RAISING HOUSEHOLD SAVING

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Introduction

This report examines in detail what is known – and what is not known – about the effectiveness of different sorts of interventions designed to raise saving by households.

Concern that many individuals are not saving enough, particularly for retirement, has been prominent in UK policy discussions for many years, as evidenced by repeated revisions to the retirement pension system.

Background

The standard economic model of household saving behaviour suggests that households save when income is high, needs are low, or expected returns are high. This perspective reminds us that low saving can sometimes be an optimal response to the economic environment (including public policies) and in such cases compulsion could cause great harm. The interventions suggested by the standard model focus on raising the return to saving. This can be by tax-favouring saving, by matching contributions or by ensuring that the means-testing of benefits does not lower the return to saving excessively.

An obvious extension to the standard model is to take seriously the proposition that saving and investment decisions are inherently complicated, and the information required in order to make good decisions is sometimes costly to obtain. This opens up the possibility that financial education or policies to reduce search costs might improve household decisions.

There has been much recent interest in 'behavioural economics'. In the context of saving decisions, this would mean, for example, models

that relax the assumptions of stable and time-consistent preferences. Such models suggest a range of new policy options, including changing defaults in pension saving, helping people to invest in restricted-access savings vehicles and changing the way in which saving decisions are framed.

Regardless of the theoretical perspective that motivates any intervention or policy, we require empirical evidence on the efficacy of that intervention. Empirical assessment of any intervention designed to raise household saving faces a number of challenges and we identify two as particularly important:

- Outcomes must be measured in a comprehensive way so that genuinely new or incremental saving can be distinguished from the reshuffling of portfolios.
- Counterfactual saving (saving in the absence of the intervention) must be estimated in a credible way so that the causal effect of the policy can be identified.

As we survey the evidence on different interventions and policies, we pay particular attention to these two issues.

Financial incentives

One policy often employed in an attempt to boost household saving is to increase financial rewards to saving. The intention is that the carrot of increased future spending power for households who choose to save more will lead to greater household saving today.

The incentives for different people to save in different forms can be – and in the UK are – affected by tax and benefit policy. For many in the UK, funds placed in private pensions are relatively tax-favoured, with funds held in cash deposit accounts over long periods of time being relatively tax-unfavoured. But there is considerable variation across individuals. Those who expect their effective tax rate to fall when they retire face a stronger incentive to save in a private pension, whereas those who expect it to rise face much weaker incentives (or in some cases no incentive at all) to save in a private pension.

An obvious way to boost household saving might appear to be an increase in the generosity with which the tax and benefit system treats

saving in some or all forms. But economic theory suggests that the impact of such a reform on household saving is actually ambiguous. A substitution effect – lowering the cost of consumption in the future relative to consumption now – will tend to boost saving, but an income effect – boosting the lifetime income of savers – will operate against this by tending to boost spending in all periods.

Some empirical studies have attempted to assess the impact of reforms which have made more tax-favourable forms of saving available. However, the difficulty in estimating the counterfactual savings that would have been made in the absence of these reforms goes some way to explaining why different studies reach very different conclusions on the amount of new saving generated.

What is very clear from the empirical evidence is that financial incentives can have a very large impact on the form in which savings are held. What is less clear is the extent to which such incentives provide a significant boost to overall saving. One group for whom financial incentives to save are likely to be particularly weak are those lower-income households who expect to be in receipt of means-tested support in retirement. There is a lack of empirical evidence on the extent to which the disincentives to save for retirement created by such means testing do in fact lead to lower levels of private saving. This is an area where further research could be fruitful.

Information, education and training

Providing financial education and information is advocated as a way to raise savings. People with higher levels of 'financial literacy' appear to save more. But this need not imply causation – providing financial education in itself will not necessarily raise saving rates.

Financial education is often included as part of a wider package of interventions: for example, alongside measures to raise the returns to saving. Without independent variation in the different parts of the intervention, it is not possible to disentangle the effects of education from other parts of the package.

Financial education can target young people. There is some relatively good evidence that this translates into adult saving behaviour. Several studies suggest that parental attitudes to saving also influence children's

later adult saving behaviours, which implies there may be inter-generational spillovers from policies which promote saving.

Assessing the impact of financial training in workplaces is complicated because it is rarely offered by employers or taken up by employees at random, meaning it is difficult to construct sensible counterfactuals. There is also a lack of good data combining employer and employee information on what training is offered, and saving outcomes.

Most of the evidence on workplace training comes from analysis of specific interventions which may be hard to generalise more widely. The findings tend to be mixed. A common result is that what people say they will do following the training is not always followed through. There is also evidence of small spillover effects for employees who are not directly affected by particular interventions.

The most convincing current evidence suggests that simply providing information alone, as opposed to formal education or training, is relatively unsuccessful in changing saving behaviour. More analysis here would be useful, particularly on whether the presentation of the information matters.

In general, there is not much very persuasive evidence on the impact of education for saving outcomes, particularly evidence focused on the UK context. New policies in this area should be robustly evaluated and designed in such a way as to allow this evaluation to be carried out: this would add enormously to the evidence base.

Choice architecture

A number of policies to boost savings are suggested by insights from behavioural economics. Most well-known among these is to change default rules for pension saving. The UK is set to require employers to default most employees into a private pension, with the reform being phased in from October 2012. This requires individuals to opt out if they do not want to participate rather than opting in if they do.

There is a large body of convincing evidence that defaults matter. They appear to raise participation rates markedly even when the costs of opting out are low. But other effects may be less desirable. People tend to contribute the default rate, which is often set low, and to the default fund, which is often conservative. The idea of 'active decisions' – making

people choose whether to save in a pension fund or not – as an alternative to switching default rules perhaps deserves wider attention and research.

People may want to save but find it hard to resist spending their accumulated balances. Or they may say they want to save in the future but not follow through on this plan when the future comes, if they suffer from 'time inconsistency'. These issues suggest savings accounts which commit people to saving may be helpful.

In developed economies with sophisticated financial markets, it is not clear that policymakers should *provide* savings vehicles with a commitment aspect directly – there are a large number of such accounts already available. But policymakers could help make consumers (particularly those most prone to commitment problems) more aware of them.

Retirement savings plans which get workers to commit now to saving more for retirement as they get older could also be effective. Building this approach into default options may be a sensible approach.

There is evidence from laboratory studies that the way investment decisions are 'framed' (i.e. presented) affects the amount saved and the portfolio of investments. However, the extent to which these findings carry over into real-world settings is unclear. If framing matters, policymakers need to be conscious of unintentional frames in any intervention.

As with education policies, it is striking that much of the evidence on policies inspired by behavioural economics comes from US-based studies with few UK-specific findings.

Social marketing

The idea of 'social marketing' – using insights from the advertising of commercial goods to promote socially desirable behaviours – has gained currency in policy making in the UK recently, but has not been applied directly to savings.

Social marketing involves identifying a target population for policies, understanding from surveys and interviews what the barriers to behaviour change are for that group and then designing and testing tailored interventions.

There is some evidence from the US that this approach can have significant effects on retirement savings amongst new employees.

Using these kinds of tailored interventions with later defaulting for people who do not respond after some time might be an attractive option. However it is clear that more needs to be done to understand the impact of social marketing methods on savings more widely. Policymakers could fund, pilot and evaluate trials to assess the features of social marketing methods which appear to be most effective and what can (and cannot) be generalised.

Final thoughts

Given the long-standing policy interest in this area, our view is that the current state of the overall evidence base is disappointing (although there are of course individual studies of very high quality).

Three key limitations of the current evidence base are as follows:

- In many areas, while it is clear that an intervention has affected how wealth is held, it is much less clear whether it led to genuinely new saving, or just changed the form in which saving that would have happened anyway is held.
- For many interventions, policymakers obviously hope to achieve long-term impacts, such as to engender a saving 'habit'. However, the great majority of studies have focused on short-term outcomes. There is a real paucity of evidence on the ability of policy to deliver persistent behavioural changes.
- Many of the interventions that have been studied are actually packages of interventions, such as matched contributions coupled with financial education and information provision. Bundling interventions in this way makes sense from a policy point of view, but without independent variation in the components, it is difficult to know which parts of the bundled interventions were effective, or indeed, if the bundled interventions only work (or work better) when delivered as a package.

Addressing these limitations should be the agenda for future research in this area.

1 Introduction

This report examines in detail what is known – and what is not known – about the effectiveness of different sorts of interventions designed to raise the stocks and flows of savings by households. We offer a critical review of the literature examining policies in four main areas:

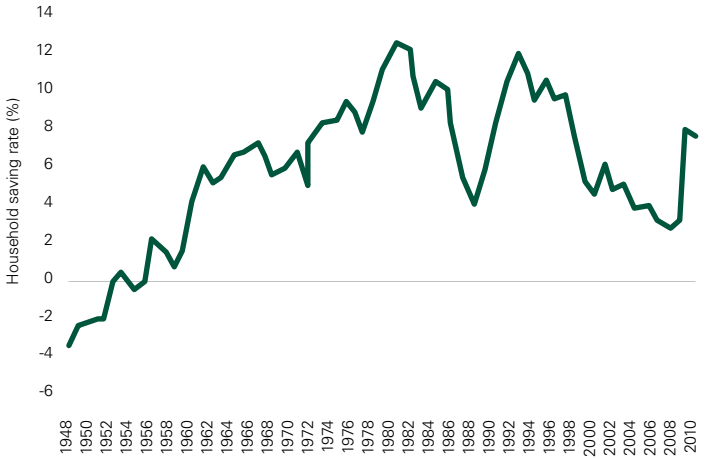
1. Raising the financial return to saving.
2. Providing financial education and information about savings.
3. Recent developments drawing on insights from behavioural economics and psychology.
4. The ideas of 'social marketing', using techniques from commercial marketing to promote social goals like saving more.

Concern that too many individuals are saving too little has been the motive underlying a range of policy interventions both in the UK and internationally for many years. Most notable has been the worry that many people are not saving enough for their retirement. The UK Pensions Commission, under Adair (now Lord) Turner, estimated in 2004 that perhaps nine million people were under-saving for retirement. Policy responses have already included three Pensions Acts, in 2007, 2008 and 2011, which have introduced or plan to introduce a number of reforms to encourage more retirement saving, including automatic enrolment for most employees into workplace schemes.

Increased longevity has raised concern not only about the adequacy of retirement saving, but also about the issue of long-term care for older people and whether the presence of asset tests for care provision may act as a disincentive to save – hence the recent Dilnot Commission on Funding of Care and Support recommendation that individual liabilities for social care costs be capped. Even aside from long-term savings there has been concern expressed about the low proportion of income that is set aside for the future by households. Figure 1.1 shows the aggregate household saving rate (roughly, the proportion of household

disposable income which is not spent) since 1948 as measured by the Office for National Statistics. Having risen fairly continuously for most of the 1950s, 1960s and 1970s the saving rate fell sharply in the 1980s, re-bounding strongly in the recession of the early 1990s before falling away quickly through the late 1990s and 2000s to as little as 2% by 2008. The saving rate rose to 6% in 2009 but fell again in 2010 and has not shown the same sustained climb seen in the early 1990s despite the length and depth of the recent recession.

Figure 1.1 Aggregate household saving rate, 1948–2010.



Source: Office for National Statistics Economic Accounts (code NRJS).

One limitation of the aggregate household saving rate as a measure of household saving is that it is the fraction of the average pound that is saved. As the rich have a greater share of total household income, this is not the saving rate of the average household. If our primary concern is, for example, with the retirement preparations of low- and middle-income households, Figure 1.1 may not be very informative. In Section 2 below we discuss some further issues around whether or not we can interpret the long-term decline in the aggregate household saving rate since the early 1980s as evidence that too little saving is being done.

Recent interest in household saving behaviour is not confined to the policy community. Academic economists both in the UK and abroad

have for many years studied models of saving behaviour. Recent research has sought not only to understand what these models mean for our interpretation of the 'adequacy' or otherwise of saving behaviour, but also to extend and improve them to account better for how and why people save and how saving decisions respond to direct and indirect policy incentives. New approaches to the analysis of saving behaviour are being developed based on the links between economic and psychological perspectives on choice and decision-making. These try to relax some of the assumptions underlying the standard economic analysis of saving decisions. Both traditional and new 'behavioural' approaches are benefiting from better data on household income, spending, savings and wealth, and the exciting possibilities offered by linking household-level micro data to government-held data on lifetime tax and welfare records. Pensions, savings and consumption choices are therefore active areas of academic as well as policy-relevant debate. This report, which surveys evidence for the efficacy of different types of intervention, is therefore timely both in terms of the demand for, and supply of, such evidence.

The rest of the report is organised as follows. Section 2 explores some of the theoretical background to the work. We examine the 'classic' economic model of saving decisions and highlight the lessons this gives us for interpreting and understanding data on household saving. We then turn to recent behavioural and other developments in the modelling of saving behaviour. We address the crucial question of *why* policymakers may wish to intervene to raise savings – what are the market or individual failures which justify intervention? We also examine the principles of how we would, ideally, wish to evaluate evidence in this area as a guide to considering how close the evidence we discuss in later sections comes to this ideal. Sections 3 to 6 then look at evidence for the impact of a range of different types of intervention: financial incentives (including tax breaks for savings and 'matching' policies), information and education (including workplace training), 'choice architecture' and other policies motivated by behavioural economics, and social marketing. In each case we discuss not just what the evidence from different interventions is, but also offer a critical commentary of the quality of evidence and where we might like to know more. Section 7 offers some overall conclusions.

2 Background

The first half of this section surveys different theoretical perspectives on household saving behaviour. We consider explanations for why people save, and why they don't. This material provides an essential background when considering policies to increase saving. Is it the case that not enough personal saving is being done – and if so, why? Understanding the market or individual failures that generate too little in the way of savings is the first step to identifying remedial policies that are likely to be effective.

While theory can and should be a guide to good policy, it can only ever be a partial one. We also require convincing evidence on the efficacy of different interventions. Sections 3 to 6 of this report consider such evidence. The second half of this background section takes up issues around the nature of evidence. When is evidence on the impact of an intervention compelling, and what are the challenges in collecting such evidence?

2.1 Why do people save – and why don't they?

The standard economic model of household saving

The standard way in which economists think about saving by households is with a class of models that can be collectively referred to as the life-cycle/permanent income hypothesis (LC/PIH). At its core, this class of models can be described as follows: people have stable, time-consistent preferences between current and future consumption, and experience a marginal benefit of a pound spent in any period that declines as the amount spent in that period rises. Given these preferences, they are forward-looking and they try to do the best they can ('optimise') using the information available to them. The central prediction of this class of models is often characterised by the proposition that households will seek to 'smooth consumption' over the life-cycle. However, this is not quite right. It is the *marginal benefit* of consumption that households

will seek to smooth (so pounds will be spent in periods where the marginal benefit from additional spending is highest until the marginal benefit of additional spending is equalised across periods) and this can imply quite variable consumption if, for example, needs are changing. Variable consumption is not, on its own, evidence of inadequate saving.

Broadly these models say that people will save when income is high, needs are low, or expected returns to saving are high. They will dis-save (run down savings or borrow more) when incomes are low, when needs are high, or when expected returns are low. This formulation (and life-cycle models more generally) also captures a number of different saving motives, including the retirement motive (save when income is high, in anticipation of otherwise lower income during retirement), the precautionary or insurance motive (save to prepare for negative unanticipated shocks to income or needs) and the accumulation motive (save when expected returns are high). For a further discussion of different saving motives, see Browning and Lusardi (1996).

There is great current interest in models of saving behaviour that go beyond this standard traditional life-cycle framework. We will have quite a bit to say about those below. But before we do, it is worth revisiting several important insights of the LC/PIH work which provide important cautions for researchers and policymakers.

First, whether or not the LC/PIH is a true or complete model of saving behaviour, the historical development of the LC/PIH taught us a great deal about how to interpret data on savings. In fact, the LC/PIH was developed largely as a way of resolving the apparent puzzle of saving rates that, on average, rise with income in cross-sectional data, but which are stable (or even fall) over time as average incomes rise. The LC/PIH tradition highlights two reasons why saving rates will be correlated with current income in cross-section, even if households that are 'rich' and 'poor' in some long-term sense have similar saving rates:

1. If saving is measured as income minus consumption (or total expenditure), any positive measurement errors in income will increase both observed income and observed saving; underreports of income will have the opposite effect. Thus measurement error alone will mechanically generate a positive correlation between observed current income and saving.
2. If income is subject to transitory fluctuations, the LC/PIH implies that households will save when their incomes are temporarily

high, and dis-save when their incomes are temporarily low. Thus, among households with the same long-term average income and saving rates, current saving will be positively correlated with current income at any point in time if temporary shocks are essentially random.

Much, but not all, of the policy concern about low savings is motivated by the belief that low income households save very little. The LCH/PIH reminds us that the cross-sectional relationship between observed current income and observed *flows* of current savings is poor evidence for that proposition. Of course, the low wealth *stocks* of low income households may be a more compelling motivation.

A second insight from the LC/PIH tradition is that saving can be both passive and active. The resources available to be enjoyed tomorrow will depend both on what is set aside today *(active saving)* and any capital gains on existing wealth *(passive saving)*. When returns turn out to be high, and desired future consumption can be met largely with passive saving, active saving will be reduced. Some researchers argue that the low aggregate saving rates of the decade leading up to the financial crisis can, in whole or in part, be explained by rising asset prices in this period (see for example Juster *et al*. 2006).[1] The widely reported aggregate saving rate (shown in Figure 1.1) is a measure of *active* saving only, and this is a second reason why the aggregate saving rate is incomplete evidence on the adequacy of household saving.

A third insight from the LC/PIH is that saving may be low when expected returns are low. An important application of this is that the means-testing of state retirement benefits can mean that the effective returns to saving are very small for low-income households. Low saving rates might then be optimal for those households. Shillington (2003) has suggested that this is an important issue in Canada, and Huggett and Ventura (2000) and Hubbard, Skinner and Zeldes (1994) have explored this explanation for low saving rates among the poor in the US. The first two papers focus on the means-testing of retirement income programmes while the latter focuses on the means-testing of income support type programmes. In the UK Sefton, ven der Ven and Weale (2008)

1 Similarly, there is more than one way to insure against a rainy day. For example, temporary borrowing to smooth transitory shocks is an alternative to drawing down savings. If financial liberalisation makes borrowing less costly, we might expect households to meet some of their insurance motive through potential future borrowing, and hence save less.

set out a model which predicts that the 2003 increase in generosity of means-tested retirement benefits, though tapering away entitlements less quickly against private income, would lead to the poorest third of households saving more, but the middle third saving less.

Thus the LC/PIH cautions us that what appear to be low saving rates and correlations between savings and income at a point in time may be misleading, and that 'truly' low saving may in fact be a privately optimal (but potentially socially undesirable) response to particular features of the tax and benefit system. An obvious implication is that a government interested in promoting personal saving might usefully begin by reviewing its tax and benefit policies. We discuss this further in Section 3.

The broader insight for policymakers that these papers highlight is the importance of understanding *why* returns to saving are low for some groups and, therefore, what the appropriate response might be. If a low return to saving stems from an interaction with other policies designed to achieve other goals (e.g. focusing redistribution efforts on poor households) then a balance needs to be struck between competing objectives in determining the optimal approach. If it stems from a market failure such as an uncompetitive financial services sector, the best approach is likely to be to target this market failure directly rather than policymakers themselves trying to raise the returns to saving. If the return reflects genuine market conditions then it may be that direct attempts to raise returns through policy intervention – such as those aimed at boosting productivity – are more appropriate.

The difficulties the LC/PIH highlights in interpreting both household and aggregate saving rates suggest that policymakers might usefully focus instead on wealth stocks, the actual resources accumulated by households of different ages. The UK has for some years lagged behind many other advanced economies in the collection of household wealth data, with the main source being the British Household Panel Survey (BHPS) which collects wealth data only at five yearly intervals. Recently, however, the situation has rapidly improved with the advent of both the English Longitudinal Study of Ageing (ELSA) and, more recently, the Wealth and Assets Survey (WAS).

The wealth data does reveal seemingly low levels of accumulated liquid wealth, particularly at low and moderate levels of income. Crossley and O'Dea (2010) report using BHPS data showing that in 2005 the median family had little more than a thousand pounds in liquid financial wealth.

Median family housing equity was £60,000. The Pensions Commission (2004) calculated the value of a fully accrued basic state pension at over £80,000 in 2004.

The question of course is whether these wealth levels are 'optimal' or even 'adequate'. Another insight from the LC/PIH is that adequacy (or optimality) is extremely difficult to judge. Appropriate wealth accumulation depends on a large number of parameters, including current needs, the expected future course both of income and of needs, and the degree to which individuals are 'impatient' (that is, how they value consumption today relative to future consumption). Future needs will depend on family size, health and life expectancy. Not only are future needs and patience typically unobserved by researchers and policy-makers, they also, surely, vary between individuals.[2] It is striking how different researchers, based on US wealth data, have reached opposite conclusions about the adequacy or otherwise of wealth holdings (contrast for example Bernheim *et al*. (2000, 2001) with Engen *et al*. (1999) and Scholz *et al*. (2006)). Skinner (2007) provides an extremely lucid discussion of the sensitivity of saving 'adequacy' calculations to alternative assumptions.

Finally, and importantly, the LC/PIH warns us against the potential costs of compulsion. If households save little because they are in a period of low income, or high need, or because they have a genuine and strong preference for consuming now, then forcing them to save will result in a significant welfare loss.

Information

An obvious extension from standard life-cycle models is to retain the notions that agents have stable preferences and are forward-looking, but to take more seriously the qualifier that households do the best they can *with the information available to them*. Savings and investment decisions are inherently complicated. Deciding whether to save or spend a marginal pound of income requires a consumer to be informed about the different options available and to be able to process the information to reach

2 There is good evidence both that patience is heterogeneous (Alan and Browning (2010)), and that savings are related to patience (or as economists term it, 'time preference'). Finke (2006) defines different measures of time preference in a survey of almost 7,000 college students, including asking how much money they would require in a year to make them equally as happy as receiving $150 now and a measure based on their engagement in risky behaviours like smoking, drug use and healthy eating. He relates them to their stated willingness to save for retirement once they start work, and finds that people who exhibit more patience are more likely to say that saving for retirement is important.

an optimal choice.[3] Acquiring and understanding information requires costly investment of time and effort, which economists often think of as a 'search cost' (e.g. Stigler 1961). People search up to the point where the marginal search cost equates to the marginal expected benefit of searching more. Those with lower marginal search costs (or higher marginal expected benefits from search) will consider a wider range of options and ultimately make 'better' saving decisions. This might well mean they save more, either because searching yields accounts with better returns or because the consumer finds an option which better suits their individual needs, which may not just be related to the rate of return.

Evidence on the way in which people acquire and use information when making financial decisions in the US can be found in Lin and Lee (2004), Loibl and Hira (2009) and Kim and Kim (2010); in the EU in European Commission (2010); and in the UK in Finney and Kempson (2008). General conclusions from these studies seem to be that more information is sought out by richer, better-educated and younger people but that typically only a small number of sources of information are used when making financial choices and the amount of 'shopping around' is quite limited. The UK and EU studies also revealed some difficulty with understanding financial information for a significant minority of people and that information provided was often not read fully.

There is evidence that, faced with many choices, individuals may simply decide not to choose at all, rather than risk making the 'wrong' choice based only on partial information. This is sometimes known as 'choice overload'. Given many saving options, consumers could simply opt out of formal saving altogether. Some empirical evidence comes from Iyengar, Jiang and Huberman (2004). They use data covering almost 800,000 employees in the US on their participation in 401(k) retirement plans in 2001. Controlling for employee and plan characteristics, they found that increasing by 10 the number of investment funds available in a given plan reduced the probability of investing in a plan at all by 1.5-2 percentage points, with the highest participation recorded when only two options were available. This, of course, does not necessarily mean overall contributions fall with the total number of available funds: it may be that participants contribute more if they are able to choose a fund which better matches their ideal option.

3 Visiting a popular UK online comparison site for savings accounts at the time of writing gave 841 different options for a one-off investment of £1,000, with accounts varying by provider, interest rate, whether the rate is fixed or variable, how frequently interest was paid and the length of any fixed-term investment period.

Policy interventions which provide information, training or education to reduce the costs of search may help raise savings. Information may be complemented by regulation of *how* information is provided to make it as straightforward to interpret as possible. This might include, for example, a common framework for how interest rates and other relevant features of savings accounts such as penalties and notice periods for withdrawals are described so that they can be more easily compared or through kite marks for products that comply with certain standards and might therefore be considered to be less likely to be a 'bad' option for many individuals.[4] Regulation may also be required if, under completely free markets, firms in the financial services industry engage in obfuscation – making products deliberately hard to understand or misleading – in order to drive up the costs of searching around (Ellison and Ellison 2009). This would make consumers less sensitive to interest rates, for example, meaning the returns to savings accounts could be lowered in a profitable way.

If search costs are more about understanding financial information than obtaining it, education and training may be appropriate policy responses. In a now rather old but still interesting study, Schultz (1975) provides evidence that more educated people adapt more quickly to changing economic incentives in a variety of settings, including technological improvements in agriculture, the availability of birth control methods and the returns to education and migration. This suggests that more educated people might be better able to respond to changing saving and investment incentives as well. For saving behaviour, it may be general education or more specific skills relating to financial issues that matter (though there is likely to be a strong positive correlation between them). There is a large body of evidence suggesting that measures of people's 'financial literacy' are positively correlated with their likelihood to save and the value of their portfolios, even once observed demographic factors are taken into account. In the US, Lusardi (2008) shows that people with higher financial literacy were more likely to have planned for retirement and that making such plans is strongly positively related to wealth accumulation in later life. In the UK, Banks and Oldfield (2007) find that financial wealth holdings amongst older people are significantly higher at the median for the more numerate,[5] even controlling for age, education, sex and broader

4 See http://www.bba.org.uk/policy/article/code-of-conduct-for-the-advertising-of-interest-bearing-accounts/banking-codes/ for some details on how the UK financial sector self-regulates in this area.

5 The questions used to define numeracy in this study are very similar to those which define financial literacy in the US papers.

measures of cognitive ability, while Bozio, Emmerson and Tetlow (2011) find that the more numerate also have greater retirement resources after controlling for detailed measures of lifetime earnings. Banks *et al.* (2010) find that higher numeracy is associated with greater pre-retirement savings in liquid assets (particularly amongst wealthier households) and more dis-saving in retirement, though this does not appear to translate into worse outcomes for the low numeracy group in terms of their retirement income replacement rates or self-reported well-being. This could be related to portfolio effects, if less numerate individuals have access to non-financial wealth in retirement, or the fact that the less numerate typically have a greater proportion of their income replaced by the state pension system than do the more numerate. In the Netherlands, van Rooij *et al.* (2011) show that people who are knowledgeable about sophisticated financial matters, such as the relative risks of different types of investment and the relationship between interest rates and bond prices, are more likely to plan for retirement. Using econometric methods they argue that the causality runs from financial literacy to planning, and not the other way round (i.e. that those who plan more acquire more sophisticated financial skills as a result).

The possibility that saving behaviour is affected by such information problems suggests a range of possible interventions, from education and training to the direct provision of information and the regulation of financial service providers. Section 4 surveys the evidence on the efficacy of such interventions.

Behavioural perspectives

There has been recent academic and policy interest in 'behavioural economics'. We take this label to imply perspectives that move beyond the assumptions of optimisation and stable preferences (subject to information and other constraints), using psychological insights about choice behaviour to understand economic decision-making. Many of the ideas were popularised by the book *Nudge* (Thaler and Sunstein 2008) which emphasised that in some contexts, policymakers could change behaviour by altering the way in which choices were presented or the environment in which decisions were made. Such 'choice architecture' is distinct from what might be seen as more traditional forms of intervention such as regulation or the use of taxation. The UK government has set up a 'Behavioural Insights Team' in the Cabinet Office and recent reports have explored the impact of behavioural models for public policy in general (Institute for Government 2010), and specific case studies in health policy (Cabinet Office 2010) and energy use (Cabinet Office 2011).

A number of studies have reviewed the relevance of behavioural models for saving behaviour (e.g. Thaler (1994); Bernartzi and Thaler (2007); de Meza *et al.* (2008); Mullainathan and Shafir (2009); DellaVigna (2009); Elliott *et al.* (2010); European Commission (2010); Berry (2011)). The most significant behavioural concepts for saving choices include:

- **Bounded rationality** (Simon 1955): faced with complex choices, people may try to simplify and rely on 'rules of thumb' to determine their saving choices (saving a fixed amount each month or a fixed proportion of income, for example) rather than 'optimising'.
- **Mental accounting** (Thaler 1990): in standard economic theory, money should be 'fungible' – that is, a pound earned from one source is no more likely to be saved than a pound earned from another. There is considerable evidence that this is not the case and that people may be more likely to save some forms of income than others if they mentally divide income into different uses (money for rent, fuel, rainy day savings and so on).
- **Loss aversion** and **reference points** (Kahneman and Tversky 1979): if well-being depends not on the absolute amount we consume but how consumption changes compared to some 'reference point', and if losses generate greater welfare costs than the benefits of equivalent gains, then saving may be seen as a loss of spending power which is not made up for by the value of future spending.
- **Time inconsistency and self-control**: standard economic models assume that people discount the future at a constant rate, meaning that their willingness to save a pound today for future consumption is the same as their willingness to save a pound will be a year from now. However, evidence from laboratory and field experiments suggests that people may be more patient in the future than the present – that is, they heavily discount the immediate future but discount more distant periods less. This has been modelled as 'hyperbolic discounting' (Laibson 1997) and is related to the idea of procrastination (O'Donoghue and Rabin 1999). People may consume today and save little, thinking they will save in the future. But when the future arrives they put off saving again. In this sense, low saving is a problem of self-control – the short-term desire to spend overcomes a longer-term desire to save. A related concept which could help explain low saving rates is temptation (Gul and Pesendorfer 2001), in that people would like to save but would find it hard to resist spending the accumulated assets. In both cases government intervention to help people act according to their 'true' long-term preferences and overcome their short-term biases may be

> justified, particularly if the incentives of the private sector may be to exploit them for profit rather than providing market mechanisms to help consumers overcome them.[6]

Shefrin and Thaler (1988) consider modifications to the standard life-cycle model of consumption and saving behaviour in the light of some of these behavioural theories, in particular self-control and mental accounting. They suggest that their 'behavioural life-cycle hypothesis' generates several features which more realistically reflect observed behaviour than the standard model. These include consumption levels which track income, fall in retirement and respond differently to different types of shocks to income.

As with the earlier discussion around patience and financial literacy, behavioural biases like self-control and loss aversion will vary across different individuals and are hard to observe or measure. Not only might the size of such biases vary, but so also might the extent to which different people are conscious of their biases and so value mechanisms which might help them to overcome them, such as the provision of committed savings accounts where wealth is relatively illiquid as a means to overcome temptation.

It is worth highlighting that to the extent that 'behavioural' and 'standard' perspectives on saving behaviour are to be seen as competing explanations of observed outcomes, they may have quite different predictions about the effectiveness of different interventions. For example, as pointed out by McCafferey (2008) if people suffer from time-inconsistent preferences then raising the return to long-term savings through tax-exempting stocks of assets when they are withdrawn at retirement is unlikely to be effective, since the gains will be remote from the perspective of the young saver and therefore too heavily discounted. However, increasing the up-front incentive to save by tax-exempting contributions could lead to unintended behaviours where people borrow now (with heavily discounted future interest liabilities) to

6 For example, DellaVigna and Malmendier (2004) provide a theoretical discussion of firms' pricing incentives for 'investment goods' (which have costs today and rewards in the future, like gym memberships) and 'leisure goods' (which have benefits today and future costs, like credit cards). They assume that consumers are time-inconsistent and may or may not be aware of it, and that firms are always aware of their customers' time inconsistency. In the case of credit cards, sophisticated consumers who understand the temptation to spend too much might value high interest rates as a 'commitment device' preventing them from overspending. Naive consumers, who do not appreciate the temptation to spend today, may not expect to have to pay the high interest rates and so are not dissuaded from taking the credit card. In this sense the firm 'exploits' the behavioural bias.

finance immediate savings and thus reduce their current tax liability to fund consumption in the present.

Behavioural perspectives on saving behaviour have inspired a range of interventions. The existing evidence on the efficacy of such interventions is surveyed in Section 5.

2.2 Key challenges in evaluating policies to promote saving

An obvious way to obtain evidence on the effectiveness of a policy or intervention is to try it out. Even then, we face a number of obstacles. The first question is to define and measure the outcome of interest. This may seem trivial but, as we shall see in Section 3, it has been a prominent concern in the rather large literature that evaluates attempts to increase savings by raising the return to saving either through favourable tax treatment or through matching contributions, or both. The issue here is whether saving in a matched or tax-favoured asset is *new* saving. Suppose that after the introduction of tax-favoured savings account, we see that eligible individuals accumulate balances in those accounts. These savings could be:

i. Transfers of previously accumulated wealth from other accounts or assets,
ii. Saving flows that would have occurred otherwise but would have been held in other accounts or assets,
iii. Genuinely new saving, in the sense that it is saving that would not have occurred had the tax-favoured accounts not been introduced.

Simply observing that eligible individuals accumulate balances in tax-favoured savings accounts does *not* necessarily imply that these accounts cause more saving, to the extent that these balances are generated by mechanisms (i) or (ii) rather than (iii). This problem will arise with any policy designed to stimulate private saving.

One might object that the low-income families that are the target of many policies designed to stimulate saving hold very little other financial wealth, so that reshuffling of assets is not an issue. But remember that household portfolios include debt, so that contributions to a tax-favoured account can be financed without increasing *net* saving, both by borrowing more and by reducing existing debts (possibly including home mortgages) more slowly.

The solution to this problem is to study comprehensive measures of wealth stocks (including debt), and flows of saving and borrowing. Alternatively one can examine household consumption or expenditure: if income is unaffected by the policy, increased total saving implies lower current expenditures. This latter solution has been implemented in a study of tax-favoured savings accounts in the US by Attanasio and Deleire (2002).

There is also the issue of the point in time in which the outcome is observed. While evidence of the impact of an intervention on saving at the point in time when the intervention was introduced might be of interest, often the key policy objective might concern longer-term saving outcomes. In particular, where an intervention involves a significant up-front cost to the taxpayer it might be that it could only be justified if it led to an enduring improvement in saving outcomes. But obtaining robust evidence on the impact of an intervention at a particular point in time on subsequent outcomes is more demanding, and therefore the evidence base is less rich.

If an outcome of interest has been measured then we have information about what happens for those people eligible for any policy in its presence. However, to assess its causal effect, we need to compare these outcomes to what they would have been without the policy being implemented. However these counterfactual outcomes are not observed – as we are trying to evaluate a policy which exists – and so must be estimated in some way. This is a challenge encountered in the evaluation in all kinds of policies, and savings policies are no different. Normally, data on people ineligible for the policy are used. If eligibility has been randomly assigned then this is (sometimes) straightforward: eligible and ineligible people are on average the same in every respect except in exposure to the intervention, and any difference in their outcomes can be credibly attributed to it.

While randomised policy trials have much to recommend them, they are not always feasible, for practical or ethical reasons. For example, it may be difficult to expose a random group of commercial financial service providers to more stringent regulation while a control group of firms remains exempt.

If eligibility has not been randomly assigned, then simply comparing the outcomes of those who are eligible and ineligible might not be a credible measure of the effect of the policy, as it could conflate this effect

with other differences between the eligible and ineligible groups which may be related to the outcome of interest. In this case, it is sometimes possible to make more credible comparisons by selecting particular groups from those ineligible who are most like the eligible in various relevant ways, or by adjusting the outcomes of ineligible groups in ways that take account of background differences between the eligible and ineligible (for example, through comparing the change in an outcome over time among eligible individuals to that among ineligible individuals will account for any time-invariant difference in behaviours between the two groups). Both selection and adjustment are undertaken by statistical/econometric methods, but the challenge of dealing with unobserved differences between eligible and ineligible groups remains.

In the sections that follow then, as we consider evidence on the efficacy of different interventions, we will keep a keen eye on these two central methodological issues. First, has an appropriate outcome been measured? Second, has a credible counterfactual been estimated?

One intriguing observation is that aggregate household saving rates vary considerably across countries. The low aggregate household saving rates for the UK, particularly in the years leading up to the financial crisis of 2008 (shown in Figure 1.1), are shared with OECD countries such as Canada, the United States, Australia, Japan and Denmark. On the other hand, countries such as Germany, Austria, Belgium and Italy had much higher aggregate household saving rates (OECD, 2011). This fact suggests cross-country comparisons as a potential way to learn about the effect of differences in public policies and other determinants of saving.

However, there are several reasons that it is difficult to draw strong conclusions from such comparisons. First, differences in both institutions and national statistical systems limit the comparability of these statistics across countries (Harvey 2004). Second, even if satisfactory adjustments for such differences could be made, cross-country comparisons would still conflate the influences of a number of different policies, as well as other determinants of saving, including possibly culture.[7] Disentangling these influences is extremely difficult. These problems are well-illustrated by the case of the Canadian and American house-

7 In an interesting series of papers, Carroll *et al.* (1994, 1999) attempt to study cultural influences on saving, holding policies and institutions constant, by studying the saving behaviour of immigrants to Canada and to the US. The results are very mixed but where they do find significant differences in the saving behaviour of immigrants from different countries, those differences do not align with the aggregate saving rates of the source countries. That is, high saving immigrants do not seem to come from high saving countries.

hold saving rates, which diverged dramatically during the 1970s. This would seem to be an ideal case to study because the culture and many economic and institutional features of the countries are so similar, and because the 1970s were a period of some innovation with respect to saving policy in Canada. Nevertheless, analysts making this comparison have reached starkly different conclusions regarding the role of policies in driving this divergence (Burbidge et al. 1998, Carroll and Summers 1987, Poterba *et al*. 1996, Sabelhaus 1997).

For these reasons, our view is that convincing and credible evidence on the efficacy of household saving policies is more likely to come from well-designed evaluations of specific policies, rather than from broad cross-country comparisons.

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3 Financial incentives

One policy often employed in an attempt to boost household saving is to increase the financial reward to saving. The intention is that the carrot of increased spending power in future to households who choose to save more now will lead to greater household saving now. Where a lack of household saving has arisen from some households facing a weak financial incentive to save because of, for example, the potential withdrawal of means-tested retirement benefits, this might be seen as a direct way of tackling the underlying root cause of the problem.

This section discusses issues around, and evidence for, the impact of changing financial incentives on household saving decisions. Such changes can be delivered in many ways. Perhaps the most common has been through offering tax-favoured saving vehicles – for example for private pension saving. Alternatively reforms could be made to the way in which state benefits paid to pensioners depend on private income in retirement (or similarly to the way in which benefit entitlements for working-age individuals are potentially affected by asset holding or from asset income). As noted in the previous section, means-testing of benefits can act as tax on saving.

These methods of increasing household saving are discussed in Section 3.1. More recently, policies have been implemented that have increased the return to saving through an explicit government match that is targeted towards the saving of particular households. Issues raised by such schemes are discussed in Section 3.2.

3.1 Favoured tax treatment of savings

There are (at least) three different points at which saving can be subject to tax: the income from which savings are made, the returns arising from the investments and the value of the funds when withdrawn.[8] The effective return on saving will depend on the interaction of all taxes levied at all of these potential points. In the UK, this most commonly will depend on the rates of income tax and (for those who are saving out of earned income) national insurance, but for some households will also be affected by other taxes such as capital gains tax, stamp duties and inheritance tax.

Furthermore, social security benefits that are targeted towards those with relatively low means can also affect the returns to saving. Most obviously, benefits targeted at low-income (or low-income and low financial wealth) families can reduce the financial incentive to save if, by saving more now, individuals' entitlement for means-tested benefits in the future is reduced (or expected to be reduced). This could operate either because the means test takes into account the income received from assets (such as private pension income) or directly through eligibility depending on the level of financial assets held. More subtly it is also possible for means-tested benefits to *increase* incentives to save: if income saved is not included in the measure of income against which targeted benefits are assessed, then saving more now can boost current benefit entitlements. In the UK, employer pension contributions are excluded from the income measure against which social security and tax credit entitlements are assessed. Individual pension contributions are also given favourable treatment in the calculation of housing benefit and council tax benefit and, since April 2003, excluded entirely from the calculation of entitlement for tax credits.

Therefore, the overall financial incentive to save that is provided by the policy environment depends on the interaction of various parts of the tax and benefit system. Wakefield (2009) provides a comprehensive summary of how the financial incentive to save provided by the UK tax and benefit system varies across different types of investments and for individuals in different situations. Some of his findings are summarised below in Figure 3.1, which highlights one measure of how the tax system affects the return

8 Saving(s) could also be subject to other taxes. For example a wealth tax could tax the funds held in a savings vehicle, stamp duties might be levied whenever particular investments are bought and/or sold, and an estate tax might be levied on funds held at death.

to saving in different ways. In particular, it shows the contributions to different assets necessary to generate 100 'units' of savings relative to a savings vehicle in which contributions come from taxed income, but from which returns and withdrawals are not subject to tax.[9] Since contributions to Individual Savings Accounts and funds invested in owner-occupied housing receive this tax treatment, the graph shows 100 for these assets. Other assets receive more or less favourable tax treatment, with the generosity of that tax treatment varying by the rate of income tax paid by the individual and, in those cases where any nominal returns are subject to tax, the duration over which the investment is made.

Figure 3.1 Relative financial incentive to save in different assets, UK 2008–09, by whether a basic or higher rate taxpayer.

Notes & sources: See Table 10 of Wakefield (2009).

What is clear from the figure is that investments in different vehicles can face quite different relative effective tax rates with, at least for these stylised examples, private pension saving being relatively tax-favoured

9 This is known as a Taxed Exempt Exempt, or TEE tax treatment.

(and employer contributions to private pensions especially so) and funds held in cash deposit accounts over long periods of time being relatively tax-unfavoured (with this effect being greater the higher the nominal return received on the account).

Other types of individual can also face very different incentives: in particular those whose marginal effective tax rate falls when they retire – for example because they move from being a higher rate income tax payer during their working life to being a basic rate income tax payer when they leave paid work – face a stronger incentive to save in a private pension (since they will benefit from being able to receive up-front tax relief on their contributions at a higher rate than the marginal tax rate that they pay in retirement, known as tax-rate smoothing). Conversely, those whose marginal effective tax rate rises when they retire – for example because they move from being a basic rate income tax payer to being on the relatively high withdrawal rate of means-tested benefits – face a much weaker (and in some cases no) incentive to save in a pension.

An obvious way to boost household saving might appear to be through an increase in the generosity with which the tax and benefit system treats saving in one, or potentially, all forms. But economic theory suggests that the impact of such a reform on household saving is actually ambiguous. This is because increasing the return to saving has two distinct effects. The first is to increase the value of saving: in other words to reduce the price of consumption in the future relative to the price of consumption today. This is known as the substitution effect and would indeed tend to lead to households reducing their spending now and therefore increasing their saving. The second effect relates to the lifetime income of the individual, and the fact that boosting the return to saving will increase the lifetime incomes of savers (or at least those who would have saved even in the absence of the reform). A natural response to having more to spend in future is to choose also to spend more now. This is known as the income effect and would tend to boost household spending now and therefore reduce saving.[10] The overall

10 Some researchers distinguish between two different income (or wealth) effects of an increase in the interest rate. First, an increase in the interest rate makes future consumption cheaper, in present value terms, which makes the household effectively richer. Second, an increase in the interest rate decreases the present value of future income, making the household effectively poorer. This second effect is sometimes called the 'human wealth' effect. Note that for a saver, future consumption exceeds future income, so that the first of these income effects dominates the second, and the net income effect is positive, as described in the main body of the text. However, for a borrower, future consumption is less than future income (as debts must be repaid) and the second income (or wealth) effect dominates the first: an increase in the interest rate makes the household less well off on net.

impact of an increase in the financial incentive to save on household saving depends on whether the (positive) substitution effect is sufficiently great to offset the (negative) income effect. A recent, more formal, discussion of these two effects can be found in Attanasio and Wakefield (2010).

The above discussion considers a reform which increases individuals' incentives to save in isolation from any other reform. In practice, implementing such a reform would, on its own, increase public borrowing (as a result of the cost to the exchequer from providing the increased incentive to save), which would be strange if the rationale behind wanting to increase household saving were a desire to increase overall (i.e. public and private) saving. Were this reform instead implemented as part of a revenue-neutral package – for example alongside an offsetting tax rise to finance the cost of providing the increased incentive to save – then household incomes would not, on average, rise and therefore the income effect would not (or at least might not) apply. This would mean that the only impact on household saving would come through the substitution effect, and economic theory would suggest that household saving would increase (or at least would not fall).[11]

A further issue arises when an increased financial incentive to save is provided for particular savings vehicles up to a capped amount. This has often been the case with relatively tax-favoured saving vehicles in the UK such as Personal Equity Plans (PEPs), Tax Exempt Special Savings Accounts (TESSAs) and Individual Savings Accounts (ISAs) all of which had an annual limit on the amount that individuals could contribute. Those who would have saved at least an amount equal to the cap even in the absence of the reform will experience the income effect (previously planned saving delivers more future spending power) but not the substitution effect (additional saving delivers greater future spending power). This is because the reform would not lead to any additional saving that they did being treated more favourably as they are constrained by the cap. For this group, economic theory suggests that the amount saved may well fall following the policy being introduced. Since this group generates the majority of household saving, this consideration is important for the overall impact of such policies.

11 This example makes a number of assumptions. First, the income effect would actually only cancel out if those individuals who saw a reduction in their lifetime income (from the offsetting tax rise) increase their saving, in aggregate, by the same amount as those who saw a rise in their lifetime income (arising from the increased incentive to save). Second, the positive substitution effect from the increased incentive to save would need to be larger than any negative substitution effect arising from the offsetting tax rise.

There is clear evidence that relative tax-favouring of funds held in a particular asset can have very large effects on the amounts that are placed in that asset. Figure 3.1 showed that private pensions and owner-occupied housing are relatively tax-favoured in the UK: evidence from the 2006/2008 Household Assets Survey shows that 39% of private wealth is estimated to be held in each (i.e. 78% of private wealth in total) of those two forms (Office for National Statistics 2010). Indeed in the absence of a financial incentive many households might be best advised not to save for retirement in a private pension (where their funds are tied up until later life and then have to be used to provide a secure retirement income, for example through the purchase of an annuity) rather than alternative, more liquid, forms. Large amounts of saving also flowed into PEPs, TESSAs and ISAs on their introduction (Attanasio, Banks and Wakefield 2005).

However, as made clear in Section 2.2, care needs to be taken in interpreting this as evidence that new savings were generated by tax-favoured savings vehicles. Some of the flows will reflect transfers of savings from other forms of saving and some will reflect savings which would, without tax-favouring, have been held elsewhere. Neither of these types of contributions to these accounts will represent genuine new saving.

That is not to say that such accounts do not lead to an increase in the overall level of household saving, but there are reasons to think that the impact will be limited. Some empirical studies have attempted to assess the impact of reforms which have made more tax-favourable forms of saving available. However the difficult problem of estimating the counterfactual amount of saving that would have been made in their absence has contributed towards different studies reaching different conclusions on the amount of new saving generated. The impact of individual Retirement Accounts (IRAs) and 401(k) accounts in the United States has been assessed both by Porterba, Venti and Wise and by Engen, Gale and Scholz in a symposium of the *Journal of Economic Perspectives* in 1996 (in addition to a number of other papers by the same authors). The former finds that the tax incentives were successful in increasing overall saving significantly, but the latter finds that this was not the case.[12]

12 Other relevant papers include Venti and Wise (1987) and Gale and Scholz (1994).

Subsequently Benjamin (2003) attempted to take better into account underlying differences between those eligible and those not eligible for a 401(k) account, and found that about one quarter of the funds placed into these accounts represented new national saving. Chernozhukov and Hansen (2004) found evidence that all contributions made by those with little wealth represented new saving, while there was significant substitution among those with the greatest amounts of wealth.

All of these studies tried to measure the impact of the accounts on measures of wealth. An alternative method was employed by Attanasio and DeLeire (2002), who tried to measure the impact of these accounts on the growth in spending. As discussed in Section 2, the idea is that if the accounts did indeed lead to a genuine increase in saving this should show up as lower spending growth among those taking out an IRA than among those who had taken one out already. They find that the growth in spending was similar among these two groups, which is consistent with the idea that the vast majority of the funds placed into the tax-favoured vehicle would have been saved anyway. A useful summary of these papers can be found in Bernheim (2002).

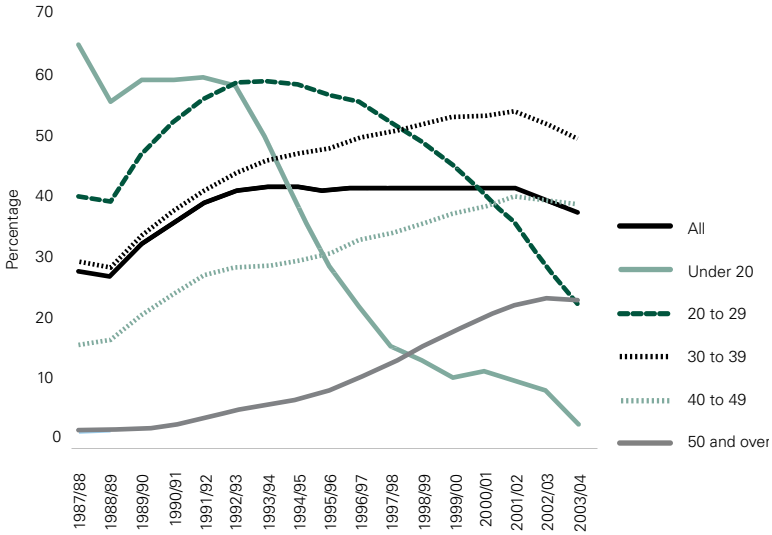
More recent UK evidence on the effectiveness of such tax incentives on household saving is provided by Attanasio, Banks and Wakefield (2005) who examine the impact of the introduction of both TESSAs and ISAs. In the case of TESSAs they point out that total contributions to these accounts jumped at the start of each financial year by an amount close to the maximum allowed. This suggests that the contributions were simply being transferred from other savings. For ISAs they point out that the only groups for whom coverage of non-pension financial assets rose were the young and those with a low level of education. This suggests that the bulk of contributions were not coming from new savers. Both these findings are therefore consistent with relatively tax-advantaged savings vehicles mainly attracting contributions that would have been saved anyway.

The impact of the 1999 Stakeholder Pension reform was examined in detail by Disney, Emmerson and Wakefield (2010). This reform introduced a new, more highly-regulated private pension product that was intended to be easier to understand and lower cost than personal pensions had been. The reform also increased the amount that many individuals (particularly those with zero or low earnings) could contribute to a private pension. The government's aspiration was to boost private pension coverage among middle-earning individuals. In contrast to this

stated objective, the study finds no statistically significant increase in private pension coverage among this group, though pension coverage did increase among lower earners. This suggests that the relatively larger increase in contribution limits for lower earners was an important part of the reform. However, a study of a similar reform in Canada by Milligan (2003) suggests that increases in pension contribution limits can, for younger individuals, lead to a *reduction* in pension saving. Higher limits provide greater scope for individuals to make pension contributions when they are closer to retirement, and therefore less reason to place funds in a private pension some years from retirement.

Further evidence on individuals responding strongly to financial incentives can be found from the UK arrangements for 'contracting out' which were introduced in the late 1980s. Employees could choose to forgo entitlement to part of the state pension (the State Earnings-Related Pension Scheme (SERPS), more recently replaced with the State Second Pension (S2P)) in return for either lower rates of National Insurance Contributions (in the case of occupational pension schemes that met certain standards) or in return for a rebate from the government paid directly into their individual pension arrangement. Individuals responded very strongly to the incentive to contract out into a Personal Pension: the numbers doing so were eight times larger than the initial Department of Social Security estimate (Disney and Whitehouse 1992). Prior to April 1993, the incentive to do this was strong for middle-aged employees and very strong for younger employees. Figure 3.2, taken from Disney, Emmerson and Wakefield (2008), shows that the percentage of employees choosing to contract out in this form matched the pattern of incentives. Indeed, over half of employed teenagers chose to contract out in this form despite the fact that any financial benefit to them from doing so would come to them a long way into the future. Once the incentives were made less strong, from April 1993, far fewer younger individuals chose to contract out in this form. The move to age-related rebates from April 1995 increased the incentive for older employees to contract out in this form, and the largest increase in the propensity to contract out into a Personal Pension after this date was indeed observed among those aged 50 and over. In contrast, contracting out into individual private pensions continued to be less common among the under-30s.

Figure 3.2 Responsible teenagers? Percentage of employees with second-tier pension coverage choosing to contract out into an Approved Personal Pension or Stakeholder Pension, 1987–88 to 2003–04, by age band



Source: Figure 6 of Disney, Emmerson and Wakefield (2008) using data from the Department for Work and Pensions.

The literature cited above has focused on the role of tax-advantaged saving schemes and private pensions in saving and pension coverage. In the UK, unease has been expressed about the potential impact on the incentives for those of working age to save for retirement of relying on widespread means-tested support for pensioners. The concern is particularly acute for middle-income households. Those with high incomes still typically face strong incentives to save for retirement, not least because the level of retirement income provided by means-tested benefits would represent a considerable drop in living standards relative to those enjoyed in working life. Meanwhile, many individuals in lower-income households might well have been unable to save much even in the absence of means-tested retirement benefits.

In part this concern relates to the decisions of the previous Labour government to increase the generosity of means-tested benefits for pensioners in order to improve the living standards of low-income pensioners. In particular, the October 2003 reform of the Pension

Credit saw its withdrawal rate reduced from 100% to 40%. At a stroke this led to almost one quarter of single pensioners and pensioner couples becoming newly eligible for the Pension Credit, with most of these individuals receiving private income that they might, had they anticipated the reform, have chosen to spend rather than save at an earlier age (Blundell, Emmerson and Wakefield 2006). However there is no robust evidence on the impact of such means-testing in retirement on the saving decisions of working-age individuals. However, as noted in Section 2, simulations of theoretical models calibrated to US data suggest it is important, while Sefton, van der Ven and Weale (2008) use a structural model to examine the impact of the UK Pension Credit reform and predict that it would lead to the poorest third of households saving more and retiring later, the middle third saving less and retiring sooner while the richest third would be broadly unaffected.

The lack of empirical evidence is unsurprising, given that the challenge of trying to estimate a counterfactual of how much these individuals would have saved in the absence of the reform is even more fraught with difficulty than when assessing the impact of tax-advantaged savings accounts. With tax-advantaged savings accounts it is at least relatively straightforward to identify individuals whose behaviour might or might not have been affected, using data on who has taken advantage of them. In contrast, it is far from straightforward to identify which working-age individuals might (or might not) have been affected by a possible increase in the likelihood that they will qualify for means-tested support in their retirement.

The government has recently proposed to move more quickly to a flat rate, (near) universal state pension, that is more generous to lower earners and less generous to higher earners, combined with a reduced role for means-tested support for pensioners (Department for Work and Pensions 2011). On average this system is intended to require the same level of public spending as the current system, with the advantage of both being simpler and of increasing the reward to saving for those who are brought off means-tested benefits as a result of the reform.

3.2 Matching

Given the lack of robust evidence that tax favouring has led to significant increases in overall household saving, it is perhaps unsurprising that

efforts have been made to introduce accounts that are potentially better targeted at marginal savers. If successful, these could achieve greater increases in household saving at lower cost to the exchequer. In addition, a concern with tax-favoured saving accounts is that the benefits of such accounts will largely accrue to richer households (see for example Mills *et al*. 2006 and Duflo *et al*. 2006). This is both because higher income households face higher marginal rates of income tax and therefore benefit more from, for example, dividend income on funds held in ISAs not being subject to income tax, and because such households are more likely to have existing savings, and already planned flows of future saving, that they can divert to tax-favoured vehicles to benefit from the tax relief without having to reduce the amount that they spend in order to increase the amount that they save.

These concerns have led to the idea of 'matched' saving vehicles targeted towards those on lower incomes. The financial incentive to place funds in these accounts comes not from tax relief, but rather through a taxpayer-funded government match on individual contribution, up to a limit. In addition to being potentially better targeted at marginal savers, such schemes, unlike tax-relief, can benefit those whose incomes are too low to pay income tax. In addition the provision of a government match – for example £1 of taxpayer contribution for every £1 of individual contribution – is a much larger financial incentive than is typically available through tax relief. It may also be a more salient incentive to save and so more effective at encouraging new savers and savings. But it is still the case that richer individuals within any group eligible for such accounts will benefit most from the incentives to save, not least because they will be more able to transfer existing and planned future savings into the matched account without necessarily increasing their overall saving (Emmerson and Wakefield 2003).

Matched savings vehicles have operated in parts of the US – where they are known as Individual Development Accounts (IDAs) – and were also recently piloted in the UK, where they were known as Saving Gateway accounts. Both offered a government match in individual contributions up to a certain ceiling for a fixed period of time. IDAs offered different match rates that could be as generous as $8 for each $1 contributed, but account holders also received substantial amounts of financial education alongside the government match and also had to pre-commit to spending the account balance on a limited set of activities such as home ownership, education or starting a business. The Saving Gateway accounts offered matches between 20p and £1 for each £1 contributed,

up to individual contribution limits that varied between £25 and £125 a month.[13]

Match rates such as those seen in IDAs and the Saving Gateway can provide a strong incentive for individuals to place funds in these accounts. But again, economic theory cautions that savings need not increase as a result: while the substitution effect might encourage greater saving the income effect will tend to reduce saving. Furthermore those who have a stock of assets that they could transfer into their matched saving account, as well as those who were already planning to save more than the contribution limit, will only experience the income effect and not the substitution effect.

There are some evaluations of the impact of both IDAs and the Saving Gateway on saving behaviour. In particular, experimental evidence conducted by Mills *et al.* (2007) suggests that while IDAs did lead to an increase in subsequent home ownership rates among renters, non-pension wealth was actually reduced rather than increased. The extent to which these results stemmed from the financial incentives rather than the financial education provided is not clear (see Section 4 for more on financial education policies). Other evidence on the impact of IDAs is summarised in Sherraden (2002). More robust evidence on the sole impact of matching in the US is provided by Duflo *et al.* (2006), who analysed a randomised trial where individuals received no match, a 20% match or a 50% match on contributions to an IRA. They found that higher match rates were associated with greater take-up and greater IRA contributions. However take-up rates were still low and they were also unable to test whether the increased IRA contributions reflected an increase in overall saving or simply a reshuffling of what would have been saved anyway. Subsequent work (Duflo *et al.* 2007) also suggested that the targeting, simplicity and certainty of incentives also affect their effectiveness.

Evidence from a randomised trial of the Saving Gateway accounts in England by Harvey *et al.* (2007) also found evidence that greater match rates led to increased take-up and greater contributions to the matched savings account. However, overall take-up among the lower-income target group was still relatively low. In addition, they assessed the extent to which contributions to Saving Gateway accounts represented

13 Full details of the Saving Gateway account, along with a critique, can be found in Emmerson and Wakefield (2003).

genuine new saving, both by examining the impact on total wealth and by looking for evidence of reduced spending. They found evidence that contributions to savings accounts tended to represent reshuffling of other financial assets, in particular for higher-income account holders, and only limited evidence that they led to lower spending.

The stated aspiration behind the Saving Gateway programme was to engender a saving 'habit'. But despite this there has been no empirical evidence on the longer-term impact of the accounts on the subsequent saving behaviour of account holders once their eligibility for the matched contributions had expired. However Rablen (2010) uses a life-cycle model to show that the accounts might lead to households increasing rather than reducing spending – i.e. reducing rather than increasing their saving – after the gateway period has ended. Furthermore, he finds that households with access to credit might also increase their spending prior to becoming eligible for the accounts, which might make a 'saving habit' less likely.

3.3 Conclusions

The evidence surveyed in this section is summarised in Table 3.1. What is very clear from the empirical evidence is that financial incentives can have a large impact on the form in which savings are held. The majority of household wealth is held in private pensions and in owner-occupied housing, and significant sums have been placed in relatively tax-favoured accounts such as PEPs, TESSAs and ISAs. Similarly, in the pilots of the Saving Gateway matched saving vehicles, the majority of accounts received the maximum monthly contribution in most months.

What is less clear is the extent to which such incentives provide a significant boost to overall saving: certainly the majority of funds that are placed in such accounts represent either a transfer of existing savings or the diversion of funds that would have been saved in a different form. But that is not to say that such incentives have no impact on household saving, rather that in many cases the impact may not be that large.

One group for who financial incentives to save are likely to be particularly weak are those lower-income households who expect to be in receipt of means-tested support in retirement. But there is a lack of empirical evidence on the extent to which disincentives to save for retirement created by such means-testing does in fact lead to lower levels of private saving.

This is an area where further research could be fruitful. However, the challenge of trying to establish who would be affected by such reforms, and how much they would have saved in the absence of these reforms, will most likely continue to be a considerable barrier to such analysis.

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Table 3.1: Overview of Studies of Tax Incentives and Matching

	Year	Research design	Outcome(s) measured	Main results	Notes and comments
Tax Incentives					
Attanasio, Banks and Wakefield	2010	Descriptive analysis of administrative data and before-after analysis of microdata.	Contributions to tax-favoured accounts, coverage of financial assets among different groups	Descriptive statistics consistent with most of the contributions to new tax-favoured accounts being funds that would have been saved anyway.	
Attanasio and Deleire	2002	Comparison between those taking out an IRA and those not taking one out.	Growth in spending	Vast majority of the funds placed into IRAs would have been saved anyway.	
Benjamin	2003	Comparison between those eligible and those not eligible for a 401(k) account using propensity score matching.	Wealth	One-half of the funds placed in these accounts represents new private saving; one-quarter represents new national saving.	
Chernozhukov and Hansen	2004	Comparison between those eligible and those not eligible for a 401(k) account.	Wealth, across the distribution of wealth	Contributions from those with little wealth represented new saving, whereas among the wealthy contributions tended not to represent new saving.	
Disney, Emmerson and Wakefield	2008	Descriptive analysis looking over time and across age groups.	Contracting out into personal pensions	The pattern of contracting out across age groups and time matched the incentives.	Shows strong evidence of individuals responding to strong financial incentives even if pay-off is many years away.
Disney, Emmerson and Wakefield	2010	Comparison over time and across different earnings levels.	Private pension coverage	Increase in contribution ceilings boosted pension coverage among zero- and low-earners.	No evidence on total wealth.
Engen, Gale and Scholtz	1996	Various comparisons between households in repeat cross-sectional and panel data.	Savings	Majority of contributions to both IRA and 401(k) accounts represented funds that would have been saved anyway.	Findings different to those of Poterba, Venti and Wise (1996).

Milligan	2003	Comparison between members and non-members of Registered Pension Plans, exploiting a policy reform, using administrative panel data.	Pension contributions	Increased future pension contribution ceilings reduced current pension.	No evidence on total saving.
Poterba, Venti and Wise	1996	Various comparisons across time and across groups.	Savings	Vast majority of contributions to IRA and 401k accounts did represent new saving.	Findings different to those of Engen, Gale and Scholz (1996).
Matching					
Duflo, Gale, Liebman, Orzag and Saez	2006	Randomised trial.	Take-up and contribution rates	More generous match rates led to increased take-up and greater contributions.	No evidence on total saving.
Duflo, Gale, Liebman, Orzag and Saez	2007	Exploitation of sharp discontinuities in the financial incentive to save in an IRA at different points in the income distribution.	Impact of the Saver's Credit on IRA contributions	Modest impact on both take-up and contributions.	Paper suggests that the lack of a large effect potentially due to the way the incentive was presented, and the lack of notice that it would be available.
Harvey, Pettigrew, Madden, Tu, Emmerson, Tetlow and Wakefield	2007	Randomised trial.	Take-up, flow of saving, stock of savings and wealth, spending	More generous match rates – and greater proximity of financial provider – boost take-up. Matching increased amount placed in savings accounts. Evidence of significant substitution among higher income account holders. No evidence of any impact on overall wealth, although some evidence of reduced spending among lower income account holders.	Majority of those eligible for an account did not take one out.
Mills, Gale, Patterson, Engelhardt, Eriksen and Apostolov	2007	Randomised trial.	Home ownership rates, non-pension wealth	Subsequent home ownership rates of renters increased. But a decline in non-pension wealth.	Unclear extent to which impact is from financial incentive or financial education.

4 Information, education and training

In Section 2 we noted that saving and investment decisions are inherently complicated and summarised evidence that financial literacy is correlated with saving and investment behaviour. This seems to suggest that education and information provision to improve financial literacy may be successful interventions for governments concerned to raise saving rates. However, the fact that financial literacy is positively correlated with savings does not imply causation: making people more financially literate may not generate higher saving rates. The causality may be reversed if people who save and invest a lot become financially literate as a result. Alternatively, there could be an unobserved factor correlated both with becoming financially literate and increased savings, but which is not directly affected by receiving financial education – the underlying 'preference' for saving, for example. In this section we review evidence on the actual impact of financial education or information policies on outcomes like saving rates and whether a particular asset is held.

Financial education interventions are typically aimed at people with poor qualifications, low income or little savings. Education is also frequently provided as part of wider interventions, including matching schemes. As discussed in Section 3, an important example is the US Individual Development Account, where attendance at financial education classes is often a compulsory requirement in order to open an account, and other individualised financial counselling or training may also be available.[14] In a non-experimental setting, it may be difficult to isolate the impact of financial incentives on saving from the impact of information and education. We discuss some evidence for the impact of education received as part of IDAs in Section 4.1 below, along with a wider analysis of the

14 See for example http://cfed.org/programs/idas/ida_basics/

impact of financial education aimed at adults. Education could also be aimed at children, such as policies to add financial education to the school curriculum, if there is a belief that early interventions change later adult outcomes. We examine the evidence here in Section 4.2.

The desire to improve financial education may not just come from the public sector. Workplaces can offer training at the time when employees are invited to enrol into employer pension schemes, for example. Such training may be limited to helping employees choose the appropriate pension fund, but this could of course have wider spillovers into their other saving and investment decisions, and the lessons from employer-led initiatives may also be informative for policymakers considering whether and how to introduce government-led schemes. Section 4.3 explores the evidence.

Finally, Section 4.4 examines the impact of providing financial *information*, as distinct from trying to educate or to train people explicitly about financial matters. As discussed in Section 2, if low savings are in part attributable to the sheer costs of acquiring information about different savings vehicles, then there may be a role for government intervention both to supply information directly and to regulate how the information is provided in order that it can be meaningfully processed.

4.1 Financial education for adults

Financial education can take many forms. Help may be provided one-on-one or in groups, it may be in a classroom or other setting, the content and length of courses may vary and so on. There is no central provider of financial education for adults in the UK or a single national programme on offer. Organisations such as the Citizen's Advice Bureau offer advice through programmes like 'Financial Skills for Life' which includes training courses and one-to-one advice.[15] Until 2010, the general issue of 'financial capability' was part of the remit of the Financial Services Authority. This has now passed to the Consumer Financial Education Body (CFEB), which offers financial advice through the internet, over the phone and face to face, and which also supports financial education in schools and the workplace.[16]

15 http://www.citizensadvice.org.uk/index/partnerships/financialskillsforlife.htm

16 http://www.moneyadviceservice.org.uk/

In the US, since 2001 the US Federal Deposit Insurance Corporation (FDIC) has run a programme called *Money Smart*, offering financial education aimed at low-income individuals.[17] The course is often administered when an individual engages in some other financial-related endeavour such as buying a house, which can make the impact of the education itself difficult to discern. Lyons and Scherpf (2004) look at data collected on 226 participants in Chicago in 2002 and 2003 who attended taught courses as part of the programme. The data includes pre- and post-programme information on their financial behaviours and background characteristics. More than 40% of the sample group were 'unbanked' (that is, they did not have even a simple current account) prior to the course; of this group, more than 80% said they planned to open an account following participation. However, people may well fail to follow through on stated plans so this is not good evidence on the impact of the programme on outcomes. As an example, FDIC (2007) examines a sample of more than 600 participants who completed pre- and post-training surveys and a follow-up survey conducted between 6 and 12 months after the training concluded. The vast majority of those without savings accounts prior to the course said they intended to open one following it. When followed up, however, the proportion of respondents who actually had a savings account had risen only slightly, from 69% to 75%. There was some evidence though of other potentially positive effects on financial behaviour: more than 60% of those who said they did not use budgets had started to do so following the course; there was a slight rise in the proportion of those saying they always or usually paid bills on time; the proportion of participants who said they paid the full balance on their credit cards rose from 20% to 29%; and around 20% of those who already had savings accounts had switched account or provider. Whilst these results suggest some effect on savings-related behaviour they give little sense of the effect on the total level of savings, which was not asked in the follow up survey, and there is no control group of similar people who had not participated in the *Money Smart* course which makes any formal assessment of the impact difficult.

Analysis of the impact of financial education as part of Individual Development Accounts (see Section 3) comes in two papers (Clancy *et al*. 2001; Schreiner *et al*. 2002). The type of education offered is both general, covering issues like budgeting and money management, and specific to the IDA, including dealing with purchasing and managing

17 http://www.fdic.gov/consumers/consumer/moneysmart/

assets with the proceeds from the account. The type and number of hours of education offered differ between IDA programmes. Both papers assess the impact of additional hours of general education on the average net monthly deposit, conditional on other features of the IDA programme (such as the match rate) and the characteristics of the IDA participant. Both find that there is a strong impact of receiving any education at all on deposits, but that additional hours of education have little extra effect. Clancy *et al.* (2001) find that a single hour of education increases the net monthly deposit by around $6.71, with no significant effect from additional hours. Schreiner *et al.* (2002) find similar results, with the largest effects of education on deposits coming for those receiving one to eight hours of education, which on average increases net monthly deposits by around $1.30 (from a baseline level of almost $34). Whilst these papers suggest that receiving education as part of an IDA programme can raise contributions to the programme, they say little about the impact of financial education on overall saving rates, since it is not known whether the savings are new or represent portfolio redistribution.

4.2 Financial education for children

Financial education provided to children in schools may be a route to long-term behavioural changes as adults. Helping children understand the basics of issues like budgeting, opening bank accounts, savings and investment and so on could translate into more informed decision-making later on. In the UK, charities like the Personal Finance Education Group offer teaching resources for use in financial education for children of different ages.[18] A study by the National Centre for Social Research (2006) on behalf of the FSA looked at the extent of financial education in primary and secondary schools in the UK in 2005. They found almost 90% of primary schools and more than 70% of secondary schools had no formal policy on financial education, but that a majority of schools (including over 90% of secondary schools) did provide some personal finance education.

As with adult education and training, financial education targeted at children could take many forms and so it might be difficult to generalise the impact of a specific policy to a different context. Classes may be aimed

18 http://www.pfeg.org/

at all children as part of general personal and social education or just offered as part of a non-compulsory subject such as Business Studies or Economics. They may be one-off or repeated, assessed or not assessed, provided by specialist teachers or non-specialist teachers and so on. Having a general policy that all children or those of a particular age should learn about financial management may be relatively ineffective if the teachers are not suitably trained to deliver the lessons effectively. Understanding the relative importance of the content and design of the lessons and the skills of those who deliver them would probably require experimental data. As discussed in Section 2, randomised experiments may be difficult to run if there are ethical concerns, which can be particularly acute where children's education is concerned.

As a starting point, it seems sensible to examine whether there is evidence that financial education actually improves students' knowledge of financial issues. Tennyson and Nguyen (2001) show that the type of education provided matters. They look at a test of financial literacy given to a random sample of US high school seniors in 1997, comparing scores for those in states with mandated financial education to those in states without. Controlling for other student characteristics, including family background and future education plans, they found no evidence that state mandated financial education in itself raised financial literacy test scores. However they did find that students educated in states that required a specific structured course (rather than simply mandating that financial education had to be provided in some form) did better. Mandell (2008) finds no evidence that those students who reported taking high school classes in personal finances or economics performed better in financial literacy tests, though he looks only at raw correlations and does not condition on other background characteristics. Mandell and Klein (2009) carry out a small study of around 80 students who graduated from three different US high schools between 2001 and 2004. The schools offered a single semester course on personal financial management. Half the students had attended the course, the other half had not. Students undertook a web-based interview several years later. Those who took the course performed no better in tests of their financial literacy. However, since the course was voluntary it may be that those who signed up to it were more likely to be those with poor financial knowledge who otherwise would have performed markedly more badly than those who did not attend. Walstad *et al.* (2010) review evidence for the impact of a number of specific school financial education programmes. Whilst they do appear to raise financial literacy, in many cases the authors argue that formal evaluation of the effects is hampered by the design of the intervention, either

because suitable control groups are not included or because appropriate data on financial literacy is not routinely collected. In perhaps the most convincing of these studies, the authors carry out an experimental study of one programme, *Financing Your Future*, which provided video-based financial education in high schools. They have a treatment and control group who are tested before and after receiving the course. They find a significant and robust rise in the scores for those receiving the instruction compared to those who did not.

From the perspective of policymakers, the most important concern is whether changes in financial literacy resulting from childhood financial education translate into changes in adult saving behaviour. The most convincing evidence would require long-term panel data on financial outcomes with information about financial education received as children in the dataset, ideally with random variation in the provision of education by place or time from which effects could be estimated. Such data are not available, but a study by Bernheim *et al.* (2001) has some of the key features and provides good evidence that childhood education may have long-term effects. They exploit state- and time-level variation in the introduction of mandates for 'consumer education' (which can include but is not restricted to financial matters) in high schools, along with a survey of adults aged between 30 and 49 in 1995 who would have been differentially affected by these mandates according to where and when they graduated. They find evidence that being in a state with a mandate for financial education raises adult savings and wealth outcomes (conditional on other observed characteristics). At the median, self-reported saving rates are 1.5 percentage points higher for those receiving financial education five years after their state mandated its introduction, when compared to those in states with no mandate.

It is important to consider the wider context in which financial education takes place and the possible spillover effects from parental influences. Bernheim *et al.* (2001) note that the adults in their survey who reported that their own parents were above average savers did not appear to save more if they received financial education in high school. Webley and Nyhus (2006) use Dutch panel data and find that measures of 'economic socialisation' – essentially whether as teenagers respondents had a degree of financial independence and whether their parents were high savers and discussed financial matters with them – are positively correlated with saving rates in later adulthood. They also find that parental measures of thrift and future-orientation are significantly positively correlated with children's attitudes and their savings levels. Chiteji and

Stafford (1999) argue that parental influences carry through into the later portfolio choices of their children and that this helps explain why relatively few African-American families in the US hold stocks (since black Americans may have faced discrimination from financial institutions in terms of stock holding in the parents' generation), which could explain why wealth gaps persist between black and white families, even conditional on income and other characteristics.

What might these findings of a cross-generational relationship in saving attitudes and behaviours mean for financial education in schools? One immediate issue is the extent to which school-based financial education acts as a substitute for home-based financial education: parents who may have tried to teach their children about financial issues could stop doing so if it is provided in schools. To the extent that richer and more educated parents are more likely to educate their children about financial matters, it may be that schools could concentrate their efforts on children from poorer backgrounds. There may also be scope to think of using schools to educate *parents* as well as children, particularly if children's later behaviour appears to be more responsive to their parents' influence than to what they are taught in school.

A final point to note in the context of children's financial education is that most children do not hold financial assets or have to make their own saving choices. They may therefore see such education as uninteresting or unimportant for their current circumstances. This could motivate policies which provide assets directly to children. In the UK, one such example was the Child Trust Fund (CTF), introduced by the previous Labour government in 2005.[19] It provided a savings voucher worth £250 on the birth of a child, or £500 for children born to low-income parents. Parents could invest the voucher to open a CTF account with a private provider; if no account was opened within 12 months a default account was automatically opened.[20] Limited outside contributions were permitted to be made to the fund each year, with top-up payments made by the government at age seven. The money is inaccessible until the child turns 18, at which point the account is converted to an ISA and is available to the child with no restrictions on use. Money was also provided for financial education in schools to be given at the time that top up payments at age seven were paid.

19 For more on the CTF see Edmonds (2010).

20 Around three quarters of parents actively opened their CTF accounts (HMRC, 2010).

Some limited evidence on the impact of the CTF on saving behaviour comes from Bennett *et al.* (2008). They cite a baseline study carried out looking at saving behaviour amongst children prior to the CTF being introduced (Kempson *et al.* 2006) which showed that around 70% of children had a savings account opened for them (though less than half of those born in low-income families did) though these were rarely restricted-access accounts. They then look at evidence for additional (non-government) payments made to CTF accounts by April 2007. They find that about a third of the total assets held in CTFs were made up of additional payments, though it is not clear whether this represents new savings on behalf of children that would not otherwise have been made, or whether parents or other family members who would have saved for their children in any case were putting payments into the CTF rather than another account. It may also be the case that the CTF balance released to children when they turn 18 will substitute for money that parents would have given to children from their own savings at that age, which could encourage parents to save less.

In an early decision coming into power, the coalition government decided to abolish the CTF, meaning that no payments were made for newborns born after 2 January 2011 (and payments for children born between August 2010 and this date were reduced to just £50 or £100) and top-up payments at age seven were halted. In future years, as children who were born in the period when CTF payments were made mature and receive their money, it might be possible to see what the long-term effects on adult behaviours of providing assets to young people might be. The fact that the scheme was suddenly abolished also provides an opportunity to compare those who were born just before and just after the change, which would be a nice 'experimental' approach to disentangling the impact on later outcomes (though such an approach will still need to be done with care as, for example, those who did not qualify for a CTF but who had an older sibling who did could plausibly still be affected – this is similar to the spillovers we discuss in the next subsection). Sadly we shall have to wait many years for the necessary data to be available.

4.3 Employee workplace financial training

A number of studies have examined the effect of financial education and training offered by employers. In general there are two broad approaches: assessing a particular programme offered by a particular workplace,

or using more general survey data where questions on employer-based training are included alongside information on financial and savings outcomes. Choi *et al.* (2006) summarise the main problems with these methods. The impact of a particular programme might not be generalisable to other programmes which may well differ markedly in content and style. For general results based on survey data, the main issue is that take-up of financial education in the workplace is endogenous, both in terms of to whom it is offered (likely to be those with low cognitive skills or low savings) and who actually takes it up (perhaps those with a greater inherent motivation to save). If this endogeneity is correlated with savings outcomes and cannot be fully controlled for, then estimates of the impact of workplace training on savings outcomes will be biased, though the direction of the bias is unclear. There may also be measurement error in the data if people are unable to recall accurately whether or not they have ever had financial training at work.

One example of a study of a specific employer training programme is Clark *et al.* (2006) who look at the effect of employee financial education seminars held in educational and non-profit institutions. Attendees are surveyed before and immediately after the seminar and then again three months later; the before and after interviews establish any changes in retirement plans (such as the desired retirement age or level of retirement income and whether they intend to make any changes to their pension plans), whilst the later survey asks about actual behavioural changes. They find that the seminars changed participants' retirement plans: for example, 40% of those without a supplemental pension plan said they would establish one with their employer and almost 30% said they would open a new Individual Retirement Account or increase contributions to an existing one. However, when actual behaviours were studied three months later, only a quarter of those who said they would establish a supplemental plan had done so. More than 40% of those who had said they planned to raise contributions to an existing plan actually had done so, though 30% of those who had *not* said they planned to raise contributions had also done so. A similar disconnect between plans and outcomes is found in Madrian and Shea (2001). They have information on attendance at financial education seminars in a single company and track changes in employee 401(k) contribution behaviour before and after the seminar. They find that almost all of the 12% or so of employees who were not contributing to a plan before the seminar said afterwards they intended to start doing so, but that by the end of the sample period only around 14% of this group had actually done so. This compares to 7% of the group who did not attend the seminar. The

authors suggest that people either change their behaviour very quickly or are unlikely to do so at all. The failure of plans to convert to actions may well be related to behavioural issues like procrastination, which we discuss in Section 5 below.

Some studies have found that the effects of workplace education are felt not just by those who receive it but have wider spillover effects. Kim *et al.* (2005) study 300 employees in a chemical firm in the US where financial training workshops had been offered. Conditional on other observed characteristics, those who attended contributed more to their 401(k) plan, and there was some weak evidence that the spouse of the attendee also contributed more. However this was based on a small sample and was not an experimental approach, making any causal effects hard to infer. More convincing evidence of spillovers comes from Duflo and Saez (2003). They conduct a randomised trial in a university which holds an annual 'benefits fair' at which information on retirement savings can be obtained, open to all employees. Random groups of employees ('treated' employees) in randomly chosen departments ('treated' departments) were sent a letter offering financial incentives to attend the fair. The experiment was restricted to employees not already enrolled in a retirement savings plan. Employees were then followed up in two waves after the fair. Significant evidence was found not only that those who received the letter and incentive were more likely to attend, but also that people in treated departments who themselves did not get the cash incentive were more likely to attend. Being in a treated department raised the attendance probability by around 10 percentage points, and receiving the cash incentive raised it by an additional 13 percentage points or so. However, this raised attendance only translated into a very small impact on actually enrolling into a retirement plan: those in treated departments were around 1.3 percentage points more likely to have enrolled 11 months later (from a base enrolment of around 34%) and there was no additional enrolment effect of having received a cash attendance incentive. To the extent that interventions have indirect effects on those who are not targeted, it is important to consider and measure potential spillovers (both positive and negative) when evaluating policy.

There are two main studies that use survey methods to examine the impact of workplace training. Bernheim and Garrett (2003) use household survey data whilst Bayer *et al.* (2009) use a survey of employers. Bernheim and Garrett (2003) survey around 2,000 randomly sampled households in 1994 asking questions about employer-based financial education, financial literacy, saving behaviour and retirement planning.

The questions on financial education simply ask whether their employer offered any training or information regarding retirement planning and whether the respondent took them up. To avoid concerns about the endogeneity of take-up, the authors look at the effect on saving behaviour of whether education is *offered*, which is an employer rather than employee decision.[21] Their estimates suggest that being offered workplace financial education significantly increases participation in a 401(k) retirement plan by around 12 percentage points, and that the spouse of the respondent is also nine percentage points more likely to participate. It also raises the balances invested in the plan, by around $2,800 at the median, though the effects are not significant in the upper parts of the savings distribution and there are no significant effects on the balance held by spouses. However, importantly there is no significant effect of workplace financial education on *total* wealth. This might be evidence of asset shifting towards retirement saving, though given the non-experimental design of the study it may also just reflect programmes being focused on low-wealth individuals.

This study cannot shed light on whether a particular *type* of education programme is more effective than another, since the characteristics of the education provided are not recorded. Bayer *et al*. (2009) provide evidence that the characteristics of what is offered also matter for outcomes. They use survey data from 1,100 employers interviewed in 1993 and 1994. The data includes characteristics of the firm, the number and features of any retirement plans offered and the extent to which they are taken up, and the types and frequencies of different sorts of financial information (such as newsletters or retirement planning seminars) offered to employees. Holding seminars 'often' raised the probability of participation in a retirement plan, conditional on plan and employer characteristics, by around eight percentage points from a typical baseline participation rate of between 60 and 80% across the sample of employers. However, holding them 'sometimes' had no significant effects, and there was no impact from providing newsletters or other written information like descriptions of the available plans. Similar patterns emerge for the average contribution rates. Since these results are based on employer-level data, it is not possible in general to determine whether these effects are heterogeneous across different types of em-

21 Of course it may be that those who are keen to save self-select towards employers that offer training, or that workplace education is offered to an endogenous subset of all employees (in particular those who are in need of remedial education and may be less likely to save). It could also be the case that those who did not take up the education they were offered might be less likely to recall being offered education than those who did take it up.

ployee, though the authors have separate information on participation and contribution amongst higher- and lower-paid staff, and find that the effects of frequent seminars appear to be strongest for lower-income employees. Future research, able to combine employee and employer information alongside detailed characteristics of the workplace training offered, might offer additional insights into the nature of successful and less successful initiatives, and who benefits most from them.

Lusardi (2005) uses data from the US Health and Retirement Study (HRS) to look at the effect of workplace financial seminars on the saving behaviour of older households. Her sample covers households born between 1931 and 1941 and includes information on savings and wealth alongside questions on retirement planning, whether they have attended retirement seminars at work, details of past economic shocks such as unemployment, measures of variables like patience, and the respondents' expectations about the future. Controlling for these kinds of variables may help reduce the possible biases generated by the endogenous take-up of workplace training, and so makes the results more convincing. She examines the impact of attending seminars on various measures of wealth, and finds large, significant effects, particularly for those with low wealth. Financial net worth was about 18% higher on average for those who attended seminars, but for those in the bottom quarter of the wealth distribution with low education the effect was to almost double wealth (though from a very low base).

4.4 Information

Does simply providing individuals with information about their saving choices, but not actively trying to 'educate' or 'train' them have any impact on their behaviour? There is very little empirical evidence on this question. One study by Clark and Schieber (1998) uses data from 19 employers in the US which records details of the 401(k) contributions made by their employees. They correlate participation rates to various characteristics of the plans (such as any employer match rate) and employee characteristics. They find that how employers communicate details of the plans has a large, significant effect on the likelihood of participation: holding other factors constant, sending generic newsletters related to 401(k) participation in addition to the legally required information common to all firms increased the participation rate by 15%, whilst sending more tailored information specific to the individual company increased participation by 21%. However these findings are based on a limited

sample of companies and it is not clear whether all the factors that may influence participation are included in the analysis. For example, the effects are attributed to sending out information but it may be that firms which send more information than is legally required also engage in other unobserved activities, perhaps including education and training, which affect the likelihood of participation.

A fascinating paper from Choi *et al.* (2011) uses a field experiment and suggests that simply providing information may have little effect, even when people are informed that their choices are effectively depriving them of significant cash returns at virtually no risk. They have a sample of employees in seven different firms in the US. Their employers offer matched contributions to a 401(k) retirement plan, and the employees studied have sufficiently long tenure with the firm and are old enough for there to be no penalty for withdrawing contributions. Thus employees who do not use the full matching limit are in effect giving up free money – they could contribute to the limit and then almost instantly withdraw the same amount. Since the contribution will be matched, the total investment in the 401(k) will increase and the employee will be no worse off financially. Failing to contribute to the limit therefore seems highly irrational. Nevertheless, between 20% and 60% of eligible employees in the firms did not contribute to the match limit, with average cash losses across the firms between $160 and $782 per year. The authors then ran an experiment in one of the firms. All the employees in the sample were mailed a survey, though the employees were randomised between a treatment and control group. The control group survey included general questions about their savings and financial literacy, while the treatment group also got questions which explained about the matching contributions and asked the employee to calculate how much they would lose by not taking up the match. Following up after the survey, the study finds no significant effect on the contribution rate amongst those receiving the treatment survey compared to the control. The authors argue that this is not related to the direct transaction costs of withdrawing the additional contribution, which are small. Another explanation may be procrastination, or the cost of switching from a default position (see Section 5). This finding suggests that even when quite personalised information is available and the costs of acting on it are low, the behavioural response to information alone is negligible. This casts some doubt on the prospect of generating significant effects from more generalised information campaigns designed to encourage people to save or plan for their retirement. Nevertheless there is scope for more evidence in this area.

A study by the European Commission (2010) suggests that how information about financial choices is presented can have significant effects on the investment choices people make, suggesting that it is not just what information is provided but also *how* it is provided which matters. This links with our discussion of framing effects in Section 5.3. Using a web-based experiment, respondents were asked to make a series of five investment decisions, choosing how much from a pot of money to allocate between two options in each case. The options varied in terms of the return (which may have been fixed or risky), set-up fee and management charges, but were designed such that the optimal choice in each case was to invest the entire amount in the asset with the highest expected return. About 56% of total funds were invested in the optimal choice. The study also included ways in which the decisions could be simplified: for example, a random group had a standardised expected net return presented to it for each choice, whilst another random group was given superfluous information about each choice designed to add complexity, but which did not fundamentally alter any of the key parameters of the decision. Offering standardised presentations of the expected returns to each option led to a significantly larger proportion of the funds being optimally invested, whilst adding obfuscatory information significantly reduced it. This suggests a role for the regulation of information provision by private firms who might, without regulation, have incentives to make information difficult to understand.

However, other studies have found no particular evidence that how information is presented has an impact on decisions. For example, Beshears *et al*. (2009) use an experimental method to assess the impact of the regulated introduction in the US of 'summary prospectuses' – simplified information provided by mutual funds to investors describing their investment strategies and past outcomes in a short document – relative to the 'standard prospectus' which contains essentially the same information but in a much more complicated and less understandable format. In their experiment, subjects were randomly assigned to receive summary or standard versions of the prospectus from four investment options and asked to split their investment decision between the options. How much of a pay-off they received from the experiment depended on the real-world performance of their chosen investment. The study finds no effect of which type of prospectus was received on the investment choices made – though those using the summary prospectus were able to make their decisions more quickly, which, given that they made choices which were no worse than those given the standard format, represents some positive effect of the simplified information.

4.5 Conclusions

The key evidence reviewed in this section is summarised in Table 4.1. A number of implications emerge. Education and training can cover many different possibilities, such that the impact of a particular policy may be hard to generalise to another set of circumstances. This implies that what we really want to know is what works and in what contexts. To understand this requires more evidence from experimental studies where the nature of what is offered varies at random and where we have good control groups against whom we can compare outcomes. Not much of the existing evidence is of this nature. Should policymakers want to use education as a tool, it would seem sensible that they design any new policy such that proper evaluation can be carried out and that they have a clear objective for the policy in mind. When we rely on survey evidence there are obvious concerns about the endogeneity of training or education and perhaps about the ability of survey respondents to recall the amount and type of education they received. Similar points are raised by Fox *et al.* (2005) in the US and by Atkinson (2008) in a review carried out on behalf of the Financial Services Authority. The latter study goes into more detail than we can in this section, and interested readers are invited to read her summary and the references therein.

The evidence that we do have suggests that education can be successful both at raising people's financial literacy and in improving savings outcomes. The rationale for interventions of this kind may be enhanced by evidence of wider spillovers from education, which may also affect the behaviour of some individuals not directly treated. Policymakers may be able to draw on experience of privately-provided financial education in workplaces as well.

Education provided in schools may have long-term effects on saving behaviour. Again, the evidence base, both in terms of its effect on children's financial knowledge and their later financial decision-making, is rather limited. If there is a drive to raise the amount of school-based financial education, it will be important to consider how it fits into the curriculum and how to make the lessons appear relevant to children, who are unlikely to hold any significant assets or make any substantive financial decisions for themselves at the time they receive the education.

Current evidence suggests that information alone may not always succeed in changing behaviours. Studies which explore both what information is provided and how it is presented have produced mixed con-

clusions. Together with the related ideas around framing (see Section 5), this would appear to be an area where more evidence would be helpful in understanding what seems to be effective and in what contexts.

Finally, it is notable that the vast majority of evidence in this area is US-specific and relatively little has been done for the UK. This may reflect the lack of specific financial education programmes in workplaces, schools and other contexts, and the lack of available data from any small-scale interventions or information on financial education as part of wider surveys in the UK. It may also just be something of an under-researched area in this country.

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Table 4.1: Overview of studies of financial education and training

	Year	Research design	Outcome(s) measured	Main results	Notes and comments
Adult financial education					
Federal Deposit Insurance Corporation	2007	Longitudinal survey of participants in US *MoneySmart* education programme. Surveys were completed before, immediately after and 6–12 months following the course.	Intended changes to use of savings vehicles behaviour immediately following the course	83% said they planned to save in a savings account (58% were doing so already). 31% said they planned to save in a retirement account (14% doing so already). 9% planned to use an IDA (1% doing so already).	The paper also records various measures of other financial behaviours such as use of budgets and credit cards, and measures of financial confidence. No direct measures of actual savings, wealth or debt were collected at any stage.
			Actual changes 6–12 months later based on a subsample of 631 people able to be followed up	The proportion holding a savings account rose from 69% to 75%. Of those who said they intended to open a savings account, 73% did so. But of those who said they intended to open a retirement savings account only 56% did so, as did 40% of those who intended to open an IDA.	
Clancy, Grinstein-Weiss and Schreiner	2001	Regression analysis of 2,378 participants in 14 IDA programmes in the US.	Impact of hours of financial education received during the programme on the average net monthly deposits made into the matched IDA and the frequency with which deposits were made	On average, someone receiving six hours of education as part of their IDA has net monthly deposits $6 higher than someone with one hour. Someone receiving 12 hours deposits $9.40 more. All else equal, 12 hours of financial education increases the frequency of deposits by 22 percentage points.	Not clear what other variables were controlled for in the analysis and unable to account for 'quality' of education received, just quantity in hours. Also unclear whether additional contributions reflect new saving or asset shifting.
Schreiner, Clancy and Sheridan	2002	Regression analysis of 2,364 participants in 14 IDA programmes in the US.	Impact of financial education on the average net monthly deposit, controlling for selection into becoming a 'saver' (having net deposits of at least $100)	Receiving one to eight hours increases the average net deposit by $1.30 per month for each hour, compared to a baseline $33.81 amongst those who were savers. There were no significant effects of additional hours of education.	Examines impact of financial education on contributions to the IDA but not to total net savings, though median liquid assets among the sample were very small ($125).

Children's financial education					
Bernehim, Garrett and Maki	2001	Regression analysis based on survey of 2,000 people aged 30–49 in 1995. Exploit regional- and time-specific variation in the amount of financial education they were exposed to in high school based on US state-specific mandates for provision of 'consumer education'.	Impact on self-reported savings rates in adulthood (including own contributions to retirement savings accounts) Impact on net worth to earnings ratio	At the median, saving rate rose by 1.5 percentage points for those exposed to the education five years after its mandated introduction. There was no significant effect for those whose parents were above average savers. Those exposed to mandated consumer education were around 9.5 percentiles higher in the distribution of net worth to earnings than those not exposed. The effects were insignificant for those with parents who were above average savers.	Not clear what the content of 'consumer education' across different states was – cannot control for quality or type of education received, though this may be endogenous.
Bennett, Chávez Quezada, Lawton and Perun	2008	Analysis of data from the first 2½ years of the Child Trust Fund in the UK. Summaries of CTF-related findings from other studies.	Additional (non-governmental) contributions made to CTF accounts	By April 2007 around £440 million out of a total asset value of £1.3 billion held in CTFs had been privately contributed. 21% of CTFs given to children from low-income families received additional contributions, compared to 35% of CTFs for children of higher-income families. Low-income families who contribute regularly to the CTF tend to save a larger proportion of their income in the CTF than higher-income contributors.	Analysis does not consider whether savings allocated to CTFs are new or come from money that would otherwise have been saved for the child or for someone else in the household in another form.

Workplace employee training					
Clark, d'Ambrosio, McDermed and Sawant	2006	Impact of participating in workplace financial education seminars organised by financial services company TIAA-CREF based on surveys taken before, immediately after and then 3 months following the seminar. Surveys taken at 36 seminars held at 24 institutions.	Planned changes in retirement savings behaviour following the seminar	40% of those without pension plans (about half of the sample) said they intended to open one. 37% of those with plans said they intended to contribute more, and around one third with plans intended to change investment plan. 29% said they planned to open a new Individual Retirement Account or raise contributions to a current IRA.	Of 633 people who completed surveys before and after the seminar, only 110 follow-up studies were obtained. No comprehensive measures of changes in savings/wealth. No control group of people who did not attend seminars.
			Actual changes when followed up three months later	Only 25% of those who intended to start a pension plan had opened one, 63% were still planning to do so. 42% of those with plans who said they intended to contribute more had done so. But 30% of those with plans who had *not* said they intended to contribute more had also raised contributions.	
Duflo and Saez	2003	Randomised experiment in a university. Sample of 6,200 non-faculty staff not already using tax-favoured retirement accounts. Two-thirds of departments were randomly selected; from these, half of staff offered $20 if they registered attendance at a benefits information fair at the university.	Impact on attendance at benefits fair	Simply being in a 'treated' department raised the likelihood of attending the fair by 10 percentage points. Those who also received the cash incentive saw an additional 13 point increase in the likelihood.	
			Impact on opening tax-favoured retirement account	Being in the treated department raised the likelihood of opening an account by around 1¼ percentage points after both 4.5 and 11 months. This was statistically significant after 4.5 but not after 11 months. There was no additional effect of receiving the financial incentive.	

Bernheim and Garrett	2003	Regression analysis of survey data. 2,055 individuals aged 30–48 interviewed in the US in November 1994, including information on workplace financial education offered and received.	Impact of being offered financial education on participation in 401(k) retirement plan Impact on retirement savings rate and accumulated retirement fund balances Impact on overall savings rate and total wealth.	Increases participation by 12.1 percentage points, and participation of spouse by 9.2 percentage points. Both statistically significant. At the median, retirement savings rate increases by 1.1 percentage points and balances by $2,200. There are no significant effects in the upper parts of the balance distribution or on spouse's savings/balances. At the median, overall savings rate increases by 1.6 percentage points but no significant effect on overall wealth.	Assumes availability of education is exogenous. May not be so if workers self-select into jobs offering education, though this may be unlikely. May also be recall problems in survey data. Unclear whether lack of effect on total wealth reflects asset shifting or a negative correlation between availability of education and underlying 'taste' for savings. Authors suggest the latter is more plausible.
Lusardi	2005	Regression analysis of US Health and Retirement Study (HRS) data. Survey covers almost 5,300 older households born between 1931 and 1941 and includes information on whether any retirement seminars were attended and is linked to Social Security records.	Impact of attending retirement planning seminar on the ratio of different wealth measures (including and excluding Social Security and other pension wealth) to normal income	At the median, financial net worth almost 33% higher as a share of normal income amongst those who attended retirement planning seminars. The impact on a broad measure of total net worth including pensions and Social Security is 20% at the median. The impact is larger for the lower quartile of financial net worth but slightly smaller for the lower quartile of total net worth. The effects are smaller for those in the upper quartile of wealth distributions, and in the case of financial net worth not statistically significant.	Regressions control for factors which may be associated with endogenous take up of seminars, including measures of risk aversion, impatience and future expectations. However no data on the number, type or content of seminars attended is collected.

Information					
Choi, Laibson and Madrian	2011	Randomised field experiment at a firm in the US in 2004. For a group of 689 employees not making full use of matched retirement savings, half were assigned to a treatment group informing them of the potential losses from not doing so.	Impact of the information on average 401(k) contribution rates as a percentage of pay, two months after the intervention	The treatment group increased contributions by 0.1% of pay more than the control group, which was statistically insignificant.	For the group of employees studied, not making full use of the match was suboptimal because they could almost instantly withdraw the matched funds with no penalty, thus raising their 401(k) balance at no personal cost.
European Commission	2010	Web based laboratory experiment carried out on 750 people in each of 8 EU countries. The experiment asked subjects to divide an investment between two options which differed in returns and fees. Subjects made five decisions designed to mimic different behavioural biases. Treatment groups received different presentations of the investments.	Impact of presenting standardised comparisons of expected returns on optimal investment choices	For the treatment group receiving standardised information, the share of funds invested optimally rose significantly in two of the five decisions, by 6.8% (average optimal investment rate for all subjects 53.3%) and 7.3% (52.3%). No significant effect in the other three decisions.	
			Impact of adding additional irrelevant information to each investment choice on optimal investment choices	Obfuscation reduced the proportion of funds invested optimally in three of the five decisions, by 5.8% (average across all subjects 60.6%), 4.9% (56.5%) and 8.5% (57.1%). No significant effect for the other two decisions.	

Beshears, Choi, Laibson and Madrian	2009	Experimental study of 186 Harvard (non-faculty) staff. Subjects were asked to invest a hypothetical $100,000 between four investment funds. The control group were given standard information from each fund about its performance and investment strategy. The treatment group received a simplified summary. Subject payments depended on the actual performance of the chosen investments.	Impact of simplified information on investment portfolio selected	There were no significant differences between the treatment and control groups in terms of investment choices along a number of dimensions, including: total fees payable to the different funds, whether fees were upfront or paid when the funds were withdrawn, and the average return of the chosen funds in the previous year.
			Impact of simplified information on decision-making time periods	Subjects given the simplified information spent significantly less time on their investment decisions (around 23 versus 31 minutes), without any effect on the performance of the chosen investment.

5 Choice architecture

In this section, we consider the evidence on the efficacy of a number of saving-promoting policies that have been developed from a behavioural economics perspective on household saving behaviour. The conceptual background to these policies was sketched in Section 2. Collectively, these interventions can be thought of as attempts to change 'choice architecture'. If people procrastinate, they may fail to open savings accounts or opt into retirement savings, even if that is what their 'true' preferences are. This provides a role to 'default' people into saving, allowing them to opt out rather than making them choose to opt in, or to force people to make active saving choices. Section 5.1 summarises evidence on the effects of altering default options. Loss aversion may also be relevant to the defaults idea: if people start from a position of making retirement savings, for example, then opting out may be seen as a loss from the reference point of having a pension. The ideas of time inconsistency and temptation suggest a role for encouraging the development of 'commitment accounts' where accumulated balances are not readily accessible, allowing people to commit themselves to saving. The evidence on the effects of offering commitment mechanisms is reviewed in Section 5.2. Bounded rationality and mental accounting could mean that the 'framing' of saving decisions matters. People may be confused if options are presented in complex ways, or may respond to what in theory are irrelevant presentational aspects of different choices if they are more salient and familiar aspects of decision-making. If people use mental accounts, then encouraging people to save from specific forms of income or for specific purposes may be more successful than simply encouraging saving in general.[22] Evidence on the impact of framing and presentation on saving and financial decisions is considered in Section 5.3.

22 Antonides *et al.* (2011) report evidence of mental accounting in a large survey of almost 4,300 Dutch people in 2007. More than a quarter agreed that they 'reserve money for different expenses', for example. A measure of mental accounting was strongly positively correlated with whether or not the person had saving goals, and the size of total indebtedness. It was negatively correlated with income and educational attainment, and with being male.

5.1 Changing default options

Perhaps the largest evidence base in this area has emerged around changing default options for retirement savings. Employees are typically defaulted to opting out of retirement saving and have to choose to open a pension fund. Changing the default to being opted in could have significant effects on the proportion of workers participating in retirement savings if procrastination or a general 'status quo bias' are important drivers of decision-making. The UK is set to introduce a radical reform of the pensions system which will see most employees aged between 22 and the State Pension Age being defaulted by their employer into pension savings from October 2012, with the choice to opt out subsequently. Firms have to choose a qualifying pension, with a new option being a government scheme known as the National Employment Savings Trust (NEST).[23] The default for NEST will be for employees to pay 4% of their earnings into their pension fund with a total match of 4% made up of employer and government contributions. A range of investment funds will be offered and employees can choose how to invest their savings; those not making a choice will be defaulted into a particular combination of funds. In an initial analysis of the proposals, Emmerson and Wakefield (2009) suggested that in 2005 some 4.7 million employees were not able to join a workplace pension scheme. Had they been defaulted into saving, they would have contributed £4.2 billion in total. However, the amount saved for many low-paid workers would be small, with half of them contributing less than £2,170 over a five-year period under the default scheme.

What is the evidence base for the impact of changing default options on saving behaviour? A large number of studies have examined this with respect to US employees' savings in 401(k) retirement accounts, and at least in this particular context a number of empirical regularities have emerged:

- Changing the default to opt-in can substantially raise **participation rates** in retirement savings. Madrian and Shea (2001) study a single corporation and find that 86% of those who were defaulted in continued to participate after 3–15 months, compared to a participation rate of just 37% after the same period amongst those hired just before the default switch. The participation rate amongst

23 Background and details can be found in Emmerson and Wakefield (2009) and Johnson *et al.* (2010).

those automatically enrolled exceeded even that of individuals hired before the switch who had been at the firm for more than 20 years. Choi *et al.* (2006) look at the impact of changing defaults in four companies, and find participation rates after six months of 86–96%, between 50 and 67 percentage points higher than those hired before the change. Interestingly, they find that the default contribution rate did not much affect the opt-out rate. Beshears *et al.* (2009) study a single company and find that after two years, participation rates under opt-out are about 25 percentage points higher than under opt-in.

- Defaults affect the **contribution rate** to retirement savings and could lead some employees to save less than they would have done under an opt-in system. The default contribution rates are often low – for example, just 3% in the firm studied by Madrian and Shea (2001). Amongst those hired just before the default switch, 63% did not contribute anything, but 25% contributed 6% or more (6% is the limit on contributions for which the employer would provide matched payments). Amongst those hired just after the switch, only 14% contributed nothing, but the fraction contributing 6% or more fell to just 18%. Almost two in three employees contributed the default 3% of earnings to their pension. Beshears *et al.* (2009) find that when the default contribution rate changes, it has substantial effects on the distribution of contribution rates amongst employees. In the firm studied, the default contribution rose from 3% to 6%. The proportion contributing 3% after the change fell from 28% to 4%, whilst the proportion contributing precisely 6% rose from 24% to 49%.
- The default option includes not just a contribution rate but also a particular **investment fund** and employees defaulted into a particular fund are unlikely to switch. Cronqvist and Thaler (2004) look at a national Swedish scheme in 2000 in which all workers were defaulted into retirement saving and were actively encouraged to pick their own portfolio. Only around 33% of participants ended up with the default scheme. However, in later years, new workers faced less persuasion to pick their own fund and fully 92% failed to do so. Choi *et al.* (2006) find similar effects. Across the companies they study, the fraction of participants who invest all of their funds in the default option prior to the default being implemented varied between 3% and 14%. For those hired after the default switch, between 46% and 90% invested everything in the default fund.

In the context of retirement savings, the evidence then is that defaults have enormous implications. They can raise participation rates sub-

stantially, but the default contribution rate and investment fund chosen matter too. The default option appears to act as an anchoring device for later choices, perhaps because the default rate and fund are seen to be 'endorsed' somehow. Where there is a large amount of variation in individual preferences (including how people discount the future relative to today) and in needs, a single default may well be far from optimal even if it does encourage more people to save for retirement (Prendegrast *et al*. 2008). For a national roll-out of an opt-in default as is proposed for the UK, there may be longer-term considerations about the impact of any anchoring effects from the perspective of employers as well as employees. For example, employers may see a 4% contribution rate as an accepted, institutionalised level to offer and could reduce the generosity of their own schemes as a result. Tracking the impact of the UK default on both new and existing employees and employers will be hugely important. The importance of the default has led to guidelines being issued by the Department for Work and Pensions (2011) on how default funds should be chosen and how employers should review the appropriateness of the default at least every three years to ensure it best meets the needs of those who (actively or passively) 'choose it', though there may well be a large amount of heterogeneity amongst this group.

The overall effect of defaults on retirement savings is ambiguous, not just because of the trade-off between the 'extensive' margin (the decision to save at all) and the 'intensive' margin (the decision of how much to save) but also because of the possibility that people who save more for retirement following the default save less elsewhere, leading to asset shifting but no net new saving. Emmerson and Wakefield (2009) and Madrian and Shea (2001) suggest that since those most affected by defaults tend to be low-income workers with limited savings in other forms, the amount of asset shifting is probably quite low. However, this group may hold stocks of high-interest debt. Emmerson and Wakefield (2009) found that amongst workers without a personal pension and who were offered but did not take up an employer pension scheme in 2005, 48% lived in households with negative net liquid assets compared to 35% of all workers. This group may be better off using additional income to reduce current net debt rather than investing in pension savings.

The concerns that defaulting people into retirement savings may lead to greater participation but lower contribution levels, and that the default may be far from optimal for many individuals, suggest a possible role of 'active decisions', in which workers are required to choose whether or not to enrol in a pension fund and, if so, to choose their contribution

rate and investment fund. In other words, workers are forced to choose to opt out rather than passively being allowed to do so as a result of procrastination. Carroll *et al.* (2009) discuss one example in the US of a firm which unintentionally employed active decisions by including a form asking new workers to make an active choice to opt in or out alongside other legal documents they were required to complete. Workers were asked to return the form within 30 days. Although there was no sanction for failing to do so (which resulted simply in them being defaulted out), 95% of workers did complete the form. The firm then switched its system to a more standard default to opt-out, with workers being required to call a number to opt in. They find that enrolment rates amongst workers hired under the active decision system were 17 percentage points higher than for those hired under the typical opt-in system after two years, and five percentage points higher after three and a half years. They also find no significant effects on contribution rates. Whilst the increases in participation are not as large as those found under automatic enrolment schemes, they do appear to encourage those who would normally take some time to participate to start saving more quickly, and bring a small number of people who would not otherwise save into retirement saving, without seeming to affect the contribution rate. More evidence on the relative effects of defaulting people into saving versus making them make an active decision not to save would perhaps be useful, in particular evidence of whether there are features of how active decisions are implemented which would lead to larger enrolment effects without a deleterious impact on contribution rates or fund choices.

The empirical evidence on defaults focuses almost exclusively on retirement savings. Bronchetti *et al.* (2011) look at defaults in another savings context and find much smaller effects. In particular, they conduct an experiment in which some US taxpayers are offered the chance to opt in to having some or all of their tax refund invested in semi-liquid Savings Bonds, whilst others have a default that 10% of their refund will be invested in the bonds unless the taxpayer chooses to opt out. They find no impact of the default position: 9.3% of those who had to opt in chose to invest anything in the bonds, compared to 9.2% of those who had to opt out. The authors offer several possible explanations for the lack of an effect. One possibility is that for both groups there was still an active decision to be made – the default investment of 0% or 10% in the bonds only happened if a particular box on a form was not filled out. Another is that taxpayers who knew they were likely to receive a refund had already made plans to spend it and so were more willing to opt

out when required to do so then is the case for retirement saving. This suggests an additional role for mental accounting in the defaults case – it is hard to default people into saving income that has already been earmarked for spending.

5.2 Commitment accounts

Commitment problems could manifest themselves in two main ways in terms of saving behaviour. First, if people believe they would be tempted to spend stocks of accumulated savings, they may want to save in restricted accounts where penalties are paid for making withdrawals unless certain conditions are met (such as reaching a target saving goal or keeping the money locked up for a certain time period). Second, if people discount the immediate future more heavily than the distant future, they may be willing to agree now to commit themselves to saving in the future and would want a saving mechanism that enabled that to happen.

A large number of restricted-access savings accounts have been developed in private savings markets. Importantly, some of these products offer lower interest rates than flexible-access accounts, and such accounts would only be sustainable if some savers are willing to pay for commitment.[24] One example is the Post Office 'Christmas Club', where up to £1,000 can be saved onto a card which is redeemable only after 1 November each year and where no interest is paid on deposits. As a further 'commitment', the money is redeemable only in participating high street stores where Christmas gifts or items may often be bought, rather than being given in the form of cash which could be spent on anything.[25] This form of saving is also clear in Christmas 'hamper' schemes run by private companies, where savings are earmarked for food and Christmas-specific expenditures including high street vouchers. Following the collapse in 2006 of one operator in this market, Farepak, the Treasury commissioned a review (Pomeroy 2007) which looked into who used such schemes and found users to be largely female, and concentrated amongst low-income households who tended not to

24 So long, of course, as potential savers are aware of all the options available to them. This also ignores the possibility that the interest foregone might be offset by lower effort costs of opening or contributing to 'commitment' savings accounts if simplicity as well as commitment is a design feature of such accounts.

25 http://www2.postoffice.co.uk/counter-services/counter-money-services/christmas-club. See also Pomeroy (2007) for other examples.

use other savings products. Focus groups held with customers found that the commitment aspect both in terms of time (when the money is accessible) and in terms of what the balance can be spent on (receiving vouchers or hampers rather than cash) were highly valued, suggesting that some people are willing to pay in terms of lost interest or less flexibility to formalise their own mental accounts into actual savings accounts. These schemes also make saving easier, in that often someone comes to the saver's home to collect payments each week.

In developed countries like the UK with sophisticated financial markets, the role of policymakers may be to encourage potential savers to consider commitment accounts if they make saving more attractive, and to consider whether there are ways to make the accounts more straightforward to open and contribute to. There is a growing international literature in *developing* countries that suggests commitment accounts can be an effective way to raise savings amongst a population that may not have access to private savings markets and that may be particularly prone to conflicting short-term needs to spend and long-term desires to save. Ashraf *et al*. (2003) provide an overview of some of the different savings products in developing markets, looking at more than 120 products in total. They find that over 60% of accounts include some form of commitment mechanism on the deposit side, most frequently a 'bonus deadline' in which people who save a minimum amount by a given date are entered into a lottery to win a prize or additional income. About 30% of accounts included some withdrawal charges and 20% included some restrictions on when savings could be withdrawn. One of the more prevalent savings devices in developing countries is the 'ROSCA', or Rotating Savings and Credit Association, in which groups of people get together at regular meetings, each contributing a small amount which is then pooled and given to one group member. The recipient changes from meeting to meeting. These have been viewed as mechanisms to save for durable expenditures in developing countries, but some recent papers (Gugerty 2007; Basu 2008) have interpreted them as commitment savings mechanisms in which people give up their own management of the savings to the ROSCA. Peer group monitoring, and the fact that the same groups of people repeatedly contribute to the same ROSCA, provide economic rationales not to renege on the commitment to contribute (which might restrict access to further rounds of the ROSCA and result in social sanctions) even once you have yourself received the group payment. Gugerty (2007) finds that over a third of more than 300 ROSCA members in Kenya cited difficulties in saving at

home, where the money might be spent on other things, as their main reason for joining.

An interesting paper that offers experimental evidence on the impact of commitment accounts on savings in a developing country is Ashraf *et al.* (2006). In conjunction with a rural bank in the Philippines, they devise an account which allows savers to choose one of two commitment options: not to withdraw either until a set saving goal is reached, or until a specified time period. There was no option to back down from the commitment (e.g. by paying a fine) except in very particular circumstances like substantial medical bills. Savers were asked to write down a saving goal on the form opening the account, which may have helped place the savings into a mental account as well. Interest was paid at the same rate as a normal, unrestricted savings account. From a sample of bank customers, half were offered the commitment account, a quarter were visited by a marketer who discussed the importance of savings but not offered an account (everyone who was offered the account was also visited by a marketer) and a quarter were not offered the account or any information on savings. 28% of those offered a commitment account took it up. The authors find that after six months, the combined effect of both interventions was to raise saving by 47% compared to the control group, though they could not find evidence that each intervention by itself significantly affected savings.

One area in which commitment policies may be useful in developed countries is retirement savings. Section 5.1 showed that defaulting people into saving (or at least defaulting people into choosing whether or not to save) for retirement could have substantial effects on participation rates but may reduce the contribution rates of some individuals. As incomes rise and people near retirement, it may be sensible that contributions increase, but workers may find it hard to implement this kind of plan for several reasons. A chosen contribution rate becomes a reference point against which higher rates are viewed as losses. Having entered into retirement savings, people may then pay relatively little attention to whether the contributions being made are appropriate until relatively close to retirement when the issue is more salient. Alternatively, workers may be aware that they should be saving more and would plan to increase contributions if asked in the future, but are unwilling to do so in the present because of issues like temptation and self-control.

Thaler and Bernatzi (2004) discuss a policy called 'Save More Tomorrow' (SMarT), in which workers are asked to pre-commit to raising their

contribution rates over time (up to a maximum level) but where they are freely able to opt out of doing so at any time. The approach borrows heavily both from the default and the commitment ideas: workers decide today to save more for the future and have to opt out if they want to change an earlier commitment. Loss aversion is also built into the design, as increments to contributions rates are timed to coincide with scheduled pay rises such that take-home pay levels do not fall even as contributions rise.

The paper describes the outcomes of several implementations of the scheme.[26] In the first in 1998, almost 300 employees of a US manufacturer talked to an investment consultant who typically recommended an immediate and substantial increase in retirement plan contribution rates. Those who refused (about 72%) were offered the SMarT programme. More than three quarters of those offered SMarT took it up, and 80% of those stuck to the plan throughout four years and did not later opt out. The impact on contribution rates was substantial. After four years, those who agreed to raise contributions immediately saw their average contribution rate double, from 4.4% to 8.8%. However those who joined SMarT saw their rate almost quadruple, from 3.5% to 13.6%. Those who declined to join SMarT were typically saving more to begin with, 6.1%, but saw their average contribution rate fall to 5.9% four years later. In another implementation in 2002, with a large group of more than 15,000 workers at Philips Electronics, a more experimental approach was taken. A control group of workers in particular divisions of the company were not offered the SMarT programme; amongst this group, contributions rates between December 2001 and March 2002 rose marginally from 2.9% to 3.3%. In the treatment group offered SMarT, contributions rose from 3.4% to 4.6% amongst all employees and from 5.3% to 6.8% amongst those who took it up and who were already saving for retirement. In this implementation, take-up rates were low – only 12% of those not already contributing agreed to participate. However, there appeared to be some spillover effects. Contributions rose from zero to 0.7% on average for those not already in a plan who were not offered SMarT, but from zero to 1.6% for those offered SMarT but who did not take it up.

In developed countries like the UK, one issue with commitment accounts is whether contributors could simply unwind their commit-

26 Bernartzi *et al.* (2007) discuss more implementations of the scheme and in particular how it overlaps with other aspects of choice architecture. For example, defaulting people into the scheme results in much higher take-up rates than asking people to opt in.

ment with one of the many financial instruments they have access to. If someone puts money into a commitment account but then simply spends the same additional amount on a credit card instead, that would not be an increase in saving. Current net assets would be the same, and future net assets reduced if the account pays less interest than is due on the credit card. This behaviour might be particularly likely for precisely those time-inconsistent people, who overemphasise the present over the future, at whom the commitment account policy was aimed. This highlights again the need for evidence on the effect of interventions (including offering commitment accounts) on the whole portfolio of assets and debts.

5.3 Presentation and framing

A number of studies have looked at the impact of how financial decisions are 'framed' on outcomes. Although not explicitly related to saving choices, Bertrand *et al.* (2010) discuss the related field of consumer credit and the impact of framing on the decision to take out loans. They conducted an experiment with a small loans provider in South Africa. Mailshots were sent to more than 50,000 former customers offering new loans with randomly chosen interest rates and randomly assigned 'framing' of the offer. Specific examples of framing were found to be equivalent to sizeable changes in interest rates in terms of the effect on the loans being taken up. For example, presenting a table describing the loan offer in simple terms compared to a complex terms was equivalent to a 2.3 percentage point interest rate cut, and amongst male recipients of the letter, adding a female face to the offer increases take-up by the equivalent of a 4.5 point drop in the interest rate. To the extent that these kinds of framing issues are seemingly important determinants of borrowing decisions it is likely they also influence saving choices.

Vlaev *et al.* (2007) demonstrate that framing appears to matter for investment decisions in an experimental laboratory context. Working-age households are asked to choose how much they would like to invest in a retirement savings fund. A control group can choose from a full range of options ranging from £500 to £5,500, whilst a treatment group were given a restricted set of choices where the *minimum* they could invest was £3,000. If people have preferences for saving that are not driven by the options provided, the proportion choosing £3,000 or less in the control group should be the same as the fraction choosing £3,000 in the treatment group. However, this was not the case: around eight in 10 of

those offered the full set of options invested £3,000 or less, but only four in 10 of those offered the restricted set invested £3,000. Similar results were obtained in terms of how much of a given fund was invested in risky assets. It may be that by eliminating low investment and low risk options, the lowest remaining choice acted as an anchor against which remaining options were assessed, with people tending not to choose from the extremes of the available options. However the findings were based on a very small sample (around 64 respondents divided into three groups), and it is not clear that in a policy sense eliminating low-risk or low investment options from people's real pension saving choices would be desirable (and could lead to larger rates of opting out altogether, which was not an option in the experimental setting).

Saez (2009) finds evidence that framing also matters outside the lab setting, based on a field experiment carried out in conjunction with a firm that helps prepare tax returns in the US in 2006. Customers are allowed to invest in a form of Individual Retirement Account when they file their tax returns. In one part of the experiment, customers were randomly offered either a 50% matched contribution (as a one-off inducement), a 33% 'credit rebate', or no match at all. The 50% match and 33% rebate are equivalent – for example, a customer can invest $100 and receive a $50 (50%) match, or can invest $150 and receive a $50 (33%) rebate. In either case the cost to the customer is $100 for a total investment of $150. However the nature of the offer significantly affected whether it was taken up and how much was invested. Only 3.3% of those not offered any incentive contributed anything, compared to 6.4% of those offered the 33% rebate and 10.2% of those offered a 50% match. Those offered and accepting the rebate in the end received an average total contribution of $672 compared to $820 for those offered and accepting the match. This substantial effect suggests that people may find it hard to understand the implications of a rebate scheme, which may feel like the saver is contributing more 'up front', and perhaps that simply having a 50% offer 'feels' more significant than a 33% offer even if in the end the two are economically equivalent. Card and Ransom (2011) look at data on pension contributions made by a sample of university staff in the 1990s, including mandatory employer and employee contributions and supplementary contributions by employees. Assuming that workers have a target level of income in retirement, increases in mandated contributions should be offset one-to-one by reductions in supplementary contributions, and the extent of offsetting should not depend on whether the increase comes from employer or employee pension contributions. However, the authors find that a one dollar increase in

employer contributions is only offset by around 20 to 40 cents of supplementary contributions, whereas a one dollar increase in employee contributions is offset by 50 to 80 cents depending on the precise specification. This may be evidence of 'mental accounting', in that higher employer contributions are not viewed in the same way as employee contributions in terms of an overall retirement pot. In particular, a higher employee contribution directly offset by a reduced supplementary payment means take-home pay is unchanged, whereas higher employer contributions may not be directly reflected in immediate take-home pay (but may of course be later recouped by lower future pay growth).

A number of papers look at the extent to which framing affects the *portfolio* of investments when different investment options are available to savers. Of particular interest is the extent to which savers choose diversified portfolios and risky portfolios. Some studies look at the impact of the number of investment options available. A rational saver would pick the portfolio that maximised their expected return, and adding additional irrelevant options to the menu available ought not to change that. Bernartzi and Thaler (2001) look at evidence for what they call 'naive diversification', where individuals simply divide their investment equally across all available plans. Using experimental data they find evidence for this approach. People were asked to allocate funds across two options. These were first labelled 'stocks' and 'bonds' and then one option in turn was relabelled as 'half stocks and bonds' whilst the other remained purely unchanged. On average, people allocated 50:50 between stocks and bonds in the first treatment, but when the funds offered were more heavily tilted towards stocks or bonds people did not reallocate so that they were still split 50:50 between the two, but rather invested more in stocks or bonds respectively.

In an empirical study, however, Huberman and Jiang (2006) could not find evidence that the composition of the funds offered (e.g. between equities and bonds) substantially affected the composition of the final portfolios chosen. Using data on almost 600,000 employees in 2001, they found that the number of funds available did not have a significant effect on the number of funds chosen for investment, and that once the number of funds offered reached a relatively small level, around ten or so (compared to a median level of 13 in the data), there was no correlation between the composition of offered funds and that taken up. Iyengar and Kamenica (2010) use very similar data and do find that, controlling for the characteristics of the employee and the overall features of the 401(k), increasing the number of funds available affects the port-

folio. In particular, the probability that none of the portfolio is devoted to equities rises by around 2.9 percentage points (from a baseline of 10.5%) for each increase of 10 in the number of funds offered. This may be evidence of 'choice overload' (see Section 2) – the idea that once the set of options becomes too large, people default into simpler, less risky choices. However the overall evidence for the relationship between the number of options and resulting investment choices is clearly mixed.

Indeed the finding that laboratory-based evidence is not always replicated in a more natural setting carries over into other aspects of how framing affects portfolio choice. Beshears *et al.* (2011) cite a number of lab studies which suggest that portfolios become more heavily tilted towards risky assets when information about historical returns is presented in an aggregated way. For example, showing the average annual return to stock market investments over a long period rather than breaking down the returns year-by-year makes people more likely to invest in equities, and reporting the performance of a given portfolio as a whole rather than breaking down the performance of each separate investment within the portfolio also leads to people holding riskier portfolios overall. This is often interpreted as reflecting 'loss aversion' (see Section 2). Providing disaggregated information over time or investments makes it more likely that at least one negative return is observed; if individuals are strongly disposed to resist losses, this will persuade them not to hold riskier assets or portfolios even if, in the long run, they might be expected to perform better. However, the authors could not replicate these 'aggregation frames' in a more real-world setting. They studied almost 600 adults over a year. Each was given $325 to allocate across four types of investments (US and international equities, US bonds and US money market assets), and was allowed to keep the value of the investment at the end of the year. Subjects were randomly assigned to different treatments. Some were given weekly information about the performance of their portfolio; others saw the returns only twice during the year. Some saw the returns broken down by each investment type, others just the return of the whole portfolio. Some saw historical returns for each investment type year-on-year whilst others saw the returns aggregated over five year periods. As with real-world investments, the subjects were able to shift their portfolio across different assets over time. In general, their results showed no effect of the aggregation frame on portfolio compositions. Those who were shown portfolio-level returns rather than asset-by-asset returns, if anything, invested *less* in equities, in contrast to the predictions of loss-aversion. Those who were shown historical equity returns invested more in equities – but it did not matter

whether the returns were shown annually or over five years, suggesting that people are in general not aware of the higher expected returns to shares and react to the information, but not to how the returns are aggregated. Those who saw their returns weekly did not have less risky portfolios than those who saw the returns only twice.

5.4 Conclusions

The main research reviewed in this section is summarised in Table 5.1. Choice architecture, or 'nudging', is becoming a more widely-used policy option, particularly in an era of austerity where more costly interventions such as matching or tax-favouring savings may be deemed prohibitively expensive. Most of the evidence in terms of savings comes from studies of default options in retirement savings. Here, it seems that defaulting people into saving has a large effect on participation but the effect on the total amount saved is less clear-cut. The chosen defaults may often anchor people or employers into choosing low levels of contributions in relatively safe funds. In short, the default matters, and it is important for policymakers to design the default options with this in mind. One attractive approach may be to default people into schemes where the contribution rate and mix of funds will change as the worker grows older and nearer to retirement. The use of 'active decisions', which mitigate concerns that people are not making their own choices, is also an area where further evidence would be useful. Much of the evidence for defaults is based on US studies of particular companies and there seems to be little UK-specific evidence in this area. It is also not clear whether the evidence base for retirement saving translates into other forms of saving.

People may be encouraged to save if they can commit themselves to doing so. There are numerous options for commitment savings in the market, with accounts offering various restrictions on access to funds. Policymakers may need to identify those who would most benefit from having less liquid forms of saving and ensure that information about these options is made available in a relatively straightforward way.

The evidence on framing suggests there is a danger of 'unintentional nudges' – if people respond to how information is presented and to cues that should not really have any effect on decisions (such as whether there is a smiling face on a letter) then policymakers need to be conscious of this in designing any interventions. However the framing

evidence is quite mixed: while it appears to affect choices quite strongly in lab experiments, in some field studies the impact of frames is small. It would be useful to have more evidence to understand the contexts in which framing matters; if possible, any trials of policies should consider whether framing effects could be incorporated into the design of the study at the outset.

5.5 References

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Table 5.1: Overview of studies of choice architecture and behavioural change

Authors	Year	Research design	Outcome(s) measured	Main results	Notes and comments
Defaults					
Madrian and Shea	2001	Before/after analysis of 401(k) data for a single large firm in the US which implemented a switch to automatic enrolment in 1998. Compared three groups: one hired one to two years before the switch who were eligible to participate under opt-in; one hired up to one year before who only became eligible to opt in from the date of the switch but were not auto-enrolled, and one hired up to one year after the switch.	Impact of defaulting into the 401(k) plan on participation rates	People hired under the opt-in default observed at a point representing 3–15 months after hire had enrolment rates of 85.9% compared to enrolment of 37.4% for those observed under the opt-out default observed 3–15 months later. The biggest effects were seen on those least likely to participate under opt-out defaults (the young, low-paid and ethnic minorities).	The firm offered 50% matches on contributions of up to 6% of pay for everyone after a year of employment. This did not change following the switch to opt-in default. The default contribution rate was 3% in a money market fund for those defaulted in.
			Impact of defaulting on the rate of contribution	The average contribution rate for those hired under opt-in defaults was 4.4% after 3–15 months compared to 7.3% for those hired under opt-out. 76% of those under opt-in contributed 3% of pay (the default) and 8% contributed 6% of pay (the maximum matched by the employer). Figures were 12% and 30% under an opt-out default.	
			Impact of defaulting on the funds chosen	80% of those contributing under an opt-in default 3–15 months later had all their contributions to a money market fund (the default); only 20% contributed anything to stocks. Figures for those contributing under the opt-out default were 6% and 90% respectively.	

Beshears, Choi, Laibson and Madrian	2009	Before/after analysis of a single mid-size US chemicals company. Switched to auto-enrolment in 2000 and included current employees in the change. Increased default contribution from 3% to 6% in 2001 but only for new employees.	Impact of defaulting on participation	After three months, participation rates were about 35% higher under auto-enrolment (95% compared to 60%). After 24 months the gap was around 25% (95% compared to 70%). There was no participation effect when the default rate was increased to 6%.	Default fund was a money market fund.
			Impact of defaulting on the contribution rate	After 15–24 months, 28% of those hired under the 3% default contributed exactly 3%, and 65% contributed 6% or more. For those hired under the 6% default, the respective figures were 4% and 79%.	
			Impact of defaulting on the funds chosen	For those hired under an opt-out default and who chose to participate (observed at 25–48 months tenure), 1.4% had all balances in the default fund. For those hired under the 3% (6%) opt-in default, observed after 15-24 months, 25.6% (39.5%) had all balances in the default	
Carroll, Choi, Laibson, Madrian and Metrick	2009	Natural field experiment in a single US financial-services firm. Until late 1997, new employees were required to submit a form making their 401(k) participation choice (an 'active decision'); failure to do so resulted in them being defaulted out. After, employees had to phone a number to opt-in, akin to a standard opt-out default.	Impact of active decisions on enrolment rates	After three months, 69% of those hired under active decisions participated in a 401(k) compared to 41% of those hired under the standard opt-out default. By 24 months the gap is 17 points and by 42 months the gap is five points; all are statistically significant. There are no significant differences in attrition under the two systems.	Comparison groups are those hired in the first seven months of 1997 (before the change) and those hired in the first seven months of 1998 (after the change), who stay in the company for at least 17 months (30 months for the contribution estimates).
			Impact of active decisions on contribution rates	There is no significant effect of active decisions on the contribution rates that are expected after around 30 months of tenure.	

Bronchetti, Dee, Huffman and Magenheim	2011	Randomised field experiment at eight sites in the US offering free tax advice to low-income taxpayers in 2010 who had received federal tax refunds. A treatment group was defaulted into saving 10% of their refund in Savings Bonds unless they indicated otherwise.	Impact of the default on investment in Savings Bonds	There was no significant effect on the likelihood of investing anything in Savings Bonds. 9.3% of those required to opt-in invested compared to 9.2% of those required to opt-out. There was no significant effect on the amount of bonds purchased conditional on participation. No significant effects for different subgroups (income, race, size of refund) could be found.	
Commitment accounts					
Ashraf, Karlan and Yin	2006	Randomised field experiment with 4,000 customers of a rural bank in the Philippines. Half were offered the chance to invest in a commitment savings account, a quarter were visited by marketers to discuss savings (those offered the account also received this) and a quarter received no treatment.	Impact of treatments on financial savings held at the bank	Amongst those offered the commitment account, there was a 47% increase in savings relative to the control group receiving no treatment after six months and 82% after 12 months. Both results were only significant at the 10% level. The individual effects of receiving the marketer visit and being offered the account were not significant. The biggest effects of the combined treatment were both at the bottom and top of the savings distributions though there was no consistent pattern as to whether the commitment treatment had an independent effect over and above the marketing treatment.	Paper also shows that take-up of the commitment account strongly related to measures of time-inconsistency (particularly for women).
			Impact of treatments on total savings	There did not appear to be a significant reduction in savings in other accounts which would have indicated asset-shifting. If anything, balances in other accounts were higher amongst the treated group, but not significantly so.	

Thaler and Bernatzi	2004	Experimental implementation in 2002 of the Save More Tomorrow programme at Philips Electronics, where people pre-commit to increasing their retirement plan contributions to coincide with the timing of expected pay increases. Two divisions of the company were 'treated' and offered the programme; 28 other divisions acted as controls.	Impact of the programme on average saving rates	Amongst those already saving in a retirement plan, average contribution rates rose from 5.7% to 5.8% in the control group and from 5.4% to 5.7% for those offered but declining the plan. Those who took it up saw contributions rates rise from 5.3% to 6.8%. Amongst those not already saving, contributions rates rose from zero to 5% amongst those who were offered and took up the plan, from zero to 1.6% for those who were offered but did not take it up and from zero to 0.7% for those who were not offered the plan. Only 12% of those not already saving who were offered the plan took it up. 35% of those already saving who were offered the plan switched to it.	Compares pre-programme saving rates (Dec 2001) to post-programme rates (March 2002) but not longer-term effects. Not clear what impact on total wealth or saving rate is. Paper describes other, non-experimental applications of the programme.
Framing					
Saez	2009	Randomised field experiment in 2006 on a sample of almost 16,000 people using a US tax filing company. Filers are offered the chance to invest in an IRA when they make their return. 80% were assigned to a control group and offered no matching incentive, 10% were offered a 50% match and 10% offered a 33% credit rebate. The two treatments are economically equivalent but differently framed.	Impact of framing of incentive on take-up of the IRA Impact of framing on the amounts contributed to the IRA (including any match)	Those offered the 50% match were 6.1 percentage points more likely to take up the IRA (adjusted for observable demographic differences) than those offered no incentive, and 3.7 percentage points more likely to take it up than those offered the 33% rebate. Take-up rates without incentives were very low (3.3%). Those offered no incentives contributed, on average, $439, conditional on making a contribution. Including any match or rebate contributions, those offered and accepting the 50% match saved $820 whilst those offered and accepting the rebate saved $672.	Paper also shows that giving people advanced notice of the investment opportunity more than doubled take-up amongst those offered the match, implying linkages between information and incentives. Do not measure other savings so unclear if impact represents new net saving.

Card and Ransom	2011	Regression analysis of survey data covering the pay and pension contributions of 48,000 faculty members at 100 HE institutions in the US. Analysis based on cross-institutional comparisons of pension arrangements.	Impact of labelling pension contributions as 'employer' vs. 'employee' on supplemental payments made to pension funds	Broad results show that supplemental savings fall by 60 to 80 cents for a $1 increase in employee pension contributions, but only by 30 to 40 cents for a $1 increase in employer contributions, even though both in theory have the same direct impact on take-home pay. This may be evidence of 'mental accounting' or differential salience of employer and employee contributions.	Non-experimental design: may be unobserved differences between institutions correlated with supplementary contributions and the structure of employer/ employee contributions.
Bernatzi and Thaler	2001	Experimental design asking survey respondents to make hypothetical choices allocating investments between two different labelled funds. Subjects divided into three groups. (A) where funds were labelled 'stocks' and 'bonds'; (B) where one fund was labelled 'stocks' and the other was a 'balanced' (50/50 stocks and bonds) fund and (C) where one fund was labelled 'bonds' and the other 'balanced'.	Impact of labelling on allocation between stocks and bonds	When the funds were labelled as 'stocks' and 'bonds', the average allocation to 'stocks' was 54%. When one fund was 'stocks' and the other 'balanced' the average allocation to stocks was 73%. When one fund was 'bonds' and the other 'balanced' the average allocation to stocks was 35%. The results suggest participants did not have a target 'diversification stategy': in many cases people simply allocated half the investment to each fund irrespective of how it was labelled. The results held in a second experiment where the differences between stocks and bonds were explained with visual charts showing the returns. The average allocation to stocks in the three cases here was 56%, 80% and 29% respectively.	Paper also uses data on actual pension fund contributions and the types of funds offered to show (non-experimental) field evidence for 'naive diversification', such as the fact that the larger the number of equity-based fund options in the plan, the larger the allocation to equities.

6 Social marketing

6.1 What is social marketing?

The concept of social marketing dates back to at least the 1970s and an article by Kotler and Zaltman (1971) in the *Journal of Marketing* which suggested that techniques used to sell consumer products could be applied to promoting socially desirable changes in behaviour. The methods used draw heavily on both marketing and social science (particularly social psychology). The key features of social marketing are:

a. To identify those whose behaviour you would like to change (the target population);
b. To understand the barriers to behaviour change through a range of techniques such as surveys, interviews and focus groups;
c. To design and test an intervention appropriate to the group based on the evidence collected about the barriers they face;
d. To modify the intervention based on the results of the testing.

Social marketing has increasingly been incorporated into public policy in recent years. A 2004 Department of Health White Paper, *Choosing Health*, looked at the role of social marketing in health decisions,[27] and in 2006, the UK government established the National Social Marketing Centre (NSMC) which offers training and advice for social marketing in a range of areas, though not so far in saving behaviour.[28]

27 http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publichealth/Choosinghealth/DH_066342

28 The web address for the NSMC is http://www.thensmc.com/. See http://www.thensmc.com/resources/showcase/subjects for a list of case studies of particular applications.

6.2 Evidence

To the extent that social marketing relies on the tailored provision of information to help overcome particular obstacles to adopting behavioural change, it shares features both of education and information (see Section 4) and choice architecture (Section 5). However there is very little direct evidence on the impact of these methods when applied to encouraging personal saving. Lusardi *et al.* (2009) report on one use of social marketing to encourage the taking out of supplementary retirement savings accounts at a firm in the US. The target population were new employees, identified by the firm's administrators as particularly unlikely to save for retirement. The authors designed a survey and held in-depth interviews and focus groups, and studied the current way in which retirement savings were provided in the company to try to identify the barriers to saving for this group. The main problems were a lack of information, a sense that it was hard to know how to start saving, a perception that incomes were too low to save and that the particular online form that had to be filled in to open the supplementary account for this particular firm was overly complicated and required a large amount of pre-planning. Based on this, the authors devised and refined a 'planning aid', a leaflet which broke down the process of opening the account into a series of small steps and which included a number of behavioural cues (such as pictures of older family members giving gifts to their grandchildren). The aim of the leaflet was to help overcome procrastination by making the process of opening the account seem more manageable and to provide information (such as the fact that only small amounts needed to be saved each month to open an account). In a control group which did not receive the leaflet as part of the general information supplied to new employees, 7% had opened an account within a month and 29% within two months. Amongst those given the leaflet, participation rates increased to 28% and 41% respectively. Compared to the increases in participation resulting from changing default options (see Section 5), which is another approach to overcoming procrastination, the changes here are more modest. One possibility might be to combine a social marketing approach with subsequent defaulting of those who have not participated after a fixed period. This might help ameliorate worries about people being defaulted into inappropriate retirement savings plans.

6.3 Conclusions

Clearly this is an area where more research would help us to understand how effective these methods might be and whether they could be applied more widely outside the retirement savings context. As the point of social marketing is that specific interventions are tailored to the target population based on the particular barriers they face, it is hard to know whether the results in the Lusardi *et al.* (2009) study are at all generalisable more widely. For example, the same leaflet may have had relatively little effect in a firm where the system to open retirement accounts was different. The role of policymakers in this particular case may be to help establish, fund and evaluate pilot studies to see what works in what contexts and what the general lessons might be. This could include studies of the effectiveness of social marketing for saving behaviour within firms, carried out by private and third sector organisations. Government itself could also engage in social marketing, targeting particular groups (such as the young or those on low incomes) who are seen as particularly prone to under-saving, and tailoring advertising and other sorts of interventions directly to those groups.

6.4 References

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7 Final thoughts

Policymakers, both in the UK and abroad, have been persistently concerned that too many individuals are making inappropriate saving decisions and, in particular, that many are saving too little. This has led to repeated attempts to increase household saving through a number of different policy interventions. In this report, we have surveyed the evidence on the efficacy of such interventions, dividing them into four broad types: financial incentives, information and education, policies motivated by behavioural economics, and social marketing. Our views of the evidence in each of these areas were presented above, in the relevant sections. Rather than restate them here, we conclude with some broader comments about the evidence base for policy in this area.

Given the long-standing policy interest in this area, our view is that the current state of the overall evidence base is disappointing. There are of course individual studies of very high quality, and a very positive development in this area has been the growing recognition of the care and effort needed to estimate appropriate counterfactuals, and consequently, the growing use of randomised trials, and credible quasi-experimental designs (with the notable exception of the area of education and training interventions). Nevertheless, the literature broadly suffers from a number of limitations, of which we would highlight three:

1. In many areas, while it is clear that an intervention has affected how wealth is held, it is much less clear whether it led to genuinely new saving, or just changed the form in which saving that would have happened anyway is held.
2. For many interventions, policymakers obviously hope to achieve long-term impacts, such as to engender a saving 'habit'. However, the great majority of studies have focused on short-term outcomes. There is a real paucity of evidence on the ability of policy to effect persistent behavioural changes.

3. Many of the interventions that have been studied are actually packages of interventions, such as matched contributions coupled with financial education and information provision. Bundling interventions in this way makes sense from a policy point of view, but without independent variation in the components, it is difficult to know which parts of the bundled interventions were effective, or indeed, if the bundled interventions only work (or work better) when delivered as a package.

Going forward, the research agenda on all interventions should be to address these broad limitations. In addition, there remain specific areas where further research is needed. One that stands out to us particularly is the lack of empirical evidence on the impact of means-tested retirement benefits on the saving behaviour of working-age households.

As a final point, we note that evidence on the efficacy of particular interventions must feed back into the development of theory in the social and behavioural sciences. Otherwise we will always be limited to knowing whether the specific policies that have been trialled (or otherwise evaluated) work in the specific contexts in which they have been trialled, and can say nothing about new proposals or the application of old policies in new contexts. What we need is general knowledge which has been validated by particular trials, as a guide for the development of new policies.

Commentary: Robert Sugden

Robert Sugden is Professor of Economics at the University of East Anglia and a Fellow of the British Academy.

Thomas Crossley, Carl Emmerson and Andrew Leicester have written an excellent review of the literature on how public policies can influence household saving. In this commentary I focus on just one of the themes of their review – the potential contribution of policies of 'nudging', informed by the findings of behavioural economics.

The evidence on household saving, as reviewed by Crossley *et al.*, has two glaringly obvious features. The first is that, for many low- and middle-income British households, savings for retirement are extremely low. Such low rates of saving are either highly imprudent or based on the expectation that, in the future, there will be substantial taxpayer-financed transfers to elderly and otherwise impoverished non-savers – an expectation that may be unrealistic, given the increasing average age of the population. The second feature is that individual and household decisions about retirement saving are often based on very little information or analysis, and are highly susceptible to the influence of what an economist or finance specialist would treat as irrelevant details of 'framing', such as which option is presented as the default. Because retirement saving shows these two features, some influential behavioural economists see it as a particularly suitable area for 'nudges' (e.g. Thaler and Sunstein, 2008, especially pp. 103–131). The idea is that many individuals are making bad choices, and that better choices could be induced by relatively minor changes in the ways that decision problems are presented.

Why are long-term saving decisions so often ill-considered? The answer (as psychologists and behavioural economists are well aware) is not just that personal financial decision-making is difficult. So is driving a car, but most adults are capable of learning the skills necessary to pass compul-

sory driving tests. One difference between the two cases is the nature of the feedback that learners receive. Many of the actions involved in driving generate instant feedback (think of the relationship between turning the steering wheel and the direction in which the car moves, or between changing gear and the noise and motion of the car). Well- and badly-executed manoeuvres are immediately apparent, facilitating learning from experience. Saving for retirement is at the opposite extreme. Until one actually retires (when it is too late to correct mistakes), feedback about the success of one's saving plans is not salient and is difficult to interpret. Many of the principles of good financial decision-making, such as the importance of diversifying one's assets and the danger of assuming that current trends will continue indefinitely, are confirmed by experience only over a long time scale. A further difference concerns the salience and timing of the rewards for successful learning. The learner driver will know friends and contemporaries who have recently been through a similar learning experience and who are now enjoying the pleasures of driving; she can expect her efforts to lead to similar rewards within a relatively short time. In contrast, a person who starts to save for retirement when he starts his first job will not experience the rewards of his actions until many years later. It is difficult for the young worker to make comparisons between his own case and that of the elderly people who are currently experiencing the consequences of their earlier saving decisions, because those decisions were taken long ago under different economic circumstances and different policy regimes. So there are good reasons to be sceptical about theories of long-term household saving behaviour that assume rational decision-making, and about the likely effectiveness of educational interventions that try to teach financial decision-making skills in the abstract.

So is nudging the solution? In thinking about this question, a useful starting point is to ask why, and on whose behalf, public policymakers might want to try to increase household saving. One possible answer is that the individuals at whom interventions are directed *want* to save more, but find it difficult to sustain a long-term commitment to saving in the face of temptations to consume. On this view, low savers are aware of their psychological limitations and want help in overcoming them; policymakers are responding to a demand (or at least a desire or wish) for intervention that comes from the low savers themselves. A second possible answer does not claim that low savers want to save more, but only that saving more would be in their best interests (as those are judged by policymakers): the aim is to steer individuals towards choices that they would have made for themselves had they been more rational

or prudent than they actually are. On this view, policymakers are not responding to the demands of any particular political constituency: they are acting as individuals' guardians – or, as economists and philosophers would say, as paternalists. A third possible answer is that low savers impose costs *on other people*. If the state provides a safety net of income support and means-tested social care, low savers in their old age will be supported by transfers from others. Furthermore, if low savers make up a significant proportion of the population, when they reach old age they will be able to use their voting power to try to secure such transfers. Thus, low savers undermine the credibility of policy regimes in which private savings play an important part in financing retirement and social care. On this view, policymakers are trying to solve a collective action problem: the aim is to create sustainable institutions and to induce consistent and realisable expectations.

Advocates of nudging often use the first answer, presenting their proposals as responses to individuals' desires for help in maintaining commitments. Thaler and Sunstein (2008) appeal to the 'New Year's resolution test'. For example: '[H]ow many people vow to smoke more cigarettes, drink more martinis, or have more chocolate donuts in the morning next year?' (p. 73). The obvious answer to this rhetorical question ('Very few') is taken as evidence that individuals want to be helped to smoke less, drink less, and eat more healthily. In the case of saving, Thaler and Sunstein cite survey evidence that that two-thirds of employees describe their savings rate as 'too low' while only 1% describe it as 'too high', interpreting this as an indication that many people recognise that they have problems of self-control with respect to saving (p. 107). The evidence of the voluntary take-up of 'commitment accounts', reviewed by Crossley *et al.*, may seem to provide some support for this hypothesis. But one should be careful in extrapolating from Christmas clubs, and from economically more significant analogues in developing countries, to retirement saving. Christmas is an annual event whose pleasures are easily remembered; not having enough money to pay for customary presents and celebrations is a distressful experience that is likely to remain in a person's memory. This is just the kind of feedback that is absent in the case of saving for retirement.

Another way of seeing the difference is to compare the emotional intensity of retirement saving decisions with that of planning for Christmas, dieting or trying to give up smoking. Although retirement saving decisions have extremely important consequences, both for the savers' current disposable incomes and for their future standards of living, the

evidence reviewed by Crossley *et al.* suggests that people find it hard to maintain interest and attention when dealing with them. People are content to accept arbitrary default options or to use crude rules of thumb; if there is more than a handful of alternative options, they experience 'choice overload'. Compare this with the attention that people give to planning their Christmas consumption, or to assimilating information about different ways of losing weight. The predominant emotion associated with retirement saving decisions seems to be boredom.

In the case of retirement saving, then, it seems more plausible to advocate nudging as a paternalistic policy than as a response to a demand for commitment devices. One might argue from the evidence of lack of attention given to saving decisions that many individuals want to shed responsibility for these decisions, and that such people are willing to consent to the paternalistic interventions that are made on their behalf. The evidence reviewed by Crossley *et al.* shows that retirement saving decisions are powerfully affected by the specification of default options. Since default options do not constrain people who want to take their own decisions, there seems to be a good case for using defaults as a way of signalling what, according to a consensus of expert judgement, is most likely to be in the best interests of a typical individual.

But if this kind of nudging policy is to be carried out in good faith, and if it is to retain public acceptability and credibility, it must be governed by sincere judgements about individuals' own interests, made by authorities that command general respect. Thus, I suggest, it is not a suitable response if retirement saving is interpreted as a collective action problem. If the perceived problem is that low savers impose costs on other people, it would be misleading to claim that nudges in the direction of greater saving were in the best interests of the people being nudged. It would be unfair if people who ignored those nudges were able to continue to impose costs on others. And, even setting aside these ethical concerns, it seems unlikely that nudges would remain an effective policy instrument if they were routinely used to achieve objectives that were not endorsed by the people who were being nudged. (There may be an analogue of Goodhart's Law here: observed behavioural regularities will tend to collapse if pressure is placed on them to induce decisions that are contrary to individuals' perceived interests.) Nudging should not be seen as a substitute for institutional structures that are compatible with individuals' acting in their own interests. Rather than assuming that individuals are perfectly rational, policymakers should take account of how real human beings make choices and judgements;

but they should be extremely cautious about using policies that are dependent on systematic *ir*rationality.

If a retirement saving regime is to remain in place over the long time scale that it requires, it must continue to generate political support. The most reliable basis for continuing political support is individuals' own interests. To be sustainable, a saving regime needs to work to the benefit of everyone (or at least, of all major interest groups), and it must be expected to continue to do so even if political, economic or demographic circumstances change. It needs to foster expectations that are credible and mutually consistent. If the regime is the product of agreement across political parties and across employer and labour organisations, individuals are more likely to believe that it works to their benefit (even if they find the details too boring to think about) and that the expectations on which it is based will be realised. And if the regime *does* remain in place over a long time scale, there are better prospects for inter-generational learning about the value of saving.

If there is a concern that low savers will impose costs on others, or will threaten the sustainability of an otherwise desirable regime, that problem needs to be tackled head-on, and not by nudging individuals to do what may not be in their long-term interests. A consensus needs to be negotiated about the level of income support that people will be guaranteed in old age, however imprudent their previous behaviour may have been. This level needs to be consistent both with prevailing ideas of humanity and social inclusion and with the realities of a democratic politics in which the imprudent have votes. To ensure that this guarantee is sustainable and does not undermine the motive to save, it is surely reasonable to impose a corresponding requirement that individuals engage in minimal saving. In this context, nudging seems out of place.

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Commentary: Kevin Milligan

Kevin Milligan is Associate Professor of Economics at the University of British Columbia and a Research Associate of the National Bureau of Economic Research.

This work by Thomas Crossley, Carl Emmerson, and Andrew Leicester, provides a timely and comprehensive review of the state of knowledge on savings and savings incentives. They begin by setting the stage with the traditional models of saving centred on basic microeconomic theory. In recent years, behavioural economics has strongly influenced thinking about saving. Most usefully, the authors proceed to integrate this more recent behavioural work with the traditional approach. The analysis and conclusions provide a contemporary and insightful guide for future research. Both practitioners in government and researchers in academia should find it highly useful.

Their work inspires three questions in my mind. How do we know there is a savings problem? Can or should we use behavioural economics to design better savings incentives? What are the distributional impacts of savings incentives? I expand on these three questions, and then follow with a conclusion with some cautions on behavioural policy design.

How do we know there is a savings problem?

Many attempts have been made to measure savings adequacy in the economics literature. The results of these attempts tend to be highly variable.[29] Part of the difficulty arises in projecting paths for incomes and consumption well into the future. To understand why a family saves what it does today, one must accurately divine that family's projections

29 To cite just one article, Banks, Blundell, Disney, and Emmerson (2002) provide a guide to the literature.

for the future paths of incomes, consumption, and policy. This is challenging.

Beyond the difficulties in projecting adequacy, evidence for a worsening saving problem is also not evident when one looks at the well-being of seniors. The goal of savings policy is to ensure adequate wellbeing in retirement. Incomes in retirement have been rising in the UK; measures of poverty dropping for much of the last 20 years (Jin, Joyce, Phillips, and Sibieta, 2011). Using these metrics as the ultimate measure of adequate saving, there is no evidence of a growing saving problem. Of course, tomorrow's retirees may not match the performance of today's retirees—especially if future retirees are more dependent on volatile equity and housing markets.

How could behavioural models be used to design savings incentives?

In the traditional model, taxes on saving have their impact by changing after-tax rates of return; altering the price that translates current consumption into future consumption. However, behavioural research suggests that the framing, timing, and presentation of savings choices may matter more than rates of return. To the extent this is true, it presents a tremendous opportunity to redesign financial incentives.

Providing tax relief for capital income as a method to stimulate savings relies on the rate of return to saving being the pivotal margin considered in the saving decision. Increasing the marginal rate of return to saving can be very costly to the Treasury, as much inframarginal tax relief must be dispensed in order to affect the margin. However, if factors such as the framing, timing, or information provision about savings opportunities are more important, then the tax dollars foregone through providing tax relief on the rate of return may not be so pivotal and can be at least partially withdrawn.

To be concrete, imagine that the most important factor in generating a lifetime pattern of savings is getting a potential saver to commit to opening an account. Once an account is open, perhaps the monthly statements from the bank do a good job of eliciting a regular savings deposit. If this is so, getting someone in the door of the bank now becomes a most important margin. What barriers exist to opening an account? One barrier to opening an account may be the cost of acquiring information

about how and where to do so. Even with this information in hand, the psychic cost of sitting in a banker's office filling in paperwork should not be underestimated. If account opening is the critical margin, then reallocating the tax benefit from tax relief on investment earnings in the future to compensating the costs of opening an account should produce more savings.

The recently-cancelled Child Trust Fund (CTF) discussed by Crossley, Emmerson, and Leicester conforms well to this framework. The benefit was front-loaded through a grant. This grant was credited when the account is opened, aligning the benefit with the psychic cost.

What are the distributional impacts of savings incentives?

Saving is concentrated among higher income earners. In part, this may reflect the crowd-out of savings by social insurance at lower income levels. For example, if public pensions are adequate to sustain a lower-income lifestyle through retirement, no additional saving may be contemplated by the family. The lower saving by those with lower incomes may also reflect the fact that meager incomes may be depleted entirely by providing the necessities of life, leaving little extra for savings. Whatever the cause, it is clear that savings incentives can have perverse distributional impacts when looked at in a point in time.

One solution to this potential problem is to target savings incentives to income. The downside of any targeting of course is that there must be an income range over which the incentives are phased out. This increases the marginal burden on households with incomes lying in the phase-out range.

A second problem with targeting financial incentives is the question of figuring out the true barrier to saving by lower income families. Given the prevailing patterns of saving, it is likely that lower income families will have lesser access to peer-provided information about saving and may also face higher psychic costs of the formalities of opening up accounts. If so, then changes to financial incentives that affect the marginal return to saving will be ineffective. That is, it is not enough to simply target the same financial incentives to lower income families. A different policy package may be necessary—perhaps one that targets behavioural rather than financial incentives.

Concluding thoughts

I will close my comments by echoing some of the warnings expressed by Glaeser (2006). The potential gain to having well-designed incentives that embody known behavioural motivations may be great. But reaping this harvest relies on imperfect governments—consisting of humans subject to the same psychological weaknesses as other citizens—designing these incentives well. Glaeser (2006) argues that not only may errors be greater under more centrally-designed choice frameworks, but also the errors made may be harder to correct. Added to these concerns about the nature of policy errors is a worry about the potential capture of 'behavioural' regulations by industry, in the spirit of Stigler (1971).

None of these concerns mean we should not pursue policies that incorporate knowledge about behavioural economics. They do however caution us to ensure any new policy structure is robust to the persistence of imperfect policy decisions by those charged with policy design.

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Concern that many individuals are not saving enough, particularly for retirement, has been prominent in UK policy discussions for many years. Successive governments have attempted to increase household saving through a number of different policy interventions, focused predominantly on changes to the pension system.

Raising household saving examines in detail what is known – and what is not known – about the effectiveness of various policies designed to increase saving by households. It offers a critical review of the literature in four main areas: financial incentives; information, education and training; choice architecture or 'nudge'; and social marketing.

The report provides an invaluable guide to the available evidence from the UK and abroad. It also warns that while household saving has been an area of keen focus for policymakers in recent years, the current state of the evidence base is disappointing. To adequately tackle this issue the gaps in our knowledge urgently need to be addressed.

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