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**Research Report**

## The effects of taxes and charges on saving incentives in the UK

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# The Effects of Taxes and Charges on Saving Incentives in the UK

IFS Report R113

Stuart Adam  
Jonathan Shaw

# **The Effects of Taxes and Charges on Saving Incentives in the UK**

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## Preface

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# Executive Summary

Individuals in the UK can save in many forms, such as bank accounts, pensions, housing, shares and Individual Savings Accounts (ISAs). The tax treatment of these different vehicles and underlying assets varies widely and this can affect the attractiveness of saving in different forms for people in different circumstances. Recent years have seen several major reforms to the tax treatment of different forms of saving, and further changes are currently under consideration. It is therefore crucial to understand what the current tax regime and (actual and hypothetical) reforms imply for incentives to save in different forms.

In this report (i) we describe the forms in which household wealth is held, (ii) we set out the effects of the current UK tax system on the incentive to save in different assets, (iii) we consider the implications of a number of reforms due to be introduced or currently under consideration, and (iv) we analyse the effect of two non-tax features – employer matching of pension contributions and fund charges – on the attractiveness of investing in different assets.

## The forms in which wealth is held

- Households' average net wealth in 2010–12 was £340,000, on average, according to the Wealth and Assets Survey. It was distributed very unequally: the bottom 9% of households had no positive net wealth, while the top 5% of households had net wealth of at least £1.2m. Net wealth in the middle of the distribution (the median) was £172,000. That said, this will overstate the implications of net wealth inequality for household well-being because part of the difference across households simply reflects differences in ages. Those aged 55–64 had average (mean) net wealth of £592,000, compared with £62,000 among 25–34s; median net wealth was £365,000 and £23,000, respectively.
- Most wealth was held in one of two forms: owner-occupied housing (37% of the total) and private pensions (42%). The next biggest category was taxable interest-bearing assets (6%), primarily cash deposits in bank and building society accounts. ISAs were a relatively small category at 3% of the total.
- The composition of assets varies by age: those around retirement age hold the largest proportion of their wealth in pensions (51% among 55–64 year olds) and the smallest proportion in owner-occupied housing (31%). Young households have the highest financial debts as a share of the total.
- The composition of assets also varies across the wealth distribution. Housing wealth as a share of total wealth peaks in the middle of the wealth distribution (57% in decile 5). Pensions, taxed interest-bearing accounts, ISAs and shares held outside ISAs are all lowest as a share of the total in the

middle of the wealth distribution. Financial debt is highest as a share of the total at the bottom of the wealth distribution.

## Measures of tax on the return to saving

- When measuring the effect of tax on the return to saving, the main taxes we consider are income tax, National Insurance contributions (NICs) and capital gains tax (CGT). We exclude corporate taxes and stamp duties and do not consider savings for bequests (and therefore inheritance tax).
- We can think of three components of saved funds that may be taxed (T) or exempt from tax (E): the income that is originally saved, the returns generated on that saved income, and the funds that are ultimately withdrawn from the asset. A regular bank account would therefore be described as having 'TTE' tax treatment, since savings are made from income after tax, interest is also subject to income tax, but withdrawals from the account are not taxed. ISAs are exempt from personal taxes on returns, so are subject to TEE treatment; pensions are also exempt from tax as returns accrue, but (most) contributions are also tax-deductible while (most) income withdrawn from pensions is subject to income tax, so pensions can broadly be characterised as EET.
- Throughout the report, we use two measures of the tax on the return to saving. The first is the effective tax rate (ETR), defined as the percentage point change in the annual real rate of return on the asset due to taxes, expressed as a proportion of the real pre-tax return. We express ETRs relative to a TEE baseline (like the treatment of ISAs), meaning that the ETR for ISA investments is zero.
- The second measure of the tax on the return to saving we use is the amount one would have to invest in each asset in order to match the final wealth from investing 100p in the TEE benchmark. We refer to this as the 'required contribution' measure
- We calculate ETRs and required contributions assuming a given real return for all assets (3%) and assess how this would be affected by taxation (assuming inflation of 2%). This is not because we believe that the pre-tax return to all assets is the same but rather to facilitate comparison of the effects of taxes (rather than differential pre-tax returns) across assets. In doing this, we also abstract from differences in the perceived riskiness of different assets.

## Tax on the return to saving in different assets under the current UK tax system

- There is wide variation in the way the 2015–16 tax system treats investment in different assets. The situation for an individual who is always a basic-rate



taxpayer is shown in the table below. The most favourable tax treatment applies to saving in private pensions, and especially employer pension contributions, thanks to generous NICs relief as well as a 25% tax-free lump sum: the employee receives as much pension income as if they had saved in an ISA with only 70% of the cost in upfront income, an ETR of –49% if saved over a 25-year horizon. ISAs and owner-occupied housing are both untaxed relative to the TEE baseline (0% ETRs). Cash deposits are the most heavily taxed form of saving, with rental housing and taxable shareholdings in between.

### ETRs and contributions required to match a TEE asset for a basic-rate taxpayer, 2015–16

Asset		ETR (%)	Required contrib. (p)
ISA (cash or shares)	Any horizon	0	100
Cash deposit account	1 year	33	101
	10 years	33	110
	25 years	33	127
	25 years	33	127
Employee pension contribution	10 years	–21	94
	25 years	–8	94
Employer pension contribution	10 years	–123	70
	25 years	–49	70
Owner-occupied housing	Any horizon	0	100
Rental housing	10 years	30	109
	25 years	28	122
Taxable shareholdings	1 year	12	100
	10 years	10	103
	25 years	7	105

Note: Calculations based on 3% real rate of return in all assets and 2% inflation. The TEE treatment given in an ISA is the benchmark, so equivalent taxation implies a 0% ETR. A negative tax rate then means a subsidy (relative to that benchmark), while a positive number means that there is tax on the real return. For other notes, see Tables 4.2 and 4.3 of the report. Source: Authors' calculations.

- Since the tax rules make no allowance for inflation, ETRs on the real return to some assets can be highly sensitive to inflation. For example, the ETR for cash deposits rises from 20% under 0% inflation to 46% with 4% inflation.
- The figures above apply to basic-rate taxpayers. Incentives to save are generally weaker for people who are in higher tax brackets – or who face withdrawal of their income tax personal allowance, or of a means-tested benefit or tax credit, as their incomes rise. For example, the ETR on cash deposits is 33% for basic-rate taxpayers, 66% for higher-rate taxpayers, 74% for additional-rate taxpayers and 101% for basic-rate taxpayers on the tax credits taper (meaning that this final group lose more than the total 3% real return to cash deposits).
- The exception is employee pension contributions. In this case, the incentive to save – the effective tax subsidy – is greater for those facing higher marginal

tax rates, because the value of the 25% tax-free lump sum is greater for those facing higher rates of income tax in retirement.

- For employer pension contributions, there is not a simple relationship between the tax rate and the incentive to save because of an offsetting factor: NICs relief for employer pension contributions. This relief is more valuable for basic-rate taxpayers than for higher-rate taxpayers, since the employee NICs rate is 12% below the Upper Earnings Limit but only 2% above it. As a result, the tax system subsidises employer pension contributions more for basic-rate taxpayers than for higher-rate taxpayers.
- Individuals rarely face the same marginal tax rate throughout their adult life. This is particularly important for pensions, where contributions are made during working life but withdrawals are made during retirement. For the 'baby boom' cohort, we estimate that individuals who are higher-rate taxpayers for the majority of their working life spend, on average, almost two thirds of retirement as basic-rate taxpayers. And recent and planned reforms imply that it may be much harder in future to be a higher-rate taxpayer on the basis of one's pension income.
- Having different marginal tax rates at the contribution and withdrawal stages can dramatically affect the incentive to save in a pension. For individuals who make (employee) contributions when paying higher-rate tax and withdraw when facing a basic-rate tax rate, the effective tax rate is -48% over a 25-year horizon. This compares to -8% and -21% respectively for individuals who are basic- and higher-rate taxpayers throughout life.
- The effects of means-testing can be similarly profound. There is a very strong incentive for anyone on the tax credits taper to contribute to a pension, as each £1 of pension contribution increases tax credit entitlement by 41p.

## Recent reforms

- Our measures of incentives to save in different assets have barely changed since 2008-09: the only changes are that slightly higher NICs rates marginally increase the incentive to make employer pension contributions, and that the introduction of a higher rate of CGT reduces the incentive to save in assets such as rental housing or shares (outside pensions and ISAs) yielding taxable capital gains above the CGT annual exempt amount if one expects to be a higher-rate taxpayer when the asset is sold.
- However, while the incentive measures have barely changed, the applicability of the incentives we calculate has changed a lot. ISA limits have been increased substantially and the restrictions on holding cash versus shares in them relaxed. Pensions, however, are subject to much reduced limits on how much can be contributed in a single year and how much can be accumulated over a lifetime. Substantial increases in the income tax personal allowance and reductions in the higher-rate threshold have significantly increased the

number of non-taxpayers and the number of higher-rate taxpayers, with correspondingly fewer basic-rate taxpayers. Meanwhile, a 45% additional rate of income tax has been introduced, the income tax personal allowance is gradually withdrawn once income exceeds £100,000 (equivalent to a 60% marginal rate band), and child benefit is withdrawn once income exceeds £50,000. These extra marginal rate bands mean there is now even greater diversity in the range of ETRs that people can face on their savings.

## Forthcoming changes to the taxation of interest and dividend income

- The introduction of a 'personal savings allowance' in 2016–17 will – at least at current interest rates – leave very few people paying tax on their bank or building society account. This is a welcome simplification, especially as it means that non-taxpayers will no longer have to work through special procedures to ensure they do not pay tax they do not owe.
- Reforms to dividend taxation due to take effect in 2016–17 will reduce the tax burden on small shareholdings among higher- and additional-rate taxpayers, but will increase the tax burden on large shareholdings for all taxpayers. For those expecting to receive more than £5,000 of dividends per year, the incentive to save more in shares outside pensions and ISAs will be reduced: for example, for a basic-rate taxpayer holding shares for ten years the ETR will increase from 10% to 17%.
- The existence of separate tax-free allowances for different income sources favours people who are able to diversify their income sources and time their income carefully. Those who can take advantage of all of the separate nil-rate bands for interest, dividends and capital gains, as well as their income tax personal allowance, will be able to receive around £28,000 a year free of tax, compared to the £10,600 available to those who can only use their ordinary personal allowance.

## Forthcoming changes to the taxation of rental housing

- A reduction in the tax relief available for landlords' mortgage interest, due to be phased in over four years from April 2017, will significantly reduce the attractiveness of buy-to-let housing as an investment among higher-rate taxpayers who require mortgage finance. For a ten-year buy-to-let investment 50% financed by a mortgage, the effective tax rate for a higher-rate taxpayer will increase from 47% to 76%.
- Alongside changes to inheritance tax and stamp duty land tax, this will increase the existing tax advantage of owner-occupation, which arises because landlords are taxed on their rental income and capital gains whereas

owner-occupiers do not pay tax on their 'implicit rental income' (the in-kind reward enjoyed by owner-occupiers as a return to their investment: the notional rent they pay themselves as simultaneously tenant and landlord) and main homes are exempt from CGT.

- It also strengthens the incentive to invest in a property via a company rather than directly, though there are other obstacles to that.

## **Possible reforms to the taxation of pensions**

- The government is expected to announce in the March 2016 Budget how it will take forward a recent consultation on fundamental reform to the tax treatment of pension saving. If major reform is implemented, it seems likely to take one of two broad forms: giving income tax relief on contributions at a flat rate rather than at the employee's marginal tax rate, or moving to a system where upfront income tax relief is not given on any pension contributions, but pension income is completely untaxed when received. Either of these possible reforms would involve some administrative difficulties, but here we focus on the effects on saving incentives.
- Moving to flat-rate relief would make incentives to save in a pension stronger for basic-rate taxpayers and weaker for higher-rate taxpayers. Indeed, if the rate of relief were less than 30%, higher-rate taxpayers who expected to pay the higher rate in retirement as well would be actively discouraged by the tax system from making employee pension contributions. As we might expect with flat-rate relief, higher-rate taxpayers and basic-rate taxpayers would have equal incentives to save in a pension if both expected to be basic-rate taxpayers in retirement. However, this is not the case for employer pension contributions. Equalising income tax relief for basic- and higher-rate taxpayers does not therefore mean equal overall tax relief: the NICs regime (which the government shows no interest in changing) gives more generous relief for basic-rate taxpayers than higher-rate taxpayers, so with flat-rate income tax relief the overall tax treatment of employer pension contributions would be more generous for basic-rate than higher-rate taxpayers, even if both expected to be basic-rate taxpayers in retirement.
- If both income tax relief on pension contributions and tax on pension income were abolished, the incentive to save in a pension created by the income tax system would no longer depend on the individual's tax position either when contributing or in retirement. The incentive to make employee pension contributions would depend only on the generosity of any upfront matching contribution the government made (to replace the 25% tax-free lump sum currently available on retirement). A match rate of 10%, for example, would be more generous than the current system for basic-rate taxpayers but less generous for higher-rate taxpayers. Again, though, the greater NICs relief for basic-rate taxpayers than higher-rate taxpayers means that employer pension contributions would be more strongly encouraged for basic-rate taxpayers.

## Universal credit

- Universal credit (UC), which is gradually replacing most existing means-tested benefits and tax credits, treats saving in a very different way from its predecessors. It provides no disincentive to save up to £6,000, but liquid (i.e. non-pension, non-housing) savings in excess of that are penalised heavily. Savings between £6,000 and £16,000 are subject to effective tax rates of several hundred per cent (because the savings are assumed to yield an implausible 20% annual return, and each £1 of assumed return reduces UC entitlement by £1), while assets in excess of £16,000 disqualify the saver from entitlement completely.
- There are obvious upsides to targeting means-tested support on those who have low wealth as well as low current income. However, it does mean that people who think they might be eligible for UC in future have a strong disincentive to save more than £6,000 for that eventuality.
- Conversely, there is a strong incentive to put money into a pension at times when one is on the UC taper, as for a basic-rate taxpayer each £1 of pension contributions increases UC entitlement by 52p. This can yield effective tax rates of minus several hundred per cent on pension saving done while on UC – although, of course, times when people need means-tested support may not be times when they have money available to save.

## Employer matching of pension contributions

- Employers will sometimes contribute to an employee's pension, without reducing their salary in exchange as we have assumed above, if the employee also makes a contribution. Automatic enrolment into workplace pensions, which is being phased in gradually between October 2012 and April 2019, requires employers to do this automatically unless the employee opts out.
- From the point of view of an individual employee, this dramatically strengthens the incentive to save in a pension. Under the long-term default auto-enrolment scheme, the employer puts in £3 for every £5 that the employee and the government (through tax relief) put in, so the employee receives a 60% bigger pension than without the match. Because employers rarely make equivalent offers to match employees' contributions to an ISA or a house, it makes saving in a pension much more attractive relative to other assets.
- However, since the employer does not have to contribute anything if the employee pays in less than a minimum amount, and they do not have to contribute more if the employee decides to contribute more, the matched contribution from the employer only strengthens the incentive for an individual to save in a pension at all as opposed to not doing so; it does not affect the incentive to save more in a pension.

## Charges and fees

- Taxes are not the only costs faced by savers. Charges and fees also reduce the return that people can get from investing their money in certain assets. We show the effects of a range of illustrative annual charges (suggested to us by the FCA), ranging from zero to 3% of the fund value, applied to pensions, equity ISAs and unit trusts; charges for simple products such as default auto-enrolment workplace pensions and index-tracking funds tend to be towards the lower end of this range, but charges can be higher for other products or if we include funds' transaction costs in the calculation. In reality, providers of other assets also charge for their services, but these charges are often implicit in the form of a lower interest rate offered (e.g. on cash savings) or take more complicated forms (e.g. various fees associated with buying a house) rather than an explicit annual management charge.
- Given the rates of return we assume, even relatively modest charges are equivalent to a substantial effective tax rate: a 34 percentage point ETR for each 1% charge. This means that charges and taxes together can weaken incentives to save much more than either do on their own. It also means that, for example, a low-charging ISA may deliver a better return than a high-charging pension despite the greater tax advantages associated with a pension.

# 1. Introduction

Individuals in the UK can invest in many different underlying assets, such as cash, equities or housing, and can hold those assets directly or, in some cases, through vehicles such as pensions or Individual Savings Accounts (ISAs). The tax treatment of these different vehicles and underlying assets varies widely and this can affect the attractiveness of saving in different forms for people in different circumstances.

Recent years have seen several major reforms to the tax treatment of different forms of saving, and further changes are currently under consideration. As well as changes to rates, thresholds and limits, these include major structural changes to the taxation of interest, dividends and capital gains, reducing mortgage interest relief for landlords, and a consultation on fundamental reforms to the taxation of pensions. It is therefore crucial to understand what the current tax regime and (actual and hypothetical) reforms imply for incentives to save in different forms. This report provides a systematic and up-to-date quantification and discussion of how the current (2015–16) tax system affects the incentives for people in different circumstances to save in different forms, and how that might change in the coming years. It updates and significantly extends an earlier Institute for Fiscal Studies (IFS) Briefing Note that focused on the 2008–09 tax system (Wakefield, 2009).

In this report we do not quantify in full the attractiveness of saving in one form rather than another. Taxation is only one (albeit an important one) of the factors affecting the attractiveness of saving in different forms. A comprehensive quantification of all aspects relevant to assessing the incentives for people in different circumstances to save in different forms would be a huge exercise: it would require considering the different returns and risk profiles associated with different assets and how they compare with people's risk preferences (addressing the 'equity-premium puzzle', for example), to consider how much the requirement to 'lock away' funds until age 55 reduces the incentive to save in a pension at different ages, and so on. Accounting for all such factors is beyond the scope of this report.

Nor do we propose a set of reforms to the taxation of savings. *Tax by Design*, the final report of the Mirrlees Review (Mirrlees et al., 2011), laid out a possible path for rationalisation of savings taxation as part of a broader overhaul of the UK tax system (including integrating savings taxation with business taxation and with the taxation of earned income). That is not the only possible avenue for reform, and we do not rehearse the arguments here.

Rather, we aim to provide a tool that is essential to both of those tasks. Neither the attractiveness of saving in one form rather than another, nor the appropriate direction for policy reform, can be properly determined without understanding the effects of the existing tax system on incentives to save in different forms –

even if that understanding is not sufficient to deliver an answer to those larger questions.

We do, however, address two specific non-tax aspects of the incentive to save in different forms:

- the incentive for an employee to save in a pension rather than other assets can be strengthened if their employer will match their pension contributions (but not their contributions to other savings vehicles);
- charges and fees may significantly reduce the returns to saving, and potentially bear more heavily on some assets than others.

Both of these features are conducive to quantification in a similar way to the effects of taxation.

The remainder of the report is organised as follows. Chapter 2 summarises what is known about the amount of wealth held by the UK population in different assets. This discussion is useful for assessing the importance of the tax treatment of different assets discussed in the remainder of the report and for seeing how far wealth in the UK is held in tax-preferred forms. Chapter 3 outlines the conceptual issues that underpin the construction of measures of the effects of tax on incentives to save. Chapter 4 then calculates these measures for different assets under the 2015–16 tax system. As well as providing these measures for a range of assets, we also consider how the different tax rates – or benefit withdrawal rates – that individuals can face will affect incentives to save and how the rate of inflation affects the measures of the tax on the return to saving. We end Chapter 4 by considering how this picture has changed as a result of reforms introduced in recent years. Chapter 5 shifts the focus to future reforms, analysing a number of reforms that are due to be introduced or are currently under consideration. Chapter 6 considers two other factors that affect the attractiveness of saving in different assets, namely employer matching of pension contributions (particularly in the context of the introduction of automatic enrolment in workplace pensions) and fund charges. Chapter 7 concludes.



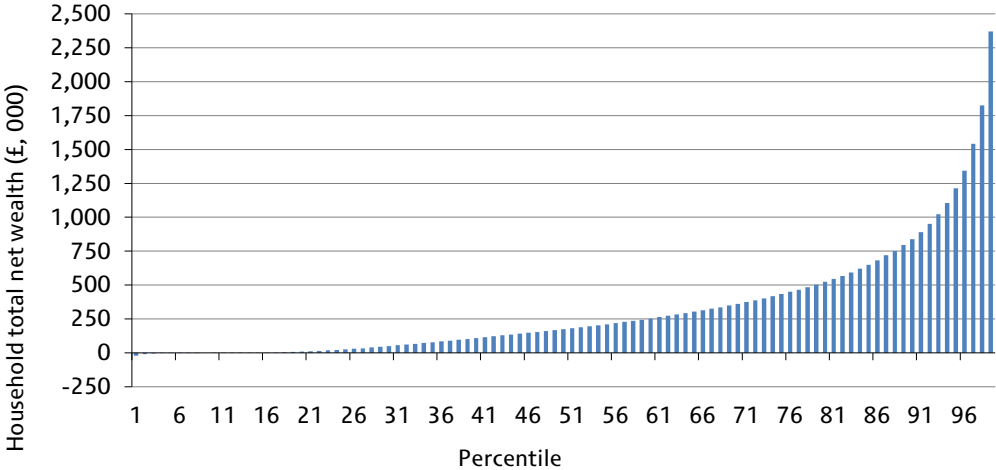
## 2. The Forms in which Wealth is Held

We begin this chapter<sup>1</sup> by describing the distribution and composition of household wealth in Great Britain in 2010–12. This is the latest year for which detailed data are available from the Wealth and Assets Survey (WAS), which collects detailed information on the wealth of a broadly representative sample of around 20,000 households in Great Britain (particularly the level of wealth held in many different types of assets).

Because of data limitations, our measure of wealth excludes assets in one’s own business, physical wealth apart from housing (e.g. cars, jewellery and art) and the implicit wealth accumulated by investing in labour market skills (human capital) and thereby increasing lifetime earning potential. All figures are presented at the household level, and we do not adjust for household size.<sup>2</sup>

Figure 2.1 orders the household population from the least wealthy on the left to the wealthiest on the right, and plots the wealth of households at each ‘percentile’ of the distribution. (For example, the 20<sup>th</sup> percentile at around £10,000 indicates that 20% of households have household wealth of £10,000 or less.) The figure immediately makes clear the well-known fact that wealth is distributed very unequally. A significant proportion of households have no wealth at all: the first percentile is –£16,000 (so 1% of households have net debts of greater than £16,000), and the 9<sup>th</sup> percentile is £0 (so 9% of households have no positive net wealth). Wealth at the 50<sup>th</sup> percentile (the median) is £172,000: half of

Figure 2.1. Percentile plot of total net household wealth



Note: Weighted sample of all households interviewed in the WAS in 2010–12.  
 Source: Figure 2.1 in Crawford et al. (2015).

<sup>1</sup> The analysis in this section draws partly from Crawford et al. (2015).

<sup>2</sup> In comparing distributions of income and expenditure across households it is common to ‘equivalise’ (i.e. to divide by the number of equivalent adults in the household) to account for the fact that not all households are the same size. There is no consensus on whether – and, if so, how – to equivalise wealth, and we do not do so in this report.

households have less than this level of wealth while half have more. Wealth at the very top increases dramatically across a small number of percentiles – the 95<sup>th</sup> and 99<sup>th</sup> percentiles are £1.2m and £2.4m respectively. These very high percentiles are likely to be underestimates – it is suspected that wealth surveys such as the WAS are not able to capture the wealth levels of those at the very top of the wealth distribution.

The wealth distribution, then, is very unequal. However, in comparing wealth across households of different ages, we are likely to be exaggerating the implications of that inequality for household well-being. Suppose all households in the population had the same path of wealth (so that, over an entire lifecycle, there is no wealth inequality). In this scenario, a comparison of households at older ages (when they will have had the time to accumulate substantial levels of wealth) with those at younger ages will reveal wealth inequality. To separate wealth inequality among different individuals of the same age from wealth inequality across the lifecycle of the same individuals, it is useful to present analysis separately by household age groups. The groups are: 25–34, 35–44, 45–54, 55–64, 65–74, 75–84 and 85 and over, defined by the age of the survey respondent or their partner if older. (Those households where the oldest member is aged under 25 are excluded from our analysis.)

Figure 2.2 shows selected percentiles (the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup> (median), 75<sup>th</sup> and 90<sup>th</sup>) of total household wealth for each of these age groups. Apart from the 10<sup>th</sup> percentile, which is close to zero for all age groups, most percentiles exhibit as a typical ‘lifecycle’ pattern. Wealth levels rise up to retirement age and fall thereafter (because wealth – particularly pension wealth – may be run down in retirement).<sup>3</sup> Median wealth is £23,000 for those aged between 25 and 34, is at a peak of £382,000 for those aged 55–64 and is lower (at £173,000) among those aged 85 and over.

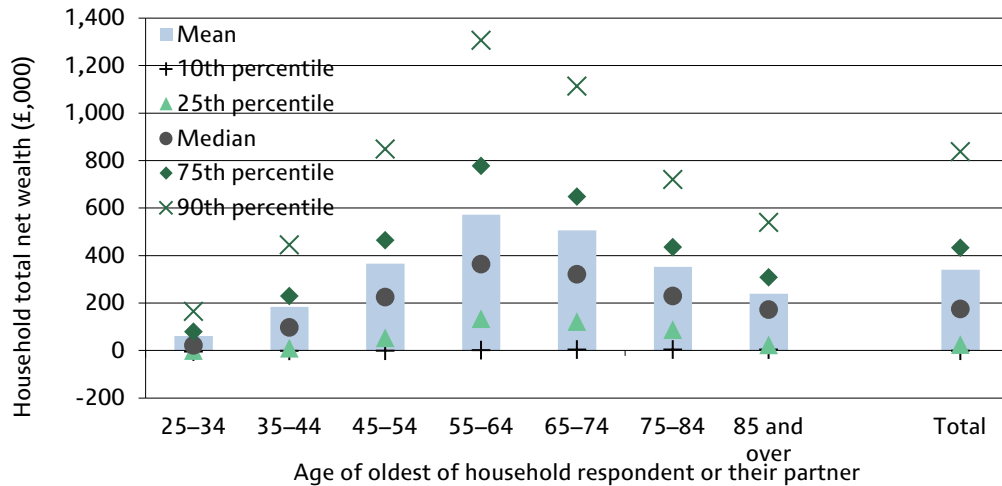
We now consider the forms in which wealth is held. There are many different forms in which households might hold wealth. Wealth might be divided between physical assets and financial savings. The former category consists mainly of residential property, although other forms of property or valuables (which we exclude) might be important for some individuals. Financial savings might be held in many different assets: in pensions; in regular bank or building society accounts; in tax-privileged ISAs; in stocks and shares held either directly or through a trust or fund; and in any of a plethora of National Savings products, to name but a few of the possibilities.

Figure 2.3 shows that net wealth in 2010–12 is £340,000 on average per household. Most wealth is held in one of two forms: owner-occupied housing and

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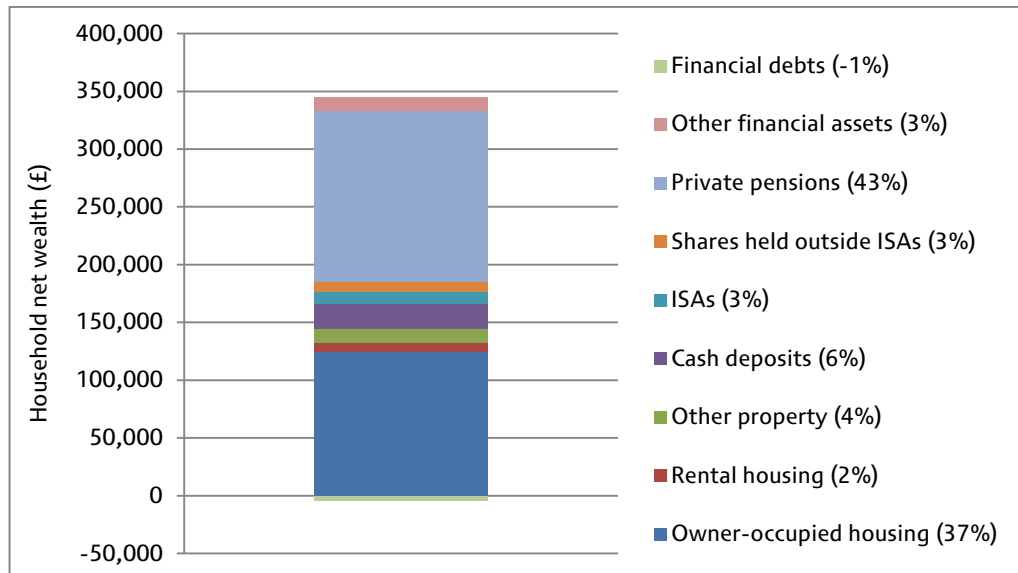
<sup>3</sup> In comparing households of different ages here, we are conflating differences due to households being of different ages (and so having had different lengths of time to accumulate wealth) and households belonging to different birth cohorts (and so having lived through different times that will have afforded them different economic opportunities). Separating these effects requires data for given cohorts across many ages, something that does not (yet) exist for the UK.

Figure 2.2. Distribution of total net household wealth by age



Note: Weighted sample of all households interviewed in the WAS in 2010–12.  
Source: Figure 2.2 in Crawford et al. (2015).

Figure 2.3. The form in which wealth is held



Note: Weighted sample of all households interviewed in the WAS in 2010–12.  
Source: Authors' calculations.

pensions. On average, net wealth in owner-occupied housing is £125,000 (37% of the total) and net pension wealth is £148,000 (43%). The next biggest category is taxed interest income, primarily cash deposits in bank accounts, which makes up £21,000 (6%) on average. ISAs are a relatively small category at £10,000 on average (3% of the total).

In Table 2.1, we show how the composition of assets varies by age. From this table, we see that:

- pension wealth as a share of the total peaks at 51% among 55–64 year olds and declines thereafter;

## *The effects of taxes and charges on saving incentives in the UK*

- owner-occupied housing, in contrast, is smallest as a share of the total among 55–64 year olds, at 31%;
- although a small share overall, buy-to-let housing as an investment is a preserve of the young;
- households aged 25–34 have the highest financial debts as a share of the total at –10%.

In Table 2.2, we put households into (unequalised) wealth deciles (tenths of the population) to show how the composition of assets varies across the wealth distribution. This table shows that:

- net wealth is negative for the poorest wealth decile (hence explaining why the signs for individual assets are the opposite of what might be expected – they are percentages of a negative total);
- housing wealth as a share of total wealth peaks in the middle of the wealth distribution (57% in decile 5);
- aside from the poorest wealth decile, pensions as a share of the total are lowest in the middle of the wealth distribution (33% in deciles 5 and 6);
- taxed interest income, ISAs and shares outside ISAs all are lowest in the middle of the wealth distribution;
- financial debt is highest as a share of the total at the bottom of the wealth distribution.

In Chapter 4, we will look in more detail at the tax treatment of the returns to saving in these different assets, and see that this can vary considerably.

Table 2.1. The proportion of wealth held in different forms by age (%)

Asset	<i>Age of oldest of household respondent or their partner</i>							Total
	25–34	35–44	45–54	55–64	65–74	75–84	85+	
Owner-occupied housing	43	41	34	31	37	48	62	37
Rental housing	5	3	2	2	1	1	1	2
Other property	7	5	4	4	4	2	1	4
Taxed interest income	9	6	5	6	7	8	11	6
ISAs	4	2	2	3	4	4	5	3
Shares held outside ISAs <sup>a</sup>	1	2	2	2	3	5	4	3
Private pensions <sup>b</sup>	32	37	48	51	42	29	16	43
Other financial assets	9	7	4	2	2	2	2	3
Financial debts	–10	–3	–1	–1	0	0	0	–1
Total net wealth	100	100	100	100	100	100	100	100

<sup>a</sup> Excludes employee shareholdings and shares in respondents' own businesses.

<sup>b</sup> Includes the value still to be received of pensions in payment. See Crawford et al. (2015) for details.

Note: Property categories show property wealth net of mortgages secured against the property.

Source: IFS calculations using a weighted sample of all households interviewed in the WAS in 2010–12.

Table 2.2. The proportion of wealth held in different forms by wealth decile

Asset	<i>Decile of household total wealth distribution</i>									
	Poorest	2	3	4	5	6	7	8	9	Richest
Owner-occupied housing	17	16	35	51	57	55	51	44	37	27
Rental housing	4	0	1	1	1	1	1	2	2	3
Other property	0	1	2	2	2	2	2	3	3	5
Taxed interest income	-9	47	13	7	5	5	5	5	6	7
ISAs	-4	10	5	3	3	2	3	3	3	3
Shares held outside ISAs <sup>a</sup>	-1	1	1	0	0	0	1	1	2	4
Private pensions <sup>b</sup>	-17	71	59	40	33	33	36	40	45	47
Other financial assets	-5	15	4	3	3	3	3	3	3	4
Financial debts	114	-61	-19	-6	-3	-2	-1	-1	0	0
Total net wealth	100	100	100	100	100	100	100	100	100	100

<sup>a</sup> Excludes employee shareholdings and shares in respondents' own businesses.

<sup>b</sup> Includes the value still to be received of pensions in payment. See Crawford et al. (2015) for details.

Note: Property categories show property wealth net of mortgages secured against the property.

Source: IFS calculations using a weighted sample of all households interviewed in the WAS in 2010–12.

## 3. Measures of Tax on the Return to Saving

### 3.1 Which taxes should we include?

When measuring the effect of tax on the return to saving, we have to make some decisions about which taxes to include in the calculations.<sup>4</sup> In particular, we might think that when savings are invested in company stocks and shares, taxes on company profits will affect the final return accruing to the investor and so should be included in our calculation. However, we might prefer to take the view that UK savers can invest at a given (risk-adjusted) rate of return determined on world capital markets and that this is the rate of return received on UK stocks after taxes on corporate profits have been paid. This ‘small open economy’ assumption does not seem unreasonable for the UK. The assumption justifies the view that the taxes affecting the return to assets received by UK savers are personal taxes – primarily income tax, but also taxes such as CGT. This is the view we take in this paper, where our measures concern personal taxes but not taxes on profits. We also incorporate the effects of means-tested benefits and tax credits.

The previous paragraph summarises our broad strategy concerning which taxes to include, but certain taxes and asset types cannot be categorised neatly according to this summary.

- Stamp duties on transactions of stocks and shares, and of housing, may be thought of as ‘personal taxes’. However, consider stamp duty on shares. This is paid on all share transactions, regardless of who buys or sells the shares. This means that people will be prepared to pay less for UK shares, and so stamp duty on share transactions is reflected in the price of UK shares. While this affects the value of these shares and the amount UK firms can raise by selling shares, it does not affect the return to a saver investing in shares. We will ignore stamp duties in all of our calculations.
- The ‘small open economy’ assumption underlying our decisions about which taxes to include in our calculations is perhaps least easy to sustain when we consider housing. However, it does not seem entirely implausible to suppose that taxes such as stamp duty land tax and council tax, which apply to all UK housing rather than to UK residents who invest in housing, will primarily affect the price of housing rather than the return on wealth invested in residential property. We will ignore stamp duty land tax and council tax in our calculations.

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<sup>4</sup> Some of the points of this section are discussed in more detail in Section 4.3 of Adam et al. (2010).

- Provisions for and reforms to ‘dividend tax credits’ mean that it is hard to decide whether these should properly be considered as part of the income tax system that applies only to UK savers, or whether they are more like credits attaching to all dividends paid by UK companies and so not truly personal taxes. Indeed, whether or not these credits should properly be considered as part of personal tax may have varied as provisions have changed over time and according to how shares are held (whether directly or through institutional investors such as pension funds). We will take account of dividend tax credits paid to UK savers who hold stocks directly.
- Throughout the report, we will not consider saving for bequests and we will therefore ignore both inheritance tax and the fact that there is no CGT on assets at death.

## 3.2 Defining measures of the tax on the return to saving

For interpreting data on how much wealth households hold in different assets, and how this relates to the tax system, it is useful to have a framework for thinking about how assets are taxed. We can think of three points at which saving may be taxed: first, the income saved may be taxed; second, the returns (such as interest, dividends, rent or capital gains) may be taxed; and third, the funds withdrawn from the asset may be taxed. The tax treatment of different assets may then be described according to whether each stage in the life of the asset is taxed (T) or exempt from tax (E). Thus, a regular bank account would be described as having ‘TTE’ tax treatment, since savings are made from income after tax, interest is also subject to income tax, but withdrawals from the account are not taxed. As we discuss in more detail below, other assets offer different tax treatment. For example, ISAs are taxed on a TEE basis, while the majority of funds held in private pensions follow an EET model.

### The effective tax rate

The effective tax rate (ETR) is defined as the percentage reduction in the annual real rate of return on the asset due to the relevant taxes.<sup>5</sup> We choose to express the tax rates relative to a baseline in which the individual saves out of taxed income but the return to saving and the resources that are withdrawn from the asset are not taxed. Under the framework described in Chapter 2, this is ‘TEE’ tax treatment since contributions to the account have been taxed (T) but returns are exempt (E) from tax and withdrawals are also exempt (E). This ‘TEE’ benchmark is the regime of taxation for saving in an ISA, and assets that match this benchmark have an effective tax rate of zero.

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<sup>5</sup> This definition follows Wakefield (2009), and is very similar to that used in Capital Taxes Group (1989), which in turn drew on Hills (1984) and Saunders and Webb (1988).



To show how this definition translates into ETRs, it is helpful to consider the numerical calculations described in Table 3.1. As well as illustrating how ETRs are calculated, the numbers in the table show the following.

- With the same tax rate when contributions to and withdrawals from a savings account are made, TEE and EET tax treatment are equivalent in terms of tax on returns (columns 1 and 3).
- Having a tax on the return to saving creates a positive ETR (column 2).
- Having a tax rate that increases between paying savings in and withdrawing savings from an account means that the final value of funds in the account is reduced by EET treatment relative to TEE treatment and so this is a positive ETR. This ETR can be very high in the case when the savings are held for one year (column 4).
- Having a tax rate that decreases between paying savings in and withdrawing savings from an account means that the final value of funds in the account is increased by EET treatment relative to TEE treatment and so this is a negative ETR (an effective subsidy). The magnitude of this ETR can be very large in the case when the savings are held for one year (column 5).

Table 3.1. Illustrative examples of ETRs for savings held for one year

	(1) TEE	(2) TTE (cash deposit)	(3) EET, tax 20%	(4) EET, tax 20% to 40%	(5) EET, tax 40% to 20%
Contribution from taxed income	100	100	100	100	100
Contribution + tax relief	100	100	125	125	166.67
Nominal value after return	105.06	104.05	131.33	131.33	175.10
Nominal value after tax on withdrawal	105.06	104.05	105.06	78.80	140.08
Annual real rate of return	3%	2%	3%	-22.75%	37.33%
Change in annual real rate of return	3-3 = 0	3-2 = 1	3-3 = 0	3-(-22.75) = 25.75	3-37.33 = -34.33

Note: Inflation 2%, real return 3%.

Source: Authors' calculations.

## The contribution required to match final wealth under the TEE benchmark

The ETR is a useful summary measure, but unless one is extremely proficient at the mental arithmetic of calculating compound interest, it does not provide a very immediate measure of how the tax affects lifetime resources. We therefore provide the alternative measure of how much one would have to invest in each asset in order to match the final wealth from investing 100p in the TEE benchmark. In this case, 100 is the benchmark of equivalence with TEE.

Once we have calculated the ETR for each asset, it is in fact quite simple to calculate this second measure of how tax affects the asset return: one simply divides the nominal value of the final wealth in the account in the TEE benchmark by the nominal value of the final wealth in the asset in question and multiplies by 100. Thus, for the case of the cash deposit account, the amount required is 101p ( $= 100 \times 105.06/104.05$ ), which means that one must invest 101p in this account to achieve after one year the same wealth that could be achieved by investing 100p in the TEE account.<sup>6</sup>

Table 3.2 records this measure for each of the assets considered in Table 3.1.

**Table 3.2. Illustrative examples of contribution required to match TEE return on 100p after one year**

	TEE	TTE (cash deposit)	EET, tax 20%	EET, tax 20% to 40%	EET, tax 40% to 20%
Amount needed to match TEE wealth	100p	101p	100p	133p	75p

Note: Inflation 2%, real return 3%.

Source: Authors' calculations.

### 3.3 Factors that affect these measures

We have to make certain assumptions in order to calculate our ETR and 'contribution required' summary measures. In this section, we discuss two particularly pertinent assumptions: that of the investment horizon and that of the inflation rate.

#### The investment horizon

The investment horizon is the period for which an asset is held. Both the ETR and the 'contribution required' can vary with the investment horizon even when considering the same asset. In fact, the circumstances under which our measures will *not* vary with the investment horizon are relatively special.

<sup>6</sup> This measure is equivalent to looking at how much final wealth would be generated by saving in an asset as a percentage of the final wealth that would be generated by saving the same amount in an untaxed (TEE) asset: the latter can be calculated as 100 divided by the number in Table 3.2.

- For the ETR, the horizon will not matter in the case when the tax is levied on the return to an asset as it accrues. Thus, the ETR will be invariant to the horizon for the case in which the only difference from the TEE asset is a constant-rate tax on the return, as in the TTE cash deposit example.
- For the ‘contribution required’ measure, however, the horizon will not matter in the case when the taxation on the asset does not affect the rate at which the asset return compounds. That is, this measure is invariant when the deviation from TEE is extra (or reduced) tax on the initial investment or on the final wealth that is withdrawn from the asset. The examples of EET taxation with different tax rates at investment and withdrawal are cases of this kind.

Table 3.3 shows how much our measures vary with the investment horizon, for the example assets we have been considering so far. The dramatic changes in the numbers as the horizon changes are illustrative of the power of compound interest.

Table 3.3. When the horizon matters

	(1) TEE	(2) TTE (cash deposit)	(3) EET, tax 20%	(4) EET, tax 20% to 40%	(5) EET, tax 40% to 20%
<b>Effective tax rate</b>					
1-year horizon	0%	33%	0%	858%	-1,144%
10-year horizon	0%	33%	0%	97%	-100%
25-year horizon	0%	33%	0%	39%	-40%
<b>Contrib. required</b>					
1-year horizon	100p	101p	100p	133p	75p
10-year horizon	100p	110p	100p	133p	75p
25-year horizon	100p	127p	100p	133p	75p

Note: Inflation 2%, real return 3%.

Source: Authors’ calculations.

In the examples that follow for UK savings products, we find assets, such as holdings of shares, or wealth invested in rental housing, that are affected by tax on returns as they accrue and also by tax on final wealth holdings. As we shall see, for these assets, both measures of how tax affects the return to saving are dependent upon the horizon of the investment.

### The inflation rate

Our measures of the effect of tax on asset returns have been calculated assuming a real return of 3% in each asset, achieved on top of a 2% rate of inflation.<sup>7</sup> Holding the real return fixed but changing the assumption about the rate of

<sup>7</sup> The central CPI inflation target for the Bank of England is 2%.

inflation will change the values computed for some assets. In particular, the inflation rate will matter for assets for which there is tax on the *nominal* return as this accrues, since a change in the inflation rate will change the return each year accruing to this asset, and the proportion of the real (i.e. net-of-inflation) return that is taken in tax. Table 3.4 illustrates, for a ten-year investment, how inflation matters for our illustrative assets: for these cases, inflation only matters for the TTE cash deposit account.

Table 3.4. The effects of inflation over a ten-year investment

	(1) TEE	(2) TTE (cash deposit)	(3) EET, tax 20%	(4) EET, tax 20% to 40%	(5) EET, tax 40% to 20%
<b>Effective tax rate</b>					
0% inflation	0%	20%	0%	97%	-100%
2% inflation	0%	33%	0%	97%	-100%
4% inflation	0%	46%	0%	97%	-100%
<b>Contrib. required</b>					
0% inflation	100p	106p	100p	133p	75p
2% inflation	100p	110p	100p	133p	75p
4% inflation	100p	114p	100p	133p	75p

Note: Real return 3%.

Source: Authors' calculations.

### 3.4 Risk and returns

It may seem odd that our discussion of saving and the taxation of assets has not mentioned differences in returns across different assets or differences in risk across different assets. It is therefore worthwhile saying a few words about each of these.

Our measures of the level of tax on returns assume a given level of return for all assets and assess how this would be affected by taxation. We hold the real rate of return on all savings fixed at 3% per year. We do so in order to separate the effects of differential taxation of different assets from the effects of the different returns they may happen to earn. That is not to say that we believe that the pre-tax return to all assets is the same. Indeed, in a properly functioning capital market, we might rather think that the after-tax returns would be equalised. Even if the capital market is not perfect, it is still the after-tax rate of return that will attract investors to different assets. Our measures are intended to capture how big a distortion the tax system creates to these after-tax returns, for different assets.

As well as the (expected) *level* of returns, the perceived riskiness of returns in different assets will also have a bearing on individuals' choices about how to save. However, we will not take account of the level of risk in our calculations; instead, we consider the tax on a given return. Some of our analyses would not be

affected by risk. For example, the equivalence between TEE and EET tax treatment in terms of the final return received by the individual is a result that holds even when there is risk. However, when considering the distortions created by the tax system, risk cannot be entirely ignored. To take just one example, since capital gains and capital losses are not treated symmetrically (there are not full tax refunds for losses realised), the tax system may penalise risky forms of saving relative to safer forms in that respect.

In the light of this discussion of risk, the results in this report should be interpreted bearing in mind that they concern how taxes affect the level of returns, not how taxes affect the risk associated with different assets.

## 4. The Effects of Taxation on Saving Incentives in 2015–16

Having considered how to measure the level of tax on the returns to saving, and the caveats concerning different returns and uncertainty that must be borne in mind when interpreting these measures, we can now look at the level of tax on the return to saving in different assets in the UK. In this chapter, we focus on the 2015–16 UK tax system.

### 4.1 How saving in different assets is taxed

A description of how different forms of savings are taxed requires us to take account of income tax, NICs and CGT. Table 4.1 summarizes the treatment under each of these taxes of the following seven classes of assets: ISAs, cash deposit accounts, employee pension contributions, employer pension contributions, owner-occupied housing, rental housing and taxable shareholdings. There are, of course, many other assets in which people can save, and which in some cases receive special tax treatment. These include assets in one's own business and numerous varieties of National Savings products, life insurance products, venture capital schemes and employee share schemes, to name just a few. In this report, however, we restrict attention to these seven major asset classes.

Table 4.1. Shares of working life and retirement spent facing different marginal tax rates under an AEI-uprated 2015–16 tax system

Asset	Contributions		Returns		Withdrawals Income tax and NICs
	Income tax and NICs	Income tax on interest/dividend	CGT		
ISA (cash or shares)	Taxed	Exempt	Exempt		Exempt
Cash deposit account	Taxed	Taxed	N/A		Exempt
Employee pension contributions	Exempt from income tax, not exempt from employer and employee NICs	Exempt	Exempt		Taxed except for a 25% lump sum, no NICs
Employer pension contributions	Exempt from income tax and employer and employee NICs	Exempt	Exempt		Taxed except for a 25% lump sum, no NICs
Owner-occupied housing	Taxed	Exempt	Exempt		Exempt
Rental housing	Taxed	Rental income taxed	Taxed		Exempt
Taxable shareholdings	Taxed	Dividend income taxed	Taxed		Exempt

Source: Based on Table 14.1 of Mirrlees et al. (2011).

For owner-occupied housing and for cash and shares held in ISAs, saving is out of taxed income and there is no tax on returns and no tax on withdrawals (the proceeds of sale in the case of housing): a TEE treatment. This treatment is very limited in the case of ISAs, into which just over £15,000 can be placed each year.

Tax exemption is provided in a different way for pensions: saving is out of untaxed income, fund income is untaxed, but withdrawals are taxed: EET. This regime for pensions would produce the same effective tax rate of zero on the normal return to savings; however, the 25% lump sum that can be withdrawn from pension funds tax-free means that pension saving is in effect subsidized. In addition, employers' pension contributions are particularly tax-favoured since they are not subject to employer or employee NICs, either at the point of contribution or at the point of withdrawal.

NICs are not charged on the returns to any form of savings, nor is relief from NICs available for contributions to any form of savings other than employer contributions to pensions. This means that the NICs treatment of all other savings is effectively TEE. Savings are made from income on which NICs have already been charged, but returns are not subject to NICs.

Cash in ordinary interest-bearing deposit accounts is saved out of taxed income, and income tax is then applied to the full nominal return: TTE. The same is true of equities held outside ISAs, with income tax due on dividends and CGT applicable to capital gains.

## **4.2 Tax on saving for a basic-rate taxpayer**

Under the 2015–16 tax system, a basic-rate taxpayer faces an income tax rate of 20%, employee NICs of 12%, employer NICs of 13.8%. Dividend income is formally taxed at 10%, but this is offset by a dividend tax credit that reduces the effective tax rate on dividend income to 0%. The CGT rate for a basic-rate taxpayer is 18% if capital gains exceed the annual exempt amount of £11,100 in 2015–16 (and 0% otherwise).

Tables 4.2 and 4.3 show how these tax rates translate into the ETR and required contribution measures of the tax on the returns to saving, for a range of assets held by an individual who is (and will continue to be) a basic-rate taxpayer.<sup>8</sup> In order to show more clearly the differences between the tax on returns for the different assets, Figure 4.1 displays the ETRs from Table 4.2 in graphical form.

The most favourable tax treatment (a tax subsidy relative to the TEE benchmark) applies to saving in private pensions, which gets upfront relief from income tax and allows the individual to benefit from a 25% tax-free lump sum when he/she begins to draw his/her pension. Employer contributions to pensions also benefit

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<sup>8</sup> We suppose that this taxpayer is not facing withdrawal of income-related benefits or tax credits. Interactions between the income-tax rate and the withdrawal of income-related benefits and credits are considered in Section 4.3.

Table 4.2. Effective tax rates (%) for a range of assets (2015–16 tax system)

ISA (cash or shares)	Any horizon	0
Cash deposit account	Any horizon	33
Employee pension contribution	10 years	-21
	25 years	-8
Employer pension contribution	10 years	-123
	25 years	-49
Owner-occupied housing	Any horizon	0
Rental housing <sup>a</sup>	10 years	30
	25 years	28
Taxable shareholdings <sup>b</sup>	1 year	12
	10 years	10
	25 years	7

a. We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. If there were no CGT incurred (e.g. because capital gains do not exceed the threshold for CGT), then the ETR would be 20% regardless of the duration of the investment, due to income tax on rent.

b. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred. If there were no CGT incurred (e.g. because capital gains do not exceed the threshold for CGT), then the ETR would be 0 regardless of the duration of the investment, since (after accounting for dividend tax credits) dividends on shares are effectively untaxed for a basic-rate taxpayer. This explains why shares ISAs are sometimes described as only offering a tax advantage to higher-rate taxpayers. It should, though, be noted that this tax advantage would influence the decisions of basic-rate taxpayers who expect to become higher-rate taxpayers while they have funds in the shares ISA.

Note: Calculations based on 3% real rate of return in all assets and 2% inflation. The TEE treatment given in an ISA is the benchmark, so equivalent taxation implies a 0% ETR. A negative tax rate then means a subsidy (relative to that benchmark), while a positive number means that there is tax on the real return. In calculating the ETR for employer contributions to a pension, we assume a salary sacrifice arrangement under which the employer pays the employee a lower salary and puts the whole of the saving (including employer NICs) into a pension on the employee's behalf. In addition, we assume that a basic-rate taxpayer has earnings below the upper earnings limit (UEL).

Source: Authors' calculations.

from exemption from employee NICs. As a result, employee contributions face an ETR of -8% and employer contributions an ETR of -49%, both over a 25-year horizon. The corresponding required contributions are 94p and 70p. Although not shown in the table, the incentive to contribute to a pension may be particularly strong close to retirement: the ETRs for employee and employer contributions over a one-year horizon are -215% and -1,451% respectively.

ISAs (cash or shares) and owner-occupied housing are both untaxed relative to the TEE baseline (0% ETRs and 100p required contributions). Cash deposits are subject to income tax on nominal returns so face a positive ETR (33% regardless of the horizon). Returns to wealth held in rental housing are taxed through CGT and through income tax on rents and therefore face an ETR of 28% and a required contribution of 122p over a 25-year horizon. Taxable shareholdings are subject to positive rates of taxation (an ETR of 7% and a required contribution of 105p over a 25-year horizon) due to capital gains being taxed for this asset.



Table 4.3. Contribution to a range of assets required to match TEE return (pence) (2015–16 tax system)

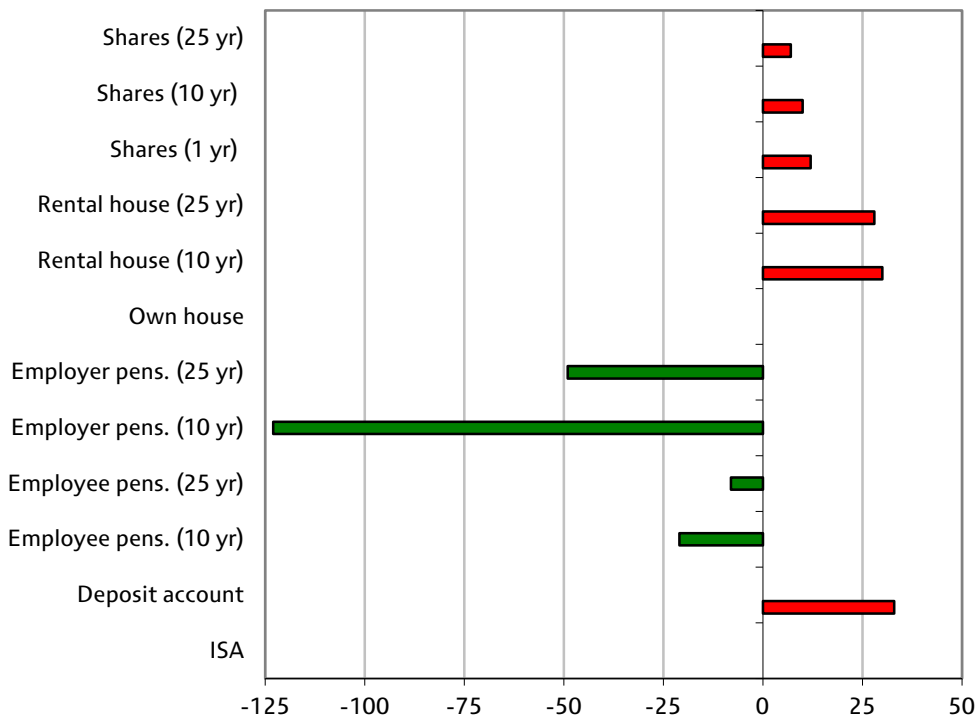
ISA (cash or shares)	Any horizon	100
Cash deposit account	1 year	101
	10 years	110
	25 years	127
	Any horizon	94
Employer pension contribution	Any horizon	70
Owner-occupied housing	Any horizon	100
Rental housing <sup>a</sup>	10 years	109
	25 years	122
Taxable shareholdings <sup>b</sup>	1 year	100
	10 years	103
	25 years	105

a. We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. If there were no CGT incurred (for example, because capital gains do not exceed the threshold for CGT), then the figures would be 106 and 116 for the respective horizons.

b. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred. If there were no CGT incurred (for example, because capital gains do not exceed the threshold for CGT), then the figure would be 100 for any investment horizon, since (after accounting for dividend tax credits) dividends on shares are effectively untaxed for a basic-rate taxpayer.

Note and Source: As for Table 4.2.

Figure 4.1. Effective tax rates for a range of assets (2015–16 tax system)



Note and Source: The data are those from Table 4.2 – see the Note and Source for that table. Green and red bars respectively mean tax-favoured and tax-disadvantaged relative to the TEE benchmark.

## The effect of inflation

Tables 4.4 and 4.5 show how the different measures in Tables 4.2 and 4.3 are affected when we change the assumption about price inflation. In particular, we consider zero inflation and 4% inflation, and how these compare with the 2% benchmark of the earlier tables. As anticipated in Section 3.3, since we are considering how tax affects real returns, inflation matters in cases when tax is proportional to the nominal return (i.e. the return including inflation). This is because the tax on the nominal return becomes bigger, relative to the real return, as inflation increases. This effect explains why inflation affects our measures of the tax on the return to saving in cash deposits, in housing other than the primary residence or in shares.

Table 4.4. Effective tax rates (%) for a basic-rate taxpayer for a range of assets and different levels of inflation

Asset		Inflation rate		
		0%	2%	4%
ISA (cash or shares)	Any horizon	0	0	0
Cash deposit account	Any horizon	20	33	46
Employee pension contribution	10 years	-21	-21	-21
	25 years	-8	-8	-8
Employer pension contribution	10 years	-123	-123	-123
	25 years	-49	-49	-49
Owner-occupied housing	Any horizon	0	0	0
Rental housing <sup>a</sup>	10 years	20	30	38
	25 years	20	28	33
Taxable shareholdings <sup>b</sup>	1 year	0	12	23
	10 years	0	10	18
	25 years	0	7	12

a. We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. If there were no CGT incurred, then the ETR would be 20% regardless of the horizon and inflation rate.

b. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred. If there were no CGT incurred, then the ETR would be zero regardless of the horizon or inflation rate.

Note and Source: As for Table 4.2.

Table 4.5. Contribution to a range of assets required to match TEE return (pence) for a basic-rate taxpayer, under different levels of inflation (2015–16 tax system)

Asset		Inflation rate		
		0%	2%	4%
ISA (cash or shares)	Any horizon	100	100	100
Cash deposit account	1 year	101	101	101
	10 years	106	110	114
	25 years	116	127	140
Employee pension contribution	Any horizon	94	94	94
Employer pension contribution	Any horizon	70	70	70
Owner-occupied housing	Any horizon	100	100	100
Rental housing <sup>a</sup>	10 years	106	109	112
	25 years	116	122	127
Taxable shareholdings <sup>b</sup>	1 year	100	100	101
	10 years	100	103	105
	25 years	100	105	109

a. We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. If there were no CGT incurred, then the required contribution for the 10- and 25-year horizons would be 106 and 116 regardless of the inflation rate.

b. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred. If there were no CGT incurred, then the required contribution would be 100 regardless of the horizon or inflation rate.

Note and Source: As for Table 4.2.

### 4.3 The effect of different tax rates

The figures in Section 4.1 were all for an individual who is a basic-rate taxpayer at all points in the lifecycle of the asset being considered. Under the 2015–16 tax system, however, individuals may face any of a considerable number of different marginal tax rates. In this section, we consider how the calculated ETRs and required contributions to match the return on a TEE investment vary across assets for taxpayers with different marginal rates, but maintaining the assumption that people remain in the same tax bracket throughout the lifetime of the asset. We then turn to look at the implications of people moving between tax brackets at different times – focusing specifically on pensions, where we will see that the combination of tax rates faced at the points of contributing to, and withdrawing money from, the pension can have very large effects on the incentive to save in that form. First, we begin by describing the different tax rates taxpayers may face.

#### Marginal tax rates faced by taxpayers

Out of a total UK adult population of around 52.7 million, 23.0 million are non-taxpayers (with incomes below the personal allowance of £10,600 in 2015–16), 24.7 million have incomes between £10,600 and £42,385 and therefore face the basic rate of income tax, 4.7 million have incomes between £42,385 and £150,000 and therefore face the higher rate of income tax of 40%, and 332,000

have incomes above £150,000 and so face the additional rate of income tax of 45%.<sup>9</sup> However, there are complications due to the withdrawal of various allowances and entitlements that increase the effective marginal tax rates that individuals in certain income ranges face.

One example is the withdrawal of the income tax personal allowance: once income exceeds £100,000, every additional £1 of income reduces the personal allowance by 50p until the personal allowance is completely exhausted (which currently happens at an income of just over £120,000). This creates an effective marginal tax rate of 60% over this range. To see this, note that if income goes up by £1, then 40p will be lost in higher-rate tax and 20p will be lost due to the withdrawal of the personal allowance (because this implies another 50p of income being taxed at the 40% higher rate). The government does not publish estimates of the number of people in this band, but based on those figures that are available it appears that 250,000–400,000 individuals will face this 60% marginal tax rate in 2015–16.<sup>10</sup>

Withdrawal of benefits also creates higher effective marginal tax rates. This is true for all means-tested benefits, but it is perhaps especially relevant here for child benefit and tax credits – the cases we consider here – since many families facing withdrawal of these benefits may also be saving.

Child benefit awards are withdrawn from families where at least one adult earns above £50,000. Awards are withdrawn on the basis of the individual with the highest income in the family. This happens at a rate of 1% of the award for each £100 of gross income over £50,000, meaning that awards are fully exhausted above £60,000. Since child benefit awards depend on the number of children in the family, the rate at which awards are withdrawn also depends on the number of children. For a one-child family, the withdrawal rate works out at 11%, which, together with 40% higher-rate tax, creates a marginal tax rate of 51% for incomes between £50,000 and £60,000. For a two-child family, the withdrawal rate is 18%, creating a marginal tax rate of 58%. Of the 4.7 million higher-rate taxpayers, we estimate that around 300,000 will be on the child benefit taper in 2015–16.<sup>11</sup>

One final case we will consider is the withdrawal of child tax credit (CTC) and working tax credit (WTC). CTC and WTC are subject to a combined means-test and are withdrawn at a rate of 41%, meaning that each additional £1 of gross income (above a threshold) reduces the tax credit award by 41p. For a basic-rate taxpayer, this implies a marginal tax rate of 61% (41% plus 20% basic rate).

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<sup>9</sup> These figures are taken from Grace et al. (2015).

<sup>10</sup> Our estimate of 250,000–400,000 is based on HMRC's projection that 473,000 taxpayers will have an income in the 100,000–150,000 range in 2015–16 in Table 2.5 of HMRC (2015). Since the density of the income distribution declines rapidly at high incomes, it is clear that a majority of those people will be in the lower 40% of that range, which is where the personal allowance taper applies.

<sup>11</sup> The 300,000 figure is based on our own calculations using the Family Resources Survey.

Around 3.9 million individuals are in families on the tax credits taper; many of these will be basic-rate taxpayers but some will face other marginal rates.<sup>12</sup>

The discussion so far in this section has focused on marginal income tax rates, but we must also take into account NICs and the treatment of dividends and capital gains when calculating the effect of the tax system on the incentive to invest in different assets. As described in Section 4.2, basic-rate taxpayers under the 2015–16 tax system face employee NICs of 12% and employer NICs of 13.8%. These rates also apply to individuals on the tax credits taper, assuming that they are also basic-rate taxpayers. For higher-rate taxpayers and above (including those on the child benefit taper, personal allowance taper and additional rate), the corresponding rates are 2% and 13.8%. Dividends are taxed at 10% for basic-rate taxpayers, 32.5% for higher-rate taxpayers and those on the child benefit taper and personal allowance taper, and 37.5% for additional-rate taxpayers but these rates are offset by a dividend tax credit that reduces the effective rates to 0%, 25% and 30.6%, respectively. Capital gains above the annual exempt amount are taxed at 18% for basic-rate taxpayers and 28% for higher-rate taxpayers and above.

### **Taxpayers with different marginal rates**

The first columns of Tables 4.6 and 4.7 replicate the ETRs and required contributions displayed in Tables 4.2 and 4.3. The remaining columns show how these figures are altered if we consider a taxpayer facing different marginal tax rates. We assume that people face the same marginal tax rate throughout the lifetime of the asset, except that since tax credits and child benefit are generally received only when one is of working age, the calculations for pensions assume that people facing withdrawal of those benefits when making pension contributions are ordinary basic- and higher-rate taxpayers respectively during retirement, not facing withdrawal of benefits or tax credit. As noted above, this is not a comprehensive list of possible marginal tax rates that individuals can face. ETRs are zeros always and everywhere for non-taxpayers, so we do not include them in the tables.<sup>13,14</sup> We assume that individuals on the tax credits taper are also subject to the basic rate of income tax. All calculations assume that savings do not cause an individual to cross a tax threshold.

For most assets, the results are unsurprising: the disincentive to save is greater for people facing higher marginal tax rates (whether because they are in higher income tax brackets or because they face withdrawal of income-related support). For example, the ETR on cash deposits is 33% for basic-rate taxpayers, 66% for

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<sup>12</sup> Source: calculations based on Table 2.1 of HMRC (2014).

<sup>13</sup> Non-taxpayers are individuals with income below the personal allowance or, in the case of savings income, income that falls in the starting rate band.

<sup>14</sup> There may be a small number of individuals who do not pay income tax but who have capital gains that exceed the annual exempt amount. For these individuals, the ETRs will be small and positive for rental housing and shares held outside ISAs. Likewise, we do not consider cases where capital gains take individuals into a higher tax band.

Table 4.6. Comparing ETRs (%) for taxpayers facing the same marginal rates throughout life (2015–16 tax system)

Asset		<i>Taxpayer's marginal tax rate</i>						
		Basic rate	Tax credits taper <sup>c</sup>	Higher rate	Child benefit taper (1 child) <sup>d</sup>	Child benefit taper (2 children) <sup>d</sup>	Personal allowance taper	Additional rate
ISA (cash or shares)	Any horizon	0	0	0	0	0	0	0
Cash deposit account	Any horizon	33	101	66	84	96	99	74
Employee pension contribution	10 years	-21	-278	-53	-123	-179	-111	-64
	25 years	-8	-109	-21	-49	-71	-44	-26
Employer pension contribution	10 years	-123	-467	-111	-184	-244	-176	-123
	25 years	-49	-180	-44	-73	-96	-69	-49
Owner-occupied housing	Any horizon	0	0	0	0	0	0	0
Rental housing <sup>a</sup>	10 years	30	71	56	67	74	76	61
	25 years	28	70	53	64	71	73	58
Taxable shareholdings <sup>b</sup>	1 year	12	53	43	54	61	63	49
	10 years	10	51	41	52	59	61	46
	25 years	7	49	37	48	56	58	43

a. We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. If there were no CGT incurred, then the ETR would be 20%, 40% and 45% for the basic-rate, higher-rate and additional-rate taxpayer respectively, regardless of the horizon.

b. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred. If there were no CGT incurred, then the ETR would be 0%, 25% and 31% for the basic-rate, higher-rate and additional-rate taxpayer respectively, regardless of the horizon.

c. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper during working life and faces the basic rate during retirement.

d. The child benefit taper columns assume that the individual is on the child benefit taper during working life and faces the higher rate during retirement.

Note and Source: As for Table 4.2.

Table 4.7. Contribution to a range of assets required to match TEE return (pence) (2015–16 tax system)

Asset		<i>Taxpayer's marginal tax rate</i>						Additional rate
		Basic rate	Tax credits taper <sup>c</sup>	Higher rate	Child benefit taper (1 child) <sup>d</sup>	Child benefit taper (2 children) <sup>d</sup>	Personal allowance taper	
ISA (cash or shares)	Any horizon	100	100	100	100	100	100	100
Cash deposit account	1 year	101	103	102	103	103	103	102
	10 years	110	135	121	128	133	134	124
	25 years	127	211	163	186	203	208	173
Employee pension contribution	Any horizon	94	46	86	70	60	73	83
Employer pension contribution	Any horizon	70	28	73	59	50	61	70
Owner-occupied housing	Any horizon	100	100	100	100	100	100	100
Rental housing <sup>a</sup>	10 years	109	123	118	122	124	125	120
	25 years	122	167	147	160	169	172	153
Taxable shareholdings <sup>b</sup>	1 year	100	102	101	102	102	102	101
	10 years	103	116	113	116	119	120	115
	25 years	105	143	131	142	150	153	137

a. We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. If there were no CGT incurred, then the contribution required for the 10- and 25-year horizons would be 106 and 116 for the basic-rate taxpayer, 112 and 134 for the higher-rate taxpayer, and 114 and 139 for the additional-rate taxpayer.

b. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred. If there were no CGT incurred, then the figures in this table for the 1-, 10- and 25-year horizons would be 100, 100 and 100 for the basic-rate taxpayer, 101, 108 and 120 for the higher-rate taxpayer, and 101, 109 and 125 for the additional-rate taxpayer.

c. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper during working life and faces the basic rate during retirement.

d. The child benefit taper columns assume that the individual is on the child benefit taper during working life and faces the higher rate during retirement.

Note and Source: As for Table 4.2.

higher-rate taxpayers, 74% for additional-rate taxpayers and 101% for basic-rate taxpayers on the tax credits taper (meaning that this final group lose more than the total 3% real return to cash deposits).

The exception is pension contributions. For employee pension contributions, the incentive to save – the effective tax subsidy – is greater for those facing higher marginal tax rates, because the value of the 25% tax-free lump sum is greater for those with higher tax rates.

For employer pension contributions, the situation is more complicated because of an offsetting factor: NICs relief for employer pension contributions. This relief is more valuable for a basic-rate taxpayer than for a higher-rate taxpayer, since the employee NICs rate is 12% below the UEL but only 2% above it. This in fact outweighs the tax-free lump sum being more valuable for higher-rate taxpayers, so overall the tax system subsidises employer pension contributions more for basic-rate taxpayers than for higher-rate taxpayers. To deliver the same final wealth as £1 saved in an ISA, the employer contribution need only be big enough to cost a basic-rate taxpayer 70p in lost upfront income, compared to 73p for a higher-rate taxpayer.

For an additional-rate taxpayer, the NICs relief is worth the same as for a higher-rate taxpayer while the tax-free lump sum is worth more, so the subsidy for their employer pension contribution is greater; the tax-free lump for additional-rate taxpayers turns out to be just valuable enough to offset the extra NICs relief received by basic-rate taxpayer, so the same 70p employer pension contribution is required to match the final wealth generated by £1 saved in an ISA. The tax-free lump sum is even more valuable to those facing withdrawal of the personal allowance, so the incentive is even stronger for them. Those on the tax credits taper or on the child benefit taper have extraordinarily strong incentives for pension saving since they receive high effective relief on contributions and we assume that they are not taxed in retirement.

However, this discussion of the tax incentives for pension saving brings home the importance of our assumption that people face the same marginal tax rate throughout the life of the asset. In practice, most people who are higher-rate taxpayers when making pension contributions will not be higher-rate taxpayers in retirement (see Tables 4.8 and 4.9 and surrounding discussion), and the number of people facing the additional rate of tax or the withdrawal of the personal allowance in retirement is vanishingly small. For pensions in particular, it is therefore crucial to consider the consequences for saving incentives of facing different marginal tax rates at different times, and it is to that issue that we now turn.

### **The effect of facing changing tax rates over time**

Individuals rarely face the same marginal tax rate throughout their adult life. Income changes move them into different tax brackets; other relevant circumstances also change, such as the presence or absence of children affecting entitlement to child-related benefits and tax credits. Marginal rates can also



change because the government changes the tax rates associated with a particular income and circumstances.

For most of the assets we consider, it is the return to saving that is taxed, and what matters is the tax rate faced when the returns are received: when interest, dividend or rental income is received and when capital gains are realised. The implications of this are straightforward: if, for example, part of the returns will be received when the individual is a basic-rate taxpayer and part when they are a higher-rate taxpayer, then the disincentive for that individual to save will be in between those for basic- and higher-rate taxpayers in the tables above. Insofar as people can manipulate the timing of their income, they can reduce their overall tax liability – and their disincentive to save – by taking the money at a time when their tax rate is low. Obvious examples of this include people choosing when to sell assets that would be subject to CGT and company owner-managers choosing when to extract cash from the company in the form of dividends.<sup>15</sup>

For pensions, changes in the individual's marginal tax rate over time are a more fundamental issue. For most assets, returns typically start to be received and taxed from the point at which the money is saved and tax continues to be levied in a consecutive series of years – often a relatively short series – thereafter; the issue is how much the individual's marginal tax rate fluctuates during those years. For pensions, in contrast, taxes and tax reliefs are applied not year-to-year as returns are generated but exclusively at the two ends of the process: the time at which the contribution is made, and the time at which income or capital is withdrawn. Also, the nature of pensions as a long-term retirement savings vehicle means that there is often a large gap between these two ends, with the contribution being made and tax-relieved during working life (when income is relatively high and children may well be present) and the money being withdrawn and taxed during retirement (when income is usually much lower and dependent children are rare).

Widely cited statistics from HM Revenue and Customs (HMRC) show that 14% of taxpayers whose main source of income is employment or self-employment earnings are higher-rate taxpayers, but only 5% of taxpayers whose main source of income is from pensions are.<sup>16</sup> However, comparing the proportions of higher-rate taxpayers among current workers and current pensioners is not terribly informative about saving incentives for either generation: what matters is the likelihood of someone in a given generation being a higher-rate taxpayer during their working life and during retirement. In the years when current pensioners were making their contributions, the proportion of them who were higher-rate taxpayers was much lower than 14%. In this case, the cross-sectional comparison overstates the extent to which people move into lower tax brackets when they

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<sup>15</sup> People may also manipulate the form and timing of their income to ensure they take full advantage of their income tax personal allowance or additional allowances available for particular forms of return – an issue we return to in Section 5.1.

<sup>16</sup> Source: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/399073/Table\\_3\\_4\\_13.xls](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/399073/Table_3_4_13.xls).

retire. For a better guide, we must follow the experiences of a single cohort through their lives.

Unfortunately, available data do not allow us to track individuals directly across their entire adult lives. However, recent work at the IFS has allowed us to quantify the extent to which individuals tend to face different tax rates in working life and retirement, based on simulated lifetimes designed to replicate the experiences of the baby-boom cohort – those born in the years 1945–54.<sup>17</sup> To focus on the effects of changes in people’s incomes and other circumstances rather than on tax policy changes that happened at the same time, we assume that individuals face the same tax system throughout life (the 2015–16 system) and ask: what fraction of individuals face one tax rate while working (e.g. the higher rate) and another during retirement (e.g. the basic rate)?

This question is not as straightforward as it may seem, for the following two reasons.

1. Applying ‘the same tax system’ throughout people’s lives raises the question of what is meant by ‘no change’ in the system when the general level of prices and earnings tends to rise over time. Applying 2015–16 tax thresholds in cash terms in the 1970s does not seem equivalent to applying them now: in cash terms, incomes then were so much lower that the system would have wholly different effects – and indeed, recognising this, the government does routinely uprate most parameters of the tax system each year even when not announcing ‘reforms’. We must choose a rule for ‘no change’ uprating of the tax system to tell us what tax systems for previous years would, if uprated but not otherwise reformed (i.e. if ‘unchanged’), result in the 2015–16 tax system today, and similarly what ‘no change’ from the 2015–16 system would mean in future years.

There is no single right answer for how to do this, so we present two alternatives: uprating in line with retail prices index (RPI) inflation or uprating in line with the average earnings index (AEI). RPI uprating is closer to the actual default uprating rules used by the government, while AEI uprating is closer to ensuring that the tax and benefit system raises the same revenue in real terms each year. The RPI tends to increase more slowly than the AEI. This means that, relative to AEI uprating, RPI uprating will tend to result in higher tax thresholds in years prior to 2015–16 and lower in years after 2015–16 (and identical thresholds in 2015–16 because we are using the 2015–16 tax system). Because 2015–16 is also around retirement age for many in the baby-boom cohort, this means that RPI uprating will tend to count fewer individuals as facing higher marginal tax rates during working life and more individuals as facing higher marginal tax rates in retirement.

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<sup>17</sup> More details about the methodology can be found in Levell et al. (2015).

2. Since working life lasts many years and people can make pension contributions at any time during it, being ‘a higher-rate taxpayer during working life’ is ambiguous. Do we mean being a higher-rate taxpayer throughout one’s working life, for the majority of one’s working life, or for at least some of one’s working life? All may be interesting. If we are simply interested in taking a broad-brush average, then looking at what someone’s position is the majority of the time has obvious appeal. To isolate the group that can most clearly and unambiguously be described as higher-rate taxpayers, we might want to look at people who are in that position throughout their working lives. However, people have a strong incentive to make pension contributions in years when their marginal rate is high; if someone can manage to cram their contributions into a few years when their marginal rate is high, then what matters is whether they are a higher-rate taxpayer for at least a few years.

A similar question can be asked about ‘being a basic-rate taxpayer in retirement’. People’s incomes tend to be more stable in retirement, but they can nevertheless change somewhat relative to tax thresholds – depending, of course, on how the thresholds are updated.

In Tables 4.8 and 4.9 we show, for RPI and AEI uprating respectively, the average proportion of their retirement that individuals spend as non-taxpayers, basic-rate taxpayers and higher-rate taxpayers or above, split according to the proportion of working life they face each of these three rates.<sup>18</sup> As expected, under RPI uprating, individuals spend more of their working life as non-taxpayers and less of working life as higher-rate taxpayers than under AEI uprating. Non-taxpayers during working life tend to be non-taxpayers during retirement. Under AEI uprating, individuals who are non-taxpayers for at least half of working life spend, on average, 79% of retirement as non-taxpayers, 20% as basic-rate taxpayers and 1% as higher-rate taxpayers or above. Basic-rate taxpayers during working life are either non-taxpayers or basic-rate taxpayers in retirement: individuals who are basic-rate taxpayers for at least half of working life spend, on average, 45% of retirement as non-taxpayers, 52% as basic-rate taxpayers and 4% as higher-rate taxpayers or above. Individuals who are higher-rate taxpayers or above during working life tend to be basic-rate taxpayers during retirement: those who are higher-rate taxpayers or above for at least 50% of working life spend, on average, 11%, 70% and 19% of retirement as non-taxpayers, basic-rate taxpayers and higher-rate taxpayers or above. Patterns under RPI uprating are similar, though individuals tend to spend slightly longer on average in higher tax brackets in retirement. This makes clear the importance of considering the case where individuals are higher-rate taxpayers during working life and basic-rate taxpayers during retirement.

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<sup>18</sup> Unfortunately we are not able to distinguish accurately between the higher-rate and additional-rate taxpayers because the simulations do not capture individuals on very high incomes very well, so we include additional-rate taxpayers in the higher-rate taxpayer group.

Table 4.8. Shares of working life and retirement spent facing different marginal tax rates under an RPI-uprated 2015–16 tax system

Status in working life	Share of individuals (%)	Share of retirement (%)		
		Non	BRT	HRT or above
Non-taxpayers				
≥10% of working life	92	49	48	4
≥25% of working life	69	56	42	2
≥50% of working life	38	67	32	1
≥75% of working life	16	81	19	0
≥90% of working life	6	85	15	0
Basic-rate taxpayers				
≥10% of working life	94	43	52	5
≥25% of working life	83	39	56	5
≥50% of working life	47	34	61	5
≥75% of working life	12	28	67	5
≥90% of working life	1	35	61	4
Higher-rate taxpayers or above				
≥10% of working life	31	24	64	11
≥25% of working life	15	16	67	18
≥50% of working life	3	8	64	28
≥75% of working life	0	N/A	N/A	N/A
≥90% of working life	0	N/A	N/A	N/A
All individuals	100	46	50	5

Note: ‘Working life’ is from the end of full-time education to the current state pension age (63 for women and 65 for men), irrespective of actual work status during that time, with ‘retirement’ thereafter. Estimates exclude all income sources apart from earnings and pensions.  
Source: Authors’ calculations based on simulated data.

While the fraction of pensioners who are higher-rate taxpayers in the cohort we simulate (and in the current pensioner population) is small, it is far from negligible. However, on current policy it will be much harder in future to be a higher-rate taxpayer on the basis of one’s pension income. The rules of the new single-tier pension system, combined with the gradual reduction in the lifetime limit on the value of pension funds to its new level of £1 million from April 2016, mean that it is unlikely that future retirees, who have largely saved under the current system, will be higher-rate taxpayers in retirement unless they have some other income sources to complement their state and private pension income. At current annuity rates, a 65-year-old who used 75% of a £1 million pension pot to purchase a fixed nominal annuity could expect to receive an annual income of around £40,000. Adding to this a full single-tier state pension would increase her annual income to around £48,000. This would still be below the £50,000 level for the higher rate threshold that the Conservative party manifesto committed to achieving by 2020. Of course, these calculations depend on assumptions about policy parameters such as the lifetime allowance (as well as on annuity rates), which are subject to change, especially over long periods.

Table 4.9. Shares of working life and retirement spent facing different marginal tax rates under an AEI-uprated 2015–16 tax system

Status in working life	Share of individuals (%)	Share of retirement (%)		
		Non	BRT	HRT or above
Non-taxpayers				
≥10% of working life	81	60	38	3
≥25% of working life	58	69	30	2
≥50% of working life	29	79	20	1
≥75% of working life	9	89	11	0
≥90% of working life	2	97	3	0
Basic-rate taxpayers				
≥10% of working life	97	52	44	4
≥25% of working life	86	49	47	4
≥50% of working life	53	45	52	4
≥75% of working life	17	39	57	4
≥90% of working life	3	27	70	3
Higher-rate taxpayers or above				
≥10% of working life	40	34	58	8
≥25% of working life	22	26	63	11
≥50% of working life	7	11	70	19
≥75% of working life	1	9	64	27
≥90% of working life	0	N/A	N/A	N/A
All individuals	100	53	43	4

Note: Working life is from the end of full-time education to the current state pension age (63 for women and 65 for men). Estimates exclude all income sources apart from earnings and pensions. Source: Authors' calculations based on simulated data.

The contrast between the RPI- and AEI-indexed cases in the simulation results above shows the importance of what happens to the higher-rate threshold (and the state pension) in the coming decades for determining how many people pay higher-rate tax in retirement.

Tables 4.10 and 4.11 show our different measures of the effects of taxation on the incentive to save in a pension for taxpayers who face various combinations of tax rates while working and retired. The bewildering array of numbers illustrates the sheer extent of variation that can arise in pension saving incentives purely as a result of facing different tax rates in work and retirement (and more variations could have been added). More concretely, the tables demonstrate that having different marginal tax rates at the contribution stage and at the withdrawal stage can dramatically affect the incentive to save in a pension. In Table 4.6, we showed the ETRs on employee pension contributions into a pension fund held for 25 years. The tax rates were –8% and –21% for basic- and higher-rate taxpayers respectively, on the assumption that they paid the same rate of tax in work as in retirement. If instead they make contributions when paying 40% tax and

withdraw when facing a 20% tax rate, the effective tax rate on their pension savings is –48%.

While a good starting-point for thinking about savings taxation might be to aim for uniform tax treatment across people as well as across assets, it is not necessarily undesirable that people who pay higher-rate tax in work and basic-rate tax in retirement have lower ETRs on pension saving. By saving in a pension rather than, say, an ISA, they are in effect shifting when that part of their income is taxed, from a time when their income is relatively high to a time when it is lower, so in both periods they pay tax on something closer to their average income over their lifetime. This saves them money because a progressive tax system that operates on an annual basis levies heavier tax on people with variable income. In the UK, someone whose income is £50,000 in one year and

Table 4.10. Effective tax rates (%) on returns to pension saving, for different combinations of working-life and retirement tax rates (2015–16 tax system)

Tax position in working life and retirement	10 years		25 years	
	Employee	Employer	Employee	Employer
Basic-rate to:				
Non-taxpayer	–77	–181	–31	–71
Basic rate	–21	–123	–8	–49
Tax credits taper to:				
Non-taxpayer	–339	–531	–132	–203
Basic rate	–278	–467	–109	–180
Higher rate to:				
Non-taxpayer	–180	–239	–71	–94
Basic rate	–122	–180	–48	–71
Higher rate	–53	–111	–21	–44
Child benefit taper (1 child) to:				
Non-taxpayer	–252	–316	–99	–123
Basic rate	–193	–255	–76	–100
Higher rate	–123	–184	–49	–73
Child benefit taper (2 children) to:				
Non-taxpayer	–310	–377	–121	–146
Basic rate	–250	–316	–98	–123
Higher rate	–179	–244	–71	–96
Personal allowance taper to:				
Non-taxpayer	–329	–398	–128	–154
Basic rate	–269	–336	–105	–131
Higher rate	–198	–264	–78	–103
Personal allowance taper	–111	–176	–44	–69
Additional rate to...				
Non-taxpayer	–212	–273	–83	–107
Basic rate	–153	–213	–60	–84
Higher rate	–84	–143	–33	–56
Personal allowance taper	0	–58	0	–23
Additional rate	–64	–123	–26	–49

Note and Source: As for Table 4.2.

Table 4.11. Contribution to pension required to match TEE (pence), for different combinations of working-life and retirement tax rates (2015–16 tax system)

Tax position in working life and retirement	Any horizon	
	Employee	Employer
Basic rate to:		
Non-taxpayer	80	60
Basic rate	94	70
Tax credits taper to:		
Non-taxpayer	39	24
Basic rate	46	28
Higher rate to:		
Non-taxpayer	60	51
Basic rate	71	60
Higher rate	86	73
Child benefit taper (1 child) to:		
Non-taxpayer	49	42
Basic rate	58	49
Higher rate	70	59
Child benefit taper (2 children) to:		
Non-taxpayer	42	35
Basic rate	50	41
Higher rate	60	50
Personal allowance taper to:		
Non-taxpayer	40	33
Basic rate	47	39
Higher rate	57	48
Personal allowance taper	73	61
Additional rate to:		
Non-taxpayer	55	47
Basic rate	65	55
Higher rate	79	67
Personal allowance taper	100	85
Additional rate	83	70

Note and Source: As for Table 4.2.

£30,000 in another year will pay more income tax than someone whose income is £40,000 in both years, because only in the former case will some of their income fall into the higher-rate bracket. This is essentially an unfortunate consequence of operating a progressive tax system on an annual basis. In principle, it might actually be preferable to tax people based on their lifetime average income (Vickrey, 1947). It is not clear that it is a bad thing that the current system allows some people to move closer towards that – although the existing pensions tax regime is only one limited tool enabling a degree of ‘tax smoothing’ in certain circumstances, and the fact that some people have that option when others do not may not be ideal either.<sup>19</sup>

<sup>19</sup> See Chapters 13 and 14 of Mirrlees et al. (2011) for a discussion.

The effects of means-testing can be as profound as those of taxes. There is clearly a very strong incentive for anyone on the tax credits taper to contribute to a pension, as each £1 of pension contribution increases tax credit entitlement by 41p. Equally, those who think they might be entitled to means-tested support in future, which would be reduced or eliminated by their savings, face a disincentive to save. In recent years, the prospect of receiving pension credit in retirement has been a particularly notable example of this. Reforms to both pension credit and the state pension, which are being introduced from April 2016 (discussed at the start of Chapter 5), make the pension credit means-test much less relevant, although other means-tested benefits, such as housing benefit, will still play a role.

## 4.4 Reforms recently introduced

Our measures of incentives for basic- and higher-rate taxpayers to save in different assets have barely changed since Wakefield (2009) carried out a similar analysis for the 2008–09 tax system. There are only two changes, both relatively small:

- employer and employee NICs rates were each increased by one percentage point in April 2011, slightly increasing the incentive to make employer pension contributions;
- a 28% higher rate of CGT was introduced in 2010–11 (compared with the basic rate – the previous flat rate – of 18%), reducing the incentive to save in assets such as rental housing or shares outside pensions and ISAs yielding taxable capital gains above the CGT annual exempt amount for those who expect to be a higher-rate taxpayer when the asset is sold.

However, while our incentive measures have barely changed, the applicability of the incentives we calculate has changed a lot.

- There have been large changes to income tax allowances and thresholds. At £10,600 and £42,385, the income tax personal allowance and higher-rate threshold in 2015–16 are respectively £2,835 higher and £10,380 lower than they would have been if the 2010–11 thresholds had been increased in line with RPI inflation from 2010–11. As a result, there are 2.6 million fewer people paying income tax, and 2 million more people paying higher rates of tax, than there would have been; the basic rate, in other words, applies to 4.6 million fewer people.<sup>20,21</sup> Those are profound changes in the application of the various tax rates shown in the tables in this report.

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<sup>20</sup> Source: Adam and Roantree (2015).

<sup>21</sup> As well as the increase in the personal allowance, the number of people liable for income tax on the interest from cash deposit accounts has been further reduced by the reduction of the starting rate of income tax from 10% to zero and its scope extended to cover savings that fall within the first £5,000, rather than £2,960, of income above the personal allowance.



- Meanwhile we have seen the introduction of an additional rate of income tax (now 45%), tapering away of the income tax personal allowance once income exceeds £100,000 (equivalent to a 60% marginal rate band), and gradual withdrawal of child benefit once income exceeds £50,000. These extra marginal rate bands mean there is now much greater diversity in the range of ETRs that people can face on their savings. The bewildering barrage of numbers in Tables 4.6 and 4.7 and in Tables 4.10 and 4.11 is not something that savers (or researchers) had to face ten years ago – and even those are far from exhaustive. In that respect, the complexity of savings taxation has increased in recent years.
- The scope for saving in ISAs has increased markedly. In 2008–09, a maximum of £7,200 could be saved in ISAs, of which at most half could be in cash ISAs. In 2015–16, the ISA limit is £15,240 and any combination of cash and shares (and indeed now some other assets) is permissible.
- Pension saving, on the other hand, is now subject to much reduced limits. The total amount that can be accumulated in a private pension (without incurring penal taxes) has been reduced from a peak of £1.8 million in 2010–11 to £1.25 million in 2015–16, while the maximum that can be contributed in any single year has been slashed from £255,000 in 2010–11 to £40,000 today. These reductions constrain the pension saving of the better-off to such an extent that they are estimated to raise around £5 billion per year upfront for the Exchequer (though they also mean somewhat lower future revenue from taxing pension income).
- Finally, entrepreneur’s relief now applies a reduced (10%) CGT rate on up to £10 million of lifetime capital gains on owner-managers’ businesses, up from £1 million in 2008–09. Our calculations of incentives to save in shares apply to an arm’s-length company; for owner-managed businesses, our calculations apply only to gains above the entrepreneur’s relief limit. The increase in entrepreneur’s relief limits means that the incentives we calculate apply to fewer gains, and there is a strengthening of incentives for owner-managers to invest in their business (as opposed to investing elsewhere or saving less) which our figures do not reflect, as well as an incentive to channel activity through a business and convert income into capital gains in order to take advantage of the relief. Entrepreneur’s relief is forecast to cost the Exchequer £3 billion in 2015–16, compared with an estimate of £200 million when its introduction was first announced in 2008.<sup>22</sup>

Thus, while the calculated incentives for basic-rate and higher-rate taxpayers to save in different assets have changed little in recent years, we have seen big changes in the number of basic- and higher-rate taxpayers and several de facto new tax bands introduced, and we have seen substantial changes to the

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<sup>22</sup> Sources: current costing from HMRC (2015b); 2008 costing from HM Treasury (2008).

extent to which different tax-favoured vehicles are available. Together, these represent a significant change to the landscape of savings taxation. However, much more is on the way.

## 5. Future reforms

In this chapter, we discuss the effects that a number of important reforms will have (or are having) on the incentive to save across different assets. The reforms we address are: 2016–17 reforms to the taxation of interest and dividend income, reforms to the taxation of rental housing to be phased in from April 2017, possible reforms to the taxation of pensions, and the UC reform.

This is not an exhaustive list of reforms in the pipeline that will affect saving incentives. For example, the Conservative government is committed to further increases in the income tax personal allowance, along with increases in the higher-rate threshold (unlike the reductions seen in the previous Parliament), over the coming years. As with the changes discussed in Section 4.4, this will have implications for the number of people facing different marginal tax rates.

Means-testing in retirement is also set to become less widespread. The saving credit element of pension credit will not be available for those reaching state pension age after April 2016, while the new single-tier state pension, which is being introduced for a similar group at the same time (in place of the basic state pension and state second pension), will make it less likely that people will fall back on the pension credit guarantee. We do not discuss these reforms further in this report.

### 5.1 Reforms to the taxation of interest and dividends

Major changes to the taxation of both interest and dividend income are due to take effect in 2016–17.

In terms of interest income, the March 2015 Budget announced that the first £1,000 for basic-rate taxpayers and £500 for higher-taxpayers will be tax-free, though there will be no such ‘personal savings allowance’ for additional-rate taxpayers.<sup>23</sup> Above these allowances, tax rates remain unchanged from the 2015–16 system, so the ETRs and required contributions for cash deposits set out in Tables 4.3 and 4.4 do not change. However, they are much less relevant, as for the vast majority of the population their interest income will fall entirely within the new personal savings allowance and will therefore be wholly untaxed. More than 16 million people will stop paying tax on their interest income, leaving 95% of income tax payers paying no tax on their interest:<sup>24</sup> a major simplification of the tax system. In particular, many people (especially pensioners) whose incomes are

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<sup>23</sup> Although called a personal savings allowance, this will in fact be a nil-rate band rather than an allowance, in the sense that the interest income it covers is taxed at 0% but is not deducted from taxable income when calculating whether the individual is a basic-, higher- or additional-rate taxpayer and whether their personal allowance, child benefit or tax credits should be withdrawn. The same applies to the ‘dividend allowance’ described below.

<sup>24</sup> Source: HMRC (2015c) and authors’ calculations.

too low to be liable for income tax nevertheless have tax automatically deducted from their interest by banks, often without being aware of the procedure they need to go through to ensure they are not (wrongly) taxed.<sup>25</sup> With the introduction of the personal savings allowance, automatic deduction of tax 'at source' will end and there will be no need for such procedures.

For most people, therefore, ordinary bank accounts will in effect be tax-free in much the same way as cash ISAs, and there will be little incentive to save in a cash ISA. However, if interest rates rise substantially from their current low levels, then rather more people might see their interest income exceed the personal savings allowance, and saving in a cash ISA might still be worthwhile as a way to guard against such a possibility.

Turning to dividends, the July 2015 Budget announced that the basic, higher and additional rates of income tax on dividends held outside pensions and ISAs will all effectively increase by 7.5 percentage points (from 0%, 25% and 30.6% to 7.5%, 32.5% and 38.1% respectively),<sup>26</sup> but that the first £5,000 of dividend income will be subject to zero tax. Since basic-rate taxpayers already pay zero tax on their dividends, the only effect for them will be a tax increase if their dividend income exceeds £5,000. Many higher- and additional-rate taxpayers will be taken out of dividend taxation altogether by the introduction of the £5,000 'dividend allowance', but those receiving more than £5,000 of dividends in a year will face a higher marginal rate of tax on that income (though the zero rate for their first £5,000 of dividends means their overall tax liability will only increase if their dividend income exceeds £21,667 for higher-rate taxpayers or £25,250 for additional-rate taxpayers). Overall it is a significant net tax increase, raising £2.5 billion a year for the government.

Tables 5.1 and 5.2 show the effect of these changes on the ETRs and required contributions for shares outside pensions and ISAs generating more than £5,000 of dividend income a year, assuming the saver faces the same marginal tax rates throughout the life of the asset. The top half of each table repeats information for 2015–16 from Tables 4.3 and 4.4. The bottom half of each table presents ETRs and required contributions for 2016–17. Across all tax rates, the ETRs and required contributions are increased a little. For example, for basic-rate taxpayers, the ETR over a 25-year horizon increases from 7% under the 2015–16 system (reflecting only CGT, since they pay no dividend tax at present) to 15% under the 2016–17 system; the corresponding required contributions are 105p and 111p.

There is clearly a common pattern to the incoming tax regime for interest and dividend income, which is already in place for capital gains: in each case, a

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<sup>25</sup> See, for example, Office of Tax Simplification (2013) and IFF Research (2015).

<sup>26</sup> As part of this change, the dividend tax credit is being abolished, so that the effective tax rates shown in the text will be explicit rather than being the net result of a tax and an offsetting tax credit – a worthwhile simplification.

Table 5.1. ETRs (%) on shares held outside an ISA for taxpayers facing the same marginal rates throughout life

Asset		<i>Taxpayer's marginal tax rate</i>						
		Basic rate	Tax credits taper <sup>a</sup>	Higher rate	Child benefit taper (1 child)	Child benefit taper (2 children)	Personal allowance taper	Additional rate
2015–16 tax rates	1 year	12	53	43	54	61	63	49
	10 years	10	51	41	52	59	61	46
	25 years	7	49	37	48	56	58	43
2016–17 tax rates	1 year	19	60	51	62	69	71	56
	10 years	17	59	48	59	66	69	54
	25 years	15	57	45	56	63	66	51

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper.

Note and Source: We assume capital gains that match price inflation, and real returns that accrue as dividends. We assume that a CGT liability and a dividend tax liability are incurred. The 2016–17 figures therefore assume dividends exceed £5,000; if dividends are below £5,000 then no dividend tax liability is incurred and the 2016–17 ETRs for the 1-, 10- and 25-year horizon are 12%, 10% and 7% for the basic-rate taxpayer (i.e. the same as under 2015–16 rates) and 18%, 15% and 11% for the higher-rate taxpayer. Other notes and source as for Table 4.2.

Table 5.2. Contribution required to shares held outside an ISA to match TEE return (pence)

Asset		<i>Taxpayer's marginal tax rate</i>						
		Basic rate	Tax credits taper <sup>a</sup>	Higher rate	Child benefit taper (1 child)	Child benefit taper (2 children)	Personal allowance taper	Additional rate
2015–16 system	1 year	100	102	101	102	102	102	101
	10 years	103	116	113	116	119	120	115
	25 years	105	143	131	142	150	153	137
2016–17 system	1 year	101	102	102	102	102	102	102
	10 years	105	119	115	119	122	122	117
	25 years	111	152	139	151	159	162	145

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper.

Note and Source: We assume capital gains that match price inflation, and real returns that accrue as dividends. We assume that a CGT liability and a dividend tax liability are incurred. The 2016–17 figures therefore assume dividends exceed £5,000; if dividends are below £5,000 then no dividend tax liability is incurred and the 2016–17 required contributions for the 1-, 10- and 25-year horizon are 100p, 103p and 105p for the basic-rate taxpayer (i.e. the same as under 2015–16 rates) and 101p, 105p and 109p for the higher-rate taxpayer. Other notes and source as for Table 4.2.

substantial amount will be available tax-free each year – separate from the individual’s general income tax personal allowance – and only on returns above that level will tax be levied. There are undoubtedly administrative advantages to having a *de minimis* threshold for individual income sources, but these nil-rate bands go well beyond *de minimis*. The result is that people who are able to diversify their income sources (and time their income carefully), so as to take advantage of all of the separate nil-rate bands for interest, dividends and capital gains as well as their income tax personal allowance, will be able to receive around £28,000 a year free of tax, compared to the £10,600 available to those who can only use their ordinary personal allowance.

## 5.2 Reforms to the taxation of rental housing

At present, landlords can deduct their finance costs (principally mortgage interest payments) from their rental income before the income is taxed. The value of this deduction therefore depends on the landlord’s marginal income tax rate. The July 2015 Budget announced a major reform to this, to be phased in over four years from April 2017 and raising £0.7 billion a year by the time it is fully implemented in 2020–21. When the reform is fully in place, finance costs will no longer be deductible from income; instead, the landlord will receive an income tax reduction – essentially, a tax credit – equal to the basic rate of income tax times their finance costs, and therefore the same for all landlords regardless of their marginal tax rate.

For landlords who are higher-rate taxpayers, this means that each £1 of mortgage interest costs will reduce the tax liability on their rental income by 20p rather than 40p. So if, say, their rental income is just enough to cover the interest on their mortgage, they will still have to pay net tax of 20% on it. This clearly weakens the incentive for higher-rate taxpaying landlords to use a mortgage to finance their investments, and for higher-rate taxpaying (potential) landlords to invest in buy-to-let housing at all if they need a mortgage to do so.

The investments in rental housing considered in Tables 4.6 and 4.7 assumed that the property was owned outright, with no mortgage. In Tables 5.3 and 5.4, we reproduce those results (along with those for owner-occupied housing, for comparison) and show, first, how they are affected if the investment in rental housing is 50% financed by a mortgage under the current tax regime. We assume that the interest rate on the mortgage is the same as the investment return on the property. So, if all of the return to investing in rental housing were taxable at the same rate as the mortgage was deductible, then the extent of mortgage finance would make no difference to the ETR. If half of the investment were financed by a mortgage, then the mortgage interest would be half the return on the property and the mortgage interest relief would be half the tax on the return, so the net tax bill would be half the size on a net investment half the size; the mortgage simply scales down the level of the investment without changing the rate of return.

However, that is not the current situation. Not all of the return on rental housing is taxable at the same rate as the mortgage is deductible (i.e. the landlord’s

marginal income tax rate): rental income is taxed at the landlord's marginal income tax rate, but capital gains on the property are taxed less heavily. This means that mortgage finance reduces the ETR on buy-to-let property investment: the investment returns are taxed at a lower average rate than the mortgage interest costs are deducted, so the greater the mortgage finance, the lower the overall ETR on the investment. Thus, for a ten-year investment, the ETR for a basic-rate taxpayer is 30% if the property is owned outright, but 27% if it is 50% mortgage-financed; for a higher-rate taxpayer, the figures are 56% and 47%, respectively.

The bottom rows of the tables show the effect of the forthcoming reform for an investment in rental housing that is 50% financed by a mortgage. For basic-rate taxpayers, the reform has no effect, since they will continue to receive the same 20p reduction in their tax liability for each £1 of mortgage interest. For higher-rate taxpayers, however, the weakening of the incentive to save in this form is marked, increasing the ETR for a ten-year investment from 47% to 76%.

Under the new regime, mortgage interest will reduce income tax liability directly rather than via a reduction in taxable income. This has important implications. Landlords whose taxable income is currently kept below the higher-rate threshold by mortgage interest deductions will find that, while receiving a tax credit, they can no longer deduct the mortgage interest from their taxable income and are therefore liable for higher-rate tax. The reform will thus push many landlords into higher-rate tax – and, more generally, into higher tax brackets.

Even for people who do not cross a tax threshold as a result of the deductibility or otherwise of mortgage interest, the implications for saving incentives can be profound. Consider, for example, someone with income of between £100,000 and £121,200, who see their income tax personal allowance reduced with each extra £1 of income. While each extra £1 of rental income will continue to increase their income tax liability by 60p – the effect of higher-rate tax plus withdrawn personal allowance – each £1 of mortgage interest will only reduce their income tax liability by 20p, not 60p as at present. As a result, Table 5.3 shows that their ETR for a ten-year investment, 50% mortgage-financed, rises from 56% to 117%: their tax bill exceeds the entire (real) return on their investment. The same applies to those facing withdrawal of child benefit or tax credits. As a result, the effective tax rate on mortgage-financed investment in rental property increases far more for those facing withdrawal of these kinds than for other higher-rate taxpayers.

In his Budget speech announcing this reform, the Chancellor argued that it was intended to level the playing field, arguing that at present 'landlords have a huge advantage in the market as they can offset their mortgage interest payments against their income, whereas homebuyers cannot'.



Table 5.3. ETRs (%) on housing for taxpayers facing the same marginal rates throughout life

Asset		<i>Taxpayer's marginal tax rate</i>						Additional rate
		Basic rate	Tax credits taper <sup>a</sup>	Higher rate	Child benefit taper (1 child)	Child benefit taper (2 children)	Personal allowance taper	
Owner-occupied housing	Any horizon	0	0	0	0	0	0	0
Rental housing	10 years	30	71	56	67	74	76	61
	25 years	28	70	53	64	71	73	58
Rental housing 50% mortgage, before reform	10 years	27	46	47	52	55	56	49
	25 years	24	48	43	50	54	56	46
Rental housing 50% mortgage, after reform	10 years	27	107	76	98	112	117	86
	25 years	24	98	66	87	101	106	76

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper.

Note and Source: We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. For the 50% mortgage cases, we assume that half the purchase price of the property is funded through an interest-only mortgage with an interest rate equal to the nominal rate of return (5.06%). Other notes and source as for Table 4.2.

Table 5.4. Contributions required to match the TEE return (pence) for housing for taxpayers facing the same marginal rates throughout life

Asset		<i>Taxpayer's marginal tax rate</i>						
		Basic rate	Tax credits taper <sup>a</sup>	Higher rate	Child benefit taper (1 child)	Child benefit taper (2 children)	Personal allowance taper	Additional rate
Owner-occupied housing	Any horizon	100	100	100	100	100	100	100
Rental housing	10 years	109	123	118	122	124	125	120
	25 years	122	167	147	160	169	172	153
Rental housing 50% mortgage, before reform	10 years	108	115	115	117	118	118	116
	25 years	119	143	137	144	149	150	140
Rental housing 50% mortgage, after reform	10 years	108	137	125	133	139	141	129
	25 years	119	207	163	190	212	219	174

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper.

Note and Source: We assume capital gains that match price inflation, and real returns that accrue as rent. We assume that a CGT liability is incurred. For the 50% mortgage cases, we assume that half the purchase price of the property is funded through an interest-only mortgage with an interest rate equal to the nominal rate of return (5.06%). Other notes and source as for Table 4.2.

It is true that landlords can offset their mortgage interest payments while owner-occupiers cannot. However, this does not mean that landlords are treated more favourably overall. Landlords are liable for income tax on their rental income and CGT on any rise in the value of their property (TTE treatment), whereas owner-occupiers do not pay tax on their 'implicit rental income' (the in-kind reward enjoyed by owner-occupiers as a return to their investment: the notional rent they pay themselves as simultaneously tenant and landlord) and main homes are exempt from CGT (TEE treatment). Deductibility of investment costs is simply the natural counterpart to taxation of investment returns: essentially, mortgage interest payments are deductible from rental income just like companies can deduct their debt interest payments (and other costs) from profits for corporation tax purposes, so that only the *net* income from investment is taxed.

Tables 5.3 and 5.4 demonstrate that the existing system in fact treats rental housing less generously than owner-occupied housing. The ETR on owner-occupied housing is zero: it is entirely untaxed. The ETR on rental housing is significantly positive because of the taxes on rental income and capital gains, notwithstanding the deductibility of mortgage interest payments. The reduction in generosity of tax deductions for landlords' mortgage interest is not reducing a net tax advantage of buy-to-let but increasing its tax disadvantage relative to owner-occupation.

Indeed, this change in the tax treatment of mortgage interest is only one of several recent announcements increasing the tax advantage of owner-occupation over rental housing. The other main ones are the following:

- the July 2015 Budget confirmed a Conservative manifesto commitment to introduce an additional inheritance tax allowance specifically for main residences, to be phased in between 2017–18 and 2020–21;
- the 2015 Autumn Statement announced that, from April 2016, a three percentage point stamp duty land tax supplement would apply to purchases of residential properties not intended to be the buyer's main home.

As explained in Section 3.1, our calculations do not take account of inheritance tax or stamp duty land tax. However, while it would be hard to quantify the effects of these reforms on saving incentives with any precision, it is clear that the overall tax advantage of owner-occupation when all these reforms are implemented will be even greater than the figures in Tables 5.3 and 5.4 suggest. And with the introduction of the personal savings allowance taxing most interest income out of tax (see Section 5.1), rental housing looks set to become easily the most tax-disadvantaged of the major asset classes we consider in this report.

Since companies can deduct their debt interest payments from profits in full, limiting the deductibility of mortgage interest payment in the personal tax system provides an incentive for landlords to invest in a property via a company rather than directly. A company that borrowed to buy a rental property, unlike an individual who did so, could deduct the borrowing costs in full; so a would-be

landlord could own the company, rather than owning the property directly, as a way to retain mortgage interest deductibility. However, there are other tax consequences of this: the investment returns would be subject to corporation tax at the level of the company and then dividend tax and/or CGT at the personal level when the profits were withdrawn from the company, so the combined effect would need to be taken into account. If the property – and therefore the company – rises in value, for example, there could potentially be both corporation tax on the property value increase if the company sold the property, and then CGT on the share value increase if the individual sold shares in the company. In addition, transferring existing properties into a company could trigger stamp duty and/or CGT liabilities. There are also various non-tax costs and benefits of investing via a company to consider. While the reform certainly strengthens incentives to do so – and there have been reports of a surge in this behaviour<sup>27</sup> – the decision remains a complex one.

### 5.3 Possible reforms to the taxation of pensions

Following a succession of reductions in recent years to the amounts that can be saved in a pension (see Section 4.4), further cuts are due to take effect in April 2016. The lifetime limit on the amount that can be accumulated in a private pension will fall from £1.25 million to £1 million. Also, the limit on annual contributions will be reduced on a sliding scale for those with incomes (including employer pension contributions) above £150,000 until it reaches £10,000 for those with incomes of £210,000 or more. These changes will further limit the availability of pensions as a savings vehicle, especially for the highest earners. It is not clear why someone with an income of £150,000 should be able to put £40,000 into a pension but someone on an income of £210,000 should only be able to put £10,000 into a pension.

These changes continue the instability of pensions tax policy over recent years. Yet far more radical reform may be on the cards. The UK government is currently considering how to respond to a consultation on fundamental reform to the tax treatment of pension saving (HM Treasury, 2015). A response is expected in the March 2016 Budget. The government has explicitly left open the option of retaining the current system or making only small tweaks (such as further reducing the annual or lifetime allowances). However, if major reform is implemented, it seems likely to take one of two forms,<sup>28</sup> which we model below.

1. Moving to a system where individuals all receive the same rate of upfront income tax relief on their contributions (i.e. regardless of whether they are a basic-, higher- or additional-rate income taxpayer). This could be described

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<sup>27</sup> See, for example, J. Pickford, 'Landlords in UK avoid George Osborne's buy-to-let curbs', *Financial Times*, 3 December 2015 (<http://www.ft.com/cms/s/0/ffeddc18-9906-11e5-9228-87e603d47bdc.html#axzz3zcpSSL9R>).

<sup>28</sup> As reported by J. Cumbo and C. Barrett, 'Pensions — which way now?', *Financial Times*, 21 August 2015 (<http://www.ft.com/cms/s/0/3ec9a72a-44fa-11e5-af2f-4d6e0e5eda22.html#axzz3we4NOVfq>).

as replacing tax relief with a matching contribution (or top-up) from the government for all pension contributions. We consider three possible rates of relief: 25%, 30% and 33% (respectively corresponding to the government adding one-third, three-sevenths or one-half to whatever the employer or employee puts into the pension).<sup>29</sup> These are all in between the current treatment of basic-rate taxpayers (20% relief) and higher-rate taxpayers (40% relief), so we would expect to find that basic-rate taxpayers benefit from the reform while higher-rate taxpayers lose. We assume that the 25% tax-free lump sum on retirement remains in place.

2. Moving to a system where upfront income tax relief is not given on any pension contributions, but pension income is completely untaxed when received (in other words, broadly from an EET to a TEE income tax regime). We assume that the 25% tax-free lump sum on retirement is replaced by government matching of pension contributions at some rate. The government has not said what (if any) match rates it is considering, so we consider four possibilities: 0%, 5%, 10% and 20%. A 10% rate would mean that for each £1 paid into the pension by the employer or the employee, the government would put in an extra 10p.

The government has given no indication that it is considering reforming the NICs treatment of pensions, so for both reform options we assume that NICs remains unchanged (TEE for employee pension contributions and EEE for employer pension contributions), although ideally the income tax and NICs regimes would be considered together.

Either of these possible reforms would entail some administrative difficulties, but here we focus on the effects on saving incentives. The government may also decide to introduce one of these reforms only for some types of pension schemes (for example, defined-contribution but not defined-benefit schemes), or only for some contributions (employee but not employer contributions, for example); this may help to alleviate some of the practical problems but at the risk of creating others because of the incentives created by differential treatment of different types of pension saving.

Tables 5.5 and 5.6 present ETRs and required contributions under the first reform, flat-rate income tax relief, for basic- and higher-rate taxpayers (assuming that they remain basic- and higher-rate taxpayers throughout life) and for individuals who are higher-rate taxpayers while in work and basic-rate taxpayers in retirement (this was shown to be an empirically important case in Section 4.3). Relative to the current system (see the first column), basic-rate taxpayers benefit from the reform while higher-rate taxpayers lose, as expected. For example, over a 25-year horizon, the ETR for employee contributions under 30% flat-rate relief is -27% for basic-rate taxpayers and 0% for higher-rate taxpayers (the

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<sup>29</sup> For example, 25% tax relief implies the individual forgoing only 75p of net income upfront for each £1 that goes into the pension, so the government is in effect adding 25p, or one third, for every 75p of net income that the individual contributes.

Table 5.5. ETRs (%) for flat-rate pension contribution relief reform

	Current system	Flat relief rate		
		25%	30%	33%
<b>Employee pension contribution, 10 years</b>				
Basic-rate taxpayer throughout	-21	-43	-67	-83
Higher-rate taxpayer throughout	-53	24	0	-15
Higher- to basic-rate taxpayer	-122	-43	-67	-83
<b>Employee pension contribution, 25 years</b>				
Basic-rate taxpayer throughout	-8	-17	-27	-33
Higher-rate taxpayer throughout	-21	9	0	-6
Higher- to basic-rate taxpayer	-48	-17	-27	-33
<b>Employer pension contribution, 10 years</b>				
Basic-rate taxpayer throughout	-123	-150	-180	-199
Higher-rate taxpayer throughout	-111	-30	-55	-71
Higher- to basic-rate taxpayer	-180	-98	-123	-139
<b>Employer pension contribution, 25 years</b>				
Basic-rate taxpayer throughout	-49	-59	-71	-78
Higher-rate taxpayer throughout	-44	-12	-22	-28
Higher- to basic-rate taxpayer	-71	-39	-49	-55

Note and Source: As for Table 4.2.

Table 5.6. Required contributions to match TEE return (pence) for flat-rate pension contribution relief reform

	Current system	Flat relief rate		
		25%	30%	33%
<b>Employee pension contribution, any horizon</b>				
Basic-rate taxpayer throughout	94	88	82	79
Higher-rate taxpayer throughout	86	107	100	96
Higher- to basic-rate taxpayer	71	88	82	79
<b>Employer pension contribution, any horizon</b>				
Basic-rate taxpayer throughout	70	65	60	57
Higher-rate taxpayer throughout	73	92	85	82
Higher- to basic-rate taxpayer	60	75	70	67

Note and Source: As for Table 4.2.

corresponding required contributions are 82p and 100p). Employer contributions remain more favourably treated than employee contributions because of the differing NICs treatment described above.

Moving to flat-rate income tax relief, rather than 40% relief for 40% taxpayers and 20% relief for 20% taxpayers, obviously makes incentives to save in a pension stronger for basic-rate taxpayers and weaker for higher-rate taxpayers.

Indeed, if the flat rate of relief were less than 30%, higher-rate taxpayers who expected to pay the higher rate in retirement as well would be actively discouraged by the tax system from making employee pension contributions: as far as tax is concerned, they would be better off saving for their retirement via an

ISA or a more expensive home. As we might expect with flat-rate relief, higher-rate taxpayers and basic-rate taxpayers would have equal incentives to save in a pension if both expected to be basic-rate taxpayers in retirement. As discussed in Section 4.3, however, it is not clear that having lower ETRs for higher-rate taxpayers who expect to be basic-rate taxpayers in retirement is necessarily an undesirable feature of the current system.

The position is slightly different for employer pension contributions. These are more strongly incentivised than employee contributions because of the (employer and employee) NICs relief they attract; but recall that the employee NICs rate is 12% below the UEL and 2% above it, so NICs relief is more valuable for basic-rate taxpayers. Equalising *income tax* relief for basic- and higher-rate taxpayers does not therefore mean equal *overall* tax relief: more generous NICs relief for basic-rate taxpayers means that overall tax relief would be more generous for basic-rate than higher-rate taxpayers even if both expected to be basic-rate taxpayers in retirement, reversing the current position. Also, as we noted in Section 4.3, under the existing tax system the overall tax incentive for employers to make pension contributions is already weaker if the employee is a higher-rate taxpayer throughout life than if they are a basic-rate taxpayer throughout, so moving to flat-rate income tax relief would increase that disparity.

These tables do not show the effects of moving to flat-rate relief on people facing withdrawal of tax credits, child benefit or the income tax personal allowance. The effect on them would depend greatly on whether pension contributions continued to be fully deductible from taxable income for the purposes of calculating those entitlements or whether, for example, the government decided to mirror what it is doing with mortgage interest relief for landlords and replace the deduction from taxable income with a tax credit or (as it might be branded in this case) a government match of contributions. This is one of a number of important design features that will need to be determined if the policy is adopted.

Tables 5.7 and 5.8 set out ETRs and required contributions for the second reform, moving to a TEE income tax regime with the government matching contributions at some rate. Under the TEE option, there would be no tax levied on money withdrawn from the pension so the individual's tax position in retirement would be irrelevant to the taxation of their pension. With no upfront tax relief either, the tax incentive for employee pension contributions would thus be genuinely equalised across the population, depending only on the generosity of the government's matching contribution. For employee contributions by basic-rate taxpayers, the 0% and 5% match rates are less generous than the current system (less negative ETRs and higher required contributions) while the 10% and 20% match rates are more generous. The match rate that is equivalent to the current system for basic-rate taxpayers (the same ETR and required contribution) is

Table 5.7. ETRs (%) for TEE pension reform

	Current system	Match rate			
		0%	5%	10%	20%
<b>Employee pension contribution, 10 years</b>					
Basic-rate taxpayer throughout	-21	0	-17	-33	-63
Higher-rate taxpayer throughout	-53	0	-17	-33	-63
Higher- to basic-rate taxpayer	-122	0	-17	-33	-63
<b>Employee pension contribution, 25 years</b>					
Basic-rate taxpayer throughout	-8	0	-7	-13	-25
Higher-rate taxpayer throughout	-21	0	-7	-13	-25
Higher- to basic-rate taxpayer	-48	0	-7	-13	-25
<b>Employer pension contribution, 10 years</b>					
Basic-rate taxpayer throughout	-123	-89	-107	-123	-154
Higher-rate taxpayer throughout	-111	-52	-69	-85	-116
Higher- to basic-rate taxpayer	-180	-52	-69	-85	-116
<b>Employer pension contribution, 25 years</b>					
Basic-rate taxpayer throughout	-49	-35	-42	-49	-61
Higher-rate taxpayer throughout	-44	-21	-27	-34	-46
Higher- to basic-rate taxpayer	-71	-21	-27	-34	-46

Note and Source: As for Table 4.2.

Table 5.8. Required contributions to match TEE return (pence) for TEE pension reform

	Current system	Match rate			
		0%	5%	10%	20%
<b>Employee pension contribution, any horizon</b>					
Basic-rate taxpayer throughout	94	100	95	91	83
Higher-rate taxpayer throughout	86	100	95	91	83
Higher- to basic-rate taxpayer	71	100	95	91	83
<b>Employer pension contribution, any horizon</b>					
Basic-rate taxpayer throughout	70	77	74	70	64
Higher-rate taxpayer throughout	73	86	82	78	72
Higher- to basic-rate taxpayer	60	86	82	78	72

Note and Source: As for Table 4.2.

6.25%. For higher-rate taxpayers, the match rate that is equivalent to the current system is 16.67%.<sup>30</sup>

For employer pension contributions, however, the greater NICs relief for basic-rate taxpayers than higher-rate taxpayers means that employer pension contributions would be more strongly encouraged for basic-rate taxpayers. At

<sup>30</sup> One might wonder why the equivalent match rates are not 5% for basic-rate taxpayers (corresponding to a 20% tax saving on the 25% tax-free lump sum) and 10% for higher-rate taxpayers (40% tax saving on the 25% tax-free lump sum). The reason why these are both less generous than the current system is that the 25% tax-free lump sum applies to the fund derived from the employee contribution and the tax relief, whereas the match is only on the employee contribution.



present, the greater NICs relief for basic-rate taxpayers is partly offset by the tax-free lump sum being more valuable to higher-rate taxpayers, but that offset would be removed if the tax-free lump sum were replaced by an upfront match of equal value to all taxpayers.

## 5.4 Universal credit

UC is a working-age benefit that replaces six means-tested benefits and tax credits for individuals under pension age. UC is in the process of being rolled out, and represents the most radical reform to the structure of the working-age benefits system for decades.<sup>31</sup> When it is fully in place around seven million families will be entitled to UC.

We have already seen in Section 4.3 that means-testing of benefits and tax credits can have large effects on incentives to save. The UC means-test treats savings quite differently from tax credits and will change saving incentives substantially.

Recall that tax credits treat savings in the same way as income tax does; being on the tax credits taper is akin to facing a higher marginal rate of income tax, and the income contributed to, generated by or withdrawn from different assets affect tax credit withdrawal in the same way they affect income tax liability.

The means-test for UC, however, is not based on income flows at all (with the exception of pensions, discussed below), but on stocks of wealth.<sup>32</sup> Assets below £6,000 are ignored, so UC provides no disincentive to save up to that amount, but liquid (i.e. non-pension, non-housing) savings in excess of that are penalised heavily. If assets are above £16,000, then entitlement to UC is removed altogether. Between £6,000 and £16,000, savings act to reduce the UC award, not according to the actual income they generate but according to an income they are assumed to generate. The amount of assumed income is £4.35 per month (roughly £52.50 per year) for every £250 of assets, corresponding to an annual rate of return of almost 21%, substantially higher than rates of return commonly available in the market. Each £1 of assumed income reduces UC entitlement by £1. These two factors combined (an extremely high assumed income and a pound-for-pound taper) mean that UC potentially taxes the return to some forms of saving very heavily.

Just how heavily is shown in Tables 5.9 and 5.10. These tables show our usual measures of saving incentives for a basic-rate taxpayer facing no means-test, facing tax credit withdrawal, and facing UC withdrawal. (In all cases, we assume that the person would be subject to just basic-rate income tax in retirement.)

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<sup>31</sup> Universal credit is explained and analysed in Browne, Hood and Joyce (2016).

<sup>32</sup> This is much closer to how savings are treated for income support, income-based jobseeker's allowance and housing benefit, though the asset test for UC is considerably stricter than that for housing benefit and its effects spread further up the income distribution.

Note that the basic rate column is the relevant column for individuals on tax credits but not on the tax credits taper, and for individuals on UC but with less

Table 5.9. ETRs (%) before and after the UC reform

Asset		Taxpayer's marginal tax rate		
		Basic rate	Tax credits taper <sup>a</sup>	UC taper <sup>b</sup>
ISA (cash or shares)	Any horizon	0	0	682
Cash deposit account	Any horizon	33	101	715
Employee pension contribution	10 years	-21	-278	-403
	25 years	-8	-109	-156
Employer pension contribution	10 years	-123	-467	-517
	25 years	-49	-180	-198
Owner-occupied housing	Any horizon	0	0	0

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper during working life and faces the basic rate during retirement.

b. The UC taper column assumes that the individual faces the basic rate, is on the UC taper and has assets of between £6,000 and £16,000 during working life and faces the basic rate during retirement.

Note and Source: As for Table 4.2.

Table 5.10. Required contributions to match TEE return (pence) before and after the UC reform

Asset		Taxpayer's marginal tax rate		
		Basic rate	Tax credits taper <sup>a</sup>	UC taper <sup>b</sup>
ISA (cash or shares)	1 year	100	100	125
	10 years	100	100	917
	25 years	100	100	25,451
Cash deposit account	1 year	101	103	126
	10 years	110	135	1035
	25 years	127	211	34,437
Employee pension contribution	Any horizon	94	46	33
Employer pension contribution	Any horizon	70	28	25
Owner-occupied housing	Any horizon	100	100	100

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper during working life and faces the basic rate during retirement.

b. The UC taper column assumes that the individual faces the basic rate, is on the UC taper and has assets of between £6,000 and £16,000 during working life and faces the basic rate during retirement.

Note and Source: As for Table 4.2.

than £6,000 in assets. We can see that, as a result of the adverse treatment of assets above £6,000, UC is associated with a massively higher ETR for ISAs and cash deposit accounts (682% and 715%) than tax credits are (0% and 101%). Owner-occupied housing, which is ignored in all taxes and means-tests, is unaffected by the UC reform.

There are obvious upsides to targeting means-tested support on those who have low wealth as well as low current income. However, it does mean that people who think they might be eligible for UC in future have an extremely strong disincentive to save more than £6,000 in liquid assets for that eventuality.<sup>33</sup>

In contrast, pension contributions are treated more favourably on the UC taper than on the tax credits taper, since pension contributions are deductible from income in both cases, but UC is reduced more sharply than tax credits as income rises (falling by 65p for each £1 of post-tax income, compared with 41p per £1 of pre-tax income). For a basic-rate taxpayer, each £1 of pension contributions increases UC entitlement by 52p,<sup>34</sup> compared with 41p for tax credits. There is therefore a very strong incentive to put money into a pension at times when one is on the UC taper. The effective tax rates can reach minus several hundred per cent on pension saving done while on UC – the same final wealth as in an ISA can be attained at only a third of cost if the pension contribution comes from the employee, or a quarter of the cost if the contribution comes from the employer – although, of course, times when people need means-tested support may not be times when they have money available to save.

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<sup>33</sup> If you deliberately get rid of capital in order to gain benefit entitlement, however, you are treated as still having it.

<sup>34</sup> Each £1 of pension contributions reduces taxable income by £1 and basic-rate income tax liability by 20p, so after-tax income is 80p lower; UC entitlement increases by 65% of that (i.e. 52p).

## 6. Other Factors Affecting the Attractiveness of Different Forms of Saving

Taxation is only one (albeit an important one) of the factors affecting the attractiveness of saving in different forms. A comprehensive quantification of all aspects relevant to assessing the incentives for people in different circumstances to save in different forms would be a huge exercise: it would require us to consider the different returns and risk profiles associated with different assets and how they compare with people's risk preferences; to consider how much the requirement to 'lock away' funds until age 55 reduces the incentive to save in a pension at different ages; and so on. That is well beyond the scope of this project.

In this chapter, however, we address two specific non-tax aspects of the incentive to save in different forms: employer matching of employee pension contributions, and fund fees and charges. Both of these features are conducive to quantification in a similar way to the effects of taxation.

### 6.1 Employer matching of pension contributions

When we considered tax incentives for employer pension contributions in previous chapters, we imagined an employer putting money into a pension on their employee's behalf, in lieu of paying them a higher salary, so that the employee was forgoing upfront disposable income in return for the future income generated by their employer's pension contribution. This arrangement – making employer pension contributions in exchange for lower salary – is known as 'salary sacrifice' when done as a deliberate arrangement between employer and employee, though even where this arrangement is not explicit we might think that employers would have to offer higher salaries more generally if they were not making pension contributions for their employees.

However, this is not the only situation worth considering. Individual employees are not always trading off employer pension contributions against higher salary. Sometimes employers will offer, *for a given salary*, to make a pension contribution for an employee if the employee does likewise: that is, to match the employee's contribution at some rate. Since the employee can now leverage an employer pension contribution without forgoing salary, from the point of view of an individual employee this is a strong incentive to save in a pension.<sup>35</sup> Since

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<sup>35</sup> In such cases, the overall cost of employer pension contributions may still be passed on (partly or fully) to employees: it might still be the case that employers can afford to offer lower salaries when they are instead offering the option of matching their employees' pension contributions. However, for a given individual in a given job, it is nonetheless the case that their employer's offer to match their pension contributions without reducing their salary strengthens their incentive to save in a pension.

employers rarely make equivalent offers to match employees' contributions to, say, an ISA or a house, it makes saving in a pension much more attractive relative to other assets.

The possibility of employers' matching employees' pension contributions at some rate is becoming more pertinent with the introduction of automatic enrolment into workplace pensions, which is being phased in gradually between October 2012 and April 2019. Under this policy, employers are obliged (with some exceptions) to enrol their employees into a pension scheme and to pay in minimum contributions from themselves and their employees unless the employee opts out. (Employers cannot change a particular employee's salary according to whether or not they opt out, though of course firms might offer lower salaries across all of their employees once they are faced with this obligation.)

To quantify the effects of employer matching on incentives to save in a pension, we use the employee and employer contribution rates that are the minimum allowed for the pension schemes into which employees are automatically enrolled. In practice, many employers and employees contribute more than this and the implied rate of employer matching may be different, but the default scheme is an obvious case to examine and is likely to apply to many people working for employers that did not previously make pension contributions.

For a basic-rate taxpayer, the default auto-enrolment scheme has been advertised as 4–3–1: if the employee pays an amount equivalent to 4% of their gross earnings into the pension, then the employer will put in 3% of earnings and the government 1% (the income tax relief).<sup>36</sup> This is not accurate for everyone. In fact, the rule is that the employer contributes 3% of earnings to the scheme and that 8% of earnings are paid in in total, so the split of the other 5% between the employee and the government will depend on the employee's marginal tax rate: for a higher-rate taxpayer, for example, 3% will come from the employee and 2% from the government (representing tax relief at 40% on the 5% contribution).<sup>37</sup> Note that the employer only has to contribute 3% of earnings if the employee pays in (at least) enough to make the total 8%: they do not have to contribute anything if the employee pays in less than this and they do not have to contribute more if the employee decides to contribute more. This means that the matched contribution from the employer affects the incentive for an individual to save in a pension at all as opposed to not doing so (the average incentive) but not the

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<sup>36</sup> These percentages can be applied to earnings between certain lower and upper thresholds rather than to total earnings, at the discretion of the employer (see <https://www.gov.uk/workplace-pensions/what-you-your-employer-and-the-government-pay>). However, this does not affect the ratio between the employer contribution, employee contribution and tax relief, which is what matters for our calculations.

<sup>37</sup> In fact, depending on the administrative arrangements for the particular pension scheme, this may be achieved by the employee putting in 4% and the government 1% upfront, as with the basic-rate taxpayer, with the higher-rate taxpayer then reclaiming another 1% in tax relief separately. This achieves the same end result for higher-rate taxpayers as described in the text, in that the employee sacrifices 3% of earnings (4% paid into the fund less 1% reclaimed from the government), the cost to the government is 2% of earnings (1% paid into the fund and 1% delivered separately) and in total 5% of earnings goes into the pension fund from these two contributors, topped up to 8% by the employer.

incentive to save *more* in a pension (the marginal incentive). The numbers we calculate are average incentives. The marginal incentives are unchanged relative to the baseline case so we do not present them separately. We do not need to make this distinction elsewhere in this report, since the marginal and average incentives are generally the same and so our estimates can be interpreted in either way. As with all other tables, we assume that pension contributions do not take individuals across a tax threshold.

Tables 6.1 and 6.2 give the ETRs and required contributions under the default auto-enrolment scheme for taxpayers facing given marginal tax rates throughout life. (Note that, while we retain the terminology for simplicity, 'ETR' here incorporates the effect of the matched contribution from the employer, so is not simply a tax rate.) Each table reproduces the numbers for employee pension contributions under the current system from Tables 4.3 and 4.4, presented alongside how these incentives change if the employee contribution is matched by the employer in line with the default auto-enrolment scheme. Not surprisingly, the employer match dramatically strengthens the incentive to contribute to a pension. The ETRs on 25-year employee pension contributions all fall (i.e. become more negative) by around 66 percentage points, those for ten-year contributions by around 170 percentage points; required contributions all fall by about 37%. Thus, for a basic-rate taxpayer, for example, the ETR over a 25-year horizon falls from -8% to -74%, corresponding to required contributions of 94p and 59p, respectively. In simpler terms, the employer puts in £3 for every £5 that the employee and the government put in, so the employee gets a 60% bigger pension than without the employer match.

In principle, it is possible to think of the default auto-enrolment scheme being implemented in combination with salary sacrifice. Consider a case where we start from a position of the employee contributing 4% of earnings and the employer 3%, as with the default auto-enrolment scheme, but then the employee asks her employer to make the contribution on her behalf and reduce her salary commensurately, so as to benefit from NICs relief as well as income tax relief on the pension contribution. The result is a situation where the pension contribution comes entirely from the employer, but the employer reduces the employee's salary by only a fraction of that contribution (in keeping with the spirit of auto-enrolment) rather than passing the full cost of the contribution on to the employee as we considered in previous chapters.

This is the case shown in the bottom halves of Tables 6.1 and 6.2, again alongside the numbers for 'ordinary' employer pension contributions reproduced from Tables 4.3 and 4.4. The effects of matching are similar to the case for employee contributions, though in all cases the ETRs and required contributions are lower for employer contributions because of the more generous NICs treatment. Individually, the incentive effects of employer matching and of the generous tax treatment of employer pension contributions are large; in combination they are very large indeed. Using salary sacrifice in combination with employer matching, an ordinary basic- or higher-rate taxpayer can reach the level of wealth provided by an ISA at less than half the upfront cost. For people with higher marginal rates,

Table 6.1. ETRs (%) for matched pension contributions under auto-enrolment

Asset		Basic rate	Tax credits taper <sup>a</sup>	Taxpayer's marginal tax rate			Personal allowance taper	Additional rate	
				Higher rate	Child benefit taper (1 child) <sup>b</sup>	Child benefit taper (2 children) <sup>b</sup>			
<b>Employee pension contribution</b>									
	Without match	10 years	-21	-278	-53	-123	-179	-111	-64
	With match	10 years	-187	-457	-221	-294	-353	-282	-233
	Without match	25 years	-8	-109	-21	-49	-71	-44	-26
	With match	25 years	-74	-176	-87	-115	-137	-110	-91
<b>Employer pension contribution</b>									
	Without match	10 years	-123	-467	-111	-184	-244	-176	-123
	With match	10 years	-257	-591	-260	-335	-397	-325	-272
	Without match	25 years	-49	-180	-44	-73	-96	-69	-49
	With match	25 years	-101	-225	-102	-130	-153	-127	-106

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper during working life and faces the basic rate during retirement.

b. The child benefit taper columns assume that the individual is on the child benefit taper during working life and faces the higher rate during retirement.

Note and Source: As for Table 4.2.

Table 6.2. Required contributions to match TEE return (pence) for matched pension contributions under auto-enrolment

Asset		<i>Taxpayer's marginal tax rate</i>						Additional rate	
		Basic rate	Tax credits taper <sup>a</sup>	Higher rate	Child benefit taper (1 child) <sup>b</sup>	Child benefit taper (2 children) <sup>b</sup>	Personal allowance taper		
<b>Employee pension contribution</b>									
	Without match	Any horizon	94	46	86	70	60	73	83
	With match	Any horizon	59	29	54	44	38	45	52
<b>Employer pension contribution</b>									
	Without match	Any horizon	70	28	73	59	50	61	70
	With match	Any horizon	49	20	48	39	34	40	47

a. The tax credits taper column assumes that the individual faces the basic rate and is on the tax credits taper during working life and faces the basic rate during retirement.

b. The child benefit taper columns assume that the individual is on the child benefit taper during working life and faces the higher rate during retirement.

Note and Source: As for Table 4.2.



the figures are even more extreme. For someone on the tax credits taper, the required contribution is only one-fifth of that for an ISA; achieving that over a ten-year investment equates to a staggering –591% effective tax rate.

## 6.2 Charges and fees

Taxes are not the only costs faced by savers. Charges and fees also reduce the return that people can get from investing their money in certain assets.

In this section we explore the effects of a various illustrative annual charges, suggested to us by the FCA, from zero to 3% of the fund value.<sup>38</sup> We apply these charges to pensions, equity ISAs and shares held in funds outside pensions and ISAs (essentially, unit trusts).

Charges for relatively simple products, such as default auto-enrolment workplace pensions and index-tracking funds, tend to be towards the lower end of this range; for example, 0.75% is the maximum that may be charged for default auto-enrolment workplace pension schemes. However, charges can be higher in other cases: actively managed funds tend to have higher charges than trackers, for example. The highest charges we consider can also be thought of as incorporating transaction costs incurred by funds when they buy and sell shares; these are typically not specified explicitly as part of the annual management charge but they do reduce the value of the fund in much the same way.

We emphasise that our calculations are only illustrative. In reality, the structure of charges may differ from the simple annual percentages we apply: there may, for example, be lower percentage charges for larger funds; or people may pay for financial advice when deciding where to put their money, as well as paying the charges formally levied as part of the product.

The assets we do not consider in this section – cash savings (inside or outside an ISA) and housing (owner-occupied or rental) – are not necessarily provided free of charge. However, the costs associated with housing take a very different form from those associated with investment funds, and taking account of features such as surveyors' fees and mortgage arrangement fees is beyond the scope of this report. For cash savings, there are typically no explicit charges at all (though there may well be for associated credit cards, overdrafts, etc.), but instead the bank charges for its services in the form of a lower interest rate offered. This implicit charge for financial services is one of the reasons that cash savings typically yield lower gross returns than saving in funds that levy an explicit charge (alongside other reasons such as being less risky). If, in reality, the absence of explicit charges for some assets is offset by lower gross returns, then the tables in previous chapters of this report, which do not explicitly incorporate charges, might nevertheless provide a fairer comparison between assets: in

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<sup>38</sup> Surprisingly, there no longer appear to be comprehensive official data collected on the actual distribution of charges, analogous to the Personal Investment Authority's annual disclosure survey used by Cook and Johnson (2000).

effect, the uniform gross return assumed for all assets can be re-interpreted as the return after any charges, the net result of a low gross returns with low/no charges for some assets and high returns but higher charges on other assets. Nonetheless, it is instructive to illustrate the effect that charges can have on incentives to save, and the combined effects of charges and taxation.

Results are set out in Tables 6.3 (ETRs) and 6.4 (required contributions). (As in the previous section we continue to use the term ETR for simplicity even when talking about charges rather than taxes.) To see the effects of charges in isolation, we can look at equity ISAs. These are not taxed, so in the absence of charges the ETR would be zero. Given the rates of return we assume, even relatively modest charges are equivalent to a substantial effective tax rate: a 34 percentage point ETR for each 1% charge. An annual charge of 3% of the fund is enough to wipe out the assumed 3% real rate of return, so the ETR reaches 100% (in fact slightly higher, as we assume that the charge is levied each year on the return that year as well as on the fund value at the start of the year).

Charges and taxes together can weaken incentives to save much more than either do on their own. A higher-rate taxpayer saving in shares for ten years via a unit trust that charges 1% a year faces an ETR of 67%, compared to 41% in the absence of charges or 26% if the shares were held in a tax-free ISA instead. A basic-rate taxpayer investing in shares for ten years with an annual charge of 0.75% faces an ETR of 36%, compared to 10% in the absence of charges or 26% in the absence of taxes.

In the absence of charges, pension contributions are associated with negative ETRs because of the tax advantages discussed in Sections 4.2 and 4.3. However, at least for employee contributions, it does not take very high charges to make ETRs positive over a 25-year horizon: 0.5% for basic-rate taxpayers and 0.75% for higher-rate taxpayers are more than enough. ETRs only become positive for employer pension contributions over a 25-year horizon for charges somewhat over 1% for basic- and higher-rate taxpayers. A 0.5% charge on shares held outside an ISA is enough for the ETR to exceed 50% for higher-rate taxpayers regardless of the horizon. This compares to a 1.5% charge for basic-rate taxpayers.

Not all products, either within or between categories, will have the same charges. An ISA with low charges may deliver a better return than a pension with high charges despite the greater tax advantages associated with a pension. These results illustrate the importance for savers of considering both taxes and charges (among other things) when choosing where to put their money.

Table 6.3. ETRs incorporating charges (%) for basic- and higher-rate taxpayers throughout life (2015–16 tax system)

Asset		Charge rate						
		0%	0.5%	0.75%	1%	1.5%	2%	3%
<b>Basic-rate taxpayer</b>								
Equity ISA	Any horizon	0	17	26	34	52	69	103
Employee pension contribution	10 years	-21	-4	5	14	31	48	83
	25 years	-8	9	17	26	43	60	95
Employer pension contribution	10 years	-123	-105	-96	-88	-70	-52	-16
	25 years	-49	-31	-23	-14	3	21	56
Taxable shareholdings <sup>a</sup>	1 year	12	29	38	46	63	80	114
	10 years	10	27	36	44	62	79	113
	25 years	7	25	33	42	60	77	112
<b>Higher-rate taxpayer</b>								
Equity ISA	Any horizon	0	17	26	34	52	69	103
Employee pension contribution	10 years	-53	-36	-27	-18	-1	16	51
	25 years	-21	-4	5	13	31	48	82
Employer pension contribution	10 years	-111	-93	-84	-75	-58	-40	-4
	25 years	-44	-26	-18	-9	8	26	60
Taxable shareholdings <sup>a</sup>	1 year	43	56	63	69	82	95	120
	10 years	41	54	60	67	80	93	119
	25 years	37	50	57	64	77	91	118

a. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred.

Note and Source: As for Table 4.2.

Table 6.4. Required contributions to match TEE return incorporating charges (pence) for basic- and higher-rate taxpayers throughout life (2015–16 tax system)

Asset		Charge rate						
		0%	0.5%	0.75%	1%	1.5%	2%	3%
<b>Basic-rate taxpayer</b>								
Equity ISA	1 year	100	101	101	101	102	102	103
	10 years	100	105	108	111	116	122	136
	25 years	100	113	121	129	146	166	214
Employee pension contribution	10 years	94	99	101	104	109	115	128
	25 years	94	107	114	121	137	156	202
Employer pension contribution	10 years	70	74	76	78	82	86	95
	25 years	70	80	85	90	103	116	151
Taxable shareholdings <sup>a</sup>	1 year	100	101	101	101	102	102	103
	10 years	103	108	111	114	120	126	140
	25 years	105	120	128	136	155	177	230
<b>Higher-rate taxpayer</b>								
Equity ISA	1 year	100	101	101	101	102	102	103
	10 years	100	105	108	111	116	122	136
	25 years	100	113	121	129	146	166	214
Employee pension contribution	10 years	86	90	92	95	100	105	116
	25 years	86	97	103	110	125	142	184
Employer pension contribution	10 years	73	77	79	81	85	89	99
	25 years	73	83	88	94	106	121	156
Taxable shareholdings <sup>a</sup>	1 year	101	102	102	102	102	103	104
	10 years	113	117	119	122	127	132	142
	25 years	131	145	152	160	177	195	239

a. We assume capital gains that match price inflation, and real returns that accrue as interest or dividends. We assume that a CGT liability is incurred.

Note and Source: As for Table 4.2.

## 7. Conclusion

The effect of taxation on incentives to save varies enormously. It varies according to the asset in which the money is held; it varies according to the inflation rate; in the case of pensions, it varies according to whether the contribution is made by an employee or by their employer on their behalf. It varies according to the tax position of the saver at different points in the asset's lifecycle – which has become harder for a saver to predict as the number of effective marginal tax rate bands has increased in recent years.

In some ways, the government's vision for savings tax policy seems clear.

People are to be free to save substantial amounts in a variety of forms with no tax on the return. Higher limits for ISAs, which can be used equally for cash or shares, and new tax-free allowances for interest and dividends, alongside the existing CGT allowance, will allow substantial amounts to be received tax-free even outside the shelter of an ISA. Owner-occupation continues to be viewed as sacrosanct, and indeed is ever more favoured relative to the rental sector.

The amount that can be saved in pensions from pre-tax income has been, and is being, substantially reduced. However, within those limits, access to pensions is to be much more flexible than in the past, and contributions (especially by employers) remain generously subsidised. All that said, the government is currently considering what would be among the most radical changes to savings taxation in decades: in this report, we have considered the impact that possible pension tax reforms might have on incentives. Whatever the outcome of that, the frequency of change in recent years and uncertainty about future reform make it difficult for individuals to plan their long-term retirement saving.

These reforms, though, leave unchanged the substantial tax advantages afforded to employer pension contributions over employee contributions. Announced changes will increase the tax advantages associated with owner occupation over renting. And one of the costs of taking modest amounts of savings in different forms out of the tax net will be an incentive to arrange one's affairs so as to take advantage of multiple separate allowances for different income sources, although (except for landlords) the incoming changes will reduce the tax savings available from taking large amounts of income as dividends through a company rather than as ordinary income.

Means-testing often has more dramatic effects on saving incentives than taxes do, and the introduction of UC will create a very large penalty to saving for a larger and better-off group of families than means-testing has done before. How far people will actually respond to this theoretically powerful incentive to reduce, rather than increase, their savings if they expect to fall into UC is an open question. Similarly, we do not yet know whether people will have the understanding, inclination and ability to exploit the huge incentives to make pension contributions while on the UC taper.

A final message to take from this report is that taxes are far from the whole story. Even modest charges can affect the return to saving as much as taxes do. Savers might shop around between asset classes for the best tax treatment, but they should also shop around within asset classes for the best deals available. In that regard it will be interesting to see what light the Financial Conduct Authority's ongoing study of the asset management market<sup>39</sup> sheds on how well competition is working to deliver good value for money for savers. Also, we should not neglect the 'hidden' charges, which are not quantified in this report but are implicit in interest rate spreads that charge high interest rates to borrowers while offering low rates to savers. Ultimately, taxes, charges and gross returns on savings are all linked.

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<sup>39</sup> See Financial Conduct Authority, 18 November 2015, Asset management market study, available at <http://www.fca.org.uk/news/asset-management-market-study>.

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