomes change with our key pension reforms.
- 2.12 Our modelling is cautious as it is confined to known and predictable changes from the policies rather than any possible behavioural impacts. There are a number of potential behavioural changes, which could result in higher retirement incomes than predicted in this report. In particular,
- The new single-tier pension will provide a clear foundation from the State, but we are only able to model the changes in amounts received, not any behavioural changes resulting from the improved clarity.
 - Automatic Enrolment, once fully rolled out, will mean that eligible employees will be saving at least 8 per cent of their banded earnings. We can model the direct impact of these savings on people's retirement incomes, but cannot account for people choosing to save more than this.
 - We expect State Pension age changes to increase the time people spend in work and are likely to delay the point where people take private pensions, but we haven't modelled any potential broader cultural shifts in attitudes to working longer that this might create.

Pension reforms are projected to get 1 million more people to adequate income levels

- 2.13 Based on cautious assumptions, our new modelling shows 1 million fewer people will be facing inadequate retirement incomes as a result of our reforms, falling from 13.2 to 12.2 million.
- 2.14 The single-tier pension, combined with saving through Automatic Enrolment at default amounts, provides adequate retirement income for those on lower incomes. With these reforms, we expect 93 per cent of those with working age incomes below around £12,000 to reach adequate retirement incomes.
- 2.15 The numbers facing inadequate incomes varies by age group, but reforms reduce the numbers regardless of age. In the short to medium term, the single-tier transition process will improve retirement incomes for many, especially those expecting low amounts of additional State Pension. This provides support to those who are closer to retirement who may not have time to significantly alter their private pension income.
- 2.16 In the longer term, people who would have received transitional protection will only receive single-tier pension at the maximum single tier rate.

Younger cohorts are more likely to have had the opportunity to save into a private pension throughout their working life through Automatic Enrolment. Reforms reduce the level of undersaving for those aged 22 to 34 by 4 percentage points.

Figure 3: Proportion of people facing inadequate incomes by current age group with and without Automatic Enrolment and single-tier reforms



Reforms will get the vast majority of workers closer to an adequate retirement income

2.17 The modelling shows that for those facing inadequate incomes:

- 73 per cent (9.6 million people) will see an improvement in their retirement incomes moving them closer to their target levels;¹³ and
- in 5 will see their retirement income increase by more than 10 per cent.

2.18 This beneficial impact is biggest for those furthest from their projected target adequate income. Figure 4 shows that with automatic enrolment and single tier reforms, the overall number of working-age people on course for adequate retirement incomes increases to 15.7 million (56 per cent).

2.19 Of those who remain facing a shortfall in their retirement incomes:

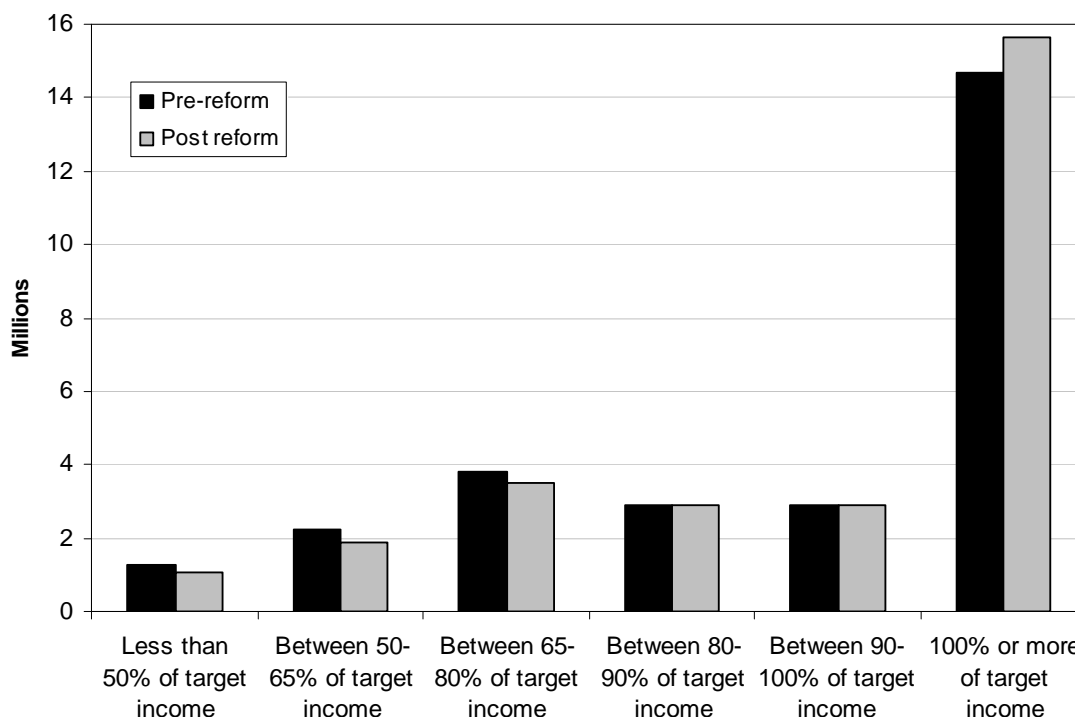
- Around half are within 20 per cent of having what they would require to enjoy a similar lifestyle in retirement. Such individuals could reach this level of income by making modest changes to their behaviour: for example, by working for longer, ensuring they are saving whilst in

¹³ For example, a median earner moves from a 52 per cent replacement rate to a 61 per cent replacement rate with Automatic Enrolment, within 10 per cent of their 67 per cent target replacement rate.

work, saving more than the minimum, or using other forms of wealth; and

- The other half are projected to be considerably below the level of retirement income they require if they do not act. These are largely higher earners who have greater opportunity to save more.

Figure 4: Breakdown of the numbers of people by distance from adequacy benchmark, with and without Automatic Enrolment and single-tier reforms



The remaining challenge to build up adequate income is greatest for moderate and higher earners

2.20 Those who continue to face inadequate retirement incomes tend to be concentrated in the moderate and higher income groups, who need to save privately in order to ensure that they can maintain their living standards. Income from private pensions makes up a larger proportion of total retirement income for higher earners; typically contributing just under half of total income (whereas for those with lower earnings, it typically contributes around 30 per cent, with state pension income being relatively more important).¹⁴

2.21 People with higher earnings during their working life can end up among the poorest pensioners in retirement if they are not saving. Our modelling shows that of the richest 20 per cent of working age people (earning more than £35,400 per year), around 378,000 (7 per cent) are expected to end

¹⁴ Based on the incomes for stylised hypothetical, single male case studies reaching State Pension age in 2056 aged 68 and living another 23 years. We assume they pay into a Defined Contribution private pension at the default 8 per cent combined contribution level.

up in the poorest 20 per cent of people in retirement if they do not act to avoid such a shortfall in their income.

The 'right' level of saving for one person will not be right for another

2.22 The Pensions Commission benchmarks for adequate retirement incomes give a reasonable sense of how much retirement income is "enough," to give an overall estimate of the size of the challenge.

2.23 But the right level of saving for an individual will depend on their particular circumstances, including their expectations for retirement. For example:

- Someone with a high value house may reasonably plan to downsize, use some housing equity in retirement, and so save less into a pension.
- Another person may have high aspirations for retirement and so may want to save more in working life to meet them.
- A third person with a large family may have high costs in working life which they would expect to fall – for example, as children leave home - in time for their retirement. They may therefore make a reasonable judgement to save less while in work.

2.24 For individuals these judgements mean balancing needs in retirement and during work. Because of the different needs of different people, the Government does not think it is appropriate to try and dictate what people should do, and the case studies in this report are only examples of what would be right for some people. Individuals rightly need to take a degree of responsibility for how much they save.

2.25 Whilst the options for individuals are based on personal circumstances, this document can nonetheless be used as a framework to help understand the options.

3 A fuller working history

Some people, particularly those on lower incomes during working life, face an inadequate retirement income because they do not have a full work history. The single-tier pension simplifies the way that National Insurance credits count towards the state pension. But without being in work, people will not be able to save into a private pension. Labour market strategies are important for helping people spend more time in work. Working longer is another possible solution and reforms to the State Pension age and removing the Default Retirement Age are expected to help.

Being out of work for substantial periods is a major barrier to reaching an adequate retirement income

- 3.1 The key step towards an adequate income in retirement is being in work, and thereby paying National Insurance Contributions towards the state pension and having the opportunity to save privately. Of the 12.2 million people facing inadequate incomes post-reform, we estimate around 40 per cent work for fewer than 35 years during their working life.¹⁵
- 3.2 This is more commonly the case for those on lower incomes during their working life. Over three quarters of those facing inadequate retirement incomes in the lowest income quartile work for fewer than 35 years during their working life (compared with 44 per cent of those facing adequate retirement incomes in that quartile).

Crediting arrangements for the new single-tier pension will help those out of work

- 3.3 Many people are unable to work for their whole working life. There are various reasons for taking time out of the labour market which include long-term illness, spells of unemployment, and having caring responsibilities.
- 3.4 People who are unable to work due to a range of specific circumstances (such as those above) will still be able to build a full National Insurance record as they are credited into the state system for periods spent out of the labour market (provided they meet certain conditions). This will protect their state pension position.

¹⁵ The estimate is made on the basis of the sample of the 12.2 million for which we have a complete projection of their working histories: these are the cohort born between 1987 and 1991.

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- 3.5 State pension income accounts for more than two-thirds of retirement income for low earners,¹⁶ so in the longer term it is important to make sure this group build as high a state pension entitlement as possible (whether by credits or through work) to become eligible for a full single-tier pension.
- 3.6 The new single-tier pension will help address historic inequalities in the pension system for women and the low paid. For example, the median gross female state pension is predicted to equalise with the median gross male state pension a decade earlier under single tier, compared with the current system.¹⁷

People who are out of work are less likely to build up a private pension

- 3.7 Whilst those out of work may still be entitled to a full state pension, they may be limited in what they can save privately to supplement their state pension income. For those on the very lowest incomes in working age, they will be able to maintain their standard of living relying principally on the state pension only. However, those on modest incomes will need some private saving to avoid facing inadequate retirement incomes.
- 3.8 A low earner, for example, who takes a total of 20 years out of the labour market could receive a full single-tier pension, but may not accrue enough additional private pension income to reach their target level, and therefore face an inadequate retirement income.

Case Study 1: Sarah - Low earner with fewer than 30 years in work

Sarah was born in 1988 and starts work in 2010 aged 22. She works until she reaches 30, at which point she leaves the labour market for 12 years to care for a child. During this time she is awarded National Insurance (NI) credits to protect her state pension position. She returns to work at 43 and stays in work for 17 years. Between the age of 60 and State Pension age (68) she is out of work and again is awarded NI credits.

Sarah is automatically enrolled in a workplace pension scheme¹⁸ at 24 and continues to contribute each year she is in work. When she is working, she earns £20,400 a year (in constant earnings terms).

Years in work: 26

Total years out of work (receiving NI credits): 20

Years contributing to a workplace pension: 24

Target replacement rate: 70 per cent

Outcome: Sarah's average working income just before retirement is £20,400. Over retirement her average annual state pension income is £11,060 and her

¹⁶ A low earner (£20,400) receives £11,060 a year on average in state pension over their whole retirement and £2,990 a year on average in private pension over their whole retirement.

¹⁷ DWP, May 2013, *Pensions Bill Impact Assessment*

¹⁸ For this example, it is assumed she contributes to a Defined Contribution pension with fund growth of RPI+2.2%.

average annual private pension income is £1,490. The £7,850 drop in income means she will be unlikely to maintain her standards of living in retirement.

Possible actions: Sarah would get closer to her target retirement income by spending more of her working life in work (although this may need to be complemented by other actions – please see page 35 for more details). If Sarah were to remain in work between 60 and State Pension age, her replacement rate would increase from 61 per cent to 64 per cent. If, in addition she were to reduce the time spent out of the labour market from 12 to 5 years, her replacement rate would increase to 67 per cent. This would significantly reduce the drop in income experienced, allowing her a better standard of living in retirement, even if still slightly below her target (£14,300 a year on average over her retirement).

There is a challenge to keep people working through their 50s

3.9 People in their 50s face additional risks of exiting the labour market early as a result of health conditions and caring responsibilities which could adversely affect their ability to work. Even without these additional barriers, once out of the labour market older jobseekers face particular problems regaining employment often due to one or some of the following:

- a lack of modern job-search skills;
- declining confidence;
- perceived or real employer discrimination; and
- out of date qualifications or certification.

3.10 Over half of men and more than a third of women¹⁹ leave the labour market before State Pension age and those aged between 50 and 59 (for women) or 64 (for men) are less likely to be in employment (73 per cent) than 35-49 year olds (82 per cent)²⁰.

3.11 Leaving work before State Pension age can make an individual's retirement income worse because they cannot save more and they may need to draw prematurely on their existing savings. In addition, evidence suggests that early, involuntary labour market exit is associated with increased reliance on means-tested pensioner benefits and an increased likelihood of poverty in later life.²¹

3.12 Case study 2 shows the detrimental impacts that leaving the labour market early can have on being able to maintain living standards in later life.

¹⁹ Source: Figure 4.13 – Pension Trends (Office For National Statistics – Feb-13). Figures relate to men leaving the labour market aged 64 or under, and women leaving the labour market aged 60 or under

²⁰ Labour Force Survey, Q2 2013 non seasonally adjusted, from the reference tables of August 2013 Labour Market statistics (ONS)

²¹ Glaser, Karen (2009). *Understanding the importance of work histories in determining poverty in old age: national insurance contributions and later life income: Full Research Report, ESRC End of Award Report, RES-163-27-0014*. Swindon: ESRC

Case Study 2: Michael – Leaving the labour market before State Pension age

Michael earns £20,400 (in constant earnings terms) each year he is in work and he contributes to his workplace pension scheme.²² His target replacement rate is 70 per cent. He is assumed to have some additional financial wealth of £20,000 which he intends to annuitise to help fund his retirement.

Michael starts work aged 25 and leaves the labour market before State Pension age, at 55. He undertakes an activity that attracts an award of NI credits which protects his state pension position until he reaches State Pension age, when he buys a flat rate annuity. He spends his financial wealth in the period between leaving work at 55 and State Pension age.

Outcome: Michael's average annual income over retirement is £13,180 giving him a replacement rate of 65 per cent, which means he has a much bigger income shock than if he'd worked right up until State Pension age, such that he will be unlikely to maintain his living standards.

Possible actions: If Michael stayed in work until he reached his State Pension age, 68, and bought an annuity with his £20,000 financial wealth his average annual income over retirement would increase to £15,140. This retirement income exceeds his target of £14,300.

Individuals can improve their retirement incomes by working past State Pension age

- 3.13 Working past State Pension age and deferring state and private pensions can also make a significant positive difference to retirement income. This is due to the extra years of private pension contributions, and to a person's pension pot being divided by fewer years spent in retirement. In addition, after State Pension age, an individual is no longer liable to pay National Insurance contributions from their earnings. This results in a higher net income between State Pension age and leaving work, which could be used as a resource to fund retirement.
- 3.14 Working past State Pension age is becoming more common. Between January and March 2013 there were 1.5 million people above State Pension age in employment; half a million more than a decade earlier²³.
- 3.15 This is an option for people of any income who face inadequate retirement incomes. DWP modelling shows a single person working full time on low income with a full working history (around £20,000 a year) facing an inadequate retirement income could achieve their target replacement rate (of 70 per cent) by working just one extra year. Median and higher earners who face inadequate retirement incomes will need to defer for 6 and 8 years respectively to reach their target incomes, unless combined with other methods for raising income (see subsequent chapters).

²² For this example, it is assumed he contributes to a Defined Contribution pension scheme with fund growth of RPI+2.2%.

²³ ONS, 2012, Older Workers in the Labour Market

Table 1: Number of years required to defer to reach target replacement rate²⁴

Individual	Replacement Rate		Number of years need to defer to reach target replacement rate
	Target	No Deferral	
Low Earner	70%	69%	1
Median Earner	67%	55%	6
Higher Earner	60%	44%	8

Government action to encourage people to work more

3.16 The Government’s **labour market policies** aim to ensure that all those that can work do, giving them improved opportunities to accrue private pension provision. Recent reforms, such as the introduction of Universal Credit, will ensure people are always better off in work than on benefits, with Universal Credit potentially leading to up to 300,000 additional people in work.

3.17 The Work Programme and Youth Contract are helping to place people in work and stay in work. Over 130,000 people have found sustained work through the Work Programme (between June 2011 and June 2013), with at least six months in work for most. Increased personalisation within Jobcentre Plus is ensuring that people receive the support most appropriate for them, and the more active Employment and Support Allowance regime provides people with the advice and support that they need to prepare for and move into work.

3.18 The Government is also encouraging people to work up to and beyond State Pension age. It has removed a barrier to working longer by abolishing the **Default Retirement Age** meaning older workers cannot be forced to retire at an arbitrary age.

3.19 Bringing forward increases to **State Pension age** is also expected to extend working lives. Early evidence from the Institute for Fiscal Studies suggests that women and their partners are already starting to work longer in response to the gradual increase of women’s State Pension age from 60 to 65. They found that the increase in female State Pension age was followed by improvements in employment rates by 7.5 percentage points for woman aged 60 and employment rates for partners increased by 4.2 percentage points.²⁵ The Government will continue to monitor the effect of the increase in State Pension age on labour market participation and exit age.

²⁴ Based on stylised individuals working full time for their whole working life on a constant level of earnings

²⁵ The Institute for Fiscal Studies, March 2013, *Incentives, shocks or signals: labour supply effects of increasing the female state pension age in the UK*

Framework for the analysis of future pension incomes

- 3.20 The Government is considering options to help people **extend their working lives**, particularly for those who exit the labour market before their State Pension age, and will set these out in a forthcoming publication.

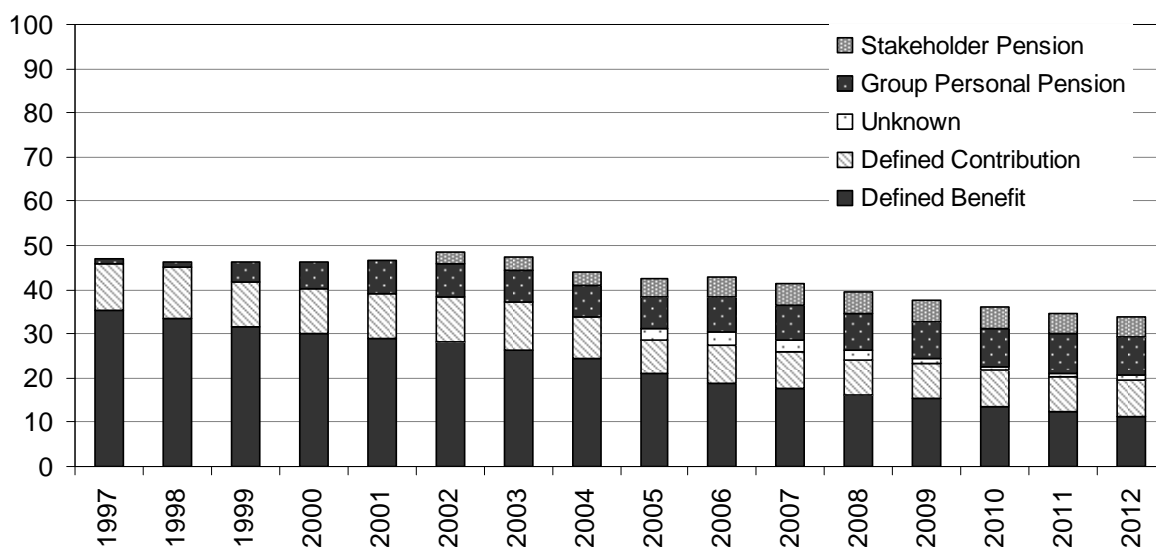
4 Saving whilst working

Participation in workplace pension schemes has been falling, but Automatic Enrolment will largely eliminate the problem of people not saving for a pension at all whilst they are in work.

Many people currently in work are not saving – this has been a major factor in undersaving for retirement

4.1 Participation in private pensions has been falling, particularly in the private sector. By 2012, workplace pension scheme membership was at its lowest level since the early 1960s - falling from 57 per cent of all employees in 2002 to 47 per cent in 2012. Of those in the private sector, around two thirds are not active members of pension schemes (compared to just 17 per cent of public sector employees).²⁶

Figure 5: Proportion of private sector employees participating in a private pension²⁷



4.2 There are a number of inter-related factors that have contributed to the fall in workplace pension membership. These include increasing life expectancy, and estimates of future life expectancy and volatility in financial markets which have increased the cost to employers of providing a pension throughout retirement.

4.3 Employers have reacted to these rising costs in a number of ways including closing schemes to new members, or stopping any additional accrual for

²⁶ Office for National Statistics, 2012, *Annual Survey of Hours and Earnings*

²⁷ Office for National Statistics, 2012, *Annual Survey of Hours and Earnings*

Framework for the analysis of future pension incomes

existing members. Some employers have chosen to replace Defined Benefit (DB) pensions with Defined Contribution (DC) pensions. Between 1997 and 2012, the proportion of employees with a DB occupational pension scheme fell from 46 per cent to 28 per cent, while DC pension scheme membership, including group personal and group stakeholder pensions, rose slightly, from 10 per cent to 17 per cent - though not enough to replace the fall in DB membership.²⁸

- 4.4 Those who are not able to join a workplace pension scheme, or choose not to, are at a greater risk of inadequate retirement incomes. Prior to Automatic Enrolment and the single-tier pension reforms, we estimate that just over two fifths of people facing inadequate retirement incomes were projected to be in work 30 years or more, but saving for less than twenty.
- 4.5 Not saving while working is a problem predominantly for moderate earners who miss their target retirement income by not saving for a sufficiently long period despite having a reasonable work history.

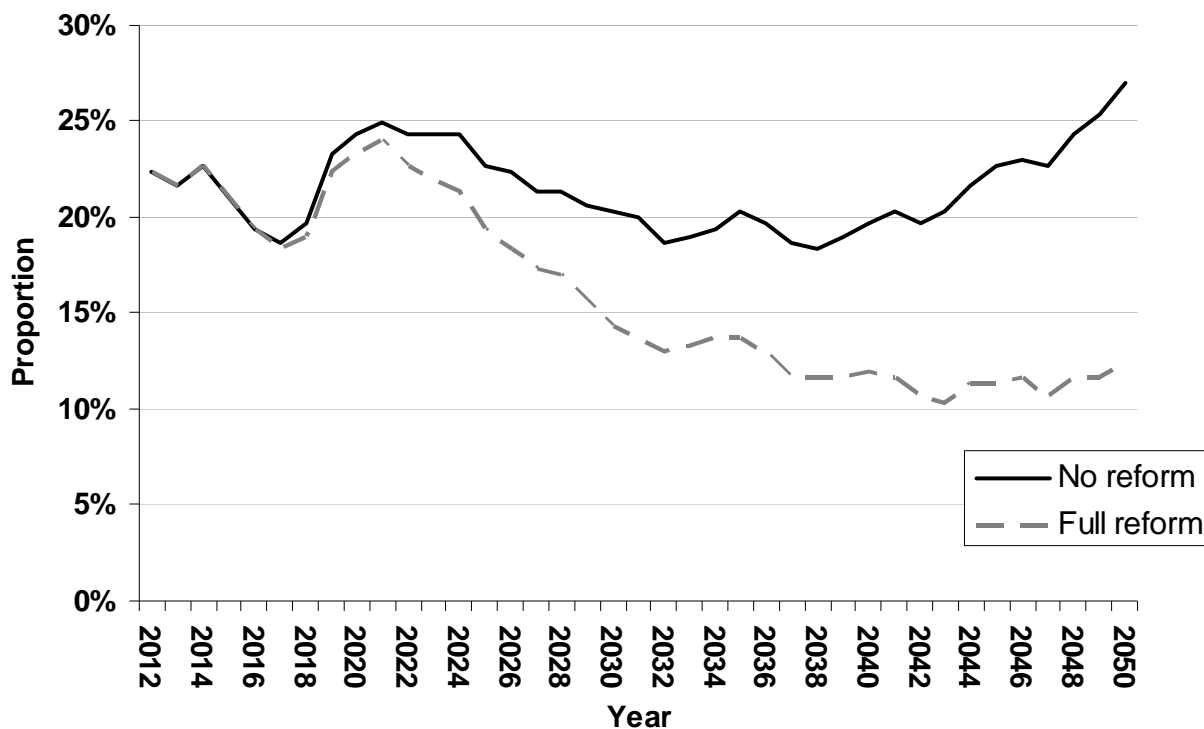
Automatic Enrolment will largely eliminate the problem of not saving while working

- 4.6 Automatic Enrolment is designed to help people save for a pension who otherwise would not have done so. The default scenario will be that an individual's employer will enrol them in the workplace pension scheme. It is expected that 6 to 9 million people will either start saving or save more as a result.²⁹ In the longer term Automatic Enrolment is also expected to halve the number of people retiring with no private pension at all (from 27 per cent to 12 per cent in 2050).

²⁸ Office for National Statistics, 2012, *Annual Survey of Hours and Earnings*

²⁹ DWP, 2008, *Impact assessment of the Pensions Bill*

Figure 6: Proportion of people reaching State Pension age with no private pension income with and without Automatic Enrolment



- 4.7 Automatic Enrolment is predicted to reduce significantly the numbers of people facing inadequate retirement incomes. It largely removes the problem of people not saving for a pension whilst in work. Of those remaining on inadequate retirement incomes post-Automatic Enrolment, just 5 per cent (falling from over 32 per cent) are in work for more than 35 years, but saving for less than 20 years.
- 4.8 Case Study 3 shows how Automatic Enrolment helps someone facing severely inadequate retirement income move much closer to their target replacement rate.

Case Study 3: Senaria (the effect of Automatic Enrolment)

Context: Senaria was born in 1988 and starts work in 2013 aged 25. She works from 25 until State Pension age at 68 and earns a wage of £28,900 throughout her working life (in constant earnings terms). At retirement she has a target replacement rate of 67 per cent. Without Automatic Enrolment Senaria does not contribute to her workplace pension scheme for the first 15 years of her working life. She decides to start contributing at the age of 40, paying in a combined contribution of 8 per cent of her annual wage.

Outcome: Senaria's average annual income in retirement is £14,180, a drop of £14,720 from her pre-retirement income. This gives her a replacement rate of 49 per cent and means she will have a large income shock in retirement, such that she is unlikely to be able to maintain her living standards.

Possible Action: With Automatic Enrolment introduced from 2012, Senaria is automatically enrolled into her workplace pension scheme at the age of 25 and does not opt out. She pays in a combined contribution of 8 per cent of her annual wage throughout her working life. This means she retires with on average over £1,000 more income in each year of her retirement, which gives her a replacement rate of 55 per cent. Automatic enrolment helps Senaria get closer to her target replacement rate of 67 per cent which means she will have less of an income shock on reaching retirement.

- 4.9 The full effects of Automatic Enrolment into workplace pensions will take time to feed through so we need to monitor the impacts carefully and recognise it may not be the complete solution for those currently close to State Pension age.

It is early days but the signs are positive

- 4.10 Initial DWP modelling assumed that around 25 per cent³⁰ of those eligible for Automatic Enrolment would opt out.
- 4.11 However, early results suggest the opt-out rate for those in large organisations may be lower than predicted. The average opt-out rate for large employers so far is 9 per cent, and the participation rate for these employers has increased from 61 per cent to 83 per cent as a result³¹. We will continue to monitor this as smaller employers start to enrol their employees and publish the findings in an annual evaluation report. We will update our modelling of the impact of retirement incomes with a revised opt-out rate once there is enough evidence to do so.

³⁰ We estimate an opt out rate of around 25 per cent, within a range of around 20 and 45 per cent.

³¹ DWP, August 2013, *Automatic enrolment opt-out rates: findings from research with large employers*. The participation rate measure reflects employees who have been automatically enrolled, employees who were already members of the pension scheme, those who are not eligible for Automatic Enrolment, as well as those who opt-out.

There will still be some people not saving into a private pension

4.12 There are some groups of people who may not save, even after Automatic Enrolment is fully rolled out. These are:

- The self employed for whom enrolling in a private pension is optional. There are currently 4.2 million self-employed people in the UK, making up around 14 per cent of workers;
- Those who choose to opt out, and continue to opt out, of Automatic Enrolment despite subsequent re-enrolments. For large employers who have implemented Automatic Enrolment first, the opt-out rate averages 9 per cent;³² and
- Those who are not eligible for Automatic Enrolment as they don't meet the earnings or age criteria.³³ During the first year of roll out, 1.73 million people (a quarter of) employees in organisations that have implemented Automatic Enrolment were not eligible.³⁴

4.13 The proportion of self employed people saving into a private pension has been steadily declining from 35 per cent in 2003/4 to 20 per cent in 2011/12³⁵ and nearly half of full time self-employed men have never had a personal pension.³⁶ Whilst Automatic Enrolment will not tackle the low saving levels in this group (as they are not in scope), the National Employment Saving Trust (NEST) and other low cost providers may make pension provision easier and more worthwhile. In addition, under the single-tier pension, National Insurance contributions paid by the self-employed will count in the same way as employees' NI contributions for state pension purposes.

4.14 Those ineligible for Automatic Enrolment due to having earnings below the threshold of £9,440 a year (in 2013/14 terms) are likely to be able to reach their target replacement rates through the single-tier pension if they remain low earners.

4.15 The Government will continue to monitor the effectiveness of Automatic Enrolment and will publish annual reports during implementation measuring progress against evaluation questions using the latest data. The first report will be published in autumn 2013. The level of self-employed enrolment will be monitored through the Family Resources Survey.

³² Employers surveyed represented 1.9 million employees of which 460,000 were automatically enrolled. Of the 460,000, 41,400 opted out. DWP, August 2013, *Automatic enrolment opt out rates: findings from research with large employers*.

³³ Those people not eligible for Automatic Enrolment include those under the income threshold, and those aged less than 22, or over State Pension age.

³⁴ The Pensions Regulator, July 2013, *Registration Report*. This group may contain workers who are entitled to join a pension but do not need to be automatically enrolled. See TPR guidance on workforce definitions at <http://www.thepensionsregulator.gov.uk/docs/pensions-reform-employer-duties-defining-workforce-v4.pdf>

³⁵ The first figure comes from the Enabling Retirement Savings Programme (ERSP) data which is derived from the Family Resources Survey. The second is taken directly from the FRS 2012.

³⁶ ONS, 2013, *General Lifestyle Survey 2011*, figure 6.4.

5 Saving more

Some people, particularly moderate to higher earners, may need to save more of their earnings to ensure they can maintain their living standards in later life.

The amounts saved into private pensions have been declining

- 5.1 The amounts of private pension income that people can expect in the future are likely to be lower (in relative terms) than now. Our modelling shows that without Automatic Enrolment the median private pension income is expected to fall from around £3,900 a year in 2020 to around £2,200 a year in 2050. However, Automatic Enrolment reverses the falling trend; by 2050 the expected median private income is expected to be around £3,600.
- 5.2 As employers have moved from Defined Benefit (DB) to Defined Contribution (DC) pensions they have typically reduced their contributions. In 2011, the average employer contribution rate for private sector DB occupational pension schemes was 14.2 per cent, compared with 6.6 per cent for DC occupational pension schemes.³⁷ Inherently DB schemes are not superior to DC schemes, but they do have a different distribution of risks. DC pensions ask individuals to bear more of the risk of increased life expectancy after retirement and uncertain investment returns.

Automatic Enrolment helps, but it was always meant to be a part of the solution rather than closing the entire gap

- 5.3 Once Automatic Enrolment is fully rolled out, combined contribution rates for eligible employees will be a minimum of 8 per cent - made up of employee and employer contributions on a band of earnings between £5,668 and £41,450. This will improve the private pension incomes of anyone who would otherwise have been contributing at a lower level, but does not enable everyone to reach the retirement income they might like.
- 5.4 Automatic Enrolment at the minimum combined contribution level of 8 per cent of banded earnings was never meant to provide adequate incomes for everyone. The Pensions Commission report acknowledged that the 8 per cent default contribution rate would only be sufficient, when combined with state pensions, to achieve a replacement rate of about 45 per cent for the average earner.

“We therefore also recommend that voluntary contributions on top of the default level should be allowed, subject to a cap: for the median earner this would enable the individual and/or their employer to contribute in total

³⁷ ONS, 2012, *Occupational Pension Scheme Survey 2011 Annual Report*

about twice the default amount, accumulating a pension pot which would take them to a total combined replacement rate approaching the two-thirds that many say is their target.” Pensions Commission 2nd Report.³⁸

Those on moderate or higher earnings may want to save more than automatic enrolment defaults to reach adequate incomes

5.5 The analysis is based on modelling that assumes people will be automatically enrolled onto default levels of saving: that is, 8 per cent made up of employee and employer contributions on banded earnings. This equates to a low proportion of total earnings for each level of earnings as shown in Table 2.

Table 2: Contribution rates as a percentage of banded earnings and as a proportion of total earnings, by level of earnings

Individual	Earnings	Banded earnings	8% of banded earnings	As proportion of total earnings
Low	£20,400	£14,760	£1,180	5.80%
Median	£28,900	£23,230	£1,860	6.40%
Higher	£40,800	£35,090	£2,810	6.90%

5.6 Projections suggest that someone earning £20,400 with a full working life who is automatically enrolled at the default amount would build up private pension income of around £3,700 – which is very close to their ‘target’ private pension income of £3,900 they would need to have an adequate retirement income. To reach this they would need to save around an additional £70 a year.

Revisiting Case Study 3: Median Earner making minimum pension contribution

Senaria, a median earner with a full work history saving at the minimum contribution levels from age 25 under Automatic Enrolment, will still be short of her target income – achieving a replacement rate of 55 per cent against a target of 67 per cent.

Possible action: If Senaria saves 14 per cent combined contributions (from her employer, tax relief, as well as her own contributions) throughout her working life, she will reach her target replacement rate.

A 14 per cent combined contribution rate on Senaria’s banded earnings is equivalent to her saving a combined contribution of 11 per cent of her total earnings.

³⁸ The Pensions Commission, 2005, *A New Pension Settlement for the Twenty-First Century*, TSO

Case Study 4: Dilesh – High Earner

Dilesh earns £40,800 (in constant earnings terms) each year he is in work and he contributes to his workplace pension scheme at a combined rate of 8 per cent. Dilesh starts work at 25 and retires at his State Pension age, 68.

Outcome: Dilesh’s average annual income over his retirement is £18,110, which is an income drop of £22,690 compared to his average working life income. This gives him a replacement rate of 44 per cent and means he will face a large income shock in retirement.

Possible actions: If Dilesh contributed to his workplace pension at a combined rate of 15 per cent during his working life he would increase his average annual income over retirement by over £6,000, to £24,270. This would enable him to meet his target replacement rate of 60 per cent.

A 15 per cent combined contribution rate on Dilesh’s banded earnings is equivalent to him saving a combined contribution of 13 per cent of his total earnings.

5.7 The table below shows total savings needed to hit adequacy benchmarks

Table 3: Savings required to meet target retirement income for different earnings levels

Earnings	Saving needed to hit ‘target’		Additional saving above AE default needed to hit ‘target’	
	Amount need to save (including from employer contribution)	As a percentage of total earnings	Annual additional saving	As a percentage of total gross earnings
£20,400	£1,260	6.1%	£70	0.4%
£28,900	£3,250	11.3%	£1,390	4.8%
£40,800	£5,260	12.9%	£2,460	6.0%

5.8 In addition some people will not have a full-working life, or may start to save later in life – including many people currently in work who are being automatically enrolled part way through their working life.

5.9 A low earner, for example, who had a full state pension but only starts saving at 40 would need to save about 13 per cent of banded earnings including employer contributions. This equates to 9.4 per cent of total earnings or an additional 3.6 per cent of total earnings above automatic enrolment defaults.

5.10 Similarly a median earner who saves for 35 years would need to save 16 per cent of banded earnings, which would mean an additional 6.4 per cent of total earnings before tax above automatic enrolment defaults.

Helping people to save more

- 5.11 Our analysis shows that moderate and higher earners can achieve their target retirement incomes by increasing their contributions. It is these groups who are more often able to increase their savings rates. And savings in later life do increase, often when mortgages are paid off.³⁹
- 5.12 The Government is looking into options to help people to save more. DWP's publication *Reinvigorating workplace pensions*⁴⁰ discussed the need to examine ways of increasing contribution levels beyond the minimum, such as automatic escalation as pay rises, and increasing engagement in pension saving as the norm. The Government is starting to engage with the pensions industry on this issue, though the immediate priority remains successfully rolling out automatic enrolment.

Our modelling is cautious so outcomes may be better

- 5.13 This analysis is based on Pensions Commission benchmarks of adequate retirement income. Some people will want to save more and others may be happy with a lower standard of living in retirement, or may have other assets to draw on.
- 5.14 Our modelling of Automatic Enrolment assumes that in the longer term the individual and employer make a combined contribution of the minimum 8 per cent on banded earnings. In practice, employers may match contributions beyond the minimum or employees may choose to save more. We will need to monitor contribution levels as Automatic Enrolment is rolled out.
- 5.15 The single-tier pension will provide a clearer foundation on which to save more. Consensus from industry and academia suggests that the improved clarity will help people to understand what they will receive from the state in retirement, and so know how much more they will need to save to fund their desired standard of living.⁴¹ This increased understanding may lead to people deciding to contribute more. However, the impact is uncertain and so is not included in our modelling.
- 5.16 Private saving does of course involve uncertainty. The analysis here assumes relatively cautious rates of return based on a low risk investment. In practice outcomes may vary depending on actual investment returns. Returns under a higher risk investment strategy may, on average, be better.

³⁹ Based on regression analysis by the Institute for Social & Economic Research, 2012, *Taking the Long View*, in the chapter entitled "Who Saves for Retirement"

⁴⁰ DWP, *Reinvigorating workplace pensions*, Cm 8478, November 2012

⁴¹ DWP, *Enabling and Encouraging Saving: the evidence around pension reform and saving*, February 2013

6 Remaining influences on retirement incomes

The Government's pension reforms make a big difference to the future retirement income of the current working age population. But there are other influences on retirement incomes, such as risk around investments. The Government is working with industry to improve pension products.

There are other factors that can cause inadequate retirement incomes

6.1 Even if someone has worked and saved effectively during their working life, there are still other factors which could contribute to inadequate retirement incomes. These include:

- **Renting** – those renting in retirement will face higher costs than those who have bought their own homes outright. For example, for a median earner working full time for all their working life, being a home owner increases their replacement rate by approximately 2 percentage points compared to being a renter;
- **Private pension outcomes** – including what people do with their pension pot at the point of retirement. For example, poor outcomes could result from high pension scheme charges; having poor returns on their investment; choosing an inappropriate decumulation option; and the risk of high inflation (which would mean if a level annuity was chosen it would lose value against inflation over time).

Renting increases the chances of facing inadequate retirement incomes

6.2 People renting in retirement will have higher costs than those who own their homes outright. Although for renters at lower income bands these extra costs are mitigated by Housing Benefit. Analysis based on income after housing costs shows that renting your home in retirement raises the probability of facing inadequate income in retirement as shown in Table 4. For example, for those with earnings between £20,000 and £30,000, 71 per cent of renters face inadequate retirement incomes compared to 53 per cent of owner occupiers.

6.3 At each point on the income distribution renters have a higher risk of an inadequate retirement income than corresponding owners. Note however, that a greater concentration of renters is at the lower end of the income distribution. Thus, if we look at the proportion of renters or owners facing inadequate retirement incomes as a whole, the prevalence amongst renters is only slightly higher than that of owners.

Table 4: Proportion of people facing inadequate retirement incomes without reforms, by income band (after housing costs) and tenure type

	£0 - £10,445	£10,445 - £20,231	£20,231 – £29,439	£29,439 - £47,500	£47,500 +
Owner	6%	23%	53%	65%	74%
Renter	11%	39%	71%	73%	82%

6.4 Partly this shows the importance of different household circumstances. Where someone has higher housing costs (or significant social care costs) they will need more pension saving to maintain their living standards into retirement. Therefore, those who are renting may need to save at a higher rate than those who are owner occupiers given the additional costs they are likely to face in retirement.

The Government and the pensions industry are working together to reduce the risks of poor outcomes and increase the level of certainty of pension income

- 6.5 The Government is engaging with industry on the creation of legislation for **Defined Ambition** (DA) pensions. The goal is to encourage the design of pension plans that share risks between members, employers and insurers, leading to greater certainty of outcomes for members, at costs that are acceptable to employers.
- 6.6 The Government is also exploring the case for setting minimum legislative quality standards for pension schemes, covering areas such as governance, as well as consulting with the industry on taking action on charges. These should reduce the risk of poor returns for individuals.
- 6.7 We have been working with the industry to explore how we can make the Open Market Option the default position for annuity purchase. The Association of British Insurers Code of Conduct on Retirement Choices was implemented on 1st March 2013 and will mean scheme members get clear, timely communications as they approach retirement and are encouraged to shop around for the right deal. Members of trust based schemes also receive information and support for shopping around.
- 6.8 Once an annuity has been chosen, there is no going back on the decision. It is therefore important that an individual gets the best possible rate available as it will have a significant impact on their income for the rest of their life. People need to engage in the process of choosing an annuity as there is a significant range available.
- 6.9 We might expect improvements being made to private pensions, such as the lowering of charges to improve incentives to save into a pension
- 6.10 Whilst the Government is acting to improve these in the future, there is also a role for individuals to consider wider options so they can maintain their income, such as making decisions jointly with their spouse about factors

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affecting their retirement incomes, ensuring they make appropriate decumulation choices, and using other wealth to help fund their retirement.

7 Conclusion

The Government has acted on long-standing pension challenges and we expect the reforms to make a major difference to the number of people saving. For many, this will be enough but others will want to save more. There are a number of options for individuals to help them maintain their living standards in retirement.

- 7.1 The Government has responded to the challenges of an ageing population on future retirement incomes, principally through announcing a single-tier pension and introducing Automatic Enrolment.
- 7.2 For many – 15.7 million (an estimated 56 per cent of the current working-age population) - this will be enough. This includes many people on lower incomes who, as long as they are eligible for the full single-tier pension, should broadly be able to maintain their standards of living; and those (from all across the income distribution) already saving into a workplace pension at an adequate level.
- 7.3 Others, however, will want to do more. Particularly higher and moderate earners who are saving at default levels, that is, the 8 per cent minimum combined contribution level. Of those who are currently undersaving, we estimate around half are within 20 per cent of their target income so can get to that level by making modest changes. The remainder will need to make more significant changes.
- 7.4 There is a limit on exactly how much the Government can prescribe additional saving as this will depend on each individual's circumstances. Individuals need to think about what the right amount of money to save during their working life is alongside other commitments, such as bringing up children. The Government's role is to put in place the right framework to enable people to make better choices and have a decent income as a default. We are working with industry to develop Rules of Thumb to enable individuals to save at an appropriate rate with confidence.

Options for individuals to improve their retirement incomes

- 7.5 The analysis below revisits the case studies set out in earlier chapters and aims to give an indication of potential options for the individuals to improve their future retirement incomes.

Case Studies: What are the options?

Revisiting some of the previous case studies, what measures can these individuals take to reach their target income in retirement?

- **Case study 1: Sarah, a low earner with a broken work history (p. 17)**

Sarah is in work for 26 years and contributes to her workplace pension scheme for 24 years at a combined contribution rate of 8 per cent. Sarah's average annual retirement income is £12,550 and she has a replacement rate of 61 per cent.

To reach her target replacement rate of 70 per cent, Sarah can:

- Increase her combined contribution rate to 17 per cent;
- Work and save into her workplace pension scheme for a further 8 years under State Pension age and increase her combined contribution rate to 13 per cent; or
- Work and save into her workplace pension scheme for a further 15 years under State Pension age and increase her combined contribution rate to 10 per cent.

- **Case study 2: Michael, leaves employment before State Pension age (p. 19)**

Michael starts work at 25 and is in employment for 30 years. Whilst in work he contributes to his workplace pension scheme at a combined contribution rate of 8 per cent. Michael's average annual retirement income is £13,180 and he has a replacement rate of 65 per cent.

To reach his target replacement rate of 70 per cent, Michael can:

- Increase his combined contribution rate to 12 per cent;
- Work and save into his workplace pension scheme until State Pension age and increase his combined contribution rate to 9 per cent; or
- Work and save into his workplace pension scheme until one year after State Pension age, deferring retirement for one year.

- **Case study 3: Senaria, a median earner (p. 25)**

Senaria is in work for 43 years and contributes to her workplace pension scheme from the age of 40, for 28 years, at a combined contribution rate of 8 per cent. Senaria's average annual retirement income is £14,180 and she has a replacement rate of 52 per cent.

To reach her target replacement rate of 67 per cent, Senaria can:

- Increase her combined contribution rate to 21 per cent;
- Contribute to her workplace pension scheme from the age of 25 at a combined contribution rate of 14 per cent;
- Carry on working and contributing to her workplace pension scheme for 3 years after State Pension age and increase her combined contribution rate to 15.5 per cent; or
- Use £95,000 of other financial wealth.

- **Case study 4: Dilesh, a high earner (p. 29)**

Dilesh is in work for 43 years and contributes to his workplace pension scheme whilst in work at a combined contribution rate of 8 per cent. Dilesh's average annual retirement income is £18,110 and he has a replacement rate of 44 per cent.

To reach his target replacement rate of 60 per cent Dilesh can:

- Increase his combined contribution rate to 15 per cent;
- Carry on working and contributing to his workplace pension scheme for 5 years after State Pension age and increase his combined contribution rate to 10 per cent; or
- Use £115,000 of other financial wealth.

- 7.6 Whilst using other wealth is certainly an option for some, we cannot assume it is the answer for everyone who has wealth to draw on. Some people may need to draw on their wealth to pay for their care and support. Under the current system, homeowners who need residential care will have to pay for their own care costs, as means tested assistance stops if an individual has £23,250 of assets. The Dilnot Commission found that someone with housing wealth of around £160,000 (the median for single people over 65) currently risks losing nearly everything they have before qualifying for state support.⁴²
- 7.7 The Care Bill will legislate for the introduction of a cap on care costs⁴³ of £72,000 in April 2016. The cap will protect people from unpredictable high care costs. People in residential care will remain responsible for their general living costs which will be set at around £12,000 in April 2016. These reforms provide additional means tested support for people with assets of up to £118,000 residential care - this means that around two thirds of people who reach the cap will contribute less than £72,000. The Care Bill will also for the first time require all local authorities to offer deferred payment agreements to ensure people do not have to sell their home in their lifetime to pay for residential care. This involves the local authority agreeing to pay someone's care fees on their behalf while the person agrees to repay later, generally from their estate or the sale of their home.
- 7.8 We will gather more evidence about the impacts of Government policies going forward and we will continue to analyse what this means for individuals. We expect to update this analysis again once we have sufficient evidence on automatic enrolment opt-out rates and the impact of State Pension age changes on working longer.

⁴² Commission on Funding of Care and Support, July 2011, *Fairer Care Funding*

⁴³ <http://media.dh.gov.uk/network/191/files/2013/02/Policy-statement-on-funding-reform.pdf>

Technical Annex: Methodology and models used to analyse future retirement incomes

Introduction

1. This annex describes the methodology used to estimate the number of people facing inadequate retirement incomes (or 'undersavers'). It includes the main assumptions used, the methodological choices, and a brief description of the modelling tools.

DWP Approach

2. The analysis used in this document assessed the adequacy of retirement incomes by modelling replacement rates for simulated individuals. This allows the assessment of policy changes that will have impacts several decades in the future.
3. Replacement rates measure income in retirement as a percentage of income in work.
4. In the approach used, pre-retirement income is calculated as the average of positive earnings from age 50 until State Pension age. Key points about the definition are:
 - Income is put in constant earnings terms before averaging over 50-State Pension age.
 - Income is gross of tax, and of pension contributions.
 - Only income from earnings is included – income from tax credits, and pensions received before State Pension age are excluded. The methodology is effectively looking at whether pension income will replace earnings.
 - Only years with positive earnings are included. So someone who stops work at 55 will have the same average pre-retirement income as someone earning the same amount who continues to work up to State Pension age.
 - Individuals who have no positive years of earnings between 50 and State Pension age are excluded from the analysis.

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- Individuals whose average working age income is below Guarantee Credit level are also excluded from the analysis – these individuals see their in work income replaced by Pension Credit.
5. The exclusions detailed in the previous point mean that our analysis is concentrated on a population of 27.9 million people.⁴⁴
 6. Retirement income is the income from State Pension age onwards averaged over the whole of retirement. Key points include:
 - Income is in constant price terms before averaging over whole of retirement;
 - Income is gross of tax;
 - Income includes state and private pension income;
 - Income from means tested benefits such as Pension Credit and disability benefits is excluded (although see the below section on Housing Adjustment on housing benefit);
 - While financial wealth is not modelled directly, an amount is imputed and then annuitised based on Wealth and Assets Survey data;
 - Only retirement income received after State Pension age is considered for the analysis.
 7. For couples:
 - Average pre-retirement income is calculated separately for both members, summed, then equivalised; and
 - Retirement income is equivalised on a year-by-year basis, and then averaged across retirement for the members of the couple separately. This means that the members of a couple can have different replacement rates as they have different lengths of retirement.
 8. The individual's replacement rate is then compared to a benchmark to determine whether it is adequate. The benchmarks from the 2004 Pensions Commission report are used, with the income thresholds which they apply to adjusted for earnings growth. The Pensions Commission benchmarks were based on pre and post retirement income patterns, together with survey evidence of people's expected and desired retirement income.

⁴⁴ When in our analysis we conclude that with Government reforms 'over half of people currently of working age considered for our analysis are expected to build adequate retirement incomes', we are comparing the number of adequate savers after reform, to this figure of 27.9 million people. This number is not equal to the total number of people of working age, the number of people in employment, or the workforce. The main differences are that the 27.9 million includes people currently out of work, and it excludes immigrants and people with average earnings below the Guaranteed Credit level (particularly those with no positive earnings) between 50 and State Pension age.

Income equivalisation

When two adults live together in a couple, they usually face economies of scale in their normal living costs. For example, it is expected that two adults will pay a rent or mortgage that is less than twice as much what each of them would pay if living separately. The same applies to other normal living costs (transport, utilities, etc).

Income equivalisation is a technique that recognises these economies of scale, and adjusts a couple's income accordingly. For example, in the analysis without housing costs, each individual in a couple is assigned an income equal to 67 per cent of the whole couple's income. When housing costs are subtracted, each individual in a couple is assigned an income equal to 58 per cent of the whole couple's income.

In both cases, the total income assigned to the couple exceeds 100 per cent of the actual nominal income, reflecting the fact that when in a couple, each pound 'goes further' due to economies of scale.

Models used

9. The analysis used in this publication uses two key tools:

- **Pensim2:** a dynamic micro-simulation model based on a sample of synthetic individuals, reflecting the characteristics of the British population. It produces results which describe the population as a whole or subgroups, including overall numbers facing inadequate incomes.
- **I-Pen:** a simpler modelling tool that focuses on case studies. It allows users to define hypothetical individuals one at a time, and see the impact of a changing policy scenario on their pension outcomes (including replacement rates).

10. A key issue is that these models do not reflect behavioural impacts of policy changes; for example, they do not reflect simplicity of single tier increasing levels of saving. They are also limited in the interactions between different forms of saving that are modelled; for example, labour market and savings behaviour of couples is not interrelated, and models do not reflect interaction between home ownership, pension saving and other financial saving.

Pensim2

11. Pensim2 starts from a set of base data representative of the GB household population in 2006. This includes detailed information on the characteristics of individuals and their employment and pension histories to date. For each subsequent year, for each individual, sets of equations are used to model the probability of certain events occurring based on estimates from current data. The

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calculated probabilities are then used within the model to determine what happens to each individual in a given year up to 2100.

12. The individual labour market and pension histories generated by the model are used to calculate estimates of pensioner incomes in each year of the simulation.
13. Pensim2 is currently a closed model - the size of the population is only changed via births and deaths from the base population; there is no immigration or emigration.
14. Alignment processes are in place to ensure that the outcomes of particular parts of the simulation are consistent with those suggested by other sources. For example, ensuring that the number of individuals who die in the simulation in any given year is consistent with the number forecast by ONS. The Pensim2 simulation ensures the numbers of deaths are the same as expected by ONS data. Pensim2 uses external alignment for a number of variables in the simulation, including mortality and fertility rates, the employment rate, and growth in average earnings.

I-Pen

15. I-Pen is an Excel based model used to predict state and private pension income in retirement based on hypothetical work histories for hypothetical individuals. For a given hypothetical individual at a point in time (whose characteristics the user can define), I-Pen replicates the mechanics of the pension system to show the pension outcomes for that individual.
16. This enables analysis of deferrals, early retirement, or the effect of an additional year in work (or out of work).
17. I-Pen only allows one savings rate per scheme type, and assumes that the individual starts receiving all Defined Contribution (DC) pension annuities at the same time.

Housing Adjustment

18. Within Pensim2 analysis, an adjustment is made to reflect the different costs faced by owner occupiers and renters. This is not considered for the I-Pen based case studies.
19. The Pensim2 model estimates the individual's (or couple's) tenure type and their income level. Using information from the Family Resources Survey for the same income band and tenure type, housing costs net of housing benefits are deducted from income in working life and retirement.
20. The Pensions Commission benchmarks replacement rates are adjusted to reflect the impact of different housing costs between working life and retirement. Using the Family Resources Survey (FRS), for each earnings band average housing costs (net of housing benefits) are deducted during working life and retirement and the replacement rate is adjusted accordingly in order to obtain an 'after

housing costs' set of target replacement rates, which are used for the aggregate analysis (the analysis of case studies ignores housing costs).

21. Effectively, this means that those who rent during retirement will be required to reach a higher replacement rate than someone with equivalent income who is an owner occupier, as the renter will need to meet higher housing costs.

Key assumptions

22. The analysis is shaped by methodological choices and the capacity of the modelling tools. This section presents key assumptions.

Economic assumptions

23. Assumptions about inflation, earnings growth and the labour market are consistent with medium and long term assumptions from the Office for Budget Responsibility. Estimates look at the simulated labour market and pensions outcomes for people in Great Britain aged between 22 and State Pension age in 2013, and apply both to modelling in Pensim2 and I-Pen.

Automatic Enrolment opt out

24. With the introduction of Automatic Enrolment in 2012, it is assumed that people in work with qualifying earnings of £9,440 or more are automatically enrolled into a pension scheme. We assume an opt-out rate of 25 per cent.
25. The current opt out rate assumption used in Pensim2 is based on research findings; originally the Individual Attitudes survey (2007)⁴⁵ in which individuals were directly asked about how likely they were to stay in a pension scheme if they were automatically enrolled into one. Since then, the 2009 version of this survey⁴⁶ and the Attitudes to Pensions survey (2012)⁴⁷ found the proportion of individuals stating they were likely to opt out of a scheme also supported this assumption.
26. Recent research with large employers⁴⁸ has found an average opt out rate of 9 per cent,⁴⁹ with most individual employers having opt out rates ranging between 5 per cent and 15 per cent of the workers they had automatically enrolled. These are promising early findings based on large employers only and therefore, in terms of reviewing the Pensim2 assumption, the intention is to consider these along with further proposed research, with medium sized employers and the Employer Pension Provision survey, in Autumn 2014.

⁴⁵ Webb, C, Pye, J, Jeans, D, Robey, R, and, Smith, P, 2008, *Individuals' attitudes and likely reactions to the workplace pension reforms 2007: Report of a quantitative survey*, DWP Research Report 550.

⁴⁶ DWP, 2010, DWP Research Report No. 669 - *Individuals' attitudes and likely reactions to the workplace pension reforms 2009: Report of a quantitative survey*

⁴⁷ DWP, 2012, *Attitudes to Pensions: The 2012 Survey*

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/193372/rrep813.pdf

⁴⁸ DWP, August 2012, Automatic enrolment opt out rates: finding from research with large employers, <https://www.gov.uk/government/publications/automatic-enrolment-opt-out-rates-findings-from-research-with-large-employers>

⁴⁹ This is calculated by dividing the total number of workers opting out by the total number automatically enrolled.

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27. These opt-out considerations only apply to Pensim2 modelling as I-Pen models individuals one at a time.

Private Pension contributions

28. The proportion of pensioners with Defined Benefit (DB) pension declines as private sector DB schemes closed to new entrants from 2018. The modelling assumes all private sector workers who join an occupational pension scheme go into DC type schemes from 2018.

29. For DC pension schemes the contribution rates are decided on a probability distribution. The employer contribution rate ranges between 0 and 15 per cent, depending on the contracted out status of the scheme. Schemes that are contracted out tend to have a higher contribution rate. The employer contribution rate then feeds into deciding the employee contribution rate, which range between 0 and 10 per cent. Higher employee contributions tend to be correlated with higher employer contributions. Following the introduction of automatic enrolment, employer contribution rates are between 3 and 15 per cent and employee contribution rates are between 5 and 10 per cent.

30. For I-Pen modelling, the pension schemes and contribution rates to Defined Contribution schemes are defined by the user for each modelled individual, and reported in the results.

Fund Growth

31. Defined Contribution schemes have an assumed range of investment fund growth from RPI + 2.2 per cent to RPI + 3.5 per cent. By default, fund growth for each case study outlined is assumed to be RPI + 2.2 per cent.

Pension Charges

32. In the case studies, we assume an Annual Management Charge of 0.30 per cent of the pot and a Contribution Charge of 1.80 per cent is assumed. Contribution rates are assumed to be phased in over 3 years resulting in a 3 per cent employer contribution and a 5 per cent employee contribution (inclusive of tax relief).

33. When modelling aggregates, Annual Management Charges in DC schemes are assumed to be either 0.5 per cent or 1 per cent; these values are assigned randomly (50 per cent-50 per cent) to each scheme. For case-studies modelling, distributions cannot be used, so an Annual Management Charge of 1 per cent is assumed.

Annuities

34. It is assumed that 94 per cent of annuities purchased are flat rate, the remaining 6 per cent are linked to the RPI. We assume 36 per cent of married or cohabiting individuals buy a joint annuity. The annuity rate an individual receives depends on the type of annuity they purchase, their sex, their age and the year the annuity is taken. It is assumed that as life expectancy increases, annuity rates decrease.

35. In I-Pen, these parameters can be changed for each individual. By default, we assume flat rate annuities that are not joint for couples. The annuity rates used are consistent with those from Pensim2.