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Abstract

This paper presents evidence on the persistency of contributions to individual pensions, including an analysis of micro-data from the British Household Panel Survey. It finds variation in persistency rates by gender, earnings and household income. Changes in income and consumption needs (for example, becoming unemployed or the arrival of a new baby) increase the probability of lapse, but household income also matters, suggesting that pensions may be less affordable for those on low incomes, even in the absence of shocks. The introduction in 2001 of stakeholder pensions, with a charge cap of 1% of fund value, transfers the financial penalty associated with lapsing from consumers to providers. Arguably this will make it less likely that pensions are sold to those for whom they are less suitable. The only risk is if providers walk away from low income groups altogether.

Keywords: Pension contributions, persistency

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The UK, like the US, is undergoing a significant shift in private pension provision away from employer-provided defined benefit (DB) schemes that typically guarantee a pension linked to years' service and final salary, towards defined contribution (DC) schemes, where the value of the pension depends on contributions and investment returns. The majority of these DC schemes are individual pension accounts in the form of personal or stakeholder¹ pensions. This shift from employer-provided DB pensions to individual DC pensions, combined with the decline in the value of the state pension relative to private pensions, means that retirement income security increasingly depends on individuals' willingness and ability to save.

A number of studies in the UK and the US have looked at the factors that affect whether or not individuals take out a DC pension plan, and how much they contribute.² There has been much less attention paid to another important determinant of final retirement income – the extent to which individuals persist in making contributions over time. Yet, aggregate data on the persistency of pension contributions published by the financial services regulator, the Financial Services Authority (FSA), suggest that this is an important issue. According to the most recently published figures, approximately one in eight people who bought a personal pension stopped contributing after one year and, after four years, the figure is more than one in three. Preliminary figures for stakeholder pensions show similar levels of lapsing. If individuals are not switching to other pensions³ or saving in another form, these figures indicate that many people may not be building up decent-sized funds for their retirement.

¹ Stakeholder pensions are individual pension accounts similar to personal pensions, but with a charge cap of 1% of fund value and no minimum contribution limits. The product regulations were introduced by the government in 2001 to encourage pension take-up among middle and low-earners. See Chung et al (2004) for further discussion.

² See for example Guariglia and Markose (2000) for the UK and Smith et al (2004), Munnell et al (2001) for the US.

³ Research carried out for AXA Sun life in 1999 indicated that 15% of holders of personal pension policies who stop contributing take a transfer value, compared to 85% who leave the policy paid-up. Quoted in Cook and Johnson (2000). But, of course, some who don't switch to another individual DC pension may join an employer's scheme.

There are a number of possible reasons why people might stop contributing to a pension. One possibility is that consumers experience a change in their circumstances that means that they can no longer afford to continue contributing (for example if they become unemployed and their income falls, or a new baby arrives and their other spending needs rise). Their circumstances may also change in such a way as to make an individual DC pension no longer suitable for their financial needs, for example, they may start working for a new employer offering a generous DB pension plan or, with young children, feel they need to save in a more liquid asset.⁴

Another possibility is that the product fails to match the consumer's expectations. Consumer satisfaction is defined by Fournier and Glenn (1999) as the confirmation of pre-consumption product standards. High lapse rates, particularly after one year, may indicate a low level of customer satisfaction with the product. However, pensions, like other financial products, may be hard for customers to judge before or after purchase (see Office for Fair Trading, 1997) and it may be more meaningful to think in terms of product suitability, ie whether the product meets the consumer's financial needs. Most pensions in the UK are sold through financial advisors who are required by regulation to sell suitable products, but may be incentivised by commission to sell a product that is unsuitable, ie one that does not match the consumer's risk profile, or that the consumer cannot afford.⁵ Typically low levels of financial literacy among many consumers, who may not fully appreciate the nature or risks of a product, may also result in unsuitable sales.

The aim of this paper is to examine evidence on persistency of pension contributions from aggregate data (provider returns to the regulator) and micro-data (the British Household Panel Survey) in order to shed light on these alternative explanations for why so many people stop contributing. In particular it asks:

- What are the main trends in persistency of pension contributions over time and across sales channel?

⁴ In the UK, unlike the US, there is no possibility of withdrawing money from an individual DC pension before the minimum age of 50.

⁵ See Charles River Associates (2002) for evidence on unsuitable product recommendations arising from commission bias.

- How does persistency vary across different groups in the population?
- What factors appear to explain why people stop contributing to individual pensions?

The plan of the paper is as follows. The next section summarizes key findings from related literature on determinants of take-up and contributions to individual DC pensions, as well as from a small number of studies on persistency on life assurance and pensions. Section 2 presents evidence on trends in persistency over time and across sales channel using aggregate data, while section 3 analyzes the individual-level data from the British Household Panel Survey. Section 4 offers some conclusions.

1. Related literature

A number of studies have examined data on contributions to individual DC pensions and looked at what determines whether or not people participate and how much they contribute (see Smith et al, 2004, Munnell et al, 2001, Guariglia and Markose, 2000).

A common finding is that take-up and contributions rise with an individual's age, earnings and household income. Job tenure also matters for participation – the longer someone is with an employer, the more likely they are to participate – and, in the UK, Guariglia and Markose find that education has a positive effect on participation and contributions.

More recently, there has been considerable interest in the extent to which employers – or governments – can affect participation and contributions through scheme design (see Choi et al, 2004, for an overview). Automatic enrolment of individuals into a pension scheme when they join an employer, and matching contributions from the employer have both been found to have a significant, positive effect on participation,⁶

⁶ Most of the evidence on the effect of automatic enrolment is from “before and after” studies, which may over-estimate the effect of the introduction of automatic enrolment since the decision to change is often motivated by employers' desire to raise participation and may be accompanied by increased commitment to pensions/ increased communications.

although the evidence on the effect of matching on contributions is mixed.⁷ Many of these studies have concluded that individuals follow the “path of least resistance” when it comes to planning their pensions and suggested that there is considerable inertia in behaviour (eg individuals maintaining contribution levels in spite of changing earnings and employer contribution rates).

However, Smith et al (2004) found considerable fluctuation in pension contributions when they used data from the US Survey of Income and Program Participation to look at the dynamics of individual contributions to employer-sponsored 401(K) plans over (up to) a twelve year period. They found that only 27% of individuals were steady contributors (ie made persistent contributions at a stable contribution rate). 19% of contributors were intermittent (ie had breaks in their contributions), 24% were rising contributors, 8% were falling contributors and 23% were fluctuating contributors. Interestingly, the study did not find changes in contributions associated with negative income shocks or changing consumption needs, but was looking at contributions, conditional on participation.

Other evidence from the US suggests low persistency of contributions to individual retirement accounts, similar to the level in the UK. Smith (2001), using a sample of tax returns from 1987 – 1996, found a high rate of initial drop off in pension contributions to Individual Retirement Accounts (IRAs). Of those contributing in 1987, only 45% were still contributing in 1992, although 40% continued to contribute through 1996. Like the FSA persistency survey data, these administrative data are highly reliable, but lack detailed information on individual characteristics to allow further analysis of the factors that might explain a lack of persistency.

Diacon and O’Brien (2002) analysed the UK provider-level data on persistency of contributions to pensions and other financial products and found that persistency rates for the same provider are correlated for different product types within the same distribution channel and for different distribution channels for the same product type. They concluded that this showed “an inability of insurers to meet the service

⁷ Theory is also ambiguous on the effect of matching on contributions – those currently contributing below the match threshold get a positive substitution effect, but a negative income effect, while those currently contributing above the match threshold get only a negative income effect.

expectations of a whole range of customers”. But, the differences may also reflect customer heterogeneity across provider and/or differential data quality.

There is interesting information on reasons for lapsing on long-term savings products, including pensions, from a qualitative survey of 400 people who had recently lapsed on regular premium policies (Financial Services Authority, 2000). The responses indicated a wide range of reasons. In a quarter of cases, the reason cited for lapsing was to do with the product (poor performance, disappointment with the sale or a feeling that the product wasn’t right). Ten per cent of cases of lapse were thought to be due to changes in circumstances that were genuinely unpredictable at the time of the sale. These were cases where people cited marital or domestic reasons for lapsing (eg having children, moving home or getting divorced). In the remainder of cases, the reason cited for lapsing was that it was, or became, unaffordable (unemployment, change in income, need/desire to free up money for other things). However, because the study was based on recollection of the reasons for lapsing, there may be some ex-post rationalisation by consumers.

A number of studies have looked at the persistency of life assurance premia.

Renshaw and Haberman (1986) analyzed data on 750,000 individual policies sold by seven scottish life offices in 1976. Like Diacon and O’Brien, they found significant variation across offices, although again, with limited information on individual characteristics, this may be explained by different consumer profiles. They also find that lapse rates decrease with duration and with the individual’s age. Kuo et al (2003), applying cointegration analysis to aggregate life insurance data from 1951 – 88, found that lapse rates are sensitive to the unemployment rate in the short term, but that, in the long term, it is the interest rate (which represents the opportunity cost of continuing to pay into a life assurance product) that has an economically more significant effect.

This paper adds to the literature in two ways. First, building on the studies that have looked at the relationship between individual characteristics and pension take-up and contributions, it looks at whether the same factors also affect persistency of contributions. Unfortunately, with the data used here, it is not possible to analyse the effect of scheme design on persistency. Secondly, complementing existing studies that have looked at persistency in pension and life assurance contributions, which have typically use administrative or aggregated data, it analyses persistency using data

from a household panel survey which contains a wide range of individual-level information. Before looking at the evidence from the BHPS, however, the next section summarizes the main trends in the aggregate persistency data.

2. Evidence on persistency: aggregate data

Since 1995 regulated firms have been required to submit annual returns to the regulator – first the Personal Investment Authority and then the Financial Services Authority (FSA) – giving information about the persistency of contributions to different products – personal pensions (including group and individual personal pensions), endowment assurances (including mortgage endowments), whole life assurances and other life business. For the first time in 2002, information was collected separately on the persistency of contributions to stakeholder pensions.⁸ For each product, data are collected for different distribution channels (tied advisers and independent financial advisers (IFAs)⁹ and, in some cases, direct sales). In all cases, returns are limited to a period of four years from commencement of the policy. Table 1 summarises the aggregate persistency rates for personal pensions, by sales channel, and, for comparison, figures for endowments and whole of life policies.¹⁰

In each case, persistency is calculated as the proportion of investors who continue to pay regular premiums to their life and pensions policies, or who do not surrender their single premium policy, who might be expected to do so. In other words, the persistency figures remove all deaths, retirements and maturities. But, payment holidays do count as non-persistency in the aggregate figures. This leads to an over-reporting of true lapse rates, but, if the number of people taking payment holidays remained fairly constant, should not present too much of a problem for looking at systematic variation over time. In practice, the move towards more flexible products, which make payment holidays easier, could tend to bias the data over time and make

⁸ This paper does not analyse stakeholder pensions, but the early results suggest that the persistency rates are similar to those for personal pensions.

⁹ Tied advisers can only advise on or sell products from single provider (or marketing group), while IFAs advise on and sell products from across the market.

¹⁰ The analysis focuses only on regular premium products where there is some expectation that people will continue making regular payments.

it appear as though persistency is getting worse, when in fact people are just making more use of flexible payment facilities.

Table 1: Persistency rates, aggregate data

	Policies sold by tied advisers				Policies sold by IFAs			
	Proportion of policies persisting after...				Proportion of policies persisting after...			
	1 year	2 years	3 years	4 years	1 year	2 years	3 years	4 years
Personal pension								
Start year								
1993	0.841	0.723	0.63.6	0.567	0.915	0.833	0.766	0.705
1994	0.837	0.726	0.64.2	0.571	0.909	0.812	0.736	0.669
1995	0.854	0.747	0.65.4	0.578	0.902	0.806	0.721	0.647
1996	0.864	0.746	0.65.1	0.572	0.898	0.798	0.698	0.623
1997	0.856	0.737	0.64.0	0.572	0.902	0.785	0.693	0.607
1998	0.852	0.736	0.64.1	0.568	0.883	0.758	0.647	0.539
1999	0.847	0.718	0.62.3		0.872	0.723	0.595	
2000	0.847	0.734			0.838	0.681		
2001	0.845				0.838			
Endowments								
Start year								
1993	0.917	0.860	0.80.9	0.767	0.944	0.908	0.870	0.838
1994	0.918	0.866	0.81.5	0.769	0.946	0.912	0.873	0.836
1995	0.922	0.870	0.81.6	0.764	0.948	0.907	0.863	0.819
1996	0.933	0.876	0.82.1	0.768	0.951	0.905	0.856	0.812
1997	0.931	0.871	0.81.2	0.744	0.958	0.915	0.871	0.819
1998	0.924	0.860	0.78.4	0.693	0.955	0.906	0.849	0.784
1999	0.918	0.838	0.74.7		0.954	0.891	0.817	
2000	0.919	0.838			0.943	0.875		
2001	0.911				0.949			
Whole of life policies								
Start year								
1993	0.850	0.750	0.66.7	0.602	0.924	0.872	0.812	0.768
1994	0.860	0.766	0.69.7	0.624	0.932	0.873	0.817	0.764
1995	0.879	0.791	0.71.1	0.643	0.938	0.885	0.826	0.771
1996	0.893	0.801	0.71.7	0.651	0.949	0.893	0.836	0.781
1997	0.894	0.798	0.72.2	0.651	0.947	0.896	0.841	0.793
1998	0.896	0.805	0.71.8	0.641	0.953	0.902	0.850	0.794
1999	0.898	0.800	0.70.4		0.948	0.899	0.844	
2000	0.890	0.775			0.941	0.884		
2001	0.897				0.931			

Note: The 2001 figures obtained from 2003 data have not yet been officially published by the FSA and may be subject to revision.

The data show that:

- Persistency rates are lower for pensions than for other product types. This may reflect a link between pensions and job-change (eg moving to an employer offering a DB scheme or to one no longer offering pension contributions).

- There was a general improvement in persistency rates for all products across both channels in the mid/late 1990s. This trend has since been reversed.
- Persistency rates vary across distribution channels. Persistency tends to be higher on products sold via IFAs than through the tied channel, although this difference had been reversed by the end of the period in the case of pensions. The fall in persistency rates for pensions sold by IFAs may reflect a growth in sales of Group Personal Pension business.¹¹ The generally higher level of persistency in the IFA channel may reflect the quality of advice,¹² or something about the typically different set of consumers served by tied and independent advisers.¹³ Using the BHPS data, it is possible to look at persistency rates across different consumer groups, but unfortunately, there is no information on use of distribution channels.

Diacon and O'Brien (2002) argue that unsuitable sales, or dissatisfied consumers, will be more likely to terminate quickly. By contrast, lapses caused by changes in circumstances are equally likely to occur at any duration. Significantly higher lapse rates in the first year, compared to subsequent years, may therefore be an indicator of poor sales/ advice. To explore this, Figure 1 below shows lapse rates for personal pensions by channel.¹⁴ In each case, separate lines are drawn for lapse rates at different durations. In the tied channel, lapse rates fall systematically at higher durations – lapse rates are highest in the first year and lowest in the fourth year.¹⁵ But, this does not appear to be the case in the IFA channel. While the lapse rate in

¹¹ A group personal pension is a cluster of individual DC plans set up by an insurance company for an employer. Each employee has an individual pension under the administrative umbrella of the employer and both employer and employee will normally contribute to the plan. While the pensions are fully portable, an individual may be more likely to let a GPP lapse than a purely individual personal pension if they, for example, lose employer contributions.

¹² With a wider range to choose from, IFAs are arguably more likely to be able to recommend a suitable product.

¹³ Consumers in the tied channels tend to be in lower socio-economic groups and, arguably, may be more likely to experience the type of employment/ income shocks that cause them to lapse.

¹⁴ The lapse rate in year t is defined as $(P_{t-1}-P_t)/P_{t-1}$ where P_t is the persistency rate in year t .

¹⁵ Average lapse rate in year one is 15.03; average lapse rate in years two – four is 12.65. This difference is statistically significant at the 5% level (t -ratio = 5.58).

year four is lower, the lapse rate in year one is not significantly higher than the lapse rate in years two – four and the highest lapse rate is in year two.¹⁶ Following Diacon and O’Brien’s story, this is consistent with a poorer quality of advice in the tied channel, but without further information, it is not conclusive.¹⁷

Figure 1a: Personal pensions sold through the tied channel

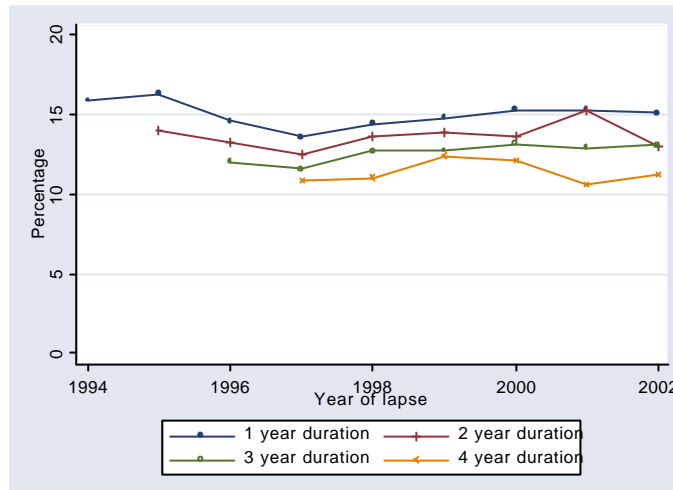
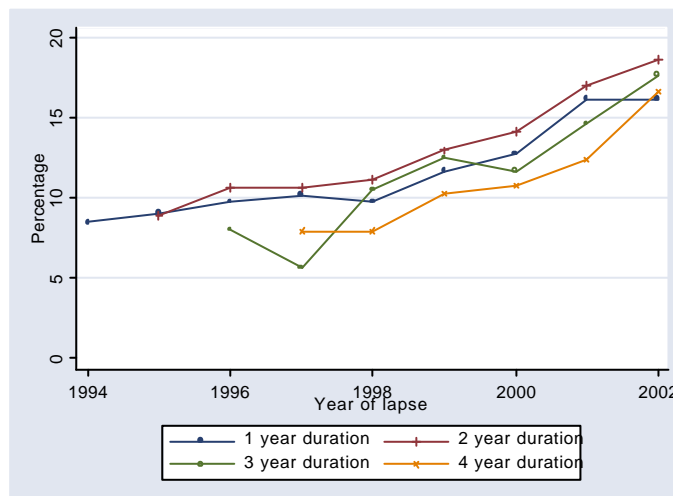


Figure 1b: Personal pensions sold by Independent Financial Advisers



¹⁶ Average lapse rate in year one is 11.96; average lapse rate in years two – four is 11.59. This difference is not statistically significant at the 5% level (t-ratio = 0.28).

¹⁷ Lapse rates would also tend to fall over time if “quitters” tend to lapse earlier, increasingly leaving a pool of “stayers” who are less likely to lapse. If so, the observed differences by channel could be explained by greater heterogeneity in the tied sector than in the IFA channel

3 Evidence on persistency: micro-data

This section analyses data on pension contributions from the British Household Panel Survey (1992-2003).¹⁸ This has a reasonable sized sample of people who contribute to individual DC pensions – over 2,500 individuals are present in the survey for at least three consecutive waves, have no missing data, are aged 18-64 and have contributed to a pension at least once. The BHPS also collects a wealth of information on individuals' income, employment and household circumstances allowing analysis of the relationship between persistency and individual characteristics.

Because the survey is broad and not focused specifically on persistency of pension contributions, it does not drill down precisely into the reasons why people lapse, and it may not be possible to find a reason for lapse in every case. But, the BHPS data can be used to look at variation in persistency rates across different types of consumers, and to draw inferences about the possible reasons why people lapse, based on their circumstances, and changes in those circumstances at the time they lapse, avoiding problems of post-hoc rationalization.

Take-up and contributions to individual DC pensions

Before looking at pension persistency, we first look at who contributes to a personal private pension and, if they make additional contributions, at how much they contribute. The analysis is based on a sub-sample of potential contributors who are not offered a pension by their employer. In the UK, over half of people who have a private pension have a DB occupational pension; those who have an individual DC pension will typically be those not offered such a scheme¹⁹ and will, therefore, be a selected sub-sample of all those in employment.²⁰ As table 2 shows, compared to everyone in employment, those who are not offered an employer's pension have lower average income, earnings and qualifications and is more likely to work part-

¹⁸ In practice, we drop those living in Scotland and Wales since they are over-sampled from wave 9.

¹⁹ Some people who are offered a DB scheme may choose to join an individual DC plan if, for example, they are not likely to stay with the employer for long. See Disney and Emerson.

²⁰ In practice, the question on employer pensions in the BHPS does not distinguish between employer DB and DC schemes, which may include group personal pensions and omitting people who are offered an employer's scheme may therefore miss some people who have individual personal pensions.

time and for a small firm. Any modelling of the factors that affect take-up and contributions, beyond the scope of this study, would need to take this selection into account.

Table 2 Sample sizes and composition

	Sample = everyone in employment	Sample = those not offered an employer's pension
Employer pension	52.1%	0.0%
Private personal pension	21.4%	28.0%
No pension	34.5%	72.0%
Mean age	38.8	37.7
Mean monthly (nominal) equivalised income	£2,249.71	£1,877.37
Mean monthly (nominal) earnings	£1,308.65	£913.37
Post-school educational qualifications	44.2%	33.0%
No qualifications	13.1%	19.0%
Female	51.1%	56.5%
Children in household	38.8%	40.4%
Married	75.4%	72.2%
Works in the public sector	69.2%	89.2%
Works part-time	20.9%	32.5%
N	40,025	12,050

Note: Observations refer to separate person-year observations, so the same person may be in the sample up to 12 times. No account is taken here of repeated observations on the same individual.

The following questions are used to identify whether or not someone has a personal pension:

- *I'd like to ask you now about private personal pensions, that is a pension that you yourself have taken out on your own behalf. In the past year, that is since September 1st [previous year] have you paid any contributions or premiums for a private personal pension, or had such contributions paid on your behalf by the Department of Social Security?²¹*

And how much they contribute.

²¹ In the UK, individuals can choose to opt out of the state second pension system into an individual DC scheme (either a personal or stakeholder pension). If so, the government pays contributions into their scheme (contracted out rebates) intended to yield a pension of similar value to the state pension they have opted out of.

- *Since September 1st [previous year], over and above those contributions paid on your behalf by the Department of Social Security, have you yourself made any extra contributions towards your personal pension? How much did you contribute?*

The value of contributions does not, therefore, include the value of contracted out rebates.

Table 3 summarizes information on pension take-up and contributions according to a wide range of individual characteristics.²² As in table 2, each person-year observation is treated as a separate observation.

- Participation generally rises with age, but peaks among people in their 40s. Contributions rise with age in absolute terms and as a percentage of earnings. This may reflect the limits on contributions attracting tax relief, which also rise with age.²³
- Participation rises with household income and, even more so, with individual earnings.²⁴ Contributions increase in absolute terms, but not as a percentage of earnings. Education also has a positive effect on participation and contributions in absolute terms
- Men are more likely to have a personal pension and make larger (absolute) contributions, but women contribute more in percentage terms. The gender difference is mirrored in differences between part-time and full-time workers.
- Those with children are less likely to have a pension than those without and contribute less in absolute terms and as a percentage of earnings.

²² Of course, a lot of the variables are likely to be correlated. A simple probit regression of whether or not someone has a pension confirms that the factors discussed here are independently significant. The results are not reported, but are available on request.

²³ In the UK until April 2006, tax relief at the marginal rate is given on contributions up to 17.5% of earnings for those under 35, up to 20% for those aged 36-45, up to 25% for those aged 46-50, up to 30% for those aged 51-55, up to 35% for those aged 56-60 and up to 40% for those aged 60+.

²⁴ In both cases, quintiles are defined within the year. The probit results confirm that the earnings gradient (conditional on income) is steeper than the income gradient (conditional on earnings).

Table 3 Pension take-up and contributions

	Has a personal pension (%)	Makes voluntary contributions (%)	Mean monthly contribution (£)	Contribution as a % of earnings (%)
Average	28.0	69.3	72.20	5.7
Age <30	20.6	66.3	50.93	4.1
Age 30s	33.8	71.9	66.23	4.7
Age 40s	34.3	66.6	77.11	6.3
Age 50+	25.3	72.5	99.36	8.2
Income quintile 1	13.6	60.2	42.30	6.5
Income quintile 2	23.0	69.2	44.18	5.3
Income quintile 3	27.6	70.5	66.25	5.8
Income quintile 4	33.9	70.0	65.52	5.5
Income quintile 5	42.0	71.0	104.60	5.7
Earnings quintile 1	7.0	53.8	35.78	14.5
Earnings quintile 2	13.3	63.9	42.30	8.7
Earnings quintile 3	24.9	66.3	55.10	5.4
Earnings quintile 4	39.9	70.0	56.19	5.1
Earnings quintile 5	55.1	73.4	99.88	4.7
Higher qualifications	33.5	71.0	90.36	5.6
School qualifications	26.1	69.1	61.36	5.4
No qualifications	23.4	65.6	55.57	6.3
Female	19.1	66.2	59.36	6.7
Male	39.7	71.2	79.67	5.1
No kids	30.6	69.5	77.06	6.1
Kids	24.3	66.7	63.11	4.9
Married	30.4	69.6	71.70	5.7
Divorced-widowed separated	20.7	67.2	102.04	6.1
Never married	22.3	68.7	63.90	5.4
Works in the public sector	16.2	65.7	82.96	7.9
Works in the private sector	29.5	69.5	71.53	5.5
Same job as last year	32.4	68.9	74.27	5.8
New job	20.9	70.3	67.12	5.4
Works full-time	36.1	70.5	75.37	5.2
Works part-time	11.2	61.1	47.83	9.4
No health limits	28.5	69.7	72.91	5.6
Health limits	21.7	62.1	58.24	6.6
Doesn't save	22.4	68.1	64.31	5.3
Saves	35.2	70.6	78.53	5.9
Sample – all those in the BHPS who are not offered an employer's pension (12,050 obs)				

- As previous studies have found, those with limited job tenure are less likely to have a pension, but there is little difference in contributions.
- People who work in the private sector are more likely to have a personal pension, but of course more people in the public sector will be covered by an employer's DB scheme.

- Those who report that their health limits their daily activities²⁵ are less likely to have a pension and typically contribute less in absolute terms, but not as a percentage of earnings.
- Those who report that they save²⁶ are more likely to have a pension and typically contribute more in absolute terms and as a percentage of earnings.

Persistency of pension contributions

The sample used to analyse persistency includes individuals who are self-employed in addition to individuals who are employed and not eligible for an employer's pension. Nearly 2,600 individuals are observed to make a contribution for at least one period and in total there are nearly 3,800 spells of contributions.²⁷ Nearly one-third of the sample is observed to make more than one spell of contributions; in the analysis, these are treated separately. The mean observed spell duration is three years, but of course the sample is right-censored.

Table 4 summarises persistency rates for pension contributions by duration, using the BHPS data. Someone is defined as stopping contributions (lapsing) if they have made a contribution over the previous 12 months (including contracted out rebates), but do not make a contribution over the next 12 months. Of course, some people leave the sample before they stop contributing. These are retained in the sample since the censored length of duration will be informative for the regression analysis below. But, they are not treated as lapsed in calculating persistency rates. Using the BHPS data it is possible to calculate persistency figures beyond the four-year period of the FSA survey; the figures show that persistency continues to fall at a decreasing rate after four years.

The persistency rates calculated using the BHPS data are low compared to the aggregate figures presented in Table 1. Some of this is likely to reflect measurement

²⁵ This variable is not present in wave 9, but a value can be imputed on the basis of individuals' responses in waves 8 and 10.

²⁶ The question on which this variable is based is the following: "Do you save any amount of your income for example by putting something away now and then in a bank, building society, or Post Office account other than to meet regular bills?"

²⁷ A spell is measured from when an individual starts making contributions until they stop making contributions or exit the sample.

error, particularly for people with multiple spells. No attempt is made to try to gap-fill – since the main aim is to consider differences across groups then, so long as the measurement error is similar, the main findings will not be affected. Another possible explanation is that single-year spells reflect one-off contributions, which cannot be easily separated from regular premium policies.

Table 4: Persistency rates, BHPS data

	Proportion of individual still contributing after ...									
	1 year	2 yrs	3 yrs	4 yrs	5 yrs	6 yrs	7 yrs	8 yrs	9 yrs	10 yrs
All	0.606	0.464	0.381	0.316	0.274	0.241	0.216	0.195	0.175	0.158
Male	0.627	0.497	0.415	0.349	0.304	0.271	0.248	0.227	0.205	0.190
Female	0.575	0.417	0.332	0.267	0.231	0.197	0.168	0.147	0.132	0.111
<u>Age</u>										
< 30	0.629	0.473	0.398	0.319	0.270	0.238	0.206	0.186	0.164	0.150
30s	0.585	0.459	0.369	0.311	0.273	0.245	0.228	0.204	0.185	0.162
40s	0.626	0.478	0.399	0.330	0.295	0.257	0.230	0.209	0.194	0.178
50s	0.582	0.444	0.356	0.298	0.248	0.212	0.178	0.162	0.131	0.116
<u>Equivalised household income</u>										
Quintile 1	0.517	0.388	0.306	0.230	0.193	0.172	0.156	0.137	0.121	0.115
Quintile 2	0.593	0.448	0.372	0.309	0.276	0.253	0.227	0.204	0.188	0.160
Quintile 3	0.629	0.484	0.401	0.341	0.295	0.245	0.222	0.202	0.190	0.183
Quintile 4	0.578	0.457	0.383	0.326	0.288	0.245	0.213	0.194	0.155	0.137
Quintile 5	0.712	0.547	0.450	0.381	0.327	0.301	0.267	0.243	0.231	0.201
<u>Usual (real) earnings</u>										
< £10K	0.518	0.380	0.303	0.220	0.181	0.154	0.135	0.112	0.096	0.088
£10–20K	0.617	0.466	0.368	0.297	0.259	0.221	0.188	0.172	0.151	0.138
£20–30K	0.562	0.427	0.352	0.303	0.251	0.216	0.204	0.176	0.167	0.150
> £30K	0.620	0.469	0.390	0.320	0.288	0.273	0.245	0.227	0.196	0.164

Note: Age is age when the pension was started. Income and earnings are both averaged over the spell.
Sample = 2,687 completed contribution spells

The micro-data allow calculation of persistency rates for different sub-groups of the population. Here, persistency rates are shown separately for men and women, and by age, income and earnings.

- Women have lower persistency rates than men. After one year, the persistency rate for women is five percentage points lower than it is for men and this difference increases at higher durations. It is well-known that women are less likely to have a personal pension than men and this evidence suggests that part of the explanation might lie in higher lapse rates.
- There appears to be little systematic difference in persistency according to the age someone is when they start contributing to a pension. Those aged 50+ when they start contributing have the lowest persistency rate.
- Persistency varies by household income and earnings. Individuals in the lowest (highest) income quartile and earnings band have the lowest (highest) persistency rates. One possibility is that those with low earnings/income are more likely to experience the kind of negative income shocks that would make them likely to stop contributing (the BHPS shows a negative correlation between earnings and the probability of becoming unemployed); another possibility is that pensions are unaffordable – and therefore unsuitable – for those with low income/ earnings. These alternative explanations are explored further in the regression analysis below.

Possible reasons for lapsing

Using the BHPS data, some of the possible reasons for lapsing can be inferred from looking at what the individual's family and economic circumstances were at the time they stopped making contributions, and whether their circumstances had changed from the previous year.

Table 5 considers a number of possible factors that might be considered relevant for lapsing, such as changing job, having a baby etc.²⁸ In each case, the proportion of lapsed²⁹ who experience the event is compared with the proportion of persisters.³⁰

²⁸ Matching the timing of the event to the timing of the lapse is not entirely straightforward. A lapse is defined as making a contribution between $t-1$ and t , but not between t and $t+1$, where t is the date of interview. In some cases the individual's circumstances are assessed at t , in other cases, we are considering things that happen between t and $t+1$.

²⁹ Defined as the final observation in a completed spell

³⁰ Defined as all other observations during a spell

For example, the first row of the table shows that 5.2% of individuals changed job to an employer with a pension at the same time as they stopped contributing to their pension. Among individuals continuing to contribute to their pension, the figure is 3.5%. This difference is significant, suggesting that job change is likely to be a significant factor in understanding lapse.

Table 5: Life events and lapsing

	% of lapsed	% of persisters
Move to a new job that offers an employer pension	5.2**	3.5
Move to a new job	10.2*	9.1
Financial circumstances are worse than 12 months ago	29.0**	23.7
Worse health	3.9**	2.7
Out of work	9.4**	3.7
Retired	1.6**	0.4
Have a baby	4.7**	3.0
Change marital status	5.3**	3.1
Move house	9.7**	7.8

Notes

** indicates that difference is significant at the 5% level, * at the 10% level.

Move to a new job, *Change marital status* and *Move house* refer to change in status between period t and t+1; *Worse health* refers to change in health between period t-1 and t; *Have a baby* is defined as having a youngest child aged 0 at t+1; *Financial circumstances*, *Out of work* and *Retire* refer to status at time t. Financial circumstances are self-assessed.

Sample = 11,276 person-year observations

The results presented in Table 5 suggest that there is a link between pension contributions and changes in an individual's income and/or consumption needs, measured by financial circumstances, health, unemployment or retirement, having a baby, moving house and changing jobs. In each of these cases, the proportion of lapsed who experiences this event is higher than the proportion of persisters.

Regression analysis

Of course, a number of these events may be correlated (such as moving house and having a baby and becoming out of work and experiencing worsening financial circumstances). In order to investigate their separate effect on lapsing, as well as the

effect of other individual characteristics, the following proportional hazards model is estimated:

$$h\{(t), (x_1, x_2 \dots x_m)\} = h_0(t) \exp(\mathbf{b}_1 x_1 + \mathbf{b}_2 x_2 + \dots + \mathbf{b}_m x_m)$$

The hazard rate at time t ($h(t)$) is the probability that someone will lapse at time t , conditional on surviving until $t-1$. This is modelled as a function of the baseline hazard ($h_0(t)$), the hazard when all independent variable values are equal to zero, and the m covariates ($x_1, x_2 \dots x_m$). The main advantages of this approach over, say, an OLS regression, is that allows censored observations to be incorporated into the analysis and it does not rely on any assumptions concerning the nature or shape of the underlying survival distribution.

Table 6 presents the estimated hazard ratios. These measure the relative probability of lapse for each covariate, compared to the base case. A hazard rate greater than 1 implies that the covariate increases the probability of lapse (compared to the base); a hazard rate less than one implies that the covariate reduces the probability of lapse.

- Those aged 50+ are significantly more likely to lapse than younger ages.
- Household income has a strong negative effect on the probability of lapse. Individuals in the bottom income quintile are significantly more likely to lapse than other individuals. When income is included, earnings do not enter significantly, implying that income matters more for persistency. This is the opposite of the case for pension take-up. Once income is controlled for, the fact that someone reports current financial problems is not significant, but a worsening of financial circumstances compared to the previous 12 months does have a positive and significant effect on the probability of lapse.
- Unemployment and retirement both have a significant, positive effect on the probability of lapse. Interestingly, the self-employed are significantly less likely to lapse than those who are in employment. This may be because their individual DC pension is a more important part of their overall retirement saving.
- Women are more likely to lapse than men, but this is significant only at the 10% significance level. The presence of children in the household does not

have a significant effect, but the probability of lapse increase with the arrival of a new baby.

Table 6: Estimated hazard ratios

	Hazard ratio
Age 30s	1.0251
Age 40s	1.0222
Age 50s	1.1524**
Income quintile 2	0.8409**
Income quintile 3	0.8245**
Income quintile 4	0.8205**
Income quintile 5	0.7672**
Earnings £10-20K	0.9201
Earnings £20-30K	0.9824
Earnings >£30K	0.9626
Earnings missing	0.9182
Financial problems	1.0404
Financial circumstances worsened	1.1350**
Out of work	1.3829**
Retired	1.7178**
Self-employed	0.5523**
Female	1.0813*
Children in the household	1.0359
New baby	1.2397**
New job	0.8221**
New job with a pension	1.3797**
Moving house	1.0631
Health worse	1.1955*
Change in marital status	1.3270**
Saver	0.9198**

Notes

** indicates significant at the 5% level, * indicates significant at the 10% level

Base is male, aged <30, in the bottom income quintile, earning <£10K a year, in employment, with no financial problems and no children.

The regression also includes a set of year dummies

Sample = 11,276 person-year observations

- Changing to a new job per se does not increase the probability of lapse – it actually significantly reduces it. But changing to a new job that offers an employer’s pension is associated with a significant increase in the probability of lapse.
- There is no significant effect of moving house, once other covariates are conditioned on. Worsening health is associated with an increase in the

probability of lapse, but this is only significant at the 10% level. A change in marital status has a positive and significant effect.

- The variable “saver” enters negatively and significantly, suggesting that there is important variation in people’s propensity to save which makes them more or less likely to continue paying into a pension, as well as taking out a pension.

4 Conclusions and implications

While many studies have previously looked at the effect of individual characteristics on take-up and contributions to individual DC pensions, this is the first to look at persistency of contributions. Analysis of data from the British Household Panel Survey has found significant variation in persistency rates – between men and women and by individual earnings and household income. This suggests that the dynamics of contributions need to be analysed alongside take-up and contribution rates in order to get a complete picture of individuals’ saving for retirement.

The evidence suggests a wide range of reasons why individuals stop contributing. Changes in individuals’ circumstances – unemployment, worsening health and financial position, arrival of a new baby and a change in marital status – are all associated with stopping contributions. Also, moving to a new employer who offers a pension.

But these factors are present in less than half of all cases of lapse. Also important is an individual’s underlying propensity to save (measured by whether or not they save regularly in another form), and an individual’s household income. Low levels of persistency among those on low incomes do not just reflect a higher probability of negative shocks, but may indicate that pensions are less likely to be affordable for this group. The evidence from the aggregate data is consistent with a higher level of unsuitable sales in the tied channel, which typically serves low-income consumers.

Before the introduction of stakeholder pensions in 2001, there were often quite severe financial penalties for consumers who lapsed, because of high upfront charges on pension. In part, these charges were intended to cover the cost of acquisition,

estimated to be around 50% of the total costs associated with a pension.³¹ With the imposition of a charge cap of 1% of fund value, the introduction of stakeholder pensions transferred the burden of these costs consumers to providers.³² Arguably, this gives providers more of an incentive to encourage persistency and less incentive to sell to consumers for whom pensions are unaffordable. Since the providers now face the penalty, the benefit may be fewer unsuitable sales, the only risk is if providers walk away from low and middle-income groups altogether.

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³¹ See Fletcher and Orszag (2002)

³² And, ultimately, to shareholders and, possibly, other consumers with non charge-capped products.

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