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**Research Report**

## When and why do employees change their pension saving?

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Institute for Fiscal Studies

IFS Report R246

Jonathan Cribb  
Laurence O'Brien

# When and why do employees change their pension saving?



Economic  
and Social  
Research Council



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Laurence O'Brien

Copy-edited by Judith Payne

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# Preface

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# Executive summary

## Key findings

- 1 Changing employer significantly increases the probability of private sector employees starting and stopping saving in a workplace pension.** Between 2019 and 2020, 27% of private sector employees who save in a pension and then change employer stop saving in a workplace pension (at least temporarily), compared with just 7% of those who do not change employer. Furthermore, 53% of those who previously were not saving in a pension and subsequently change employer start saving in a workplace pension, compared with 23% of those not saving in a pension who do not change employer.
- 2 Comparisons with 2005–12 suggest that automatic enrolment has significantly changed how moving employer affects workplace pension participation.** In particular, a much higher share of private sector employees, 54% (versus 27%), used to stop saving in a workplace pension when changing employer prior to automatic enrolment. At the same time, starting to save in a workplace pension when changing employer is much more common in 2019–20 than in 2005–12.
- 3 Changes in earnings only have a small effect on pension saving decisions, despite strong theoretical reasons for them to be linked.** In 2005–12, before automatic enrolment was rolled out, a 10% increase in real earnings over five years is associated with only around a 1 percentage point increase in the probability of joining a pension among those aged 22–29, falling to an even smaller 0.2–0.6ppt increase in the probability of joining a pension among those aged 50–59. We find changes in earnings still have a small effect on pension participation in 2019–20, except for when they lead to someone earning at least £10,000 a year and their employer therefore being required to enrol them automatically into a workplace pension.
- 4 Higher minimum employee contributions for higher earners, or a form of ‘auto-escalation’ – that is, for default pension contribution rates to increase alongside increases in earnings – could therefore nudge people**

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**to make better pension saving decisions.** There are good reasons for many people to make higher pension contributions in years when their earnings are higher in order to smooth their living standards over their life, but our results suggest that people are currently only making small changes in pension contribution rates as earnings rise.

- 5 **There is little evidence of people changing their pension saving at any particular ‘trigger age’.** Before automatic enrolment, the probabilities of pension savers increasing or decreasing their pension contribution rate by more than 1% of earnings over the course of a year are around 12% and 8%, respectively, and vary little with age.
- 6 **Workplace pension participation responds only slightly to the increase in the up-front tax incentive for pension saving at the higher-rate threshold.** Prior to automatic enrolment, if employees earning £60,000 received 20% up-front income tax relief on their pension saving (rather than 40%), then pension participation would fall by 1 percentage point, from 60% to 59%. This is only a very small change in participation for a large change in the up-front tax incentive.
- 7 **Pension contribution rates also only respond mildly to this tax incentive.** Taking an employee earning £60,000 per year and contributing £3,000 per year into their pension, we find that prior to automatic enrolment they contribute only about £75 more into their pension per year because they receive up-front tax relief of 40% rather than 20% on pension saving.
- 8 **If anything, pension saving has become even less responsive to this tax incentive since the roll-out of automatic enrolment.** This is consistent with automatic enrolment bringing more ‘passive savers’ into workplace pension saving. Further increasing tax incentives for pension saving might therefore not be a cost-effective way of boosting retirement saving, though this work does not provide evidence on how saving might respond to substantial changes in the structure of pensions taxation.
- 9 We analyse how pension saving is affected by different life events – namely, changes in the number of dependent children at home, housing tenure, marital status, and whether someone’s partner is in paid work or not. We find that these **significant events in people’s lives generally have little impact on private sector employees’ pension participation and contribution rates.**

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- 10 **This is despite most of these life events being associated with large changes in spending commitments, income or the cost of living, making them a good time to change pension saving.** For example, paying off your mortgage is associated with a large increase in disposable income – and therefore we might think many people would want to put more in their pension after this point than before it.
- 11 We do find that **pension contributions tend to increase by around 0.4% of pay *more* when people move from renting to having a mortgage (which in recent years has been associated with a *decrease* in spending needs and therefore more disposable income).** This could also be consistent with no longer needing to save for a deposit.
- 12 **Pension contributions tend to increase by around 0.3% of pay *less* after the arrival of a first child (which is typically associated with an *increase* in spending needs).** The magnitude of this effect is slightly larger for women, at 0.5% of pay, than for men (for whom the effect is 0.2% of pay and not statistically significantly different from zero).
- 13 **These findings suggest that nudging employees to change their pension saving around major life events could have desirable effects.** One example would be for mortgage providers to ask their customers in advance how much of their mortgage repayments they would like to divert into their pension when their mortgage term ends, and making it as easy as possible to achieve this.



# 1. Introduction

Most people need to save privately for retirement if they want to enjoy a comparable standard of living in retirement to that which they have enjoyed during working life. This is particularly true of middle and higher earners, for whom a full state pension entitlement of around £9,650 a year (in 2022–23) will be less than they are used to receiving when in employment. There are concerns that many people are not saving enough. While automatic enrolment has increased the proportion of eligible private sector employees saving in a pension to around 90% (Cribb and Emmerson, 2020), the minimum default contribution rates – set at 8% of earnings between £6,240 and £50,270 – are often argued not to result in sufficient saving. Among the self-employed, only 19% were saving at all in a private pension in 2020–21 (Department for Work and Pensions, 2022), after decades of declining pension participation rates.

There is consequently important debate among policymakers, the pensions industry, and others concerned with the well-being of future generations of retirees about whether the government should seek to encourage (or compel) more saving, or more pension saving in particular, and if so how it should do that. Different policy options have been put forward, including a range of nudges targeting the self-employed, uniform increases in the automatic enrolment default contribution rate, increases in default contribution rates that depend on age, ‘auto-escalation’ whereby contribution rates increase when earnings increase, and changes to the tax treatment of pension contributions.<sup>1</sup> This is in addition to the changes to automatic enrolment for employees that the government in 2017 committed to implementing by ‘the mid-2020s’ (Department for Work and Pensions, 2017), including reducing the lower age limit to 18 and basing minimum default contribution rates on earnings from the first pound (rather than starting at £6,240).

However, this debate around people’s ‘undersaving’, and the appropriate policy solutions, still lacks empirical evidence. One area where the evidence base has been particularly lacking is in understanding existing pension saving behaviour, including when and why pension saving changes over people’s working lives. This is important for two reasons.

First, understanding how contributions are likely to change over working life is vital for those projecting future retirement resources from current saving behaviour. For example, if people tend to increase their saving rate strongly in later working life, one needs to factor that in, otherwise projections based on early-life saving rates will underestimate future retirement

<sup>1</sup> See, for example, Centre for Policy Studies (2018) and Association of British Insurers (2022).

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resources. Second, to understand the impact of possible new policies – such as contribution rates that by default increase with age, or nudges to increase saving at particular points in life – one needs to understand how individual behaviour would respond to such circumstances in the absence of any reforms.

As a result of a recent programme of research, funded by the Nuffield Foundation and supported by the Economic and Social Research Council, we are able to contribute vital evidence to this debate. We have examined in detail how pension saving changes over working life for both employees and the self-employed, and used an economic model to illustrate how people might want to vary their pension saving as their circumstances change.

The findings of that latter strand of research, published in a separate report (Crawford, O'Brien and Sturrock, 2021), are in some ways stark. They highlight that if people are seeking to smooth their living standards over their lives, then for most people there would be good reasons to expect their desired saving rate – the proportion of income being saved for retirement – to vary considerably over working life according to their circumstances. In particular, if people know they will enjoy some earnings growth over their working life, then they would best smooth their living standards by doing more of their pension saving in middle or later life. This will be true of many young graduates. Those with children would be best served saving for retirement before their children arrive or after their children have left home. Those with student loans would be expected to increase their pension saving after those loan repayments cease as they could do so with no drop in their disposable income. Rates of return obviously matter too, with higher returns increasing the benefit to saving earlier. Finally, employer incentives are also vital. Many offered an 'automatic enrolment style' arrangement, where they get an employer contribution of 3% of gross pay if – but only if – they contribute 5%, might be best served by joining the pension around the start of working life and always contributing at least that minimum amount.

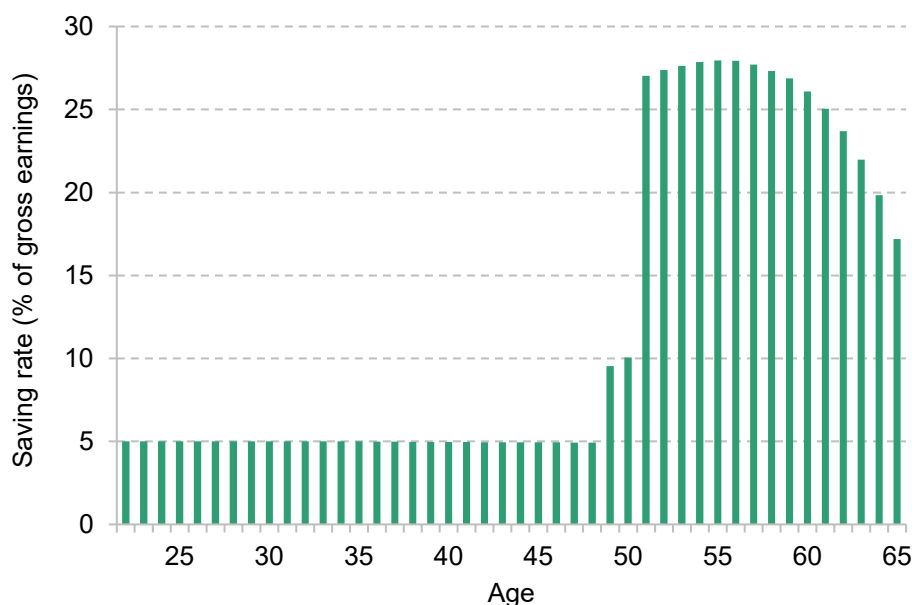
Taking all these factors together, the simulated results for a hypothetical individual (such as a graduate with (known) earnings growth, two children born at ages 30 and 32, a student loan, and a pension arrangement with minimum contributions allowed under automatic enrolment) are shown in Figure 1.1. With a 3% real return on saving, this stylised individual would best smooth their standard of living over life by joining a private pension at the start of working life and saving the minimum amount (5%) until their 50s, when they would ramp up pension saving dramatically as their children leave home and earnings are high.

People are all different and none will look exactly like this hypothetical person. Some people have children who only leave home just before their retirement or who continue to require financial support. Others enjoy little earnings growth. And for everyone there is uncertainty and risk about future earnings and employment (or the amount that can be contributed to a pension without tax penalties) which means that more saving should be done throughout life and the

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increase in saving in later life should be less dramatic. But the main conclusions of the modelling exercise – that pension contribution rates would be expected to change in noticeable ways as people’s circumstances change, and on average increase in later life – remain robust.

**Figure 1.1. Simulated pension saving profile of hypothetical graduate**



Note: This graduate has two children (born when the individual is aged 30/32 and who leave home at age 18), a student loan, and an ‘automatic enrolment style’ pension (employer contribution of 3% with 5% contribution from employee). The real rate of return on savings is 3%.

Source: Figure 3.10 of Crawford, O’Brien and Sturrock (2021).

The rest of the research programme has examined how people behave in practice. In general, we have focused on the pension saving behaviour of private sector employees, and saving in defined contribution workplace pension schemes, as they provide considerably more flexibility in the available choices to savers than do defined benefit schemes. An initial report on employees in this research programme (Crawford and O’Brien, 2021) suggested that even before automatic enrolment (i.e. before a large group of ‘inert’ savers were brought into workplace pensions), there was little evidence of people in general increasing their pension saving over their working lives in the way one might expect. While there was some increase in participation of defined contribution pensions, mainly among people in their 20s, the average contribution rate for those saving in a defined contribution pension only increases gradually over working life, by around 5 percentage points of gross pay between the early 20s and late 50s.

In this report, we present the results of our detailed research that has sought to unpick when and why employees change their pension saving. In Chapter 2 we look at the relationship between earnings and contributions for employees, and whether there is any association with age over and above the fact that earnings tend to increase as people age. In Chapter 3 we examine whether

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employees respond to some aspects of the pensions tax incentive to save in a pension. In Chapter 4 we examine whether pension contributions change in response to wider changes in household circumstances. In Chapter 5 we conclude with a discussion of the implications of our findings for policy going forwards. In an accompanying report, Cribb and Karjalainen (2023) examine similar issues for self-employed workers using administrative tax data from HMRC.

## 2. The effects of age, earnings and changing employer on pension saving for private sector employees

### Key findings

- 1 Changing employer significantly increases the probability of private sector employees starting and stopping saving in a workplace pension.** Between 2019 and 2020, 27% of private sector employees who save in a pension and then change employer stop saving in a workplace pension (at least temporarily), compared with just 7% of those who do not change employer. Furthermore, 53% of those who previously were not saving in a pension and subsequently change employer start saving in a workplace pension, compared with 23% of those not saving in a pension who do not change employer.
- 2 Comparisons with 2005–12 suggest that automatic enrolment has significantly changed how moving employer affects workplace pension participation.** In particular, a much higher share of private sector employees, 54% (versus 27%), used to stop saving in a workplace pension when changing employer prior to automatic enrolment. At the same time, starting to save in a workplace pension when changing employer is much more common in 2019–20 than in 2005–12.
- 3 Changes in earnings only have a small effect on pension saving decisions, despite strong theoretical reasons for them to be linked.** In 2005–12, before automatic enrolment was rolled out, a 10% increase in real earnings over five years is associated with only around a 1 percentage point increase in the probability of joining a pension among those aged 22–29, falling to an even smaller 0.2–0.6ppt increase in the probability of joining a pension among those aged 50–59. We find changes in earnings still have a small effect on pension participation in 2019–20, except for when they lead to someone

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earning at least £10,000 a year and their employer therefore being required to enrol them automatically into a workplace pension.

- 4 **There is little evidence of people changing their pension saving at any particular ‘trigger age’.** Before automatic enrolment, the probabilities of pension savers increasing or decreasing their pension contribution rate by more than 1% of earnings over the course of a year are around 12% and 8%, respectively, and vary little with age.

In this chapter we focus on how the pension saving behaviour of private sector employees is affected by their age, their earnings, and whether they change employer. There are two (related) reasons to expect people to change their pension saving when their earnings change. First, a simple economic model – such as the one discussed in Chapter 1 from Crawford, O’Brien and Sturrock (2021) – would suggest that (all else equal) people should save more when their earnings are higher and less when their earnings are lower, as that best allows them to smooth their living standards over time. After all, that is what retirement saving is about: it is saving for a period in life when, generally, there are no earnings from paid work. Second, behavioural economics suggests people are particularly averse to losses. Loss aversion might make employees reluctant to increase their contribution rates if they perceive this as a loss in take-home pay (Thaler and Benartzi, 2004). We might therefore expect employees to time increases in pension saving with earnings increases, as this would allow them to avoid falls in spending from one period to the next. Age may matter for pension saving if, for example, people start to think more about their pension arrangements after reaching a ‘trigger age’ such as one around the middle of their working life. Employees may also review – and therefore change – their pension saving when they move employer.

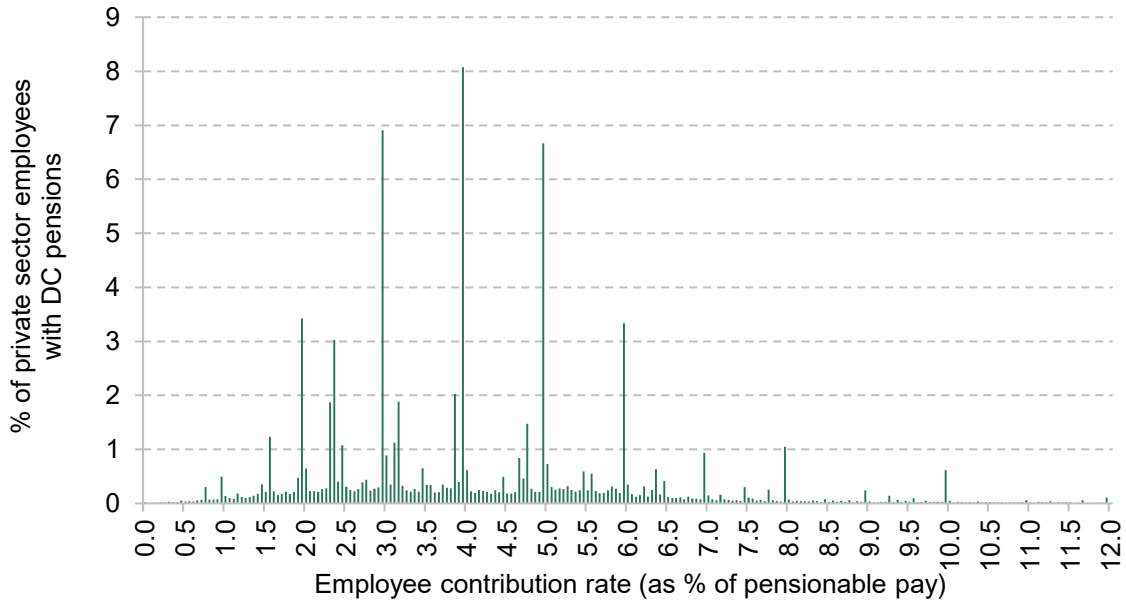
We examine these issues empirically using data from the Annual Survey of Hours and Earnings (ASHE). This is a large longitudinal survey of around 180,000 employees per year that is completed by employers using payroll data, and is therefore a high-quality source of data on workplace pension saving. Employees in Great Britain are included in this survey if their National Insurance number ends in a certain pair of digits. ASHE contains information on workplace pension contributions since 2005. Most of our analysis focuses on the period 2005–12 to identify how employees behave in a world without automatic enrolment; however, we also examine to what extent our results look different in the latest two years of data, 2019 and 2020, after the roll-out of automatic enrolment had been completed. Throughout, we restrict our attention to those who are aged 22–59, to limit the extent to which our results are affected by individuals working while studying or by retirement. We focus on private sector employees’ saving into defined contribution (DC) pension schemes. This is because employees enrolled in

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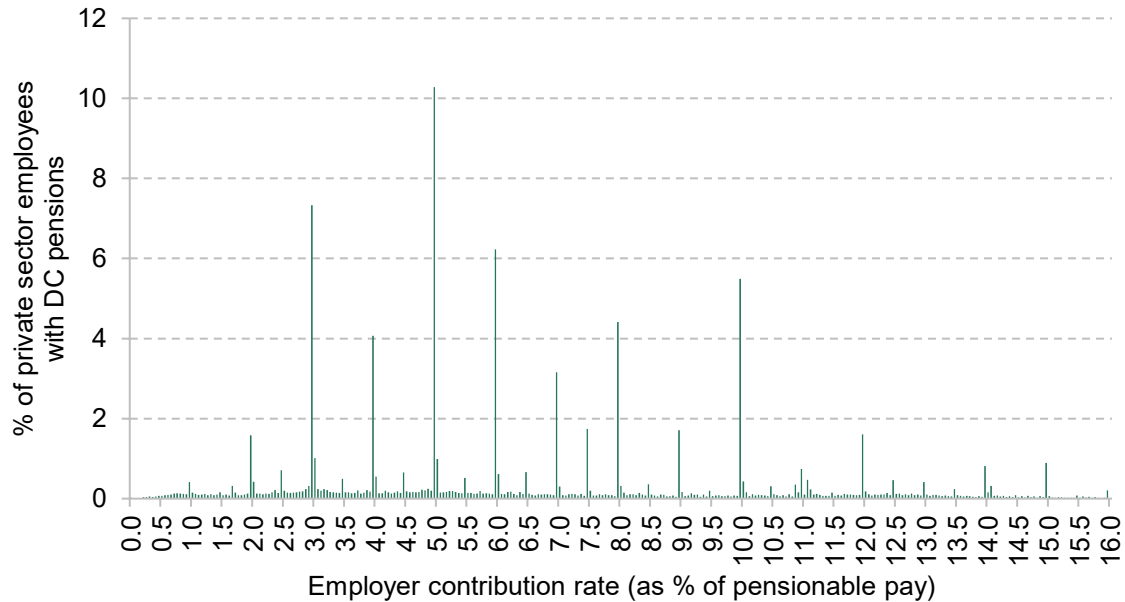
defined benefit (DB) schemes tend to have much less choice over their employee contributions, and the vast majority of public sector workers have a DB pension.

**Figure 2.1. Distribution of employee and employer contributions to DC pensions (2005–12), private sector employees only**

**Panel A. Employee contributions**



**Panel B. Employer contributions**



Note: Sample includes private sector employees aged 22–59 between 2005 and 2012 who are members of a workplace DC pension. The top panel is restricted to employees with strictly positive employee contributions less than or equal to 12% of pensionable pay, while the bottom panel is restricted to employees with strictly positive employer contributions less than or equal to 16% of pensionable pay (however, the height of the bars is the percentage as a fraction of all private sector DC pension savers, even if their contribution rate is outside the range shown). Around 1% and 6% of the sample have an employee/employer contribution rate greater than 12%/16%, respectively. (The histograms are cut at these points for presentational reasons.)

Source: Annual Survey of Hours and Earnings.

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The pension saving behaviour we measure is whether an employee is a member of a workplace DC pension, and, if they are, how much the employee is contributing to their pension as a percentage of pensionable pay.<sup>2</sup> We focus on pension contribution rates rather than the cash-terms amount being saved because employers and employees tend to set pension contributions as a percentage of pensionable pay rather than as a cash-terms amount. This is indicated by the fact that 60% of pension savers have an employee contribution that is approximately a round percentage of pensionable pay, and 67% have an employer contribution that is approximately a round percentage of pensionable pay.<sup>3</sup> Figure 2.1 shows the distribution of employee and employer contribution rates for 2005–12 (before automatic enrolment), where we can clearly see these spikes at round numbers.

## 2.1 Cross-sectional relationship between pension saving and both age and earnings

In a previous report (Crawford and O’Brien, 2021), we found only gentle increases in pension saving with age, despite there being strong theoretical reasons for pension saving to increase substantially towards the end of working life for many employees (Crawford, O’Brien and Sturrock, 2021). One of the main reasons is that people tend to have higher earnings in the later parts of their careers, so if they wish to smooth their standard of living over their life, they should save more for retirement when their earnings are higher.

Figure 2.2 shows that higher-earning private sector employees do, indeed, have higher total (i.e. employee + employer) DC pension contribution rates on average (note that this is measured across everyone, not just those saving in a pension, and so will capture both changes in pension participation and changes in contribution rates among participants). In the earlier period, 2005–12, the average DC contribution rate increases from close to zero to 6% of pensionable pay for those with annual earnings of around £100,000 or more. The slope is steeper after automatic enrolment, with the average DC contribution rate reaching 9% of pensionable pay by annual earnings of £100,000.

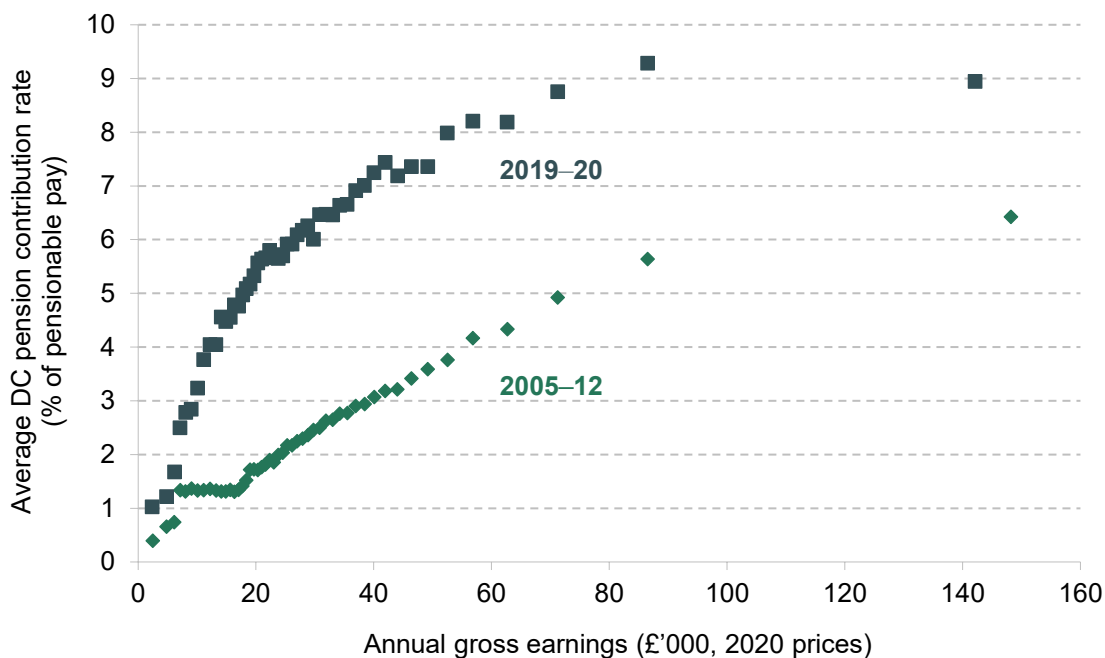
<sup>2</sup> The definition of pensionable pay can differ across employers. For example, pensionable pay can equal basic pay, qualifying earnings or total earnings. For DC pensions, pensionable pay is most commonly equal to basic pay. For our 2005–12 sample, pensionable pay equals basic pay for 70% of employees. Of the remaining 30%, pensionable pay equals gross pay (which is not equal to basic pay) for one in five cases (i.e. 6% of employees).

<sup>3</sup> Note, however, that the evidence does not suggest that the rest of our sample of employees set their pension contributions in a nominal cash-terms amount. This is because we find the majority of the savers with non-round pension contribution rates do not have a round contribution amount, whether analysing their contribution amount per week, month or year.



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Figure 2.2. Average total DC pension contribution rates (% of pensionable pay) for each percentile of gross earnings (measured across private sector employees participating and not participating in a DC pension)



Note: Private sector employees aged 22–59. Each point represents the average total DC pension contribution rate for a percentile of annual pay. Annual gross earnings deflated to 2020 prices using CPI.

Source: Annual Survey of Hours and Earnings.

However, this graph does not tell us whether, over the course of their working lives, employees do indeed save more when their earnings are higher and less when their earnings are lower, in line with what consumption smoothing would suggest. This is because different employees have different lifetime earnings, and so when we observe an employee with high earnings in a given year, we do not know whether this employee is near the top of their earnings profile, in which case we should expect them to be saving a lot, or whether they have very high lifetime earnings and expect to earn even more in future years, in which case we might expect them to not save much for retirement now.

In the rest of this chapter, we therefore focus on how *changes* in employees' earnings are associated with changes in their pension saving. If an employee experiences an increase in real earnings from one year to the next, then if they want to smooth their consumption they are likely to want to increase their pension contribution rate. As well as allowing us to test whether people respond in line with a simple economic model, we can also get a better understanding of how pension saving responds to changes in individual economic circumstances, whether brought about by policy or by changes in people's economic circumstances.

## 2.2 How often do private sector employees change their pension saving?

First, to provide some context for the empirical results in the latter part of this chapter, we examine how often, and by how much, private sector employees change their pension saving. Throughout, we analyse the decision to join a pension only among people who were not saving in a pension in the base year, and we analyse the decision to leave a pension among people who were saving in a pension in the base year.

Table 2.1 shows how prevalent changes in DC pension participation are for private sector employees over the course of one, two and five years. Before the introduction of automatic enrolment, a significant minority of private sector employees changed their DC pension saving from one year to the next. Between 2005 and 2012, 13% of those who had been saving in a DC pension in one year were not doing so a year later, while 7% of those who had not been saving in a DC pension were doing so a year later. These figures rise to 29% and 17% over the course of five years.<sup>4</sup>

**Table 2.1. Percentage of private sector employees joining and leaving a pension over one, two and five years**

	<b>% of non-savers joining a DC pension</b>	<b>% of savers leaving a DC pension</b>
<b>2005–12</b>		
Over one year	6.7	12.9
Over two years	9.7	17.5
Over five years	17.1	29.0
<b>2019–20</b>		
Over one year	25.5	9.1

Note: Sample includes private-sector employees aged 22–59 who are in the data one, two or five years apart. The left column shows, among people who were not saving in a DC pension in the base year, the percentage who were saving in a DC pension one, two or five years later. The right column shows, among people who were saving in a DC pension in the base year, the percentage who were not saving in a DC pension one, two or five years later

Source: Annual Survey of Hours and Earnings.

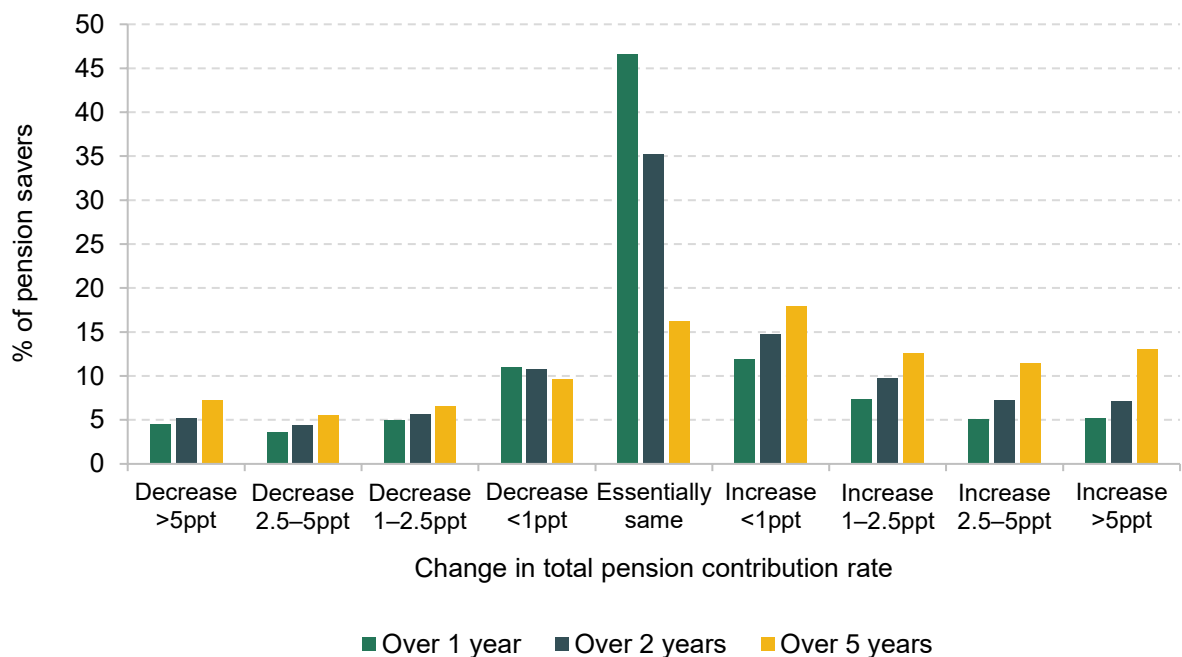
<sup>4</sup> Note that throughout this chapter, people who are saving in a DB workplace pension are counted as not saving in a DC workplace pension.

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The patterns were different between 2019 and 2020, after automatic enrolment had been fully rolled out and during which time total minimum contributions were stable. Only 9% of those who had been saving in a DC pension in 2019 were not doing so a year later, while over 25% of those who had not been saving in a DC pension were doing so a year later. So, whereas prior to automatic enrolment those contributing to a pension were more likely to stop contributing than those not contributing to a pension were to start contributing, after automatic enrolment – with much higher pension coverage – this pattern had reversed.

How do contribution rates change over time? Among people consistently saving in a DC pension, average contribution rates increased slightly over time on average. Between 2005 and 2012, average total contribution rates as a percentage of pensionable pay increased by 0.07 percentage points (ppt) over one year, 0.25ppt over two years and 0.67ppt over five years.

**Figure 2.3. Distribution of changes in pension contribution rates for those saving in a DC pension over one, two and five years, 2005–12**



Note: Sample is private sector employees aged 22–59 who are in a DC pension one, two or five years apart. The bars show the percentage of the sample whose total pension contribution rate changed by different amounts over the course of one, two or five years. ‘Essentially same’ refers to absolute changes of at most 0.05 percentage points.

Source: Annual Survey of Hours and Earnings.

In Figure 2.3, we break this down and show the distribution of changes in contribution rates over one, two and five years during the period 2005–12. Among those who continued to save in a DC pension between one year and the next, less than a third (30%) saw a change in their total (employer plus employee) contribution rate of at least 1% of pensionable pay. Slightly more

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people saw an increase in their contribution rate than saw a decrease (17% increase by 1% of pay or more, while 13% decrease by 1% or more). Over the course of five years, 56% saw a change of at least 1% of pay in their total contribution rate, with 37% experiencing an increase of 1% of pay or more, compared with 19% experiencing a decrease of 1% or more.

Among employees who were saving in a DC pension in both 2019 and 2020, the distribution of changes in contribution rates was similar to that between 2005 and 2012; 31% experienced a change in their total contribution rate of 1% or more of pensionable pay, with increases again more common than decreases. This is perhaps surprising as we might have expected automatic enrolment to bring more inert savers into workplace pensions and therefore make changes in pension contributions over time less common.

Overall, these patterns of pension saving changes are consistent with a past literature showing the ‘stickiness’ of pension saving (Benartzi and Thaler, 2007; Choi, 2015). Before automatic enrolment, only a minority of employees change their pension participation or contributions over the short term, although when looking over the course of five years changes in participation (particularly joining a pension) and changes in contribution rates (particularly increases) are more common. Automatic enrolment appears to have had a significant effect on the pattern of participation changes, making non-savers more likely to join a pension and savers less likely to leave a pension, although it is less clear whether it affected changes in contribution rates among savers.

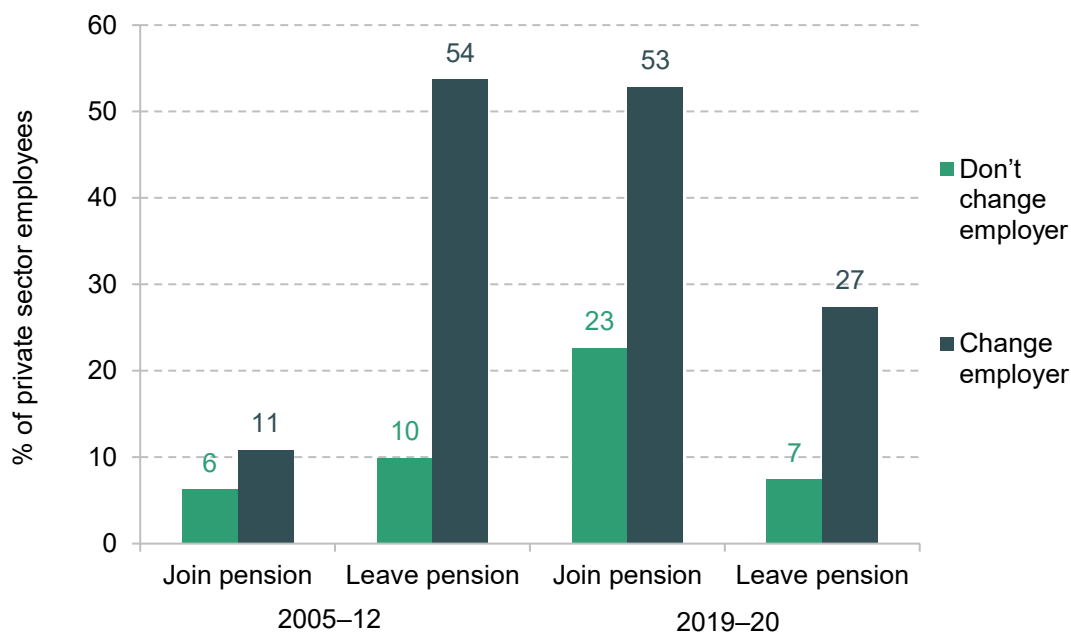
## 2.3 Effects of earnings and changing employer on pension participation

In this section, we examine empirically whether there is a relationship between the change in an individual’s real earnings or whether they change employer or not, and any change in their DC pension saving.

Employer changes have a large effect on the decision to join or leave a DC pension, particularly prior to automatic enrolment.<sup>5</sup> For example, over any one-year period between 2005 and 2012, 11% of those who change employer join a pension, compared with 6% of those who do not change employer. Even more strikingly, 54% of employees who are in a pension initially and who then change employer stop saving in a pension. This compares with just 10% when looking at those who do not change employer. (See Figure 2.4.)

<sup>5</sup> Just under 9% of employees in our sample change employer over the course of one year in both the 2005–12 and the 2019–20 sample periods. Employer changes are much more common at younger ages than at older ages, with 14% of 25-year-olds changing employer over the course of one year, compared with 6% of 50-year-olds. In the 2005–12 period, 37% of employees changed employer over the course of five years.

**Figure 2.4. Percentage of private sector employees joining and leaving a workplace pension over the course of a year, by whether they change employer**



Note: The 'Join pension' bars show, among private sector employees who were not saving in a workplace pension in one year, the percentage who were saving in a workplace pension by the following year. The 'Leave pension' bars show, among private sector employees who were saving in a workplace pension in one year, the percentage who were not saving in a workplace pension by the following year. 22- to 59-year-olds only.

Source: Annual Survey of Hours and Earnings.

When looking at the 2019-20 period, 23% of employees not saving in a workplace pension in 2019 are enrolled in a workplace pension by 2020 among people who do not change employer, compared with 53% among people who do change employer. Furthermore, 27% of pension savers who change employer leave their pension, compared with 7% of pension savers who do not change employer.<sup>6</sup> Many of the people who we observe stopping saving in a workplace pension when they change employer are likely employees who have been with their new employer for less than three months, and so have not yet been automatically enrolled.

We use regression analysis to estimate the effect of earnings, so we examine the relationship between earnings and pension saving outcomes while simultaneously controlling for the effects of age, year and the impact of unobserved variation in time-invariant factors such as fixed preferences for saving (because we focus on changes and not levels). We also allow the relationship between earnings and pension saving to vary with age, since one might expect this

<sup>6</sup> All the effects of changing employer in these two paragraphs are robust to controlling for changes in earnings, as well as including year and age fixed effects.

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to be the case. (For example, older workers who have higher earnings relative to their lifetime average might be expected to save more of any earnings increases than younger workers who are still earning low amounts relative to what they might expect over their lifetimes.)<sup>7</sup> In addition, we estimate regressions separately for employees who did and did not change employer over the period we are analysing due to the large effect this has on changes in pension participation. The results for starting saving in a DC pension and stopping saving in a pension are summarised in Table 2.2.

Over a one-year horizon during the period 2005–12, changes in earnings are found to have only a very small association with changes in pension participation. A 10% increase in real earnings is associated with a 0.07–0.2ppt increase in the probability of joining a pension for employees who do not change employer, rising to a 0.4–0.5ppt increase among employees who do change employer – this could be because getting a bigger pay rise on changing employer might also be associated with getting a better employer pension contribution offer, making enrolling in the workplace pension more attractive (nevertheless, the magnitude of the difference is small). In comparison, the average probability of a non-saver enrolling in a workplace pension is around 6% each year if they do not change employer and around 11% if they do. Thus, even quite substantial changes in earnings vary the probability of enrolling in a workplace pension by only a very small amount. These effects generally do not vary substantially with age.

Over a five-year horizon, earnings changes have a larger association with joining a pension, but one that declines with age: a 10% real earnings increase is associated with around a 1ppt increase in the probability of joining a pension among those aged 22–29, falling to a 0.2–0.6ppt increase in the probability of joining a pension among those aged 50–59.

In terms of ceasing saving in a pension, for those who do not change employer over a one-year horizon, a 10% increase in real earnings is associated with a 0.2–0.5ppt decrease in the probability of leaving a pension (depending on age). Among employees who do change employer, a 10% increase in real earnings is associated with a 1.6–2.4ppt lower probability of leaving a pension. These effects are similar when looking over the course of five years instead of one.

The effects of earnings changes on the probability of joining a pension are slightly larger between 2019 and 2020. For people in their 20s and 30s who do not change employer, a 10%

<sup>7</sup> The specifications used are described in the appendix. We have also tried different specifications where we examine the effect of different types of earnings changes. We find that most of our results in this section are driven by changes in basic pay, rather than overtime pay. Changes in weekly earnings through changes in hourly pay generally have qualitatively similar effects to changes in weekly earnings caused by changes in hours worked. These results are available from the authors on request.

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increase in real earnings is associated with 0.7ppt and 1.3ppt increases in the probability of joining a pension, respectively. We find that this is driven by these individuals starting to earn at least £10,000, which is the point where employers become obliged to enrol employees automatically into a workplace pension.<sup>8</sup> The effects are much smaller for employees in their 40s and 50s.

**Table 2.2. Percentage point change in probability of joining/leaving a pension associated with a 10% increase in real earnings**

	2005–12				2019–20	
	Over one year		Over five years		Over one year	
	Join pension (1)	Leave pension (2)	Join pension (3)	Leave pension (4)	Join pension (5)	Leave pension (6)
<b>Change employer</b>						
Aged 22–29	0.47***	-1.90***	1.15***	-2.04***	0.74*	-1.92***
Aged 30–39	0.46***	-1.55***	0.89***	-2.24***	0.97**	-1.87***
Aged 40–49	0.51***	-2.25***	0.66***	-2.33***	2.10***	-1.99***
Aged 50–59	0.37***	-2.36***	0.56***	-2.14***	2.59***	-2.24***
N	31,110	7,577	38,128	11,359	1,434	3,131
<b>Do not change employer</b>						
Aged 22–29	0.22***	-0.52***	0.91***	-0.72***	1.34***	-0.75***
Aged 30–39	0.10***	-0.22**	0.22**	-0.16	0.72**	-0.37***
Aged 40–49	0.07**	-0.23**	0.29***	-0.12	0.11	-0.67***
Aged 50–59	0.08**	-0.36**	0.22*	-0.55	0.12	-0.12
N	302,220	105,170	62,508	22,471	14,002	33,847

Note: Private sector employees aged 22–59. Columns 1, 2, 5 and 6 are for consecutive years; columns 3 and 4 are for years five years apart. Top panel is those who do change employer over the relevant time frame, while bottom panel is those who do not. Regressions also include age dummies and year dummies. \*\*\*, \*\* and \* denote that the effect is significantly different from zero at the 1%, 5% and 10% level respectively. Standard errors are clustered at the individual level.

Source: Annual Survey of Hours and Earnings.

<sup>8</sup> We get very similar results when restricting our sample to employees earning over £10,000 annually.

On the other hand, the effects of a 10% real earnings increase on the probability of joining a pension among people who switch employer are larger for those in their 40s and 50s (for whom we estimate 2.1ppt and 2.6ppt increases) than for younger employees (for whom we estimate a 0.7–1.0ppt increase). The effects of earnings increases on the probability of leaving a pension during the 2019–20 period are broadly similar to the effects we estimate during the 2005–12 period.

In summary, changes in earnings seem rarely to act as a stimulus to join or leave a pension, except for when they lead to someone earning above £10,000 a year and therefore their employer is required to enrol them automatically into a workplace pension. Changing employer, however, does seem to have a noticeable effect. Over the period 2005–12, before automatic enrolment, people saving in a pension who then changed employer were particularly likely to stop saving in a pension. This is likely to be largely driven by the nature of the previous pension saving landscape, where not all employers offered pension contributions as part of the remuneration package of their employees, and even those who did usually made it an opt-in choice (or only facilitated access to a stakeholder pension) for employees.

Nevertheless, changing employer still seems to matter for pension participation between 2019 and 2020, after automatic enrolment had been rolled out completely. On the one hand, we see that people saving in a pension who then change employer are more likely to stop saving in a pension than people who do not change employer. This might in part be due to the fact that employers are allowed to wait up to three months before auto-enrolling new employees. On the other hand, we see that people over 40 who are not saving in a pension and then change employer are much more likely to start saving in a workplace pension than people who do not change employer – this could, at least in large part, be caused by job-switchers being automatically enrolled into their new employer’s pension scheme. Overall, our results suggest that default choices – both those within the automatic enrolment regime and those in the ‘default’ prior to 2012 of not automatically enrolling employees into workplace pensions – seem to be driving the lack of effects of earnings, and the effects of changing employer, on pension participation.

## 2.4 Effects of earnings and changing employer on pension contribution rates

We turn now to the association between earnings changes or employer changes and pension contribution rates for those consistently saving in a workplace pension.

The association between changes in the percentage of total pensionable pay contributed to a pension and changes in real earnings and employer is described in Table 2.3. Controlling for



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earnings changes, changing employer is associated with a fall in contributions of about 0.25% of earnings over the course of a year, mainly coming from lower employer contributions. Over five years, however, the effect is not significantly different from zero, potentially implying that the short-run effect is from employers offering lower employer contributions to employees who have only just joined.

**Table 2.3. Percentage point change in pension contribution rate (% of pensionable pay) associated with a 10% increase in real earnings and a change in employer, 2005–12**

	Over one year			Over five years		
	Total contrib.	Employer contrib.	Employee contrib.	Total contrib.	Employer contrib.	Employee contrib.
<b>10% increase in earnings</b>						
Aged 22–29	–0.025	–0.007	–0.018	0.044	0.038	0.006
Aged 30–39	–0.203***	–0.178***	–0.024**	–0.148***	–0.144***	–0.004
Aged 40–49	–0.189***	–0.154***	–0.036***	–0.077*	–0.061	–0.015
Aged 50–59	–0.192***	–0.145***	–0.047***	–0.079	–0.067	–0.012
<b>Change employer</b>	–0.248*	–0.204*	–0.044	0.122	–0.049	0.171***
N	95,144	95,144	95,144	22,993	22,993	22,993

Note: Private sector employees aged 22–59, 2005 to 2012. Columns 1–3 are for consecutive years; columns 4–6 are for years five years apart. Each column shows the results from a single regression, which also includes age dummies and year dummies. \*\*\*, \*\* and \* denote that the effect is significantly different from zero at the 1%, 5% and 10% level respectively. Standard errors are clustered at the individual level.

Source: Annual Survey of Hours and Earnings.

Earnings changes turn out to have only a very small association with changes in contribution rates. For example, over any five-year horizon between 2005 and 2012, a 10% increase in real earnings for a 30- to 39-year-old is associated with a reduction in the average DC pension contribution rate of 0.15% of pensionable pay. This is contrary to the direction expected – as previously discussed, there are reasons to expect people on average to increase their pension contribution rate when their earnings increase; however, the magnitude of this effect is very small. The main point is that we do not find evidence that an increase in pay, on average, leads to a substantial increase in pension contributions as a share of earnings.

One possibility is that the negative effect of earnings is caused by a small number of employees setting their pension contributions as a cash-terms amount. Then an increase in earnings, coupled

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with no voluntary change in pension saving, would lead to a fall in these employees' pension contributions as a percentage of earnings. To check whether this is driving our results, we tried restricting our regression sample to employees whose initial contributions were a round percentage of pensionable pay in the base period. This has little effect on the results for employer contributions. For employee contributions, we still find a small negative effect of earnings over the course of one year. Over five years, the effect of earnings does become positive; however, the magnitude is small and the effects are not significantly different from zero.

**Table 2.4. Percentage point change in probability of changing pension contribution rate by different amounts associated with a 10% increase in earnings and a change in employer, 2005–12**

	≥1ppt increase in total pension contribution rate	≥2.5ppt increase in total pension contribution rate	≥1ppt decrease in total pension contribution rate	≥2.5ppt decrease in total pension contribution rate
<b>10% increase in earnings</b>				
Aged 22–29	1.02***	1.13***	–0.14	–0.16
Aged 30–39	–0.21	–0.05	0.48***	0.22
Aged 40–49	0.01	0.08	0.06	0.03
Aged 50–59	–0.60	0.08	0.41	–0.02
<b>Change employer</b>	0.102***	0.111***	0.117***	0.098***
<b>N</b>	22,993	22,993	22,993	22,993

Note: Private sector employees aged 22–59, 2005 to 2012. Each column shows the results from a single regression, which also includes age dummies and year dummies. \*\*\*, \*\* and \* denote that the effect is significantly different from zero at the 1%, 5% and 10% level respectively. Standard errors are clustered at the individual level.

Source: Annual Survey of Hours and Earnings.

Although we see little effect of earnings changes on pension contribution rates using the continuous outcome, it is still possible that some people increase their pension saving in response to earnings increases, but that this is masked by other individuals decreasing their pension saving after earnings increases. To explore whether this is the case, Table 2.4 shows the association between changes in earnings and binary variables denoting whether the individual increases or decreases their total pension contribution rate by at least 1% of earnings or by at least 2.5% of earnings over the course of five years. For those in their 20s, a 10% increase in real

earnings is associated with approximately a one in a hundred increase in the probability of increasing their total pension contributions by at least 1%, and by at least 2.5%, of earnings. This effect is statistically significant at the 1% level; however, the magnitude is still relatively small. For all other ages, increases in earnings do not increase the probability of increasing pension contributions by these percentages of earnings. The table also demonstrates that changing employer has an effect on the probability of increasing (and decreasing) pension contribution rates by at least 1% or 2.5% of earnings; however, these effects are even smaller.

Overall, the results in this section suggest that earnings changes do not have a large effect on changes in pension contribution rates between 2005 and 2012. Table A.1 in the appendix demonstrates that we also find essentially zero association between earnings changes and saving rates between 2019 and 2020, after the roll-out of automatic enrolment.

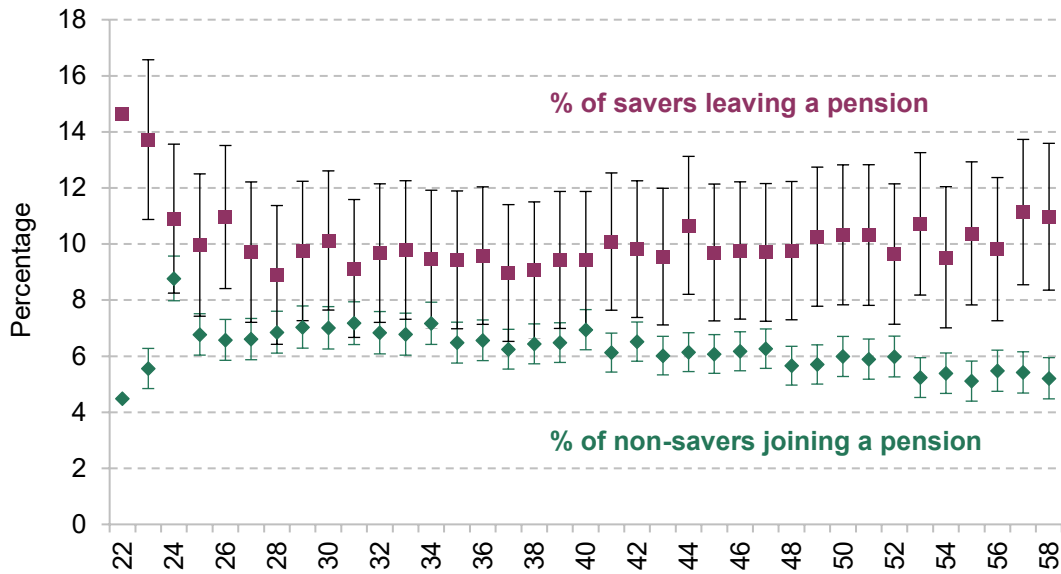
## 2.5 Effect of age on changes in pension saving

We now turn to analysing the effect of age on pension saving. In particular, we examine whether, even after controlling for earnings and job changes, people are more likely to join or leave a pension, or to change the proportion of pay they are saving, at some ages rather than others. For example, this could be due to ‘trigger ages’, after which point individuals increase their contribution rate in the run-up to retirement.

Figure 2.5 shows, for 2005–12, the estimated probabilities of joining and leaving a DC pension over the course of a year at each age for an individual who experiences no change in their real earnings and does not change employer. We can see that the probability of joining a pension increases, and the probability of leaving a pension decreases, during people’s early 20s. However, after this age, both probabilities are relatively constant with age, hovering at around 10% for leaving a pension and 7% for joining a pension. There is a slight decrease in the probability of joining a pension in the second half of working life, as it reaches 5% by age 59. This suggests that age only has a small effect on pension participation, particularly above age 25.

For the same period, Figure 2.6 shows the estimated probability of pension savers increasing and decreasing their pension contribution rate by at least 1% of earnings at each age. We again plot this for those who do not experience a change in earnings and do not change employer. The two probabilities vary little with age: the probability of a 1 percentage point increase in the contribution rate is around 12%, while the probability of an equal-sized decrease is around 8%, at all ages.

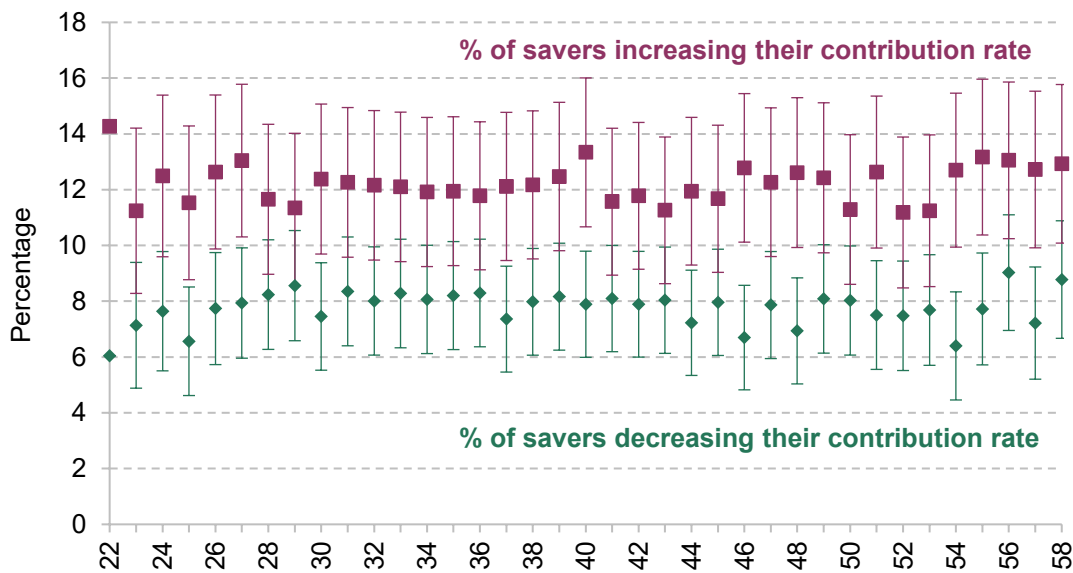
Figure 2.5. Association of age with joining or leaving a pension, 2005–12



Note: Private sector employees aged 22–59. The percentages are estimated using a regression on a sample of employees who do not change employer over the course of two consecutive years. The regression also includes a control for change in real earnings and year dummies. The graph shows the estimated effect of age with 95% confidence intervals.

Source: Annual Survey of Hours and Earnings.

Figure 2.6. Association of age with changing pension contribution rate by at least 1% of earnings, 2005–12



Note: Private sector employees aged 22–59. The percentages are estimated using regressions on a sample of employees who do not change employer over the course of two consecutive years. The regression also includes a control for change in real earnings and year dummies. The graph shows the estimated effect of age with 95% confidence intervals.

Source: Annual Survey of Hours and Earnings.

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Overall, we do not see any evidence of individuals changing their pension saving in a different way at any particular age. This suggests that there is no common ‘trigger age’ at which individuals start to give more attention to their pension saving. This result is also interesting given we are not controlling for other factors that may affect pension saving, such as children leaving home or paying off a mortgage or a student loan, which will also be correlated with age (and all of which our simple theoretical model suggests should lead to an increase in saving). In Chapter 4 we analyse in more detail how these events affect individuals’ pension saving.

## 2.6 Summary

In this chapter we have shown that changes in earnings have only a very small effect on private sector employees’ pension saving decisions, despite the strong theoretical reasons for them being linked. On the other hand, changes in employer are associated with substantial changes in pension saving, particularly pension participation. These effects have also been influenced by automatic enrolment, showing the important impact this has had on pension saving behaviour. Finally, we did not find evidence of age materially affecting pension participation or contribution rates after controlling for earnings and employer changes.

### 3. How do current tax incentives affect private sector employees' pension saving?

#### Key findings

- 1 The up-front tax incentive to save in a pension increases at the higher-rate tax threshold, since each extra pound saved in a pension saves a higher-rate taxpayer 40p of income tax, compared with 20p for basic-rate taxpayers.** We study whether the pension saving behaviour of private sector employees responds to this change in the tax price at the higher-rate threshold.
- 2 Workplace pension participation responds only slightly to the increase in the up-front tax incentive for pension saving at the higher-rate threshold.** Prior to automatic enrolment, if employees earning £60,000 received 20% up-front income tax relief on their pension saving (rather than 40%), then pension participation would fall by 1 percentage point, from 60% to 59%. This is only a very small change in participation for a large change in the up-front tax incentive.
- 3 Pension contribution rates also only respond mildly to this tax incentive.** Taking an employee earning £60,000 per year and contributing £3,000 per year into their pension, we find that prior to automatic enrolment they contribute only about £75 more into their pension per year because they receive up-front tax relief of 40% rather than 20% on pension saving.
- 4 If anything, pension saving has become even less responsive to this tax incentive since the roll-out of automatic enrolment.** This is consistent with automatic enrolment bringing more 'passive savers' into workplace pension saving.

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In this chapter we examine how private sector employees' workplace pension saving responds to tax incentives. In the UK, saving in a private pension is a tax-favoured form of saving. One argument for taxing private pension saving more lightly than other forms of saving is to incentivise individuals to save in such an illiquid form of saving – generally most people can only access their pension pot from the age of 55. This chapter seeks to provide evidence on the extent to which private sector employees respond to this incentive at the margin. This is particularly important evidence for evaluating the potential impact of any future reforms to the taxation of pension saving.

Generally, when thinking about the tax advantages of private pension saving, many people's first thought is that pension contributions are exempt from income tax ('up-front tax relief'). However, much of this up-front tax relief will be offset by the income tax charged on pension income when it is eventually received – although this will not be true for people who face a lower (or higher) income tax rate when they draw their pension income than they would have faced when making the pension contribution. Nevertheless, there are still clear tax advantages to pension saving – namely, the 25% tax-free lump sum, the fact that employer pension contributions are not liable for National Insurance contributions, and additional tax advantages for pension pots bequeathed at death.<sup>9</sup>

Although the up-front income tax relief on contributions may not be one of the principal ways in which private pension saving is tax advantaged, it is nevertheless the part of the tax treatment of pensions that we focus on for our analysis. This is because when an individual's marginal income tax rate increases, the up-front 'tax price' of saving an extra pound in a pension falls. That is, saving an extra pound in a pension today will save the individual more income tax today if they have a higher marginal tax rate, and since that extra pound saved today is unlikely to affect the tax rate they expect to face when in retirement, this is an incentive at the margin. Throughout this chapter, we focus on how pension saving changes at the higher-rate threshold. This is the point in the income tax schedule where the marginal income tax rate rises from 20% to 40%, at £50,270 in 2022–23 for employees in England and Wales.

To analyse whether employees' pension saving changes when the up-front tax price of pension saving changes at the higher-rate threshold, we use the Annual Survey of Hours and Earnings, the same dataset used for the analysis in Chapter 2. We analyse the periods 2005–12 and 2013–19 separately. This allows us to see whether the responsiveness of pension saving to tax incentives has changed with the roll-out of automatic enrolment. As in Chapter 2, we limit our analysis to 22- to 59-year-old employees in the private sector. Throughout, we focus on England and Wales, because Scotland has a different income tax schedule from the rest of the UK (and

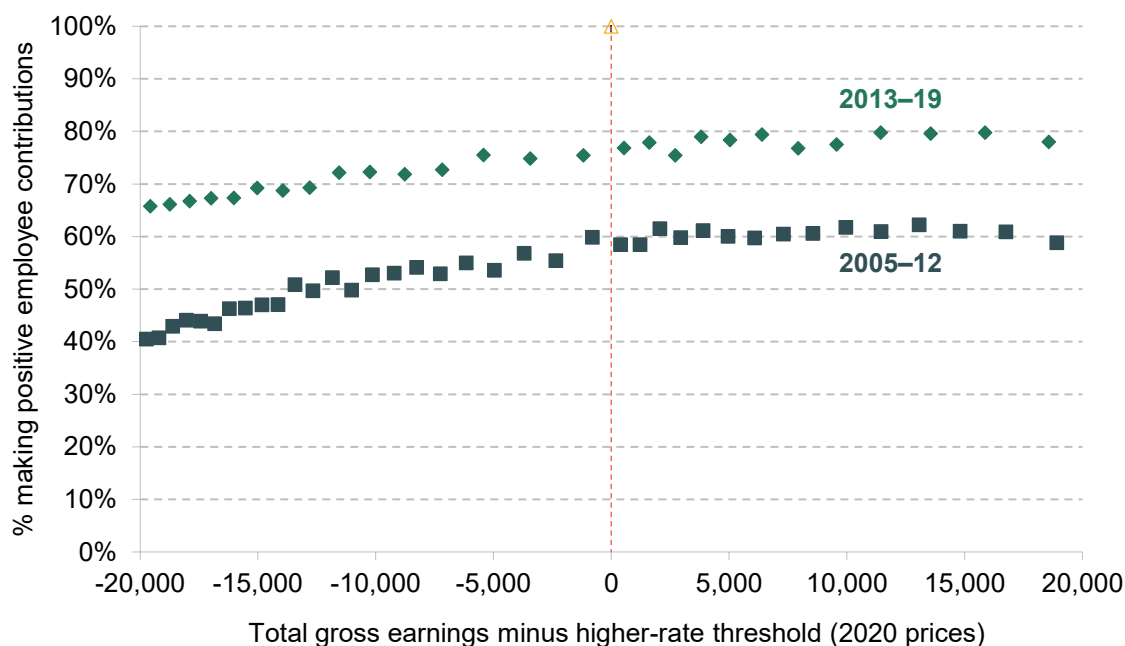
<sup>9</sup> For more details about the taxation of private pensions in the UK, see <https://ifs.org.uk/taxlab/taxlab-taxes-explained/taxation-private-pensions-explained>.

because Northern Ireland is not included in ASHE). We also examine how the responsiveness of pension saving to tax incentives differs by the type of pension people are saving in (defined benefit or defined contribution). More details on the results in this chapter are available in O'Brien (2023a). A report by Cribb and Karjalainen (2023) contains very similar analysis for the self-employed.

### 3.1 Effect of tax incentives on workplace pension participation

We start by looking at how responsive workplace pension participation is to tax incentives. All else equal, the incentive to save in a workplace pension for an individual earning slightly more than the higher-rate threshold is greater than that for a similar individual earning slightly less than the higher-rate threshold (HRT). To see this, note that for the individual earning more than the HRT, the first pound they save in a pension reduces their taxable income by £1, and reduces their income tax bill by 40p. In contrast, for the person earning less than the HRT, the first pound they save in a pension also reduces their taxable income by £1, but this reduces their income tax bill by just 20p. In other words, the first pound of pension saving costs 60p of current disposable income for individuals earning more than the HRT, but 80p of current disposable income for individuals earning less than the HRT.

**Figure 3.1. Workplace pension participation around the higher-rate tax threshold**



Note: Figure shows the percentage of private sector employees who are participating in a workplace pension, by bin of gross earnings. Quantile-spaced bins are selected to minimise integrated mean squared error.

Source: Annual Survey of Hours and Earnings.



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To see graphically whether employees are responding to this incentive to save in a workplace pension, Figure 3.1 shows the percentage of private sector employees making positive employee contributions by earnings relative to the value of the HRT. If employees were responding to this incentive to save, we would expect to see a discrete jump upwards in the proportion saving in a pension to the right of the HRT. However, there is clearly no discontinuity in pension participation at this point in either period. This suggests that private sector employees' pension participation decisions do not respond to this tax incentive.

We can also use regression analysis to estimate how responsive private sector employees' pension participation decisions are to tax incentives. This is a complementary approach to the graphical analysis above, exploiting the fact that ASHE is a longitudinal dataset, meaning that we can observe the same employee in different years. This also allows to quantify the degree of responsiveness more precisely.

To do this, we estimate the following econometric model:

$$(1) \quad D_{ijt} = \beta \ln(p_{it}) + \gamma \ln(y_{it}) + \delta X_{it} + \alpha_{ij} + \alpha_t + u_{ijt},$$

where  $D_{ijt}$  is a binary variable equal to 1 if the employee has positive employee pension contributions and 0 otherwise;  $p_{it}$  is the up-front tax price of pension saving;  $y_{it}$  is post-tax earnings;  $X_{it}$  are control variables, namely the square of age;  $\alpha_{ij}$  and  $\alpha_t$  are employee–employer and year fixed effects, respectively; and  $u_{ijt}$  is an idiosyncratic error term. The up-front tax price of pension saving is the amount of contemporaneous disposable income the employee forgoes by saving £1 into a pension; for example, it is 60p for a higher-rate taxpayer without a salary sacrifice agreement but 80p for a basic-rate taxpayer without a salary sacrifice agreement.

However, there is a concern with reverse causality with this methodology: higher pension saving can change the up-front tax price of pension saving (via changes in taxable income). Reverse causality can lead to bias in regression results; to address this, we use the method of instrumental variables. In particular, we instrument the up-front tax price of pension saving using the ‘first pound’ up-front tax price of pension saving – that is, what the tax price of pension saving would have been if the employee made no contributions to their workplace pension. For more technical details on how and why we do this, along with how exactly we calculate the tax price of pension saving, see the accompanying working paper (O’Brien, 2023a). Our sample is private sector employees earning between £30,000 and £70,000 in 2020 prices.

Essentially, this methodology relies on employees who we observe more than once at the same employer, and who we observe with gross earnings both above and below the higher-rate threshold. With these people, we see whether they are more likely to participate in their workplace pension when they earn more than the HRT than they do when they earn less than this

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amount, after controlling for the effect of earnings (among other control variables) on pension participation. The key parameter of interest from these regressions is the price elasticity (or price responsiveness), which we obtain by dividing our estimate of  $\beta$  by the proportion of employees in our sample whose employee contributions are strictly positive.

Table 3.1 shows the results from our regression analysis using data for 2005–12. Overall, we estimate a price elasticity of  $-0.032$  (shown in the last row), meaning that a 1% increase in the price of pension saving is associated with a 0.032 percentage point decrease in pension participation. This estimated elasticity is small and not significantly different from zero. To put this number into context, we can use it to calculate what would happen to private sector employees' pension participation above the HRT if they received 20% up-front tax relief rather than 40%. Since the price of pension saving falls by 25% (from 80p to 60p) at the threshold, we estimate that pension participation would be around 0.8 percentage points lower above the HRT under these circumstances, so it would go from around 60% (see Figure 3.1) to 59%. This is only a very small change in participation for a large change in the up-front tax incentive.

We also estimate how the responsiveness differs by type of pension (last three columns of Table 3.1). None of the estimated elasticities is significantly different from zero, implying that the responsiveness of pension participation is small no matter what type of pension private sector employees belong to.

**Table 3.1. Responsiveness of private sector employees' pension participation to tax incentives, 2005–12**

Estimated coefficient on:	Overall	Occupational DB	Occupational DC	Other DC
Log price of pension saving	-0.017 [0.016]	0.010 [0.015]	-0.018 [0.014]	-0.010 [0.014]
Log post-tax earnings	0.052*** [0.009]	0.030*** [0.008]	-0.006 [0.007]	0.025*** [0.008]
Observations	192,541	192,541	192,541	192,541
R <sup>2</sup>	0.836	0.828	0.701	0.758
Estimated price elasticity	-0.032	0.042	-0.185	-0.063

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Numbers in square brackets are robust standard errors. Regressions also control for age-squared, employee–employer fixed effects and year fixed effects. Sample includes private sector employees aged 22–59 with between £30,000 and £70,000 annual earnings (2020 prices).

Source: Authors' calculations using the Annual Survey of Hours and Earnings.

**Table 3.2. Responsiveness of private sector employees' pension participation to tax incentives, 2013–19**

Estimated coefficient on:	Overall	Occupational DB	Occupational DC	Other DC
Log price of pension saving	–0.001 [0.026]	0.043** [0.020]	–0.035 [0.024]	–0.010 [0.028]
Log post-tax earnings	0.046*** [0.015]	0.044*** [0.010]	–0.016 [0.013]	0.018 [0.015]
Observations	171,637	171,637	171,637	171,637
R <sup>2</sup>	0.689	0.823	0.716	0.717
Estimated price elasticity	–0.001	0.223	–0.179	–0.028

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Numbers in square brackets are robust standard errors. Regressions also control for age-squared, employee–employer fixed effects and year fixed effects. Sample includes private sector employees aged 22–59 with between £30,000 and £70,000 annual earnings (2020 prices).

Source: Authors' calculations using the Annual Survey of Hours and Earnings.

Table 3.2 shows analogous results for 2013–19, the period when automatic enrolment was being rolled out. We estimate an overall price responsiveness of essentially zero in this period, and also find no statistically significant negative responsiveness for any given type of pension. This is perhaps not surprising given the large impact that automatic enrolment was having on the workplace pension saving landscape during this period: the proportion of employees saving in a workplace pension rose dramatically, particularly for groups with lower pension participation originally (Bourquin, Cribb and Emmerson, 2020). As a result, pension participation rates now depend much less on earnings and other characteristics than before 2012.

## 3.2 Effect of tax incentives on workplace pension contribution rates

We now turn to analysing how the up-front tax relief on pension saving affects private sector employee contribution rates among those who are saving in a workplace pension. To show this graphically, we examine the degree of ‘bunching’ at the higher-rate threshold – that is, whether a particularly large proportion of employees are setting their pension contributions so that their taxable income is approximately equal to the HRT.

To understand why we look at this, consider a private sector employee with gross earnings above the HRT. To start with, each £1 contributed to their pension costs them 60p of contemporaneous disposable income (as they save 40p of higher-rate tax). However, as they

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increase their employee pension contributions, their taxable income falls. Once they contribute enough that their taxable income equals the HRT, each £1 contributed to their pension costs them 80p of contemporaneous disposable income (as they only save 20p of basic-rate tax). Since the price of pension saving changes discontinuously at this point, we would expect there to be an excess mass of employees saving such that their taxable income equals the HRT. And, more specifically, we would expect this excess mass to be larger if employees are more responsive to the tax incentive (Saez, 2010).

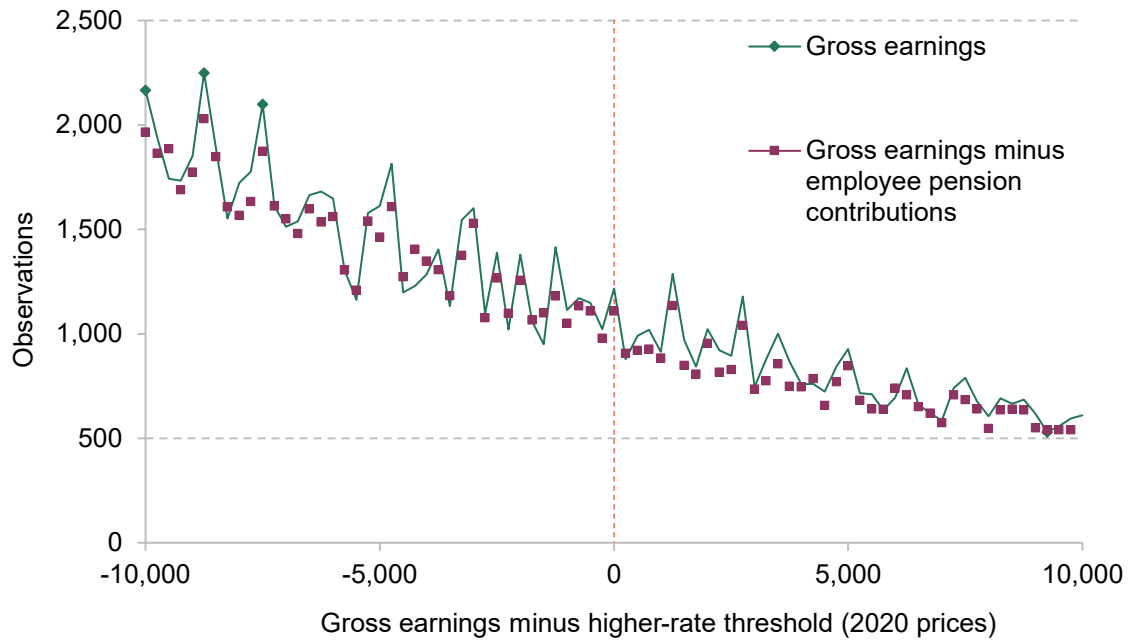
We cannot observe taxable income exactly in ASHE, but we can approximate it by subtracting employee pension contributions from gross earnings.<sup>10</sup> Of course, employees could also use other means to bunch their taxable income at the HRT – for example, they might be less likely to work overtime once they reach the HRT. Therefore, to see whether pension contributions in particular are responding, Figures 3.2 and 3.3 also plot the distribution of gross earnings. If private sector employees' pension saving in particular were responding to the tax incentive, we would expect a larger degree of bunching at the HRT for gross earnings minus employee pension contributions than for gross earnings alone.

Figure 3.2 shows no evidence of bunching in either gross earnings or gross earnings minus employee pension contributions for 2005–12, because there is no spike in the distributions at the dotted line at zero (the higher-rate threshold). In Figure 3.3 we plot the analogous series for 2013–19, and again we do not see any excess mass in the distribution at the higher-rate threshold. This suggests that private sector employees are not adjusting the amount they contribute to their pension very much in response to the tax incentive caused by the higher-rate threshold.

We can again use regression analysis to quantify more precisely the effect of the tax incentive at the higher-rate threshold on private sector employees' pension contribution rates. We restrict our sample to pension participants and estimate a similar model to equation (1), but we change the dependent variable to be the log of employee pension contributions. Again, the intuition for the regression is that we look at pension participants who we observe more than once at the same employer and with gross earnings above and below the HRT, and see whether their pension contributions increase substantially when they move above the HRT. The coefficient on the log price of pension saving,  $\beta$ , measures the responsiveness of pension contributions to the tax price; in other words, a 1% increase in the up-front tax price of pension saving leads to a  $\beta\%$  increase in pension contributions (among participants).

<sup>10</sup> We therefore approximate annual income with annual earnings. Data from the Survey of Personal Incomes suggest that earnings make up over 95% of income for over 80% of employees around the higher-rate threshold. Therefore, this approximation should not introduce a significant amount of measurement error.

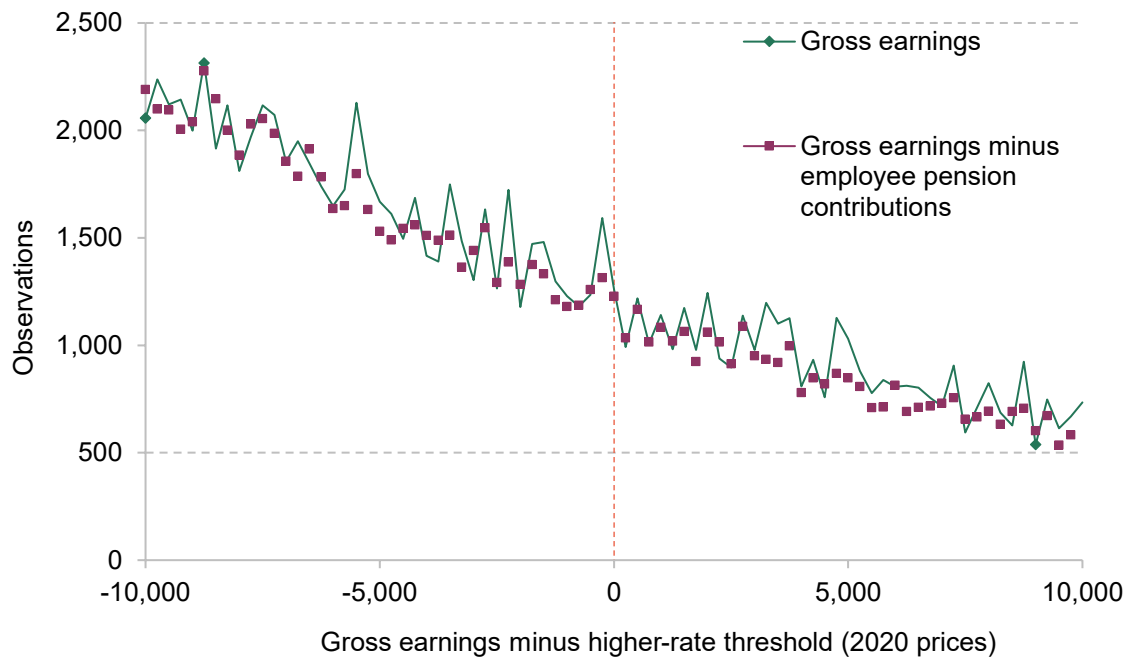
Figure 3.2. Distribution of gross earnings around the higher-rate tax threshold, 2005–12



Note: The figure shows the number of observations in bins of £250 among the sample of private sector employees aged 22–59, 2005–12.

Source: Annual Survey of Hours and Earnings.

Figure 3.3. Distribution of gross earnings around the higher-rate tax threshold, 2013–19



Note: The figure shows the number of observations in bins of £250 among the sample of private sector employees aged 22–59, 2013–19.

Source: Annual Survey of Hours and Earnings.

**Table 3.3. Responsiveness of private sector employees' pension contributions to tax incentives, 2005–12**

Estimated coefficient on:	Overall	By pension type
Log price of pension saving	–0.101*** [0.033]	
Log post-tax earnings	0.471*** [0.017]	0.471*** [0.017]
Log pension price * Occupational DB		–0.000 [0.036]
Log pension price * Occupational DC		–0.207*** [0.050]
Log pension price * Other DC		–0.199*** [0.045]
Observations	102,872	102,872
R <sup>2</sup>	0.846	0.847

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Numbers in square brackets are robust standard errors. Regressions also control for age-squared, employee–employer fixed effects and year fixed effects. Sample includes private sector employees aged 22–59 with between £30,000 and £70,000 annual earnings (2020 prices).

Source: Authors' calculations using the Annual Survey of Hours and Earnings.

Table 3.3 shows our regression results for the earlier period. We estimate a price responsiveness of –0.101, which is statistically significant at the 1% confidence level. We can put this number into context again by taking a private sector employee earning £60,000 per year and contributing £3,000 into their pension (in other words, they have an employee contribution rate of 5%, which is the average contribution rate at this point of the distribution). Our elasticity implies that they contribute only about £75 more into their pension per year because they receive up-front tax relief of 40% rather than 20% on pension saving. Again, this is only a small change in behaviour in response to a fairly hefty change in the up-front tax incentive.

We also examine how the responsiveness of pension contributions to the tax incentive varies by the type of pension in Table 3.3. We estimate a responsiveness of zero for DB pensions, while for DC pensions our estimated responsiveness is around –0.2. This is consistent with private sector employees in DC schemes having greater autonomy over their pension contribution rates than do those saving in DB schemes. However, even for employees in DC schemes, our estimated elasticities are still small – taking a private sector employee earning £60,000 and contributing £3,000 to their pension, an elasticity of –0.2 implies they contribute £150 more into their pension per year because they receive up-front tax relief of 40% rather than 20% on pension saving.

Table 3.4. Responsiveness of private sector employees' pension contributions to tax incentives, 2013–19

Estimated coefficient on:	Overall	By pension type
Log price of pension saving	–0.004 [0.053]	
Log post-tax earnings	0.672*** [0.026]	0.662*** [0.024]
Log pension price * Occupational DB		0.023 [0.069]
Log pension price * Occupational DC		–0.036 [0.064]
Log pension price * Other DC		–0.030 [0.055]
Observations	126,626	126,626
R <sup>2</sup>	0.876	0.876

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Numbers in square brackets are robust standard errors. Regressions also control for age-squared, employee–employer fixed effects and year fixed effects. Sample includes private sector employees aged 22–59 with between £30,000 and £70,000 annual earnings (2020 prices).

Source: Authors' calculations using the Annual Survey of Hours and Earnings.

Table 3.4 shows analogous regression results for 2013–19. Our estimated responsiveness in this period is much lower than in the earlier period, at just –0.004, and it is also not statistically significantly different from zero. The estimated elasticities for DC pensions are also much lower than in the earlier period and are not statistically significantly different from zero. Again, this can potentially be explained by the effect of automatic enrolment. Many people brought into pension saving by automatic enrolment are likely to be more passive savers who pay less attention to their pension saving, and so would be less likely to change their contributions in response to the incentive caused by the higher-rate threshold.

### 3.3 Summary

In this chapter we have found that private sector employees' pension saving responds only very modestly to the change in the up-front tax incentive for pension saving at the higher-rate threshold. In particular, we find little evidence of pension participation responding to the lower up-front tax price of pension saving at the higher-rate threshold in either 2005–12 or 2013–19. When it comes to contributions, we do find that they increase slightly in response to the higher-rate threshold prior to automatic enrolment being introduced, but the magnitude of the change is

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very small. However, in 2013–19, after automatic enrolment started to be rolled out, the responsiveness of contributions falls, consistent with automatic enrolment bringing more passive savers into workplace pension saving. One caveat to these results is that, while they might give a good indication of what would happen to employees' pension saving in response to small reforms to up-front tax relief, larger or more radical reforms to pensions taxation might lead to much larger responses in pension saving. This is because – amongst other things – they might lead to changes in employer or advisor behaviour, or pronounced shifts in the perception of how worthwhile it is to save in a pension.



## 4. The effects of changes in household circumstances on pension saving for private sector employees

### Key findings

- 1 We analyse how pension saving is affected by different life events – namely, changes in the number of dependent children at home, housing tenure, marital status, and whether someone’s partner is in paid work or not. We find that these **significant events in people’s lives generally have little impact on private sector employees’ pension participation and contribution rates.**
- 2 **This is despite most of these life events being associated with large changes in spending commitments, income or the cost of living, making them a good time to change pension saving.** For example, paying off your mortgage is associated with a large increase in disposable income – and therefore we might think many people would want to put more in their pension after this point than before it.
- 3 We do find that **pension contributions tend to increase by around 0.4% of pay *more* when people move from renting to having a mortgage (which in recent years has been associated with a *decrease* in spending needs and therefore more disposable income).** This could also be consistent with no longer needing to save for a deposit.
- 4 **Pension contributions tend to increase by around 0.3% of pay *less* after the arrival of a first child (which is typically associated with an *increase* in spending needs).** The magnitude of this effect is slightly larger for women, at 0.5% of pay, than for men (for whom the effect is 0.2% of pay and not statistically significantly different from zero).

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In this chapter we examine how changes in household circumstances, or ‘life events’, affect private sector employees’ workplace pension saving. As explained in the introductory chapter, a simple economic model suggests that individuals should generally save more for retirement when their income is higher and when their spending needs are lower if they want to smooth living standards over their life. We have already analysed the effect of changes in earnings on pension saving in Chapter 2, but changes in household circumstances can also lead to significant changes in household resources and spending needs.

We analyse four types of life events in this chapter. The first is changes in the number of dependent children in the household. Given the large expenses involved in bringing up children, there are good reasons for individuals to save less for retirement when they have children in their home, and to make up for this by saving more before children arrive and after they have left home, as pointed out in Crawford, O’Brien and Sturrock (2021).

The second type of life event is changes in an individual’s housing situation. In the UK, most people purchasing a home use a deposit and a mortgage, which leads to large changes in the amount they have to spend on housing over their lifetime. In particular, people’s housing costs typically increase when they stop living with their parents, decrease when they first get on the housing ladder and go from renting to paying mortgage repayments (at least during the period of low interest rates we analyse, 2010–20, when mortgage payments tended to be lower than rental payments), and fall again when they finish paying off their mortgage.

The third type of life event is changes in people’s marital status. Getting married or leaving a marriage will have a large impact on both people’s household resources and their individual spending needs, which may be expected to affect pension saving. Of course, changes in marital status could also affect people’s retirement plans and life plans more broadly, so exactly how these changes might affect pension saving is more ambiguous a priori. Finally, we also examine whether changes in whether someone’s partner is in employment affect pension saving. When someone’s partner starts working, this will increase the total income available to the household, and this may allow the individual to put more money away into their own pension.

To analyse how these life events affect pension saving, we cannot use the same dataset as in the rest of this report, the Annual Survey of Hours and Earnings. This is because ASHE is a survey completed by employers, and so does not contain information on the employee’s household circumstances. Instead, we use the UK Household Longitudinal Study (UKHLS; also known as Understanding Society), which is a longitudinal survey of around 40,000 UK households. UKHLS contains detailed information on individual and household characteristics, meaning we can observe the life events we are interested in, together with information on workplace pension saving in every even wave (i.e. every other year; questions on workplace pension saving are not asked in odd waves). Despite the fact that UKHLS is a survey completed by individuals, the

pension saving information is generally of good quality and matches well with the patterns we see in ASHE (O'Brien, 2023b). One issue with the data on pension saving in UKHLS that we have uncovered is that there was a routing error for the question on the type of workplace pension people are saving in (i.e. whether it is a defined benefit or defined contribution scheme). For this reason, we do not split our analysis by pension type in this chapter. As in the rest of the analysis in this report, we focus on 22- to 59-year-old employees working in the private sector, and we use all even waves of UKHLS up to and including wave 10, meaning our analysis period covers 2010–20.<sup>11</sup>

### 4.1 Cross-sectional relationship between household circumstances and pension saving

We begin by comparing how pension saving and household circumstances are related in the cross section. Table 4.1 shows the overall level of workplace pension participation, as well as the average employee pension contribution rate among participants, for subgroups of our analysis sample with different household characteristics. Overall, 57% of our sample are enrolled in a workplace pension and, conditional on enrolment, the average employee contribution rate is just under 5% of pay.<sup>12</sup> Pension participation is slightly higher among men, at 60%, than among women, who have a participation rate of 53%, and the average employee contribution rate is also higher among men than women. For this reason, and because some life events, such as having children, are found to have different effects on men and women in other contexts (see Costa Dias, Elming and Joyce (2016)), we also conduct our main analysis separately for men and women.

Pension participation and contribution rates also differ significantly by household circumstance. For example, pension participation rates are under 50% for renters and people living with their parents, but over 60% for homeowners, who also have higher average contribution rates conditional on participation. In addition, married employees have higher pension participation rates and pension contribution rates than unmarried employees, with single employees who have never married having the lowest average contribution rates. Similarly, employees who have a partner in paid work have a higher participation rate than employees without a partner in paid

<sup>11</sup> Note that this aggregates years before and after the roll-out of automatic enrolment, which is necessary to have a large enough sample size for our analysis.

<sup>12</sup> In Understanding Society, respondents are asked their pension contribution rate as a proportion of (total) pay. However, it is possible that some respondents are unaware that their pension contribution rate is actually calculated as a proportion of pensionable pay, which may not equal total gross pay.

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work. On the other hand, employees with a dependent child in their household have very similar pension participation and contribution rates to employees without a child in the household.

Some of these differences in pension saving by household circumstances are consistent with people changing their pension saving over the life cycle in response to changes in spending needs and household resources. For example, renters have higher spending needs than homeowners, all else equal, and renters are less likely to be participating in a workplace pension, and save less conditional on participation, than homeowners.

**Table 4.1. Pension participation and average employee contribution rates, by household circumstance, 2010–20**

Characteristic	Pension participation (%)	Average employee contribution rate among participants (% of pay)
All	57	4.86
Men	60	4.98
Women	53	4.67
Own outright	61	5.85
Mortgage	65	5.11
Rent/other	48	4.01
Live with parents	47	4.18
Married / civil partner	61	5.10
Living as couple	52	4.62
Widowed/divorced/separated	54	4.90
Never married	51	4.28
No child in household	56	4.88
Dependent child in household	57	4.84
Partner not in paid work	53	4.65
Partner in paid work	60	5.01

Note: Sample contains private sector employees aged 22–59.

Source: Understanding Society.

However, other drivers could also explain the patterns in Table 4.1. In particular, there could be other differences between individuals that are driving both their pension saving decisions and their household circumstances. For example, perhaps renters tend to be people who have a lower

preference for saving, which could drive both their lower pension saving rates and the fact that they are renting in the first place (since they are less likely to save for a deposit).

Therefore, in the rest of this chapter, we focus on how *changes* in household circumstances are associated with *changes* in pension saving. By focusing on within-individual changes in this way, we difference out any time-invariant differences in saving behaviour such as those arising from fixed individual preferences for saving. Therefore, analysing changes will give us a better idea of how pension saving changes over the life cycle.

## 4.2 Effect of changes in household circumstances on pension participation decisions

In this section we examine how changes in household circumstances are associated with changes in pension participation.

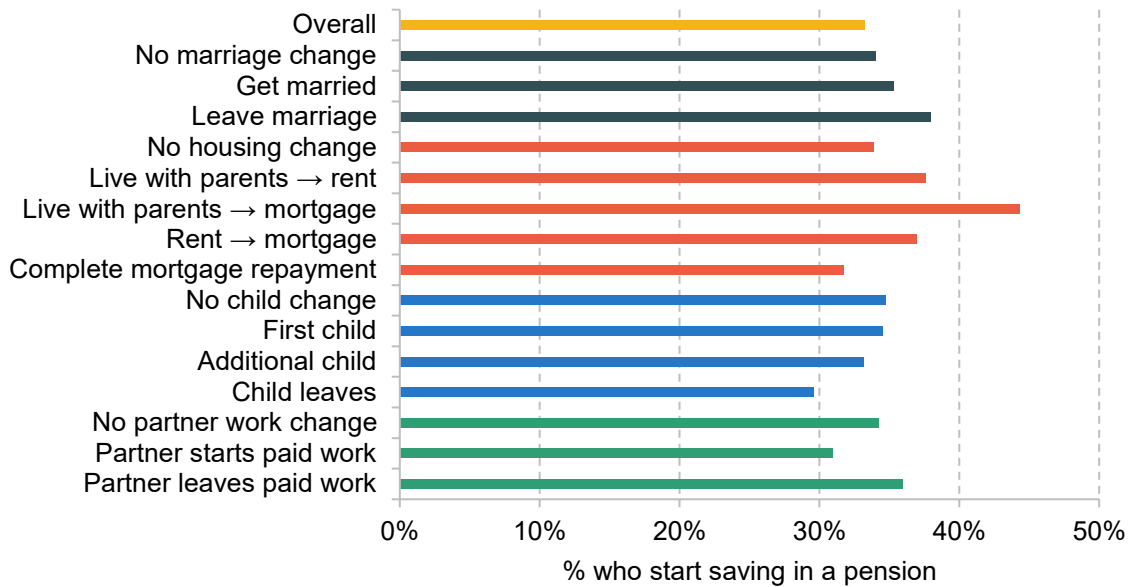
In Appendix Table A.2 we document the number of observations we have for each life event in our analysis sample. To define each life event, we compare an employee's household circumstance in the data with that from two years previously.<sup>13</sup> Overall, even when splitting the sample by sex, we observe hundreds of observations for each life event.

Figure 4.1 shows how the percentage of private sector employees who start saving in a workplace pension over the course of two years varies by life event. As in Chapter 2, we calculate these percentages among the sample of employees who are not participating in a workplace pension in the base period (two years ago). Figure 4.2 shows the analogous graph for pension leaving rates. Clearly, the pension joining rates are much higher than the leaving rates – this is because our sample period, 2010–20, includes the period when automatic enrolment into workplace pensions was being rolled out, which led to a large increase in pension participation among private sector employees (Cribb and Emmerson, 2020).

<sup>13</sup> There are a few small details to note about how we define the life events. First, employees who experience a change in circumstance outside of our defined life events are also included in the regression analysis in an 'other' category; however, we do not report the estimated coefficient on this category at any point. Second, we define employees as living with parents if they live in a residence that neither they nor their partner owns or rents. Third, people who do not have a partner are classified in the same group as those with a partner not in work.

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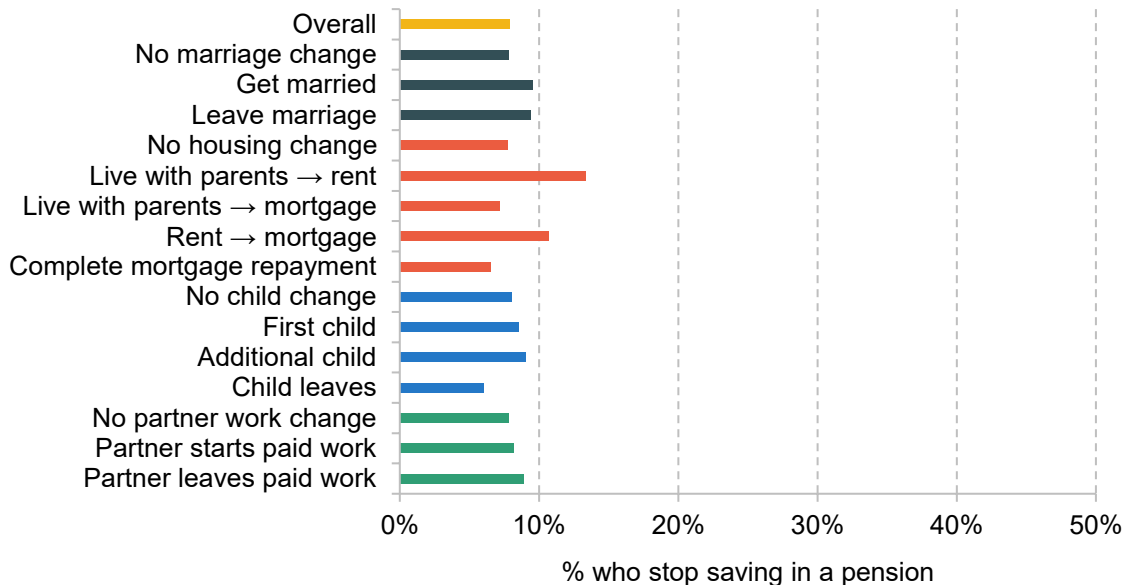
**Figure 4.1. Percentage of private sector employees who start saving in a workplace pension over the course of two years, conditional on not saving in a workplace pension originally, by change of circumstance**



Note: Sample contains observations on private sector employees in consecutive even waves of the data who are aged 22–59.

Source: Understanding Society.

**Figure 4.2. Percentage of private sector employees who stop saving in a workplace pension over the course of two years, conditional on saving in a workplace pension originally, by change of circumstance**



Note: Sample contains observations on private sector employees in consecutive even waves of the data who are aged 22–59.

Source: Understanding Society.

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The percentage of private sector employees joining a workplace pension over the course of two years varies slightly across different life events. For example, the joining rate is higher among private sector employees whose marriage ends (due to separation, divorce, or death of a spouse) (38%) than among those with no change in marital status (34%). There is an even larger difference in joining rates between the group that go from living with their parents to having a mortgage (44%) and the group with no change in housing tenure (34%). Finally, those who have a child leave their household have a slightly lower pension joining rate (30%) than those with no change in the number of dependent children in their household (35%).

There is also some variation in the share of employees leaving a workplace pension across the life events. The largest difference is that 13% of private sector employees who start renting after previously living with their parents leave their workplace pension, compared with just 8% of private sector employees with no change in their housing tenure. There is also a slightly higher pension leaving rate among employees who go from renting to having a mortgage (11%) than among those whose housing tenure does not change (8%), and a slightly lower pension leaving rate among those employees who have a child leave their household (6%) than among those with no change in the number of dependent children in their household (8%).

However, one should not draw any firm conclusions about how different individual life events affect pension saving from Figures 4.1 and 4.2. This is because the different life events are almost certainly correlated with each other: for example, people who get married over the course of two years are also more likely to have a child, buy a house, and have a change in whether their partner is working or not. In addition, people who get married might also experience a change in their earnings (because they might change their hours) or change their employer (for example, if they move region and have to find a new job). On top of this, the ages at which these life events tend to happen can also differ, and age can also affect pension saving. For example, Table A.2 shows that, unsurprisingly, having a child tends to happen significantly before an individual experiences one of their children leaving the household, and that paying off a mortgage tends to happen at a much older age than moving out of their parents' house.

For these reasons, we use multivariate regression analysis to identify how each life event is associated with changes in pension participation, after controlling for all the other life events, changes in earnings, changes in hours, changes in employer and job, and age. We also control for the year of interview to ensure any longer-run trends in pension saving (such as the effect of automatic enrolment) do not bias our results. The regression results across everyone are presented in Table 4.2, with the analysis split by sex in Table A.3.

The main takeaway from Table 4.2 is that most life events do not have a big effect on the percentage of private sector employees joining or leaving a pension. This is consistent with the

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rest of the evidence from this report, that pension saving decisions are sticky and inert and respond little to changes in earnings or changes in spending needs.

**Table 4.2. Effect of different changes in circumstances on the probabilities of joining and leaving a workplace pension over the course of two years**

Life event	Join workplace pension	Leave workplace pension
Get married	0.007 [0.019]	0.018* [0.010]
Leave marriage	0.030 [0.033]	0.028 [0.019]
First child born	-0.007 [0.021]	-0.020** [0.009]
Additional child born	-0.012 [0.018]	-0.008 [0.009]
Child leaves household	-0.022 [0.014]	-0.004 [0.007]
Live with parents → rent	0.026 [0.027]	0.010 [0.021]
Live with parents → mortgage	0.043 [0.036]	-0.026 [0.018]
Rent → mortgage	0.017 [0.028]	0.008 [0.014]
Complete mortgage repayment	-0.013 [0.029]	-0.018* [0.011]
Partner starts paid work	-0.011 [0.016]	0.001 [0.009]
Partner leaves paid work	-0.013 [0.016]	-0.001 [0.008]
Observations	12,852	16,255
Baseline share	0.333	0.079

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Standard errors in square brackets. Sample contains observations on private sector employees in consecutive even waves of the data who are aged 22–59. Regressions also control for change in log earnings, change in hours, and whether the employee changed employer or job, and include year and (five-year) age dummies.

Source: Understanding Society.



However, some life events are statistically significantly associated with the probability of joining or leaving a pension. But the estimated impacts are small. For example, getting married is associated with an increase in the probability of leaving a workplace pension by 1.8 percentage points, compared with a baseline probability of 8%. Having a first child is associated with a reduction in the probability of leaving a workplace pension by 2 percentage points. Paying off a mortgage is also associated with a reduction in the pension leaving probability by 1.8 percentage points, principally driven by men, which would be consistent with people saving more for their pension after a reduction in their housing costs.

There are also some other gender differences, some of which are fairly sizeable, although the exact magnitude of our results is less precise due to a lower sample size when splitting the sample by sex. We find men are less likely to leave a pension when a child leaves home, while women are more likely to do so. Furthermore, men are around 9 percentage points more likely to join a pension on divorce, separation or widowhood, compared with a baseline probability of 36%, while we do not see any significant change in women's pension participation decisions after this event. Women are, however, around 11 percentage points more likely to join a pension when they stop living with their parents and get a mortgage – this is likely a period when spending needs rise, so in some ways it is surprising that women are more likely to increase their pension saving at this point.

### 4.3 Effect of changes in household circumstances on changes in pension contribution rates

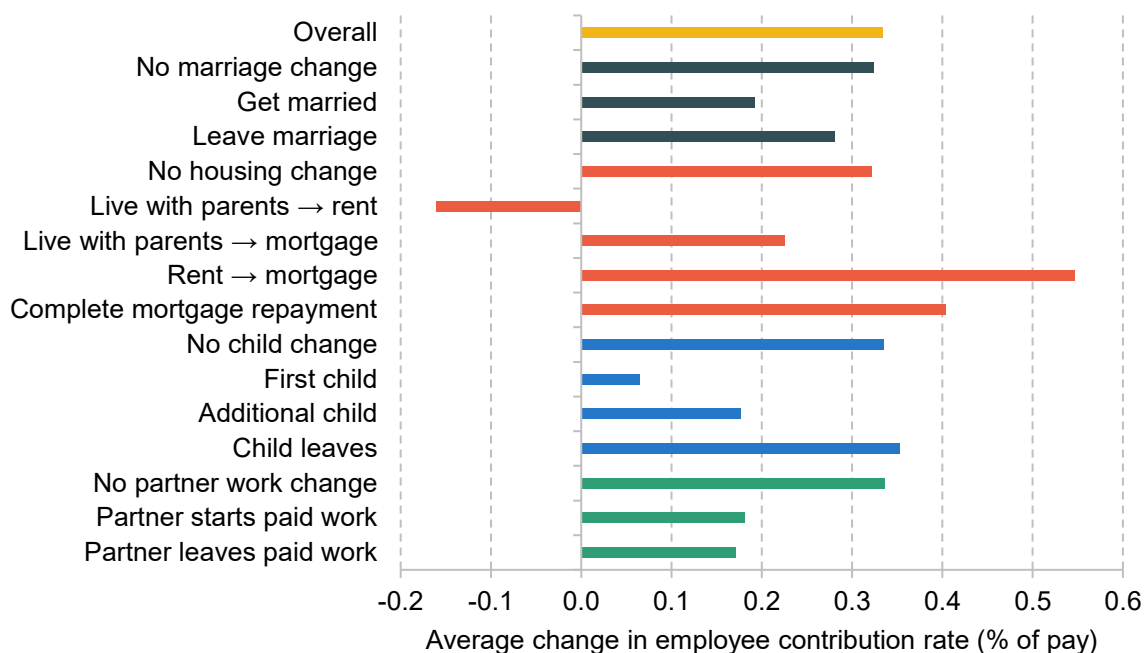
Finally, we turn our attention to private sector employees who continue to save in a workplace pension, and analyse how life events affect their employee pension contribution rate.

Figure 4.3 shows graphically how the average change in the employee pension contribution rate, over the course of two years, varies depending on how people's household circumstances have changed. Overall, note that employee contribution rates increase on average for nearly all groups. This is because, conditional on remaining enrolled in a pension, people tend to increase their contribution rates gradually as they age (Crawford and O'Brien, 2021).

The two largest differences in Figure 4.3 are that there are much lower average increases in employee pension contribution rates for people who have a first child, and who start renting, compared with the base groups with no change in children or housing tenure. In fact, those who start renting actually decrease their contribution rates by around 0.16% of earnings. Getting married and transitioning from living with parents to getting a mortgage are also associated with

slightly lower average increases in pension contribution rates, while moving from renting to having a mortgage is associated with a slightly higher average increase in pension contribution rates.

**Figure 4.3. Average percentage point change in employee pension contribution rate (% of pay) over two years among participants, by change in circumstance**



Note: Sample contains observations on private sector employees who are enrolled in a workplace pension in consecutive even waves of the data and aged 22–59.

Source: Authors' calculations using Understanding Society.

As before, since many of the life events are likely correlated with each other, as well as with other changes, we use multivariate regression analysis to calculate the association of each life event with changes in contribution rates, holding fixed other life events and changes in earnings, hours, employer and job, as well as age and time effects. The aggregate results are presented in Table 4.3, with the results split by sex in Table A.4.

Overall, most life events are not significantly associated with changes in contribution rates, as before, again consistent with stickiness in workplace pension saving. However, the birth of a first child is associated with a lower average change in the employee pension contribution rate by 0.33% of pay, with a slightly larger decrease for women than for men. This is consistent with the predictions of the model in Crawford, O'Brien and Sturrock (2021), as having a child is associated with an increase in spending needs; however, the magnitude of the change in contributions at this point is larger in the model than in the data.

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**Table 4.3. Effect of different changes in circumstances on the average change in employee contribution rate over two years, conditional on saving in a workplace pension**

Life event	Effect on average employee pension contribution rate (% of pay)
Get married	0.017 [0.141]
Leave marriage	-0.088 [0.256]
First child born	-0.325** [0.134]
Additional child born	-0.136 [0.129]
Child leaves household	0.010 [0.105]
Live with parents → rent	-0.107 [0.332]
Live with parents → mortgage	0.220 [0.3257]
Rent → mortgage	0.409** [0.174]
Complete mortgage repayment	0.203 [0.167]
Partner starts paid work	-0.068 [0.124]
Partner leaves paid work	-0.158 [0.119]
Observations	9,757
Baseline share	0.335

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Standard errors in square brackets. Sample contains observations on private sector employees in consecutive even waves of the data who are aged 22–59. Regressions also control for change in log earnings, change in hours, and whether the employee changed employer or job, and include year and (five-year) age dummies.

Source: Understanding Society.

Transitioning from being a renter to having a mortgage is associated with an increase in contribution rates of 0.41% of pay, compared with those with no change in housing tenure, with a larger increase for men than for women. Most people might have more money available for

pension saving at this point, as they no longer need to save for a deposit, and because mortgage repayments were typically lower than rental payments during our analysis period (2010–20; see Cribb (2019)). Therefore, increasing pension contributions alongside this life event is consistent with a smoothing of living standards over the life cycle.

There are also interesting gender differences in response to changes in partner's employment status. Having a partner who starts paid work is associated with a smaller increase in the average employee pension contribution rate by 0.30% of pay for men, but a bigger increase in this rate by 0.37% of pay for women. This life event should increase household income and leave the individual with more income available for pension saving, all else equal, so a priori we might have expected a higher average increase in employee contributions. The response for men is not consistent with this, although this could be because their partners tend to start work in response to money problems, for example. Nevertheless, we do see that men have a lower average increase in contributions when their partner leaves paid work, which would be consistent with the life-cycle model.

## 4.4 Summary

The life events we have focused on in this chapter have typically been found to have little impact on private sector employees' pension participation and contribution rates. This is consistent with evidence from earlier chapters about pension saving being sticky and driven more by defaults and nudges than by careful consideration about how to smooth living standards. One caveat is that our analysis in this chapter has focused on the period 2010–20, during which time automatic enrolment was rolled out and an increasingly 'passive' group of savers were brought into workplace pension saving.

Nevertheless, there is evidence that some life events do affect pension saving in the way that economic theory would predict. For example, we find that pension contributions tend to increase by more when people move from renting to having a mortgage (which is typically associated with a decrease in spending needs), while pension contributions tend to increase by a lower amount after the arrival of a first child (which is typically associated with an increase in spending needs). There is also evidence that women are more likely to start saving in a pension when they stop living with their parents and get on the housing ladder, consistent with them no longer needing to save for a deposit at this point.

## 5. Conclusion

The retirement saving landscape in the UK has changed significantly over the last few decades. Private sector employees now bear even more responsibility for ensuring they have enough saved for retirement, due to the near extinction of private sector employers offering defined benefit pensions and the removal of the earnings-related component to the state pension with the introduction of the New State Pension in 2016. As a result of these changes, there is considerable concern among policymakers and consumer groups that many are not saving enough to ensure a good standard of living in retirement, even after the recent success of automatic enrolment in boosting pension enrolment (Pensions Policy Institute, 2019; Finch and Pacitti, 2021). Discussion among policymakers and industry has therefore turned to further adjustments to automatic enrolment and other policies with the aim of increasing pension saving among employees. This report provides evidence on how employees are currently making their pension saving decisions, indicating which types of policies might be particularly effective in improving retirement outcomes.

In particular, this report highlights that employees' pension saving decisions are generally inert and are therefore liable to be highly driven by default options. While economic theory might suggest that people should change their pension contributions over their lifetime in response to changes in income and spending needs, we generally find very little responsiveness of pension saving to changes in earnings or other life events that might affect people's cost of living. Given how important defaults and nudges are for determining pension saving (see Madrian (2014)), these findings present a potential opportunity for policies not only to increase the total amount of pension saving done over an employee's lifetime, but also to influence when they are doing this saving.

The importance of nudges in determining pension saving behaviour is demonstrated by the effectiveness of automatic enrolment in reducing the share of private sector employees who stop saving in a workplace pension when they change employer. Prior to 2012, we find that 54% of those who changed employer between one year and the next stopped saving in a workplace pension, while this share has fallen to 27% between 2019 and 2020. Similarly, the share of employees who start saving in a workplace pension after changing employer is much bigger between 2019 and 2020 than between 2005 and 2012. This illustrates that the default for employers to enrol their new (eligible) employees into their workplace pension is leading many more employees to maintain their pension saving habits when moving between jobs.

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However, although automatic enrolment has been a success in increasing pension participation among private sector employees, there is still concern that many – particularly middle earners – are not devoting a sufficient share of their income to their workplace pension. How best to increase contribution rates is therefore an active policy debate.

One suggested solution is that of ‘auto-escalation’ (see, for example, Thaler and Benartzi (2004)) – that is, for default contribution rates to increase alongside increases in earnings. While there are good theoretical reasons for such a policy (Crawford, O’Brien and Sturrock, 2021), we find very little evidence that private sector employees are currently increasing their pension contribution rates when they receive an increase in earnings. Auto-escalation would, therefore, have scope for improving both the amount and timing of employees’ pension contributions, although whether this should be legislated for, or whether employers should instead be encouraged to implement it themselves into their benefits packages, is an open question. For example, one option would be to encourage employees to decide actively what share of future earnings increases they would like to see go into their pension in advance.

It may also be possible to nudge employees into changing their pension saving in response to other changes in their circumstances. For example, people might be particularly amenable to putting more money into their pension after paying off their mortgage or their student loan, as they can increase their pension saving at this point while maintaining their living standards. However, we see only limited evidence of this. One policy option to encourage people to save more at this time would be for mortgage providers to ask their customers in advance what share of their mortgage repayments they would like to divert into their pension when their mortgage term ends and make it as easy as possible to achieve this. In addition, by integrating student loans information into automatic enrolment, employees’ pension contribution rates could by default be increased automatically at the point the loan is paid off.

Tax incentives are another way in which the government can encourage pension saving. Currently, pension saving in the UK is heavily subsidised – for example, through the 25% tax-free lump sum and the fact that employer pension contributions are not liable for either employer or employee National Insurance contributions at any point. We estimate that people’s pension saving behaviour responds little to changing incentives around the higher-rate threshold, even though saving (or saving more) is considerably more attractive for higher-rate taxpayers. Overall, our results suggest that further increasing tax incentives as a way to boost workplace pension saving may not be an effective way to encourage more employees to save for their retirement, though our work does not provide evidence for how people would respond to substantial changes in the structure of pensions taxation.

The number of higher-rate taxpayers will increase in the coming years due to the planned freeze in the higher-rate threshold until 2028. Given our evidence implies that relatively few of those

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brought into paying higher-rate tax are likely to respond by saving more, many could benefit from a form of auto-escalation with higher default (or minimum) employee contribution rates for higher-rate taxpayers. As with most increases in pension saving, this would mean less tax revenue now for the exchequer, although more revenue in the future as people draw on their pensions and pay income tax at that point.

# Appendix

## Specifications

Here we briefly outline the specifications we use for our analysis in Chapter 2.

In Section 2.3 we estimate the effect of changes in earnings on pension participation. To do this, we estimate the following equation using ordinary least squares (OLS):

$$\Delta s_{it} = \zeta + \sum_{a=22-29}^{50-59} \delta_a \Delta \ln(y_{it}) + \gamma_t + \sum_{\alpha=23}^{59} \omega_{\alpha} + \varepsilon_{it}$$

where  $s_{it} = 1$  if employee  $i$  is participating in a workplace pension in wave  $t$  and zero otherwise, and  $\Delta$  refers to the change over the course of a year, i.e.  $\Delta s_{it} = s_{it} - s_{i,t-1}$ ;  $y_{it}$  denotes the employee's earnings;  $a \in \{22-29, 30-39, 40-49, 50-59\}$  is the employee's age group;  $\alpha$  is the employee's age (in years);  $\gamma_t$  are year fixed effects; and  $\varepsilon_{it}$  is an idiosyncratic error term. We cluster standard errors at the individual level.

We use a very similar specification in Section 2.4 to estimate the effect of changes in earnings on pension contribution rates, but we change the dependent variable to be the percentage point change in contribution rates between two years, and we include a dummy variable for whether the employee changed employer (rather than estimating separate equations for those who did and did not change employer).

In Section 2.5 we estimate how age affects pension saving. To do this, we estimate the following equation using OLS:

$$\Delta D_{it} = \zeta + \sum_{\alpha=23}^{59} \omega_{\alpha} + \gamma_t + \beta \Delta \ln(y_{it}) + \varepsilon_{it}$$

where  $\Delta D_{it}$  is a dummy variable indicating the change of interest, and the other variables are defined as above. We report the estimates of  $\zeta + \omega_{\alpha}$  for each age (and just  $\zeta$  for age 22, since this is the base group in the regression).



## Appendix tables

Table A.1. Percentage point change in pension contribution rate (% of pensionable pay) associated with a 10% increase in real earnings and a change in employer, 2019–20

	Total contribution	Over one year	
		Employer contribution	Employee contribution
<b>10% increase in earnings</b>			
Aged 22–29	0.025	–0.013	0.038***
Aged 30–39	–0.023	–0.036**	0.013
Aged 40–49	–0.028	–0.049**	0.021*
Aged 50–59	0.087**	0.031	0.056***
<b>Change employer</b>	–0.048	–0.003	–0.044
N	32,648	32,648	32,648

Note: Private sector employees aged 22–59, 2019–20. All columns refer to changes over consecutive years. Regressions also include age dummies and year dummies. \*\*\*, \*\* and \* denote that the effect is significantly different from zero at the 1%, 5% and 10% level respectively. Standard errors are clustered at the individual level.

Source: Annual Survey of Hours and Earnings.

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Table A.2. Number of observations and average age for each life event

Life event	Observations, men	Observations, women	Average age
No change in number of dependent children	13,184	12,102	43
First child born	700	494	35
Additional child born	819	570	36
Child leaves household	1,438	1,372	48
No change in marital status	15,148	13,557	43
Get married	730	660	37
Leave marriage	217	256	43
No change in housing tenure	13,867	12,399	43
Live with parents → rent	378	328	35
Live with parents → mortgage	310	304	36
Rent → mortgage	297	257	36
Complete mortgage repayment	313	310	51
No change in partner work status	13,466	12,485	43
Partner starts paid work	1,318	838	40
Partner leaves paid work	1,159	1,016	42

Note: Sample contains observations on private sector employees in consecutive even waves of the data who are aged 22–59.

Source: Understanding Society.

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**Table A.3. Effect of different changes in circumstances on the probabilities of joining and leaving a workplace pension over the course of two years for men and women**

Life event	Join workplace pension		Leave workplace pension	
	Men	Women	Men	Women
Get married	0.007 [0.028]	0.012 [0.026]	0.018 [0.014]	0.020 [0.016]
Leave marriage	0.092* [0.052]	-0.006 [0.043]	0.015 [0.028]	0.040 [0.028]
First child born	-0.044 [0.028]	0.032 [0.034]	-0.016 [0.012]	-0.023 [0.014]
Additional child born	-0.010 [0.024]	-0.028 [0.026]	0.002 [0.012]	-0.013 [0.015]
Child leaves household	-0.029 [0.021]	-0.017 [0.018]	-0.021** [0.008]	0.022* [0.013]
Live with parents → rent	0.005 [0.036]	0.046 [0.041]	-0.002 [0.025]	0.020 [0.033]
Live with parents → mortgage	-0.024 [0.044]	0.110** [0.056]	-0.012 [0.026]	-0.040* [0.023]
Rent → mortgage	-0.008 [0.038]	0.040 [0.040]	-0.007 [0.018]	0.023 [0.022]
Complete mortgage repayment	0.012 [0.043]	-0.024 [0.038]	-0.032** [0.012]	-0.005 [0.018]
Partner starts paid work	-0.009 [0.022]	-0.017 [0.022]	0.014 [0.011]	-0.019 [0.013]
Partner leaves paid work	0.014 [0.024]	-0.031 [0.021]	-0.009 [0.010]	0.008 [0.012]
Observations	6,170	6,682	9,230	7,024
Baseline share	0.363	0.305	0.074	0.085

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Standard errors in square brackets. Sample contains observations on private sector employees in consecutive even waves of the data who are aged 22–59. Regressions also control for change in log earnings, change in hours, and whether the employee changed employer or job, and include year and (five-year) age dummies.

Source: Understanding Society.

Table A.4. Effect of different changes in circumstances on the average change in employee contribution rate over two years, conditional on saving in a workplace pension, for men and women

Life event	Men	Women
Get married	0.014 [0.191]	-0.030 [0.220]
Leave marriage	0.133 [0.347]	-0.383 [0.372]
First child born	-0.214 [0.189]	-0.505** [0.231]
Additional child born	-0.181 [0.186]	-0.074 [0.236]
Child leaves household	-0.084 [0.138]	0.227 [0.182]
Live with parents → rent	0.036 [0.423]	-0.492 [0.552]
Live with parents → mortgage	0.203 [0.443]	0.205 [0.446]
Rent → mortgage	0.618** [0.263]	0.100 [0.289]
Complete mortgage repayment	0.201 [0.236]	0.185 [0.253]
Partner starts paid work	-0.299* [0.154]	0.372* [0.197]
Partner leaves paid work	-0.261* [0.153]	0.023 [0.174]
Observations	6,022	3,734
Baseline share	0.331	0.342

Note: \*\*\*, \*\* and \* denote the effect is significantly different from zero at the 1%, 5% and 10% level, respectively. Standard errors in square brackets. Sample contains observations on private sector employees in consecutive even waves of the data who are aged 22–59. Regressions also control for change in log earnings, change in hours, and whether the employee changed employer or job, and include year and (five-year) age dummies.

Source: Understanding Society.

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